10 EPS session management

10.1 Void

10.2 Dedicated EPS bearer context activation

10.2.1 Dedicated EPS bearer context activation / Success

10.2.1.1 Test Purpose (TP)

(1)

```
with { UE is in EMM-REGISTERED state and a PDN address for an active default EPS bearer was received
in an ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message }
ensure that {
  when { UE receives an ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message linked to the existing
default EPS bearer }
    then { UE transmits an ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT message }
}
```

10.2.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.301, clause 6.4.2.3.

[TS 24.301, clause 6.4.2.3]

Upon receipt of the ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message, the UE shall first check the received TFT before taking it into use. Then the UE shall send an ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT message and enter the state BEARER CONTEXT ACTIVE. The ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT message shall include the EPS bearer identity.

The linked EPS bearer identity included in the ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message indicates to the UE to which default bearer, IP address and PDN the dedicated bearer is linked.

If the PTI is included in the ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message, the UE uses the PTI to identify the UE requested bearer resource allocation procedure or the UE requested bearer resource modification procedure to which the dedicated bearer context activation is related.

If the PTI is included in the ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message and the PTI is associated to a UE requested bearer resource allocation procedure or a UE requested bearer resource modification procedure, the UE shall release the traffic flow aggregate description associated to the PTI value provided.

The UE shall use the received TFT to apply mapping of uplink traffic flows to the radio bearer if the TFT contains packet filters for the uplink direction.

Upon receipt of the ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT message, the MME shall stop the timerT3485 and enter the state BEARER CONTEXT ACTIVE.

10.2.1.3 Test description

10.2.1.3.1 Pre-test conditions

System Simulator:

- Cell A is configured according to Table 6.3.2.2-1 in [18].

UE:

None.

Preamble:

- The UE is in Registered, Ile Mode state (state 2) according to [18].

10.2.1.3.2 Test procedure sequence

Table 10.2.1.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS pages the UE in order to establish a dedicated EPS bearer context.	-	-	-	-
2	The UE transmits a SERVICE REQUEST for downlink signalling.	-->	SERVICE REQUEST	-	-
2A	The SS establishes SRB2 and DRB associated with the default EPS bearer context activated during the preamble (a first PDN obtained during the attach procedure).	-	-	-	-
3	The SS transmits an ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST with particular settings (use Reference dedicated EPS bearer context #1 – see table 6.6.2-1 in TS 36.508) (See Note 1). Note: The SS implicitly reuses the PDN address defined in ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message.	<--	ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST	-	-
4	Check: Does the UE transmit an ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT message as specified?	-->	ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT	1	P
5	Check: Does the test result of CALL generic procedure indicate that the UE accepts a modification of the newly activated EPS bearer context? (clause 6.4.2.6 in [18])	-	-	1	-
Note 1: The ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message is included in a RRCConnectionReconfiguration message including a DRB setup for the same EPS bearer ID					

10.2.1.3.3 Specific message contents

Table 10.2.1.3.3-1: Message ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST (step 3, Table 10.2.1.3.2-1)

Derivation path: 36.508 table 4.7.3-3 and table 4.6.1-8 with condition AM-DRB-ADD(2)			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	6		
Procedure transaction identity	0	"No procedure transaction identity assigned"	
Linked EPS bearer identity	5	SS re-uses the EPS bearer identity of the default EPS bearer context.	
EPS QoS	According to reference dedicated EPS bearer context #1 - see [18]		
TFT	According to reference dedicated EPS bearer context #1- see [18]		

Table 10.2.1.3.3-2: Message ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT (step 4, Table 10.2.1.3.2-1)

Derivation path: 36.508 table 4.7.3-1			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	6	Same value as in ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST	
Procedure transaction identity	0	"No procedure transaction identity assigned"	

10.3 EPS bearer context modification

10.3.1 EPS bearer context modification / Success

10.3.1.1 Test Purpose (TP)

(1)

```
with { the UE is in BEARER CONTEXT ACTIVE STATE and in EMM-CONNECTED mode }
ensure that {
  when { the UE receives a MODIFY EPS BEARER CONTEXT REQUEST message with new TFT}
    then { the UE sets the new TFT and then transmits a MODIFY EPS BEARER CONTEXT ACCEPT }
          }
```

10.3.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.301, clause 66.4.3.1, 6.4.3.2 and .4.3.3.

[TS 24.301, clause 6.4.3.1]

The purpose of the EPS bearer context modification procedure is to modify an EPS bearer context with a specific QoS and TFT. The EPS bearer context modification procedure is initiated by the network, but it may also be initiated as part of the UE requested bearer resource allocation procedure or the UE requested bearer resource modification procedure.

…

[TS 24.301, clause 6.4.3.2]

The MME shall initiate the EPS bearer context modification procedure by sending a MODIFY EPS BEARER CONTEXT REQUEST message to the UE, starting the timer T3486, and entering the state BEARER CONTEXT MODIFY PENDING (see example in figure 6.4.3.2.1).

The MME shall include an EPS bearer identity that identifies the EPS bearer context to be modified in the MODIFY EPS BEARER CONTEXT REQUEST message.

[TS 24.301, clause 6.4.3.3]

Upon receipt of the MODIFY EPS BEARER CONTEXT REQUEST message, the UE shall first check the received TFT before taking it into use and then send a MODIFY EPS BEARER CONTEXT ACCEPT message to the MME.

If the PTI is included in the MODIFY EPS BEARER CONTEXT REQUEST message, the UE uses the PTI to identify the UE requested bearer resource allocation procedure or the UE requested bearer resource modification procedure to which the EPS bearer context modification is related (see subclause 6.5.3 and subclause 6.5.4).

If the PTI is included in the MODIFY EPS BEARER CONTEXT REQUEST message and the PTI is associated to a UE requested bearer resource allocation procedure or a UE requested bearer resource modification procedure, the UE shall release the traffic flow aggregate description associated to the PTI value provided.

The UE shall use the received TFT to apply mapping of uplink traffic flows to the radio bearer if the TFT contains packet filters for the uplink direction.

Upon receipt of the MODIFY EPS BEARER CONTEXT ACCEPT message, the MME shall stop the timer T3486 and enter the state BEARER CONTEXT ACTIVE.

10.3.1.3 Test description

10.3.1.3.1 Pre-test conditions

System Simulator:

- Cell A is configured according to Table 6.3.2.2-1 in [18].

UE:

None.

Preamble:

- The UE is in state Switched OFF (State 1).

10.3.1.3.2 Test procedure sequence

The test procedure in Table 10.3.1.3.2-1 is executed once for IPv4 case (sub test 1) and once for IPv6 case (sub test 2) dependent on UE capability as specified in Table 10.3.1.3.2-2a.

Table 10.3.1.3.2-1a: Test executions and test parameters

Sub test	Applicability	IP type
1	UE supporting IPv4	'IPv4'
2	UE supporting IPv6	'IPv6'
Note 1: For UEs supporting both IPv4 and IPv6 then both test execution 1 and 2 shall be performed.		

Table 10.3.1.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
0	The SS performs the generic procedure to get UE in Loopback Activated (state 4) with a Reference default EPS bearer context #1 and Reference dedicated EPS bearer context #1 according to [18] on Cell A.				
1	The SS transmits a MODIFY EPS BEARER CONTEXT REQUEST message with new TFT. This message is included in a DLInformationTransfer message.	<--	MODIFY EPS BEARER CONTEXT REQUEST	-	-
2	Check: Does the UE transmit a MODIFY EPS BEARER CONTEXT ACCEPT message?	-->	MODIFY EPS BEARER CONTEXT ACCEPT	1	P
3	Void	-	-	-	-
4	The SS transmits one IP Packet matching with new TFT (reference packet filter #3) but not existing uplink packet filters (reference packet filter #2).	-	-	-	-
5	Check: Does UE send the IP Packet on the data radio bearer associated with the dedicated EPS bearer context?	-	-	1	P
-	EXCEPTION: Steps 6 – 15 are executed only if two executions apply and this is the first execution	-	-	-	-
6	The SS transmits an OPEN UE TEST LOOP message to exit the UE test loop mode.	<--	RRC: *DLInformationTransfer* TC: OPEN UE TEST LOOP	-	-
7	The UE transmits an OPEN UE TEST LOOP COMPLETE message.	-->	RRC: *ULInformationTransfer* TC: OPEN UE TEST LOOP COMPLETE	-	-
8	The SS transmits an DEACTIVATE TEST MODE message to de-activate UE radio bearer test mode procedure.	<--	RRC: *DLInformationTransfer* TC: DEACTIVATE TEST MODE	-	-
9	The UE transmits a DEACTIVATE TEST MODE COMPLETE message.	-->	RRC: *ULInformationTransfer* TC: DEACTIVATE TEST MODE COMPLETE	-	-
10	VOID	-	-	-	-
11	VOID	-	-	-	-
12	VOID	-	-	-	-
13	VOID	-	-	-	-
14	The UE is switched OFF. See Note.	-	-	-	-
15	The UE is switched ON.	-	-	-	-
Note: This implies detaching of the UE, releasing of the RRC connection and resetting of the radio bearers at the SS side.					

10.3.1.3.3 Specific message contents

Table 10.3.1.3.3-0: ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST (Test execution 2: step 0, Table 10.3.1.3.2-1)

Derivation Path: 36.508 table 4.7.3-6			
Information Element	**Value/remark**	**Comment**	**Condition**
PDN address			
Length of PDN address contents	9 octets		
PDN type value	'010'B	IPv6	
PDN address information	IPv6 interface identifier	The SS provides a valid IPv6 interface identifier	
ESM cause	IF "PDN type" IE in step 4 (preamble) is 'IPv4v6' THEN '00110011'B ELSE Not present	"PDN type IPv6 only allowed"	

Table 10.3.1.3.3-0A: ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST (Test execution 1: step 0, Table 10.3.1.3.2-1)

Derivation Path: 36.508 table 4.7.3-6			
Information Element	**Value/remark**	**Comment**	**Condition**
PDN address			
Length of PDN address contents	5 octets		
PDN type value	'001'B	IPv4	
PDN address information	IPv4 address	The SS provides a valid IPv4 address	
ESM cause	IF "PDN type" IE in step 4 (preamble) is 'IPv4v6' THEN '00110010'B ELSE Not present	"PDN type IPv4 only allowed"	

Table 10.3.1.3.3-1: Message MODIFY EPS BEARER CONTEXT REQUEST (step 1, Table 10.3.1.3.2-1)

Derivation path: 36.508 table 4.7.3-16 and table 4.6.1-3			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	6	SS assigns the current dedicated EPS bearer context.	
Procedure transaction identity	0	"No procedure transaction identity assigned"	
TFT	According to reference dedicated EPS bearer context #2 except for TFT operation code - see [18]	SS modifies the current packet filters of the dedicated EPS bearer context.	
TFT operation code	Replace packet filters in existing TFT		

Table 10.3.1.3.3-2: Message MODIFY EPS BEARER CONTEXT ACCEPT (step 2, Table 10.3.1.3.2-1)

Derivation path: 36.508 table 4.7.3-14			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	6	Same value as in MODIFY EPS BEARER CONTEXT REQUEST	
Procedure transaction identity	0	"No procedure transaction identity assigned"	

Table 10.3.1.3.3-2A: VOID

Table 10.3.1.3.3-2 B: **IP packet (step 4, Table 10.3.1.3.2-1)**

Derivation path: IETF RFC 791 section 3.1 (IPv4) or RFC 2460 section 3 (IPv6) and RFC 769 introduction			
Information Element	**Value/Remark**	**Comment**	**Condition**
Protocol	17	UDP Same value as reference packet filter #2. Reference packet filter #3 can match all values of 'Protocol'	
Source Address	remoteIPv4	Same value as in reference packet filters#2 and #3	
	remoteIPv6	Same value as in reference packet filters#2 and #3	IPv6-only
Destination Address	remoteIPv4	Same value as in reference packet filters#2 and #3	
	remoteIPv6	Same value as in reference packet filters #2 and #3	IPv6-only
Source Port	60000	Not significant for IP packet classification	
Destination Port	60000	Value does not match with reference packet filter #2. Reference packet filter #3 can match all values of "Destination port"	

Table 10.3.1.3.3-3: Condition for IP packet contents (step 4, Table 10.3.1.3.2-1)

Condition	Explanation
IPv6-only	This condition applies if the test variable IP type is set to 'IPv6'

10.4 EPS bearer context deactivation

10.4.1 EPS bearer context deactivation / Success

10.4.1.1 Test Purpose (TP)

(1)

```
with { UE is in BEARER CONTEXT ACTIVE STATE and in EMM-CONNECTED mode }
ensure that {
  when { UE receives a DEACTIVATE EPS BEARER CONTEXT REQUEST message }
    then { UE deletes the EPS bearer context identified by the EPS bearer identity and transmits a
DEACTIVATE EPS BEARER CONTEXT ACCEPT }
            }
```

(2)

```
with { UE is in BEARER CONTEXT ACTIVE STATE and in EMM-CONNECTED mode }
ensure that {
  when { UE receives a DEACTIVATE EPS BEARER CONTEXT REQUEST message indicating the EPS bearer
identity of the default bearer to a PDN }
    then { UE deletes all EPS bearer contexts identified to the PDN and transmits a DEACTIVATE EPS
BEARER CONTEXT ACCEPT }
            }
```

(3)

```
with { UE is in BEARER CONTEXT ACTIVE STATE and in EMM-CONNECTED mode }
ensure that {
  when { UE receives a DEACTIVATE EPS BEARER CONTEXT REQUEST message that does not point to an
existing EPS bearer context }
    then { UE transmits a DEACTIVATE EPS BEARER CONTEXT ACCEPT with EPS bearer identity set to the
received EPS bearer identity }
            }
```

(4)

```
with { UE is in BEARER CONTEXT ACTIVE STATE and in EMM-IDLE mode }
ensure that {
  when { UE initiates an EMM-IDLE to EMM-CONNECTED transition (i.e. SERVICE REQUEST, TRACKING AREA
UPDATE REQUEST) }
    then { UE only synchronizes EPS bearer context state(s) which are explicitly activated by SS in
signalling messages }
            }
```

10.4.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.301, clauses 6.4.4.2, 5.5.3.2.4, 5.6.1.4, 6.4.4.3 and 6.4.4.6.

[TS 24.301, clause 6.4.4.2]

…

When the MME wants to deactivate all EPS bearer contexts to a PDN and thus disconnect the UE from the PDN, the MME shall include the EPS bearer identity of the default bearer associated to the PDN in the DEACTIVATE EPS BEARER CONTEXT REQUEST message.

If no NAS signalling connection exists when the MME initiates the EPS bearer context deactivation, the ESM entity in the MME shall locally deactivate the EPS bearer context towards the UE without any peer-to-peer ESM signalling between the MME and the UE.

NOTE: The EPS bearer context state(s) can be synchronized between the UE and the MME at the next EMM-IDLE to EMM-CONNECTED transition, e.g. during a service request or tracking area updating procedure.

[TS 24.301, clause 5.6.1.4]

...

The UE shall locally deactivate the EPS bearer contexts that do not have a user plane radio bearer established after the successful completion of the service request procedure.

...

[TS 24.301, clause 5.5.3.2.4]

…

If an EPS bearer context status IE is included in the TRACKING AREA UPDATE REQUEST message, the MME shall deactivate all those EPS bearer contexts locally (without peer-to-peer signalling between the MME and the UE) which are active on the network side, but are indicated by the UE as being inactive. If a default EPS bearer context is marked as inactive in the EPS bearer context status IE included in the TRACKING AREA UPDATE REQUEST message, and this default bearer is not associated with the last PDN of the user in the MME, the MME shall locally deactivate all EPS bearer contexts associated to the PDN connection with the default EPS bearer context without peer-to-peer ESM signalling to the UE.

If the EPS bearer context status IE is included in the TRACKING AREA UPDATE REQUEST, the MME shall include an EPS bearer context status IE in the TRACKING AREA UPDATE ACCEPT message, indicating which EPS bearer contexts are active in the MME.

…

If an EPS bearer context status IE is included in the TRACKING AREA UPDATE ACCEPT message, the UE shall deactivate all those EPS bearers contexts locally (without peer-to-peer signalling between the UE and the MME) which are active in the UE, but are indicated by the MME as being inactive.

…

[TS 24.301, clause 6.4.4.3]

Upon receipt of the DEACTIVATE EPS BEARER CONTEXT REQUEST message, the UE shall delete the EPS bearer context identified by the EPS bearer identity. After deactivating the identified EPS bearer context, the UE shall respond to the MME with the DEACTIVATE EPS BEARER CONTEXT ACCEPT.

If the EPS bearer identity indicated in the DEACTIVATE EPS BEARER CONTEXT REQUEST is that of the default bearer to a PDN, the UE shall delete all EPS bearer contexts associated to the PDN. After deactivating all EPS bearer contexts, the UE shall respond to the MME with the DEACTIVATE EPS BEARER CONTEXT ACCEPT.

Upon sending the DEACTIVATE EPS BEARER CONTEXT ACCEPT message, the UE shall enter the state BEARER CONTEXT INACTIVE

If the PTI is included in the DEACTIVATE EPS BEARER CONTEXT REQUEST message, the UE uses the PTI to identify the UE requested bearer resource modification procedure or UE requested PDN disconnect procedure to which the EPS bearer context deactivation is related (see subclause 6.5.4).

If the PTI is included in the DEACTIVATE EPS BEARER CONTEXT REQUEST message, the UE shall release the traffic flow aggregate description associated to the PTI value provided.

...

[TS 24.301, clause 7.3.2]

…

The following UE procedures shall apply for handling an unknown, erroneous, or unforeseen EPS bearer identity received in the header of an ESM message:

i) If the UE receives a DEACTIVATE EPS BEARER CONTEXT REQUEST message which includes an unassigned or reserved EPS bearer identity value or an assigned EPS bearer identity value that does not match an existing EPS bearer context, the UE shall respond with a DEACTIVATE EPS BEARER CONTEXT ACCEPT message with the EPS bearer identity set to the received EPS bearer identity.

…

[TS 24.301, clause 6.4.4.6]

The UE and the MME deactivate EPS bearer contexts locally without peer-to-peer ESM signalling in the following cases:

1) during the service request procedure, if the E-UTRAN fails to establish the user plane radio bearers for one or more EPS bearer contexts e.g. due to radio access control;

…For those cases, based on the indication from the lower layers, the UE and the MME shall locally deactivate the EPS bearer contexts for which no user plane radio bearers are set up.

…

When the user plane radio bearer for a default EPS bearer context is not established during the service request procedure or tracking area updating procedure with "active" flag, the UE shall locally deactivate all EPS bearer contexts associated to the PDN connection with the default EPS bearer context. The MME shall locally deactivate all EPS bearer contexts associated to the PDN connection with the default EPS bearer context without peer-to-peer ESM signalling to the UE.

10.4.1.3 Test description

10.4.1.3.1 Pre-test conditions

System Simulator:

- Cell A and Cell B are configured according to Table 6.3.2.2-1 in [18].
  - Cell A, Cell B (home PLMN, different TAs).
  - System information combination 3 as defined in TS 36.508[18] clause 4.4.3.1 is used in E-UTRA cells;

UE:

None.

Preamble:

- The UE is in state Registered, Idle mode (state 2) according to [18] on Cell A.

10.4.1.3.2 Test procedure sequence

Table 10.4.1.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U – S	Message		
-	Cell A is the serving cell Cell B is a suitable cell	-	-	-	-
1	Cause the UE to request connectivity to an additional PDN (see Note 1)	-	-	-	-
1A	The UE transmits a SERVICE REQUEST	-->	SERVICE REQUEST	-	-
1B	The SS establishes SRB2 and DRB associated with default EPS bearer context obtained during the attach procedure.	-	-	-	-
2	The UE transmits a PDN CONNECTIVITY REQUEST message as specified to request an additional PDN.	-->	PDN CONNECTIVITY REQUEST	-	-
3	The SS transmits an ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message with IE EPS Bearer Identity set to new EPS bearer context. Note: the SS allocates a PDN address of a PDN type which is compliant with the PDN type requested by the UE.	<--	ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST	-	-
4	The UE transmits an ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT message as specified.	-->	ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT	-	-
5	The SS transmits an ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST relative to the additional PDN. Note: the same PDN address is applicable because the linked EPS bearer ID refers to the default EBC allocated in step 3.	<--	ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST	-	-
6	The UE transmits an ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT message as specified.	-->	ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT	-	-
7	The SS releases the RRC connection.	-	-	-	-
8	The SS transmits a Paging message to the UE using S-TMSI with CN domain indicator set to "PS".	<--	-	-	-
9	The UE transmits the SERVICE REQUEST message	-->	SERVICE REQUEST	-	-
9A	The SS establishes SRB2 and DRBs associated with two default EPS bearer context (a first PDN obtained during the attach procedure and an additional PDN).	-	-	-	-
10	The SS transmits a DEACTIVATE EPS BEARER CONTEXT REQUEST including the EPS bearer identity of the dedicated EPS bearer to the additional PDN.	<--	DEACTIVATE EPS BEARER CONTEXT REQUEST	-	-
11	Check: Does the UE transmit a DEACTIVATE EPS BEARER CONTEXT ACCEPT?	-->	DEACTIVATE EPS BEARER CONTEXT ACCEPT	1	P
12	The SS transmits an ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST relative to the additional PDN. Note: the same PDN address is applicable because the linked EPS bearer ID refers to the default EBC allocated in step 3.	<--	ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST	-	-
13	The UE transmits an ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT message as specified.	-->	ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT	-	-
14	The SS transmits a DEACTIVATE EPS BEARER CONTEXT REQUEST including the EPS bearer identity of the default EPS bearer to the additional PDN.	<--	DEACTIVATE EPS BEARER CONTEXT REQUEST	-	-

15	Check: Does the UE transmit a DEACTIVATE EPS BEARER CONTEXT ACCEPT? (see Note 3)	-->	DEACTIVATE EPS BEARER CONTEXT ACCEPT	2	P
16	The SS transmits a MODIFY EPS BEARER CONTEXT REQUEST message including the EPS bearer identity of the dedicated EPS bearer. This message is included in a DLInformationTransfer message.	<--	MODIFY EPS BEARER CONTEXT REQUEST	-	-
17	Check: Does UE transmit a MODIFY EPS BEARER CONTEXT REJECT message with ESM cause #43? (see Note 4)	-->	MODIFY EPS BEARER CONTEXT REJECT	2	P
18	The SS transmits a DEACTIVATE EPS BEARER CONTEXT REQUEST that does not point an existing EPS bearer context.	<--	DEACTIVATE EPS BEARER CONTEXT REQUEST	-	-
19	Check: Does the UE transmit a DEACTIVATE EPS BEARER CONTEXT ACCEPT?	-->	DEACTIVATE EPS BEARER CONTEXT ACCEPT	3	P
20	The SS releases the RRC connection.	-	-	-	-
21	Cause the UE to request connectivity to an additional PDN (see note 1)	-	-	-	-
21A	The UE transmits a SERVICE REQUEST	-->	SERVICE REQUEST	-	-
21B	The SS establishes SRB2 and DRBs associated with two default EPS bearer context (a first PDN obtained during the attach procedure and an additional PDN).	-	-	-	-
22	The UE transmits a PDN CONNECTIVITY REQUEST message as specified to request an additional PDN.	-->	PDN CONNECTIVITY REQUEST	-	-
23	The SS transmits an ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message with IE EPS Bearer Identity set to new EPS bearer context.	<--	ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST	-	-
24	The UE transmit an ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT message as specified.	-->	ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT	-	-
25	The SS transmits an ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST relative to additional PDN. Note: the same PDN address is applicable because the linked EPS bearer ID refers to the default EBC allocated in step 3.	<--	ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST	-	-
26	The UE transmit an ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT message as specified.	-->	ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT	-	-
27	The SS releases the RRC connection.	-	-	-	-
28	The SS transmits a Paging message to the UE using S-TMSI with CN domain indicator set to "PS".	<--	-	-	-
29	The UE transmits SERVICE REQUEST message	-->	SERVICE REQUEST	-	-
30	The SS performs a radio bearer establishment procedure. (Note 2) The RRCConnectionReconfiguration message doesn't include the EPS bearer ID of the additional PDN.	-	-	-	-
31	Check: Does UE transmit an RRCConnectionReconfigurationComplete message? (Note 2)	-	-	4	P
32	The SS transmits a MODIFY EPS BEARER CONTEXT REQUEST message including the EPS bearer identity of the default EPS bearer to the additional PDN. This message is included in a DLInformationTransfer message.	<--	MODIFY EPS BEARER CONTEXT REQUEST	-	-
32A	Check: Does UE transmits a MODIFY EPS BEARER CONTEXT REJECT message with	-->	MODIFY EPS BEARER CONTEXT REJECT	4	P

	ESM cause #43?(see Note 3)				
32 B	The SS transmits a MODIFY EPS BEARER CONTEXT REQUEST message including the EPS bearer identity of the dedicated EPS bearer.	<--	MODIFY EPS BEARER CONTEXT REQUEST	-	-
32 C	Check: Does UE transmit a MODIFY EPS BEARER CONTEXT REJECT message with ESM cause #43? (see Note 4)	-->	MODIFY EPS BEARER CONTEXT REJECT	4	P
33	The SS releases the RRC connection.	-	-	-	-
34	Cause the UE to request connectivity to an additional PDN (see note 1)	-	-	-	-
34 A	The UE transmits a SERVICE REQUEST	-->	SERVICE REQUEST	-	-
34 B	The SS establishes SRB2 and DRB associated with default EPS bearer context obtained during the attach procedure	-	-	-	-
35	The UE transmits a PDN CONNECTIVITY REQUEST message as specified to request an additional PDN.	-->	PDN CONNECTIVITY REQUEST	-	-
36	The SS transmits an ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message with IE EPS Bearer Identity set to new EPS bearer context. Note: SS allocates a PDN address of a PDN type which is compliant with the PDN type requested by the UE.	<--	ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST	-	-
37	The UE transmits an ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT message as specified.	-->	ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT	-	-
38	The SS transmits an ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST relative to additional PDN. Note: the same PDN address is applicable because the linked EPS bearer ID refers to the default EBC allocated in step 3.	<--	ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST	-	-
39	The UE transmits an ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT message as specified.	-->	ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT	-	-
40	The SS releases the RRC connection.	-	-	-	-
41	Cell A is a suitable cell Cell B is the serving cell	-	-	-	-
42	The UE transmit a TRACKING AREA UPDATE REQUEST message as specified on Cell B.	-->	TRACKING AREA UPDATE REQUEST		
43	The SS transmits a TRACKING AREA UPDATE ACCEPT indicating only one EPS bearer (default EBId-1) active in the EPS bearer context status IE. Note: The EPS bearer ID linked to the additional PDN is deactivated by SS.	<--	TRACKING AREA UPDATE ACCEPT	-	-
43 AA	The UE transmits TRACKING AREA UPDATE COMPLETE message	-->	TRACKING AREA UPDATE COMPLETE	-	-
43 AB	Void	-	-	-	-
43 A	The SS transmits a MODIFY EPS BEARER CONTEXT REQUEST message including the EPS bearer identity of the default EPS bearer to the additional PDN. This message is included in a DLInformationTransfer message.	<--	MODIFY EPS BEARER CONTEXT REQUEST	-	-
43 B	Check: Does UE transmits a MODIFY EPS BEARER CONTEXT REJECT message with ESM cause #43?(see Note 3)	-->	MODIFY EPS BEARER CONTEXT REJECT	4	P

43C	The SS transmits a MODIFY EPS BEARER CONTEXT REQUEST message including the EPS bearer identity of the dedicated EPS bearer. This message is included in a DLInformationTransfer message.	<--	MODIFY EPS BEARER CONTEXT REQUEST	-	-
43D	Check: Does UE transmit a MODIFY EPS BEARER CONTEXT REJECT message with ESM cause #43? (see Note 4)	-->	MODIFY EPS BEARER CONTEXT REJECT	4	P
44	The SS releases the RRC connection.	-	-	-	-
-	EXCEPTION: Step 45 & 46 describe behaviour that depends on the UE capability.				
45	If pc_ESM_MO_Bearer_Allocation cause the UE to request bearer resource allocation of dedicated EPS bearer associated with additional PDN connectivity.	-	-	-	-
46	Check: Does the UE transmit SERVICE REQUEST?	-->	SERVICE REQUEST	4	F

Note 1: The request of connectivity to an additional PDN and the sending of data may be performed by MMI or AT command.
Note 2: After a correct SERVICE REQUEST is received then the SS performs the Radio Bearer Establishment procedure. The UE transmission of the RRCConnectionReconfigurationComplete message indicates the completion of the radio bearer establishment procedure and that the UE has changed EMM mode from EMM-IDLE to EMM-CONNECTED.
Note 3: It can be confirmed that the additional default EPS bearer has been deactivated by UE.
Note 4: It can be confirmed that the dedicated EPS bearer has been deactivated by UE.

10.4.1.3.3 Specific message contents

Table 10.4.1.3.3-1: Message PDN CONNECTIVITY REQUEST (step 2, 22 and 35, Table 10.4.1.3.2-1)

Derivation path: 36.508 table 4.7.3-20			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	0000	No EPS bearer identity assigned	
Procedure transaction identity	PTI-1	UE assigns a particular PTI not yet used between 1 and 254	
ESM information transfer flag	Not present	This IE is only used during an attach procedure.	
Access point name	APN-1 (New PDN name)	The requested PDN is different from default PDN	

Table 10.4.1.3.3-2: Message ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST (step 3, 23 and 36, Table 10.4.1.3.2-1)

Derivation path: 36.508 table 4.7.3-6 and table 4.6.1-8 with condition AM-DRB-ADD(2)			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	6	SS assigns an additional EPS Bearer Id different from default EPS Bearer Id between 5 and 15.	
Procedure transaction identity	PTI-1	SS re-uses the particular PTI defined by UE for this present additional PDN connectivity request procedure.	
Access point name	APN-1	SS re-uses the particular APN defined by UE for this present additional PDN connectivity request procedure	

Table 10.4.1.3.3-3: Message ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT (step 4, 24 and 37, Table 10.4.1.3.2-1)

Derivation path: 36.508 table 4.7.3-4			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	6	Same value as in ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST	
Procedure transaction identity	0	No procedure transaction identity assigned	

Table 10.4.1.3.3-4: Message ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST (step 5, 12, 25 and 38, Table 10.4.1.3.2-1)

Derivation path: 36.508 table 4.7.3-3 and table 4.6.1-8 with condition AM-DRB-ADD(3)			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	7	SS assigns a dedicated bearer Id different from default EBId and additional EBId and between 5 and 15.	
Procedure transaction identity	0	No procedure transaction identity assigned	
Linked EPS bearer identity	Default EBId-2 (same value like in table 10.4.1.3.3-2)		
EPS QoS	According to reference dedicated EPS bearer context #1 - see [18]	SS defines an additional dedicated EPS QoS	
TFT	According to reference dedicated EPS bearer context #1 - see [18]		

Table 10.4.1.3.3-5: Message ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT (step 6, 13, 26 and 39, Table 10.4.1.3.2-1)

Derivation path: 36.508 table 4.7.3-1			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	7	Same value as in ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST in step 5	
Procedure transaction identity	0	No procedure transaction identity assigned	

Table 10.4.1.3.3-6: Message DEACTIVATE EPS BEARER CONTEXT REQUEST (step 10, Table 10.4.1.3.2-1)

Derivation path: 36.508 table 4.7.3-12 and table 4.6.1-8 with condition DRB-REL(3)			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	7	Same value as in ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST of step 5	
Procedure transaction identity	0	No procedure transaction identity assigned	
ESM cause	00100100	regular deactivation	
Protocol configuration options	Not present		

Table 10.4.1.3.3-7: Message DEACTIVATE EPS BEARER CONTEXT ACCEPT (step 11, Table 10.4.1.3.2-1)

Derivation path: 36.508 table 4.7.3-11			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	7	Same value as in ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST of step 5	
Procedure transaction identity	0	No procedure transaction identity assigned	

Table 10.4.1.3.3-8: Message DEACTIVATE EPS BEARER CONTEXT REQUEST (step 14, Table 10.4.1.3.2-1)

Derivation path: 36.508 table 4.7.3-12 and table 4.6.1-8 with condition DRB-REL(2)			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	Default EBId-2	Same value as in ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST of step 3	
Procedure transaction identity	0	No procedure transaction identity assigned	
ESM cause	00100100	regular deactivation	
Protocol configuration options	Not present		

Table 10.4.1.3.3-9: Message DEACTIVATE EPS BEARER CONTEXT ACCEPT (step 15, Table 10.4.1.3.2-1)

Derivation path: 36.508 table 4.7.3-11			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	6	Same value as in ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST of step 3	
Procedure transaction identity	0	No procedure transaction identity assigned	

Table 10.4.1.3.3-9b: Message MODIFY EPS BEARER CONTEXT REQUEST (step 16, Table 10.4.1.3.2-1)

Derivation path: 36.508 table 4.7.3-16			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	7	Dedicated EPS bearer context which should have been deactivated	
Procedure transaction identity	0	"No procedure transaction identity assigned"	
TFT	According to reference dedicated EPS bearer context #2 except for TFT operation code - see [18]	SS modifies the current packet filters of the dedicated EPS bearer context.	
TFT operation code	Replace packet filters in existing TFT		

Table 10.4.1.3.3-10: Message DEACTIVATE EPS BEARER CONTEXT REQUEST (step 18, Table 10.4.1.3.2-1)

Derivation path: 36.508 table 4.7.3-12 and table 4.6.1-8 with condition DRB-REL(2)			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	6	This value does not refer to an existing EPS bearer	
Procedure transaction identity	0	No procedure transaction identity assigned	
ESM cause	00100100	regular deactivation	
Protocol configuration options	Not present		

Table 10.4.1.3.3-11: Message DEACTIVATE EPS BEARER CONTEXT ACCEPT (step 19, Table 10.4.1.3.2-1)

Derivation path: 36.508 table 4.7.3-11			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	6	Same value as in DEACTIVATE EPS BEARER CONTEXT REQUEST of step 16	
Procedure transaction identity	0	No procedure transaction identity assigned	

Table 10.4.1.3.3-11a: Message RRCConnectionReconfiguration (step 30, Table 10. 4.1.3.2-1)

Derivation path: 36.508 table 4.6.1-8 with condition SRB2-DRB(0, 1)

Table 10.4.1.3.3-12: Message MODIFY EPS BEARER CONTEXT REQUEST (step 32 and 43A, Table 10.4.1.3.2-1)

Derivation path: 36.508 table 4.7.3-16			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	6	SS assigns the additional default EPS bearer context which isn't present.	
Procedure transaction identity	0	No procedure transaction identity assigned	

Table 10.4.1.3.3-13: Message MODIFY EPS BEARER CONTEXT REJECT (step 32A and 43B, Table 10.4.1.3.2-1)

Derivation path: 36.508 table 4.7.3-14			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	6	Same value as in MODIFY EPS BEARER CONTEXT REQUEST	
Procedure transaction identity	0	No procedure transaction identity assigned	
ESM cause	00101011	invalid EPS bearer identity	

Table 10.4.1.3.3-14: Message MODIFY EPS BEARER CONTEXT REQUEST (step 16, 32B and 43C, Table 10.4.1.3.2-1)

Derivation path: 36.508 table 4.7.3-16			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	7	SS assigns the dedicated EPS bearer context which isn't present.	
Procedure transaction identity	0	No procedure transaction identity assigned	

Table 10.4.1.3.3-15: Message MODIFY EPS BEARER CONTEXT REJECT (step 17, 32C and 43D, Table 10.4.1.3.2-1)

Derivation path: 36.508 table 4.7.3-14			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	7	Same value as in MODIFY EPS BEARER CONTEXT REQUEST	
Procedure transaction identity	0	No procedure transaction identity assigned	
ESM cause	00101011	invalid EPS bearer identity	

Table 10.4.1.3.3-16: Message TRACKING AREA UPDATE REQUEST (step 42, Table 10.4.1.3.2-1)

Derivation path: 36.508 table 4.7.2-27			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer context status	optional	This IE may be present	
EPS bearer context status IEI	57		
Length of EPS bearer context status contents	2	2 octets	
EBI(0)-EBI(4)	0		
EBI(5)-EBI(7)	7	EPS bearer contexts activated in preamble, step 36 and step 38.	
EBI(8)-EBI(15)	0		

Table 10.4.1.3.3-17: Message TRACKING AREA UPDATE ACCEPT (step 43, Table 10.4.1.3.2-1)

Derivation path: 36.508 table 4.7.2-24			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer context status	present	The SS deactivates the EPS bearer Id of the additional PDN given at step 30.	
EPS bearer context status IEI	57		
Length of EPS bearer context status contents	2	2 octets	
EBI(0)-EBI(4)	0		
EBI(5-7)	1	EPS bearer contexts activated in preamble	
EBI(8)-EBI(15)	0		

10.4.2 EPS bearer context deactivation / Re-establishment

10.4.2.1 Test Purpose (TP)

(1)

```
with { the UE in BEARER CONTEXT ACTIVE STATE state and EMM-CONNECTED mode }
ensure that {
  when { UE receives a DEACTIVATE EPS BEARER CONTEXT REQUEST message }
    then { the UE transmits a DEACTIVATE EPS BEARER CONTEXT ACCEPT }
            }
```

(2)

```
with { the UE in BEARER CONTEXT ACTIVE STATE state and EMM-CONNECTED mode and the UE needs to
continue having a public user identity registered }
ensure that {
  when { UE receives a DEACTIVATE EPS BEARER CONTEXT REQUEST message indicating the EPS bearer used
for SIP signalling }
    then { the UE performs an EPS attach }
            }
```

(3)

```
with { the UE in BEARER CONTEXT ACTIVE STATE state and EMM-CONNECTED mode }
ensure that {
  when { UE receives a DEACTIVATE EPS BEARER CONTEXT REQUEST message indicating the EPS bearer used
for SIP signalling }
    then { the UE performs a new initial IMS registration }
            }
```

10.4.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.301, clauses 6.4.4.2, 6.4.4.3 and 6.4.4.6 and TS 24.229, clause L2.2.1B. Unless otherwise stated these are Rel-8 requirements.

[TS 24.301, clause 6.4.4.2]

If a NAS signalling connection exists when the MME initiates the EPS bearer context deactivation procedure, the MME shall initiate the EPS bearer context deactivation procedure by sending a DEACTIVATE EPS BEARER CONTEXT REQUEST message to the UE, start the timer T3495, and enter the state BEARER CONTEXT INACTIVE PENDING (see example in figure 6.4.4.2.1). The DEACTIVATE EPS BEARER CONTEXT REQUEST message contains an ESM cause typically indicating one of the following:

#8: operator determined barring;

#36: regular deactivation;

#38: network failure; or

#112: APN restriction value incompatible with active EPS bearer context.

The procedure transaction identity (PTI) shall also be included if the deactivation is triggered by a UE initiated bearer resource modification procedure or UE requested PDN disconnect procedure.

When the MME wants to deactivate all EPS bearer contexts to a PDN and thus disconnect the UE from the PDN, the MME shall include the EPS bearer identity of the default bearer associated to the PDN in the DEACTIVATE EPS BEARER CONTEXT REQUEST message.

[TS 24.301, clause 6.4.4.3]

Upon receipt of the DEACTIVATE EPS BEARER CONTEXT REQUEST message, the UE shall delete the EPS bearer context identified by the EPS bearer identity. After deactivating the identified EPS bearer context, the UE shall respond to the MME with the DEACTIVATE EPS BEARER CONTEXT ACCEPT.

If the EPS bearer identity indicated in the DEACTIVATE EPS BEARER CONTEXT REQUEST is that of the default bearer to a PDN, the UE shall delete all EPS bearer contexts associated to the PDN. After deactivating all EPS bearer contexts, the UE shall respond to the MME with the DEACTIVATE EPS BEARER CONTEXT ACCEPT.

[TS 24.229, clause L.2.2.1B "Re-establishment of the EPS bearer context for SIP signalling"]

If the UE registered a public user identity with an IP address allocated for the APN of the EPS bearer context used for SIP signalling, the EPS bearer context used for SIP signalling is deactivated as result of signalling from the network and:

i) if the UE is required to perform an initial registration according to subclause L.3.1.2;

ii) if the signalling from the network results in requiring the UE to initiate activation of the PDN connection of the EPS bearer context used for SIP signalling; or

iii) if the UE needs to continue having a public user identity registered with an IP address allocated for the APN;

the UE shall:

A) if the non-access stratum is performing the UE requested PDN connectivity procedure and the EPS bearer context activation procedure(s) for the APN triggered as result of the signalling from the network, wait until the UE requested PDN connectivity procedure and the EPS bearer context activation procedure(s) for the APN finish; and

B) perform the procedures in subclause L.2.2.1, bullets a), b) and c).

If none of the bullets i), ii) and iii) of this subclause evaluate to true, or the procedures in bullet B) of this subclause were unable to ensure that the EPS bearer context used for SIP signalling is available or were unable to acquire any P-CSCF address(es):

1) if the SIP signalling was carried over a dedicated EPS bearer context, the UE shall release all resources established as a result of SIP signalling by sending to the network either:

a) a BEARER RESOURCE MODIFICATION REQUEST message, if there are EPS bearer contexts to this PDN that are not related SIP sessions; or

b) a PDN DISCONNECT REQUEST message if all the EPS bearer contexts to this PDN are related to SIP sessions.

NOTE: If the SIP signalling was carried over the default EPS bearer context, all the resources established as a result of SIP signalling are released without any explicit NAS signalling.

If the default EPS bearer context of the PDN connection of the EPS bearer context used for SIP signalling was deactivated at the start of this subclause, and the procedures in bullet B) of this subclause ensured that the EPS bearer context used for SIP signalling is available and acquired the P-CSCF address(es), the UE shall perform a new initial registration according to subclause 5.1.1.2.

10.4.2.3 Test description

10.4.2.3.1 Pre-test conditions

System Simulator:

- cell A

UE:

None.

Preamble:

- The UE is in state Registered, Idle mode (state 2) according to [18] on cell A.

10.4.2.3.2 Test procedure sequence

Table 10.4.2.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U – S	Message		
1	The SS transmits a DEACTIVATE EPS BEARER CONTEXT REQUEST including the EPS bearer identity of the default EPS bearer.	<--	DEACTIVATE EPS BEARER CONTEXT REQUEST	-	-
2	Check: Does the UE transmit a DEACTIVATE EPS BEARER CONTEXT ACCEPT?	-->	DEACTIVATE EPS BEARER CONTEXT ACCEPT	1	P
3	The UE transmits an ATTACH REQUEST message. The PDN CONNECTIVITY REQUEST message is piggybacked in ATTACH REQUEST.	-->	ATTACH REQUEST PDN CONNECTIVITY REQUEST	2	P
4-12	Steps 5 to 13 of the generic test procedure for UE registration (TS 36.508 4.5.2.3-1).	-	-	-	-
13	The SS transmits ATTACH ACCEPT message. The ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message is piggybacked in ATTACH ACCEPT.	<--	ATTACH ACCEPT ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST	-	-
-	EXCEPTION: In parallel to the event described in step 14 below, if initiated by the UE the generic procedure for IP address allocation in the U-plane specified in TS 36.508 subclause 4.5A.1 takes place performing IP address allocation in the U-plane.	-	-	-	-
-	EXCEPTION: In parallel to the event described in step 14 below the generic procedure for IMS signalling in the U-plane specified in table 10.4.2.3.2-2 takes place.	-	-	-	-
14	This message includes the ATTACH COMPLETE message. The ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT message is piggybacked in ATTACH COMPLETE.	-->	ATTACH COMPLETE ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT	-	-

Table 10.4.2.3.2-2: Procedure for IMS signalling in the U-plane

St	Procedure	Message Sequence		TP	Verdict
		U – S	Message		
1-9	Registration procedure according TS 34.229-1 [43] subclause C.2 (steps 3-11).	-	-	3	P

10.4.2.3.3 Specific message contents

Table 10.4.2.3.3-1: Message DEACTIVATE EPS BEARER CONTEXT REQUEST (step 1, Table 10.4.2.3.2-1)

Derivation path: 36.508 table 4.7.3-12 and table 4.6.1-8 with condition DRB-REL(1)			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	7	Same value as in ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST from preamble	
Procedure transaction identity	0	No procedure transaction identity assigned	
ESM cause	00100100	regular deactivation	
Protocol configuration options	Not present		

10.5 UE requested PDN connectivity

10.5.1 UE requested PDN connectivity accepted by the network

10.5.1.1 Test Purpose (TP)

(1)

```
with { UE in EMM-REGISTERED state and EMM-IDLE mode }
ensure that {
  when { UE has uplink signalling pending }
    then { UE establishes the RRC connection with the RRC establishmentCause set to 'mo-Data' and
sends a SERVICE REQUEST message }
     }
```

(2)

```
with { UE is in EMM-REGISTERED mode }
ensure that {
  when { UE is triggered to request connectivity to an additional PDN }
    then { the UE transmits a PDN CONNECTIVITY REQUEST message with the request type set to "initial
request" and including APN }
           }
```

(3)

```
with { UE has sent a PDN CONNECTIVITY REQUEST message }
ensure that {
  when { UE receives an RRCConnectionReconfiguration message including an ACTIVATE DEFAULT EPS
BEARER CONTEXT REQUEST message with IE Procedure transaction identity matching the PDN CONNECTIVITY
REQUEST message and an ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message linked to the EPS
bearer context activated in the first message}
    then { UE transmits an ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT message and an ACTIVATE
DEDICATED EPS BEARER CONTEXT ACCEPT message both containing the EPS bearer identity and enters EMM-
REGISTERED state }
           }
```

10.5.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.301, clauses 5.3.3.1, 5.6.1.1, 5.6.1.2, 5.6.1.4, 6.2.2, 6.4.1.3, 6.4.2.3, 6.5.1.2 and Annex D, and TS 25.331 clause 5.3.3.3.

[TS 24.301 clause 5.3.1.1]

When the UE is in EMM-IDLE mode and needs to transmit an initial NAS message, the UE shall request the lower layer to establish a RRC connection. In this request to the lower layer the NAS shall provide to the lower layer the RRC establishment cause and the call type as specified in annex D of this specification.

...

[TS 24.301 clause 5.6.1.1]

The UE shall invoke the service request procedure when:

...

c) the UE, in EMM-IDLE mode, has uplink signalling pending;

...

[TS 24.301 clause 5.6.1.2]

If the UE has pending uplink data or uplink signalling in EMM-IDLE mode to be transmitted or it responds to paging with CN domain indicator set to "PS", the UE initiates the service request procedure by sending a SERVICE REQUEST message to the MME, starts the timer T3417, and enters the state EMM-SERVICE-REQUEST-INITIATED.

...

[TS 24.301 clause 5.6.1.4]

For cases a, b, c and h in subclause 5.6.1.1, the UE shall treat the indication from the lower layers that the user plane radio bearer is set up as successful completion of the procedure. The UE shall stop the timer T3417 and enter the state EMM-REGISTERED.

Upon successful completion of the procedure, the UE shall stop the timer T3417 and enter the state EMM-REGISTERED.

[TS 24.301, Annex D]

...

Table D.1.1: Mapping of NAS procedure to establishment cause and call type

NAS procedure	RRC establishment cause (according 3GPP TS 36.331 [22])	Call type
...		
Service Request	If a SERVICE REQUEST is to request user plane radio resources, the RRC establishment cause shall be set to MO data. (See Note1)	"originating calls"
	If a SERVICE REQUEST is to request resources for UL signalling, the RRC establishment cause shall be set to MO data. (See Note 1)	"originating calls"
	If a SERVICE REQUEST is a response to paging where the CN domain indicator is set to "PS", the RRC establishment cause shall be set to MT access. (See Note 1)	"terminating calls"
	If an EXTENDED SERVICE REQUEST has service type set to "mobile originating CS fallback or 1xCS fallback", the RRC establishment cause shall be set to MO data. (See Note1).	"originating calls"
	If an EXTENDED SERVICE REQUEST has service type set to "mobile terminating CS fallback or 1xCS fallback", the RRC establishment cause shall be set to MT access. (See Note1).	"terminating calls"
	If an EXTENDED SERVICE REQUEST has service type set to "mobile originating CS fallback emergency call or 1xCS fallback emergency call", the RRC establishment cause shall be set to Emergency call. (See Note1).	"emergency calls"
...		
Note 1: For these NAS procedures initiated by UEs of access class 12, 13 or 14 in their home country, the RRC establishment cause will be set to "High priority access AC 11 – 15". For this purpose the home country is defined as the country of the MCC part of the IMSI, see 3GPP TS 22.011 [1A]. For these NAS procedures initiated by UE of access class 11 or 15 in their HPLMN (if the EHPLMN list is not present or is empty) or EHPLMN (if the EHPLMN list is present), the RRC establishment cause will be set to "High priority access AC 11 – 15".		

[TS 36.331, clause 5.3.3.3]

The UE shall set the contents of *RRCConnectionRequest* message as follows:

1> set the *ue-Identity* as follows:

2> if upper layers provide an S-TMSI:

3> set the *ue-Identity* to the value received from upper layers;

2> else:

3> draw a random value in the range 0 .. 2^{40}-1 and set the *ue-Identity* to this value;

NOTE 1: Upper layers provide the S-TMSI if the UE is registered in the TA of the current cell.

1> set the *establishmentCause* in accordance with the information received from upper layers;

The UE shall submit the *RRCConnectionRequest* message to lower layers for transmission.

...

[TS 24.301, clause 6.2.2]

The UE shall set the PDN type IE in the PDN CONNECTIVITY REQUEST message, based on its IP stack configuration as follows:

a) A UE, which is IPv6 and IPv4 capable and

- has not been allocated an IP address for this APN, shall set the PDN type IE to IPv4v6.
- has been allocated an IPv4 address for this APN and received the ESM cause #52 "single address bearers only allowed", and is requesting an IPv6 address, shall set the PDN type IE to IPv6.
- has been allocated an IPv6 address for this APN and received the ESM cause #52 "single address bearers only allowed", and is requesting an IPv4 address, shall set the PDN type IE to IPv4.

b) A UE, which is only IPv4 capable, shall set the PDN type IE to IPv4.

c) A UE, which is only IPv6 capable, shall set the PDN type IE to IPv6.

d) When the IP version capability of the UE is unknown in the UE (as in the case when the MT and TE are separated and the capability of the TE is not known in the MT), the UE shall set the PDN type IE to IPv4v6.

...

[TS 24.301, clause 6.4.1.3]

Upon receipt of the ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message, the UE shall send an ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT message and enter the state BEARER CONTEXT ACTIVE. When the default bearer is activated as part of the attach procedure, the UE shall send the ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT message together with ATTACH COMPLETE message. When the default bearer is activated as the response to the stand-alone PDN CONNECTIVITY REQUEST message, the UE shall send the ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT message alone.

The UE checks the PTI in the ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message to identify the UE requested PDN connectivity procedure to which the default bearer context activation is related (see subclause 6.5.1).

...

[TS 24.301, clause 6.4.2.3]

Upon receipt of the ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message, the UE shall first check the received TFT before taking it into use. Then the UE shall send an ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT message and enter the state BEARER CONTEXT ACTIVE. The ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT message shall include the EPS bearer identity.

The linked EPS bearer identity included in the ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message indicates to the UE to which default bearer, IP address and PDN the dedicated bearer is linked.

If the PTI is included in the ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message, the UE uses the PTI to identify the UE requested bearer resource allocation procedure or the UE requested bearer resource modification procedure to which the dedicated bearer context activation is related.

If the PTI is included in the ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message and the PTI is associated to a UE requested bearer resource allocation procedure or a UE requested bearer resource modification procedure, the UE shall release the traffic flow aggregate description associated to the PTI value provided.

The UE shall use the received TFT to apply mapping of uplink traffic flows to the radio bearer if the TFT contains packet filters for the uplink direction.

...

[TS 24.301, clause 6.5.1.2]

...

In order to request connectivity to a PDN using the default APN, the UE includes the access point name IE in the PDN CONNECTIVITY REQUEST message or, when applicable, in the ESM INFORMATION RESPONSE message, according to the following conditions:

- if use of a PDN using the default APN requires PAP/CHAP, then the UE should include the access point name IE; and
- in all other conditions, the UE need not include the access point name IE.

In order to request connectivity to an additional PDN, the UE shall send a PDN CONNECTIVITY REQUEST message including a requested APN to the MME, start timer T3482 and enter the state PROCEDURE TRANSACTION PENDING (see example in figure 6.5.1.2.1). In the PDN type information element the UE shall indicate the IP version capability of the IP stack associated with the UE as specified in subclause 6.4.1

The UE shall set the request type to "initial request" when the UE is establishing connectivity to a PDN for the first time, i.e. when it is an initial attach to that PDN. The UE shall set the request type to "handover" when the connectivity to a PDN is established upon handover from a non-3GPP access network and the UE was connected to that PDN before the handover to the 3GPP access network.

...

10.5.1.3 Test description

10.5.1.3.1 Pre-test conditions

System Simulator:

- Cell A

UE:

None.

Preamble:

- The UE is in state Registered, Idle mode (state 2) according to [18].10.5.1.3.2 Test procedure sequence

Table 10.5.1.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Cause the UE to request connectivity to an additional PDN (see Note)	-	-	-	-
1A	Check: Does UE transmit an *RRCConnectionRequest* message with *establishmentCause* set to 'mo-Data' followed by a SERVICE REQUEST message?	-->	SERVICE REQUEST	1	P
1B	The SS establishes SRB2 and DRB associated with default EPS bearer context (a first PDN obtained during the attach procedure).	-	-	-	-

2	Check: Does the UE transmit a PDN CONNECTIVITY REQUEST message as specified to request an additional PDN?	-->	PDN CONNECTIVITY REQUEST	2	P
3	The SS transmits an ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message with IE EPS Bearer Identity set to new EPS bearer context and ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message with IE Linked EPS bearer identity set to the new EPS bearer context. Note: ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST and ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST are included in dedicatedInfoNASList of RRCConnectionReconfiguration message.	<--	ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST	-	-
-	EXCEPTION: In parallel with step 4 below, the test steps in the parallel behaviour in table 10.5.1.3.2-2 is taking place				
4	Check: Does the UE transmit an ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT message for the additional default EPS Bearer?	-->	ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT	3	P
5-6	Void	-	-	-	-
7	The SS releases the RRC connection.	-	-	-	-
Note: The request of connectivity to an additional PDN may be performed by MMI or AT command.					

Table 10.5.1.3.2-2: Parallel behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Check: Does the UE transmit an ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT message for the dedicated EPS Bearer?	-->	ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT	3	P

10.5.1.3.3 Specific message contents

Table 10.5.1.3.3-0: Message *RRCConnectionRequest* (step 1a, Table 10.5.1.3.2-1)

Derivation path: 36.508 table 4.6.1-16			
Information Element	**Value/Remark**	**Comment**	**Condition**
RRCConnectionRequest ::= SEQUENCE {			
criticalExtensions CHOICE {			
rrcConnectionRequest-r8 SEQUENCE {			
establishmentCause	mo-Data		
}			
}			
}			

Table 10.5.1.3.3-1: Message PDN CONNECTIVITY REQUEST (step 2, Table 10.5.1.3.2-1)

Derivation Path: TS 36.508 Table 4.7.3-20			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS bearer identity	0000	No EPS bearer identity assigned	
Procedure transaction identity	PTI-1	UE assigns a particular PTI not yet used between 1 and 254	
ESM information transfer flag	Not present	This IE is only used during an attach procedure.	
Access point name	APN-1(New PDN name)	The requested PDN is different from default PDN	

Table 10.5.1.3.3-1a: Message RRCConnectionReconfiguration (step 3, Table 10.5.1.3.2-1)

Derivation path: 36.508 table 4.6.1-8 using condition DRB(2,0)			
Information Element	**Value/Remark**	**Comment**	**Condition**
RRCConnectionReconfiguration ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
rrcConnectionReconfiguration-r8 SEQUENCE {			
dedicatedInfoNASList SEQUENCE {	2 entries		
dedicatedInfoNAS[1]	See table 10.5.1.3.3-2		
dedicatedInfoNAS[2]	See table 10.5.1.3.3-3		
}			
}			
}			
}			
}			

Table 10.5.1.3.3-2: Message ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST (step 3, Table 10.5.1.3.2-1)

Derivation Path: TS 36.508 Table 4.7.3-6			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS bearer identity	6		
Procedure transaction identity	PTI-1	SS re-uses the particular PTI defined by UE for this present additional PDN connectivity request procedure.	
Access point name	APN-1	SS re-uses the particular APN defined by UE for this present additional PDN connectivity request procedure	

Table 10.5.1.3.3-3: Message ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST (step 3, Table 10.5.1.3.2-1)

Derivation Path: TS 36.508 Table 4.7.3-3			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS bearer identity	7		
Procedure transaction identity	0	No procedure transaction identity assigned	
Linked EPS bearer identity	6		
EPS QoS	According to reference dedicated EPS bearer context #2 - see [18]	SS defines an additional dedicated EPS QoS	
TFT	According to reference dedicated EPS bearer context #2 - see [18]		

Table 10.5.1.3.3-4: Message ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT (step 4, Table 10.5.1.3.2-1)

Derivation Path: TS 36.508 Table 4.7.3-4			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS bearer identity	6		
Procedure transaction identity	0	No procedure transaction identity assigned	

Table 10.5.1.3.3-5: Message ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT (step 6, Table 10.5.1.3.2-2)

Derivation Path: TS 36.508 Table 4.7.3-1			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS bearer identity	7		
Procedure transaction identity	0	No procedure transaction identity assigned	

10.5.2 Void

10.5.3 UE requested PDN connectivity not accepted

10.5.3.1 Test Purpose (TP)

(1)

```
with { the UE has sent a PDN CONNECTIVITY REQUEST message to an additional PDN }
ensure that {
  when { the UE receives an PDN CONNECTIVITY REJECT message with PTI matching the PDN CONNECTIVITY
REQUEST message and including a ESM cause value }
    then { the UE enters the state PROCEDURE TRANSACTION INACTIVE }
          }
```

10.5.3.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.301, clauses 6.2.2, 6.4.1.3, 6.4.2.3 and 6.5.1.2.

[TS 24.301, clause 6.2.2]

The UE shall set the PDN type IE in the PDN CONNECTIVITY REQUEST message, based on its IP stack configuration as follows:

a) A UE, which is IPv6 and IPv4 capable and

- has not been allocated an IP address for this APN, shall set the PDN type IE to IPv4v6.
- has been allocated an IPv4 address for this APN and received the ESM cause #52 "single address bearers only allowed", and is requesting an IPv6 address, shall set the PDN type IE to IPv6.
- has been allocated an IPv6 address for this APN and received the ESM cause #52 "single address bearers only allowed", and is requesting an IPv4 address, shall set the PDN type IE to IPv4.

b) A UE, which is only IPv4 capable, shall set the PDN type IE to IPv4.

c) A UE, which is only IPv6 capable, shall set the PDN type IE to IPv6.

d) When the IP version capability of the UE is unknown in the UE (as in the case when the MT and TE are separated and the capability of the TE is not known in the MT), the UE shall set the PDN type IE to IPv4v6.

...

[TS 24.301, clause 6.5.1.2]

...

In order to request connectivity to an additional PDN, the UE shall send a PDN CONNECTIVITY REQUEST message including a requested APN to the MME, start timer T3482 and enter the state PROCEDURE TRANSACTION PENDING (see example in figure 6.5.1.2.1). In the PDN type information element the UE shall indicate the IP version capability of the IP stack associated with the UE as specified in subclause 6.4.1

The UE shall set the request type to "initial request" when the UE is establishing connectivity to a PDN for the first time, i.e. when it is an initial attach to that PDN. The UE shall set the request type to "handover" when the connectivity to a PDN is established upon handover from a non-3GPP access network and the UE was connected to that PDN before the handover to the 3GPP access network.

...

[TS 24.301, clause 6.5.1.4]

...

Upon receipt of the PDN CONNECTIVITY REJECT message, the UE shall stop timer T3482 and enter the state PROCEDURE TRANSACTION INACTIVE.

The PDN CONNECTIVITY REJECT message contains an ESM cause IE that typically indicates one of the following ESM cause values:

#8: operator determined barring;

#26: insufficient resources;

#27: missing or unknown APN;

#28: unknown PDN type;

#29: user authentication failed;

#30: request rejected by Serving GW or PDN GW;

#31: request rejected, unspecified;

#32: service option not supported;

#33: requested service option not subscribed;

#34: service option temporarily out of order;

#35: PTI already in use;

#38: network failure;

#50: PDN type IPv4 only allowed;

#51: PDN type IPv6 only allowed;

#53: ESM information not received;

#54: PDN connection does not exist;

#55: multiple PDN connections for a given APN not allowed;

#95 – 111: protocol errors;

#112: APN restriction value incompatible with active EPS bearer context.

10.5.3.3 Test description

10.5.3.3.1 Pre-test conditions

System Simulator:

- Cell A.

UE:

None.

Preamble:

- The UE is in state Registered, Idle mode (state 2) according to [18] (1 default EPS bearer context is active).

10.5.3.3.2 Test procedure sequence

Table 10.5.3.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Cause the UE to request connectivity to an additional PDN (see Note)	-	-	-	-
1A	The UE transmits a SERVICE REQUEST	-->	SERVICE REQUEST	-	-
1B	The SS establishes SRB2 and DRB associated with the default EPS bearer context activated during the preamble (a first PDN obtained during the attach procedure).	-	-	-	-
2	The UE transmits a PDN CONNECTIVITY REQUEST message as specified to request an additional PDN.	-->	PDN CONNECTIVITY REQUEST	-	-
3	The SS transmits a PDN CONNECTIVITY REJECT message.	<--	PDN CONNECTIVITY REJECT	-	-
4	Void	-	-	-	-
5	Void	-	-	-	-
6	The SS releases the RRC connection.	-	-	-	-
7	Cause the UE to request connectivity to an additional PDN (see Note)	-	-	-	-
8	The UE transmits a SERVICE REQUEST message.	-->	SERVICE REQUEST	-	-
9	The SS establishes a DRB associated with the default EPS bearer context activated during the preamble.	-	-	-	-
9A	Check: Does the UE transmit a PDN CONNECTIVITY REQUEST as specified to request an additional PDN?	-->	PDN CONNECTIVITY REQUEST	1	P
9B	The SS transmits an ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message with IE EPS Bearer Identity set to new EPS bearer context. Note: ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST is included in dedicatedInfoNASList of RRCConnectionReconfiguration message.	<--	ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST	-	-
10	Check: Does the UE transmit an ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT message for the additional default EPS bearer?	-->	ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT	1	P
Note: The trigger in step 1 and the RRC messages in steps 1A to 2 and in steps 8 to 10 are the same as in the generic procedure in 36.508 clause 6.4.3.2. The request of connectivity to an additional PDN may be performed by MMI or AT command.					

10.5.3.3.3 Specific message contents

Table 10.5.3.3.3-1: Message PDN CONNECTIVITY REQUEST (step 2, table 10.5.3.3.2-1)

Derivation Path: TS 36.508 Table 4.7.3-20			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS bearer identity	0000	No EPS bearer identity assigned	
Procedure transaction identity	PTI-1	UE assigns a particular PTI not yet used between 1 and 254	
ESM information transfer flag	Not present	This IE is only activable during an attach procedure.	
Access point name	APN-1(New PDN name)	The requested PDN is different from default PDN	

Table 10.5.3.3.3-2: Message PDN CONNECTIVITY REJECT (step 3, table 10.5.3.3.2-1)

Derivation Path: TS 36.508 Table 4.7.3-19			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS bearer identity	0000	No EPS bearer identity assigned	
Procedure transaction identity	PTI-1	The SS indicates the same value like received in the PDN CONNECTIVITY REQUEST	
ESM cause	01101111	“Protocol error, unspecified”	
Protocol configuration options	Not present		

Table 10.5.3.3.3-3: Void

Table 10.5.3.3.3-4: Message PDN CONNECTIVITY REQUEST (step 9A, table 10.5.3.3.2-1)

Derivation Path: TS 36.508 Table 4.7.3-20			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS bearer identity	0000	No EPS bearer identity assigned	
Procedure transaction identity	PTI-2	UE assigns a particular PTI not yet used between 1 and 254 (may be identical to PTI-1)	
ESM information transfer flag	Not present	This IE is only activable during an attach procedure.	
Access point name	APN-2 (New PDN name)	The requested PDN is different from default PDN (may be identical to APN-1)	

Table 10.5.3.3.3-5: Message ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST (step 9B, table 10.5.3.3.2-1)

Derivation Path: TS 36.508 Table 4.7.3-6 and table 4.6.1-8 with condition AM-DRB-ADD(2)			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS bearer identity	6		
Procedure transaction identity	PTI-2	SS re-uses the particular PTI defined by UE for this present additional PDN connectivity request procedure.	
Access point name	APN-2	SS re-uses the particular APN defined by UE for this present additional PDN connectivity request procedure	

Table 10.5.3.3.3-6: Message ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT (step 10, table 10.5.3.3.2-1)

Derivation path: 36.508 table 4.7.3-1			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	6	Same value as in ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST	
Procedure transaction identity	0	"No procedure transaction identity assigned"	

10.5.4 UE requested PDN connectivity not accepted / Network reject with Extended Wait Timer

10.5.4.1 Test Purpose (TP)

(1)

```
with { the UE has sent a EXTENDED SERVICE REQUEST message indicating low NAS signalling priority }
ensure that {
  when { the UE receives RRC reject with Extended wait timer }
    then { the UE activates timer T3346 with the value of the Extended wait time and the UE does not
initiate any signalling before the timer has expired }
           }
```

(2)

```
with { UE is in EMM-REGISTERED mode }
ensure that {
  when { UE is triggered to request connectivity to an additional PDN }
    then { the UE transmits a PDN CONNECTIVITY REQUEST message with the request type set to "initial
request" and including APN }
           }
```

10.5.4.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.301, clauses 4.2A, 5.6.1.2, 5.6.1.6 and 6.5.1.2.

[TS 24.301, clause 4.2A]

A UE configured for NAS signalling low priority indicates this by including the Device properties IE in the appropriate NAS message and setting the low priority indicator to "MS is configured for NAS signalling low priority", except for the following cases in which the UE shall set the low priority indicator to "MS is not configured for NAS signalling low priority":

- the UE is performing an attach for emergency bearer services;
- the UE has a PDN connection for emergency bearer services established and is performing EPS mobility management procedures, or is establishing a PDN connection for emergency bearer services;
- the UE is accessing the network with access class 11 – 15; or
- the UE is responding to paging.

The network may use the NAS signalling low priority indication for NAS level mobility management congestion control and APN based congestion control.

If the NAS signalling low priority indication is provided in a PDN CONNECTIVITY REQUEST message, the MME stores the NAS signalling low priority indication within the default EPS bearer context activated due to the PDN connectivity request procedure.

[TS 24.301, clause 5.6.1.2]

…

For cases a, b, c, h and k, if the UE is configured for NAS signalling low priority, and the last received ATTACH ACCEPT message or TRACKING AREA UPDATE ACCEPT message from the network indicated that the network supports use of EXTENDED SERVICE REQUEST for packet services, the UE shall send an EXTENDED SERVICE REQUEST message with service type set to "packet services via S1". If the last received ATTACH ACCEPT message or TRACKING AREA UPDATE ACCEPT message from the network did not indicate that the network supports use of EXTENDED SERVICE REQUEST for packet services, the UE shall instead send a SERVICE REQUEST message. After sending the SERVICE REQUEST message or EXTENDED SERVICE REQUEST message with service type set to "packet services via S1", the UE shall start T3417 and enter the state EMM-SERVICE-REQUEST-INITIATED.

[TS 24.301, clause 5.6.1.6]

…

l) "Extended wait time" from the lower layers

The UE shall abort the service request procedure, enter state EMM-REGISTERED, and stop timer T3417 or T3417ext if still running.

If the EXTENDED SERVICE REQUEST message contained the NAS signalling low priority indicator set to "MS is configured for NAS signalling low priority", the UE shall start timer T3346 with the "Extended wait time" value.

In other cases the UE shall ignore the "Extended wait time".

The service request procedure is started, if still necessary, when timer T3346 expires or is stopped.

If the service request was initiated for CS fallback and timer T3246 is not running, the UE in CS/PS mode 1 of operation shall select GERAN or UTRAN radio access technology and disable E-UTRA capability (see subclause 4.5). It then proceeds with appropriate MM and CC specific procedures. The EMM sublayer shall not indicate the abort of the service request procedure to the MM sublayer.

If the service request was initiated for 1xCS fallback, the UE shall select cdma2000® 1x radio access technology. The UE then proceeds with appropriate cdma2000® 1x CS call processing.

If the service request was initiated due to a request from the SMS entity to send an SMS and timer T3246 is not running, the UE, if operating in CS/PS mode 1 of operation, may select GERAN or UTRAN radio access technology and disable E-UTRA capability (see subclause 4.5). It then proceeds with the appropriate MM procedure.

[TS 24.301, clause 6.5.1.2]

...

In order to request connectivity to an additional PDN, the UE shall send a PDN CONNECTIVITY REQUEST message including a requested APN to the MME, start timer T3482 and enter the state PROCEDURE TRANSACTION PENDING (see example in figure 6.5.1.2.1). In the PDN type information element the UE shall indicate the IP version capability of the IP stack associated with the UE as specified in subclause 6.4.1

The UE shall set the request type to "initial request" when the UE is establishing connectivity to a PDN for the first time, i.e. when it is an initial attach to that PDN. The UE shall set the request type to "handover" when the connectivity to a PDN is established upon handover from a non-3GPP access network and the UE was connected to that PDN before the handover to the 3GPP access network.

...

10.5.4.3 Test description

10.5.4.3.1 Pre-test conditions

System Simulator:

- Cell A.

UE:

- the UE is configured for NAS signalling low priority

Preamble:

- The UE is in state Registered, Idle mode (state 2) according to [18] (1 default EPS bearer context is active).

10.5.4.3.2 Test procedure sequence

Table 10.5.4.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Cause the UE to request connectivity to an additional PDN (see Note)	-	-	-	-
2	The UE transmits an EXTENDED SERVICE REQUEST	-->	EXTENDED SERVICE REQUEST	1	P
3	The SS transmits an *RRCConnectionRelease* message indicating redirection to cell 5	<--	*RRCConnectionRelease* The SS includes the IE “Extended Wait Time” in the *RRCConnectionRelease* message. UE starts timer T3346 with the value 5 seconds	-	-
4	Check: does the UE initiate any signalling before timer T3346 has expired?	-	-	1	F
5	The UE transmits an EXTENDED SERVICE REQUEST message.	-->	EXTENDED SERVICE REQUEST	-	-
6	The SS establishes a DRB associated with the default EPS bearer context activated during the preamble.	-	-	-	-
7	Check: Does the UE transmit a PDN CONNECTIVITY REQUEST as specified to request an additional PDN?	-->	PDN CONNECTIVITY REQUEST	2	P
8	The SS transmits an ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message with IE EPS Bearer Identity set to new EPS bearer context. Note: ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST is included in dedicatedInfoNASList of RRCConnectionReconfiguration message.	<--	ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST	-	-
9	The UE transmit an ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT message for the additional default EPS bearer	-->	ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT	-	-
Note: The trigger in step 1 is the same as in the generic procedure in 36.508 clause 6.4.3.2. The request of connectivity to an additional PDN may be performed by MMI or AT command.					

10.5.4.3.3 Specific message contents

Table 10.5.4.3.3-1: Message EXTENDED SERVICE REQUEST (step 2, table 10.5.4.3.2-1)

Derivation path: 36.508 table 4.7.2-14A			
Information Element	**Value/remark**	**Comment**	**Condition**
Service type	1000	‘packet services via S1’	
Device properties	1	‘MS is configured for NAS signalling low priority’	

Table 10.5.4.3.3-2: *RRCConnectionRelease* (step 3, table 10.5.4.3.2-1)

Derivation Path: 36.508 Table 4.6.1-15			
Information Element	**Value/remark**	**Comment**	**Condition**
RRCConnectionRelease ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
rrcConnectionRelease-r8 SEQUENCE {			
nonCriticalExtension SEQUENCE {		RRCConnectionRelease-v890-IEs	
lateNonCriticalExtension	Not Present		
nonCriticalExtension SEQUENCE {		RRCConnectionRelease-v920-IEs	
cellInfoList-r9	Not Present		
nonCriticalExtension SEQUENCE {		RRCConnectionRelease-v1020-IEs	
extendedWaitTime-r10	5 seconds		
nonCriticalExtension	Not Present		
}			
}			
}			
}			
}			
}			
}			

Table 10.5.4.3.3-3: Message PDN CONNECTIVITY REQUEST (step 7, table 10.5.4.3.2-1)

Derivation Path: TS 36.508 Table 4.7.3-20			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS bearer identity	0000	No EPS bearer identity assigned	
Procedure transaction identity	PTI-1	UE assigns a particular PTI not yet used between 1 and 254	
ESM information transfer flag	Not present	This IE is only activable during an attach procedure.	
Access point name	APN-1(New PDN name)	The requested PDN is different from default PDN	
Device properties	1	'MS is configured for NAS signalling low priority'	

10.6 UE requested PDN disconnect

10.6.1 UE requested PDN disconnect procedure accepted by the network

10.6.1.1 Test Purpose (TP)

(1)

```
with { UE is in BEARER CONTEXT ACTIVE STATE state }
ensure that {
  when { UE is triggered to disconnect from a PDN }
    then { UE sends a PDN DISCONNECT REQUEST message including the default EPS bearer identity
associated with this PDN }
           }
```

(2)

```
with { UE is in PROCEDURE TRANSACTION PENDING state }
ensure that {
```

```
  when { UE receives a DEACTIVATE EPS BEARER CONTEXT REQUEST message with any valid ESM cause }
    then { UE deactivates the default EPS bearer context for this PDN connection between the UE and
the SS }

            }
```

10.6.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.301, clauses 6.5.2.2, and 6.5.2.4.

[TS 24.301, clause 6.5.2.2]

In order to request PDN disconnection from a PDN, the UE shall send a PDN DISCONNECT REQUEST message to the MME, start the timer T3492 and enter the state PROCEDURE TRANSACTION PENDING (see example in figure 6.5.2.2.1). The PDN DISCONNECT REQUEST message shall include the EPS bearer identity of the default bearer associated with the PDN to disconnect from as the linked EPS bearer identity in the PDN DISCONNECT REQUEST message.

[TS 24.301, clause 6.5.2.3]

...

Upon receipt of the DEACTIVATE EPS BEARER CONTEXT REQUEST message, the UE shall stop the timer T3492 and enter the state PROCEDURE TRANSACTION INACTIVE. The behaviour of the UE is described in subclause 6.4.4.

...

[TS 24.301, clause 6.4.4.2]

If a NAS signalling connection exists when the MME initiates the EPS bearer context deactivation procedure, the MME shall initiate the EPS bearer context deactivation procedure by sending a DEACTIVATE EPS BEARER CONTEXT REQUEST message to the UE, start the timer T3495, and enter the state BEARER CONTEXT INACTIVE PENDING (see example in figure 6.4.4.2.1). The DEACTIVATE EPS BEARER CONTEXT REQUEST message contains an ESM cause typically indicating one of the following:

#8: operator determined barring;

#36: regular deactivation;

#38: network failure; or

#112: APN restriction value incompatible with active EPS bearer context.

The procedure transaction identity (PTI) shall also be included if the deactivation is triggered by a UE initiated bearer resource modification procedure or UE requested PDN disconnect procedure.

...

10.6.1.3 Test description

10.6.1.3.1 Pre-test conditions

System Simulator:

- Cell A is configured according to Table 6.3.2.2-1 in [18].

UE:

None.

Preamble:

- The UE is in state Registered, Idle mode (state 2) according to [18] on Cell A.
- Two default EPS bearer context are activated and present on UE side (a first PDN obtained during the attach procedure and an additional PDN).

10.6.1.3.2 Test procedure sequence

Table 10.6.1.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Cause the UE to request disconnection from the additional PDN (see Note 1)	-	-	-	-
1A	The UE transmits a SERVICE REQUEST	-->	SERVICE REQUEST	-	-
1B	The SS establishes SRB2 and DRBs associated with two default EPS bearer context (a first PDN obtained during the attach procedure and an additional PDN).	-	-	-	-
2	Check: Does the UE transmit a PDN DISCONNECT REQUEST message as specified (to disconnect from the additional PDN)?	-->	PDN DISCONNECT REQUEST	1	P
3	The SS transmits a DEACTIVATE EPS BEARER CONTEXT REQUEST message included in an RRCConnectionReconfiguration message.	<--	DEACTIVATE EPS BEARER CONTEXT REQUEST	-	-
4	The UE transmits a DEACTIVATE EPS BEARER CONTEXT ACCEPT message.	-->	DEACTIVATE EPS BEARER CONTEXT ACCEPT	2	P
5	Void	-	-	-	-
5A	The SS releases the RRC connection.	-	-	-	-
Note 1: The request to disconnect from a PDN may be performed by MMI or AT command.					

10.6.1.3.3 Specific message contents

Table 10.6.1.3.3-1: Message PDN DISCONNECT REQUEST (step 2, Table 10.6.1.3.2-1)

Derivation Path: TS 36.508 Table 4.7.3-22			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS bearer identity	'0000'	"no EPS bearer identity assigned"	
Procedure transaction identity	PTI-1	UE assigns a particular PTI not yet used between 1 and 254	
Linked EPS bearer identity	6		

Table 10.6.1.3.3-1a: Message RRCConnectionReconfiguration (step 3, Table 10.6.1.3.2-1)

Derivation path: 36.508 table 4.6.1-8 using condition DRB-REL(2)

Table 10.6.1.3.3-2: Message DEACTIVATE EPS BEARER CONTEXT REQUEST (step 3, Table 10.6.1.3.2-1)

Derivation Path: TS 36.508 Table 4.7.3-12			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS bearer identity	6	SS re-uses the EPS Bearer Id defined by UE for this present PDN disconnection procedure.	
Procedure transaction identity	PTI-1	SS re-uses the particular PTI defined by UE for this present PDN disconnection procedure.	UE-INITIATED
ESM cause	#36	regular deactivation	

Table 10.6.1.3.3-3: Message DEACTIVATE EPS BEARER CONTEXT ACCEPT (step 4, Table 10.6.1.3.2-1)

Derivation Path: TS 36.508 Table 4.7.3-11			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS bearer identity	6	The same value as the value set in DEACTIVATE EPS BEARER CONTEXT REQUEST message.	
Procedure transaction identity	0	No procedure transaction identity assigned	

10.6.2 Void

10.7 UE requested bearer resource allocation

10.7.1 UE requested bearer resource allocation accepted by the network / New EPS bearer context

10.7.1.1 Test Purpose (TP)

(1)

```
with { UE in PROCEDURE TRANSACTION INACTIVE state and in EMM-IDLE mode }
ensure that {
  when { UE is requested to allocate of bearer resource }
    then { UE sends a BEARER RESOURCE ALLOCATION REQUEST message }
          }
```

(2)

```
with { UE has sent the BEARER RESOURCE ALLOCATION REQUEST message }
ensure that {
  when { UE receives an ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message with the procedure
transaction identity (PTI) indicated in the BEARER RESOURCE ALLOCATION REQUEST message }
    then { UE sends an ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT message }
          }
```

10.7.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.301, clause 6.5.3.2 and 6.5.3.3.

[TS 24.301, clause 6.5.3.2]

In order to request the allocation of bearer resources for one traffic flow aggregate, the UE shall send a BEARER RESOURCE ALLOCATION REQUEST message to the MME, start timer T3480 and enter the state PROCEDURE TRANSACTION PENDING (see example in figure 6.5.3.2.1).

The UE shall include the EPS bearer identity of the default EPS bearer associated with the requested bearer resource in the Linked EPS bearer identity IE. The UE shall set the TFT operation code in the Traffic flow aggregate IE to "Create new TFT". In the Required traffic flow QoS IE, the UE shall indicate a QCI and, if the UE also includes a GBR, the additional GBR required for the traffic flow aggregate.

...

[TS 24.301, clause 6.5.3.3]

...

If the bearer resource allocation requested is accepted by the network, the MME shall initiate either a dedicated EPS bearer context activation procedure or an EPS bearer context modification procedure. Upon receipt of an ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST or MODIFY EPS BEARER CONTEXT REQUEST with a PTI which matches the value used for the BEARER RESOURCE ALLOCATION REQUEST, the UE shall stop timer T3480 and enter the state PROCEDURE TRANSACTION INACTIVE.

If the ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST is received, the UE shall verify that the EPS bearer identity given in the EPS bearer identity IE is not already used by any dedicated EPS bearer contexts associated with the included linked EPS bearer identity. The UE shall then proceed as described in subclause 6.4.2.3 or subclause 6.4.2.4.

...

10.7.1.3 Test description

10.7.1.3.1 Pre-test conditions

System Simulator:

- Cell A

UE:

None.

Preamble:

- The UE is in state Registered, Idle mode (state 2) according to [18].
- A default EPS bearer is established between the first PDN and the UE.

10.7.1.3.2 Test procedure sequence

Table 10.7.1.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Cause the UE to request bearer resource allocation of dedicated EPS bearer associated with first PDN connectivity. (see Note)	-	-	-	-
2	The UE transmits a SERVICE REQUEST message.	-->	SERVICE REQUEST	-	-
2A	The SS establishes SRB2 and DRB associated with the default EPS bearer context activated during the preamble (a first PDN obtained during the attach procedure).	-	-	-	-
3	Check: Does the UE transmit a BEARER RESOURCE ALLOCATION REQUEST message?	-->	BEARER RESOURCE ALLOCATION REQUEST	1	P
4	The SS transmits an ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message.	<--	ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST	-	-
5	Check: Does the UE transmit an ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT message?	-->	ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT	2	P
Note: The trigger in step 1 and the RRC messages in steps 2 to 5 are the same as in the generic procedure in 36.508 clause 6.4.3.1.					

10.7.1.3.3 Specific message contents

Table 10.7.1.3.3-1: Message BEARER RESOURCE ALLOCATION REQUEST (step 3, Table 10.7.1.3.2-1)

Derivation path: 36.508 table 4.7.3-6B			
Information Element	**Value/Remark**	**Comment**	**Condition**
Linked EPS bearer identity	5		

Table 10.7.1.3.3-2: Message ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST (step 4, Table 10.7.1.3.2-1)

Derivation path: 36.508 table 4.7.3-3, condition UE-INITIATED and table 4.6.1-8 with condition AM-DRB-ADD(2)			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	6		
Linked EPS bearer identity	5		

10.7.2 UE requested bearer resource allocation accepted by the network / Existing EPS bearer context

10.7.2.1 Test Purpose (TP)

(1)

```
with { UE in PROCEDURE TRANSACTION INACTIVE state and in EMM-IDLE mode }
ensure that {
  when { UE is requested to allocate of bearer resource }
    then { UE sends a BEARER RESOURCE ALLOCATION REQUEST message }
          }
```

(2)

```
with { UE has sent a BEARER RESOURCE ALLOCATION REQUEST message }
ensure that {
  when { UE receives a MODIFY EPS BEARER CONTEXT REQUEST message with the procedure transaction
identity (PTI) indicated in the BEARER RESOURCE ALLOCATION REQUEST message }
    then { UE sends a MODIFY EPS BEARER CONTEXT ACCEPT message }
          }
```

10.7.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.301, clause 6.5.3.2 and 6.5.3.3.

[TS 24.301, clause 6.5.3.2]

In order to request the allocation of bearer resources for one traffic flow aggregate, the UE shall send a BEARER RESOURCE ALLOCATION REQUEST message to the MME, start timer T3480 and enter the state PROCEDURE TRANSACTION PENDING (see example in figure 6.5.3.2.1).

The UE shall include the EPS bearer identity of the default EPS bearer associated with the requested bearer resource in the Linked EPS bearer identity IE. The UE shall set the TFT operation code in the Traffic flow aggregate IE to "Create new TFT". In the Required traffic flow QoS IE, the UE shall indicate a QCI and, if the UE also includes a GBR, the additional GBR required for the traffic flow aggregate.

...

[TS 24.301, clause 6.5.3.3]

...

If the bearer resource allocation requested is accepted by the network, the MME shall initiate either a dedicated EPS bearer context activation procedure or an EPS bearer context modification procedure. Upon receipt of an ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST or MODIFY EPS BEARER CONTEXT REQUEST with a PTI which matches the value used for the BEARER RESOURCE ALLOCATION REQUEST, the UE shall stop timer T3480 and enter the state PROCEDURE TRANSACTION INACTIVE.

...

If the MODIFY EPS BEARER CONTEXT REQUEST is received, the UE verifies that the EPS bearer identity given in the EPS bearer identity IE is any of the active EPS bearer contexts. The UE shall then proceed as described in subclause 6.4.3.3 or subclause 6.4.3.4.

10.7.2.3 Test description

10.7.2.3.1 Pre-test conditions

System Simulator:

- Cell A

UE:

None.

Preamble:

- The UE is in state Generic RB Established (state 3) according to [18].
- A default EPS bearer and a dedicated bearer are established between the first PDN and the UE.

10.7.2.3.2 Test procedure sequence

Table 10.7.2.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
0	The SS releases the RRC connection.	-	-	-	-

1	Cause the UE to request bearer resource allocation of dedicated EPS bearer associated with first PDN connectivity.(see Note)	-	-	-	-
2	The UE transmits a SERVICE REQUEST message.	-->	SERVICE REQUEST	-	-
2A	The SS establishes SRB2 and DRBs associated with default EPS bearer context and a dedicated bearer context (a first PDN obtained during the attach procedure).	-	-	-	-
3	Check: Does the UE transmit a BEARER RESOURCE ALLOCATION REQUEST message?	-->	BEARER RESOURCE ALLOCATION REQUEST	1	P
4	The SS transmits a MODIFY EPS BEARER CONTEXT REQUEST message. This message is included in a DLInformationTransfer message.	<--	MODIFY EPS BEARER CONTEXT REQUEST	-	-
5	Check: Does the UE transmit a MODIFY EPS BEARER CONTEXT ACCEPT message?	-->	MODIFY EPS BEARER CONTEXT ACCEPT	2	P
Note: The trigger in step 1 and the RRC messages in steps 2 to 5 are the same as in the generic procedure in 36.508 clause 6.4.3.1.					

10.7.2.3.3 Specific message contents

Table 10.7.2.3.3-1: Message BEARER RESOURCE ALLOCATION REQUEST (step 3, Table 10.7.2.3.2-1)

Derivation path: 36.508 table 4.7.3-6B			
Information Element	**Value/Remark**	**Comment**	**Condition**
Linked EPS bearer identity	5		

Table 10.7.2.3.3-2: Message MODIFY EPS BEARER CONTEXT REQUEST (step 4, Table 10.7.2.3.2-1)

Derivation path: 36.508 table 4.7.3-18, condition UE-INITIATED			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	6		
New EPS QoS	According to reference dedicated EPS bearer context #1 - see [18]		
TFT	According to reference dedicated EPS bearer context #2 except for TFT operation code - see [18]	SS modifies the current packet filters of the dedicated EPS bearer context.	
TFT operation code	'011'B	Add packet filters to existing TFT	

10.7.3 UE requested bearer resource allocation not accepted by the network

10.7.3.1 Test Purpose (TP)

(1)

```
with { UE has sent the BEARER RESOURCE ALLOCATION REQUEST message }
ensure that {
  when { UE receives a BEARER RESOURCE ALLOCATION REJECT message with the procedure transaction
identity (PTI) indicated in the BEARER RESOURCE ALLOCATION REQUEST message and a cause "Protocol
error, unspecified" }
    then { UE enters state PROCEDURE TRANSACTION INACTIVE }
          }
```

10.7.3.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.301, clause 6.5.3.4 and 7.3.1.

[TS 24.301, clause 6.5.3.4]

If the bearer resource allocation requested cannot be accepted by the network, the MME shall send a BEARER RESOURCE ALLOCATION REJECT message to the UE. The message shall contain the PTI and an ESM cause value indicating the reason for rejecting the UE requested bearer resource allocation.

The ESM cause value typically indicates one of the following:

#26: insufficient resources;

#30: request rejected by Serving GW or PDN GW;

#31: request rejected, unspecified;

#32: service option not supported;

#33: requested service option not subscribed;

#34: service option temporarily out of order;

#35: PTI already in use;

#37: EPS QoS not accepted;

#41: semantic error in the TFT operation;

#42: syntactical error in the TFT operation;

#43: invalid EPS bearer identity;

#44: semantic error(s) in packet filter(s);

#45: syntactical error(s) in packet filter(s);

#56: collision with network initiated request;

#59: unsupported QCI value; or

#95 – 111: protocol errors.

...

Upon receipt of a BEARER RESOURCE ALLOCATION REJECT message, the UE shall stop the timer T3480, release the traffic flow aggregate description associated to the PTI value, and enter the state PROCEDURE TRANSACTION INACTIVE.

The further actions to be performed by the UE are implementation dependent as part of upper layers responsibility.

[TS 24.301, clause 7.3.1]

...

The following UE procedures shall apply for handling an unknown, erroneous, or unforeseen PTI received in an ESM message:

...

h) If the UE receives an ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message in which the PTI value is an assigned value that does not match any PTI in use, the UE shall respond with an ACTIVATE DEDICATED EPS BEARER CONTEXT REJECT message including ESM cause #47 "PTI mismatch".

...

10.7.3.3 Test description

10.7.3.3.1 Pre-test conditions

System Simulator:

- Cell A

UE:

None.

Preamble:

- The UE is in state Registered, Idle mode (state 2) according to [18].
- A default EPS bearer is established between the first PDN and the UE.

10.7.3.3.2 Test procedure sequence

Table 10.7.3.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Cause the UE to request bearer resource allocation of dedicated EPS bearer associated with first PDN connectivity.(see Note 1)	-	-	-	-
2	The UE transmits a SERVICE REQUEST message.	-->	SERVICE REQUEST	-	-
2A	The SS establishes SRB2 and DRB associated with the default EPS bearer context activated during the preamble (a first PDN obtained during the attach procedure).	-	-	-	-
3	The UE transmits a BEARER RESOURCE ALLOCATION REQUEST message.	-->	BEARER RESOURCE ALLOCATION REQUEST	-	-
4	The SS transmits a BEARER RESOURCE ALLOCATION REJECT message.	<--	BEARER RESOURCE ALLOCATION REJECT	-	-
4A	SS waits for 500ms (Note 2).	-	-	-	-
5	The SS transmits an ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message.	<--	ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST	-	-
6	Check: Does the UE transmit an ACTIVATE DEDICATED EPS BEARER CONTEXT REJECT message?	-->	ACTIVATE DEDICATED EPS BEARER CONTEXT REJECT	1	P

Note 1: The trigger in step 1 and the RRC messages in steps 2 to 6 are the same as in the generic procedure in 36.508 clause 6.4.3.1.

Note 2: The timer of 500ms is added to ensure that UE receives BEARER RESOURCE ALLOCATION REJECT message before ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message.

10.7.3.3.3 Specific message contents

Table 10.7.3.3.3-1: Message BEARER RESOURCE ALLOCATION REQUEST (step 3, Table 10.7.3.3.2-1)

Derivation path: 36.508 table 4.7.3-6B			
Information Element	**Value/Remark**	**Comment**	**Condition**
Linked EPS bearer identity	5		

Table 10.7.3.3.3-2: Message BEARER RESOURCE ALLOCATION REJECT (step 4, Table 10.7.3.3.2-1)

Derivation path: 36.508 table 4.7.3-6A			
Information Element	**Value/Remark**	**Comment**	**Condition**
ESM cause	'0110 1111'B	Protocol error, unspecified	

Table 10.7.3.3.3-3: Message ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST (step 5, Table 10.7.3.3.2-1)

Derivation path: 36.508 table 4.7.3-3 and table 4.6.1-8 with condition AM-DRB-ADD(2)			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	6		
Procedure transaction identity	The same value as the value set in BEARER RESOURCE ALLOCATION REQUEST message in step 3.		
Linked EPS bearer identity	5		

Table 10.7.3.3.3-4: Message ACTIVATE DEDICATED EPS BEARER CONTEXT REJECT (step 6, Table 10.7.3.3.2-1)

Derivation path: 36.508 table 4.7.3-2			
Information Element	**Value/Remark**	**Comment**	**Condition**
ESM cause	'0010 1111'B	PTI mismatch	

10.7.4 UE requested bearer resource allocation / Expiry of timer T3480

10.7.4.1 Test Purpose (TP)

(1)

```
with { UE has sent a BEARER RESOURCE ALLOCATION REQUEST message }
ensure that {
  when { UE detects less than fifth expiry of timer T3480 }
    then { UE re-sends a BEARER RESOURCE ALLOCATION REQUEST message }
           }
```

(2)

```
with { UE has sent the BEARER RESOURCE ALLOCATION REQUEST message 5 times }
ensure that {
  when { UE detects fifth expiry of timer T3480 }
    then { UE does not re-send a BEARER RESOURCE ALLOCATION REQUEST message }
           }
```

10.7.4.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.301, clause 6.5.3.2 and 6.5.3.5.

[TS 24.301, clause 6.5.3.2]

In order to request the allocation of bearer resources for one traffic flow aggregate, the UE shall send a BEARER RESOURCE ALLOCATION REQUEST message to the MME, start timer T3480 and enter the state PROCEDURE TRANSACTION PENDING (see example in figure 6.5.3.2.1).

...

[TS 24.301, clause 6.5.3.5]

a) Expiry of timer T3480:

On the first expiry of the timer T3480, the UE shall resend the BEARER RESOURCE ALLOCATION REQUEST and shall reset and restart timer T3480. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3480, the UE shall abort the procedure, release the PTI allocated for this activation and enter the state PROCEDURE TRANSACTION INACTIVE.

...

10.7.4.3 Test description

10.7.4.3.1 Pre-test conditions

System Simulator:

- Cell A

UE:

None.

Preamble:

- The UE is in state Registered, Idle mode (state 2) according to [18].
- A default EPS bearer is established between the first PDN and the UE.

10.7.4.3.2 Test procedure sequence

Table 10.7.4.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Cause the UE to request bearer resource allocation of dedicated EPS bearer associated with first PDN connectivity.(see Note)	-	-	-	-
2	The UE transmits a SERVICE REQUEST message.	-->	SERVICE REQUEST	-	-
2A	The SS establishes SRB2 and DRB associated with the default EPS bearer context activated during the preamble (a first PDN obtained during the attach procedure).	-	-	-	-
3	The UE transmits a BEARER RESOURCE ALLOCATION REQUEST message.	-->	BEARER RESOURCE ALLOCATION REQUEST	-	-
4	Wait for 8 s to ensure that T3480 expires (1st expiry).	-	-	-	-
5	Check: Does the UE re-transmit a BEARER RESOURCE ALLOCATION REQUEST message?	-->	BEARER RESOURCE ALLOCATION REQUEST	1	P
6	Wait for 8 s to ensure that T3480 expires (2nd expiry).	-	-	-	-
7	Check: Does the UE re-transmit a BEARER RESOURCE ALLOCATION REQUEST message?	-->	BEARER RESOURCE ALLOCATION REQUEST	1	P
8	Wait for 8 s to ensure that T3480 expires (3rd expiry).	-	-	-	-
9	Check: Does the UE re-transmit a BEARER RESOURCE ALLOCATION REQUEST message?	-->	BEARER RESOURCE ALLOCATION REQUEST	1	P
10	Wait for 8 s to ensure that T3480 expires (4th expiry).	-	-	-	-
11	Check: Does the UE re-transmit a BEARER RESOURCE ALLOCATION REQUEST message?	-->	BEARER RESOURCE ALLOCATION REQUEST	1	P
12	Wait for 8 s to ensure that T3480 expires (5th expiry).	-	-	-	-
13	Check: Does the UE re-transmit a BEARER RESOURCE ALLOCATION REQUEST message?	-->	BEARER RESOURCE ALLOCATION REQUEST	2	F
Note: The trigger in step 1 and the RRC messages in steps 2 to 13 are the same as in the generic procedure in 36.508 clause 6.4.3.1.					

10.7.4.3.3 Specific message contents

Table 10.7.4.3.3-1: Message BEARER RESOURCE ALLOCATION REQUEST (step 3,5,7,9,11, Table 10.7.4.3.2-1)

Derivation path: 36.508 table 4.7.3-6B			
Information Element	**Value/Remark**	**Comment**	**Condition**
Linked EPS bearer identity	5		

10.7.5 UE requested bearer resource allocation / BEARER RESOURCE ALLOCATION REJECT message including cause #43 "invalid EPS bearer identity"

10.7.5.1 Test Purpose (TP)

(1)

```
with { UE has sent the BEARER RESOURCE ALLOCATION REQUEST message in order to establish dedicated
EPS bearer between the additional PDN and the UE }
ensure that {
  when { UE receives a BEARER RESOURCE ALLOCATION REJECT message with the procedure transaction
identity (PTI) indicated in the BEARER RESOURCE ALLOCATION REQUEST message and a cause "invalid EPS
bearer identity" }
    then { UE deactivates the EPS bearer context(s) corresponding to the additional PDN locally }
          }
```

10.7.5.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.301, clause 6.5.1.1, 6.5.1.3, 6.5.3.4 and 6.5.3.5.

[TS 24.301, clause 6.5.1.1]

The purpose of the UE requested PDN connectivity procedure is for a UE to request the setup of a default EPS bearer to a PDN. The UE requests connectivity to a PDN by sending a PDN CONNECTIVITY REQUEST message to the network. If accepted by the network, this procedure initiates the establishment of a default EPS bearer context. The procedure is used either to establish the first default bearer by including the PDN CONNECTIVITY REQUEST message into the initial attach message, or to establish subsequent default bearers to additional PDNs in order to allow the UE simultaneous access to multiple PDNs by sending the message stand-alone.

[TS 24.301, clause 6.5.1.3]

...

If connectivity with the requested PDN is accepted by the network, the MME shall initiate the default EPS bearer context activation procedure (see subclause 6.4.1).

...

[TS 24.301, clause 6.5.3.4]

If the bearer resource allocation requested cannot be accepted by the network, the MME shall send a BEARER RESOURCE ALLOCATION REJECT message to the UE. The message shall contain the PTI and an ESM cause value indicating the reason for rejecting the UE requested bearer resource allocation.

The ESM cause value typically indicates one of the following:

...

#43: invalid EPS bearer identity;

...

Upon receipt of a BEARER RESOURCE ALLOCATION REJECT message, the UE shall stop the timer T3480, release the traffic flow aggregate description associated to the PTI value, and enter the state PROCEDURE TRANSACTION INACTIVE.

The further actions to be performed by the UE are implementation dependent as part of upper layers responsibility.

[TS 24.301, clause 6.5.3.5]

The following abnormal cases can be identified:

...

b) Unknown EPS bearer context

Upon receipt of the BEARER RESOURCE ALLOCATION REJECT message including ESM cause #43 "invalid EPS bearer identity", the UE shall deactivate the existing default EPS bearer context locally without peer-to-peer signalling between the UE and the MME.

10.7.5.3 Test description

10.7.5.3.1 Pre-test conditions

System Simulator:

- Cell A

UE:

None.

Preamble:

- The UE is in state Registered, Idle mode (state 2) according to [18].
- A default EPS bearer is established between the first PDN and the UE.

10.7.5.3.2 Test procedure sequence

Table 10.7.5.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Cause the UE to request connectivity to an additional PDN.(see Note 1)	-	-	-	-
2	The UE transmits a SERVICE REQUEST message.	-->	SERVICE REQUEST	-	-
2A	The SS establishes SRB2 and DRB associated with the default EPS bearer context activated during the preamble (a first PDN obtained during the attach procedure).	-	-	-	-
3	The UE transmits a PDN CONNECTIVITY REQUEST message.	-->	PDN CONNECTIVITY REQUEST	-	-
4	The SS transmits an ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message.	<--	ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST	-	-
5	The UE transmits an ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT message.	-->	ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT	-	-
6	Cause the UE to request bearer resource allocation of dedicated EPS bearer associated with additional PDN connectivity. (see Note 2)	-	-	-	-
7	The UE transmits a BEARER RESOURCE ALLOCATION REQUEST message.	-->	BEARER RESOURCE ALLOCATION REQUEST	-	-
8	The SS transmits a BEARER RESOURCE ALLOCATION REJECT message.	<--	BEARER RESOURCE ALLOCATION REJECT	-	-
9	The SS transmits an ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message.	<--	ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST	-	-
10	Check: Does the UE transmit an ACTIVATE DEDICATED EPS BEARER CONTEXT REJECT message?	-->	ACTIVATE DEDICATED EPS BEARER CONTEXT REJECT	1	P
Note 1: The trigger in step 1 and the RRC messages in steps 2 to 5 are the same as in the generic procedure in 36.508 clause 6.4.3.2.					
Note 2: The trigger in step 6 and the RRC messages in steps 7 to 10 are the same as in the generic procedure in 36.508 clause 6.4.3.1.					

10.7.5.3.3 Specific message contents

Table 10.7.5.3.3-1: Message PDN CONNECTIVITY REQUEST (step 3, Table 10.7.5.3.2-1)

Derivation path: 36.508 table 4.7.3-20			
Information Element	**Value/Remark**	**Comment**	**Condition**
ESM information transfer flag	Not present		
Access point name	Arbitrary name	different from first PDN	

Table 10.7.5.3.3-2: Message ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST (step 4, Table 10.7.5.3.2-1)

Derivation path: 36.508 table 4.7.3-6 and table 4.6.1-8 with condition AM-DRB-ADD(2)			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	6		

Table 10.7.5.3.3-3: Message ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT (step 5, Table 10.7.5.3.2-1)

Derivation path: 36.508 table 4.7.3-4			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	6		

Table 10.7.5.3.3-4: Message BEARER RESOURCE ALLOCATION REQUEST (step 7, Table 10.7.5.3.2-1)

Derivation path: 36.508 table 4.7.3-6B			
Information Element	**Value/Remark**	**Comment**	**Condition**
Linked EPS bearer identity	6		

Table 10.7.5.3.3-5: Message BEARER RESOURCE ALLOCATION REJECT (step 8, Table 10.7.5.3.2-1)

Derivation path: 36.508 table 4.7.3-6A			
Information Element	**Value/Remark**	**Comment**	**Condition**
ESM cause	'0010 1011'B	Invalid EPS bearer identity	

Table 10.7.5.3.3-6: Message ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST (step 9, Table 10.7.5.3.2-1)

Derivation path: 36.508 table 4.7.3-3 with condition NETWORK-INITIATED and table 4.6.1-8 with condition AM-DRB-ADD(3)			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	7		
Linked EPS bearer identity	6		

Table 10.7.5.3.3-7: Message ACTIVATE DEDICATED EPS BEARER CONTEXT REJECT (step 10, Table 10.7.5.3.2-1)

Derivation path: 36.508 table 4.7.3-2			
Information Element	**Value/Remark**	**Comment**	**Condition**
ESM cause	'0010 1011'B	invalid EPS bearer identity	

10.8 UE requested bearer resource modification

10.8.1 UE requested bearer resource modification accepted by the network / New EPS bearer context

10.8.1.1 Test Purpose (TP)

(1)

```
with { UE in PROCEDURE TRANSACTION INACTIVE state and in EMM-CONNECTED mode }
ensure that {
  when { UE is requested to modify of bearer resource corresponding to the dedicated bearer }
    then { UE sends a BEARER RESOURCE MODIFICATION REQUEST message }
          }
```

(2)

```
with { UE having sent the BEARER RESOURCE MODIFICATION REQUEST message }
ensure that {
  when { UE receives an ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message with the procedure
transaction identity (PTI) indicated in the BEARER RESOURCE MODIFICATION REQUEST message }
    then { UE sends an ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT message }
          }
```

10.8.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.301, clause 6.4.2.3, 6.5.4.2 and 6.5.4.3.

[TS 24.301, clause 6.4.2.3]

...

The linked EPS bearer identity included in the ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message indicates to the UE to which default bearer, IP address and PDN the dedicated bearer is linked.

If the PTI is included in the ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message, the UE uses the PTI to identify the UE requested bearer resource allocation procedure or the UE requested bearer resource modification procedure to which the dedicated bearer context activation is related.

...

[TS 24.301, clause 6.5.4.2]

In order to request the modification of bearer resources for one traffic flow aggregate, the UE shall send a BEARER RESOURCE MODIFICATION REQUEST message to the MME, start timer T3481 and enter the state PROCEDURE TRANSACTION PENDING (see example in figure 6.5.3.2.1).

...

[TS 24.301, clause 6.5.4.3]

Upon receipt of the BEARER RESOURCE MODIFICATION REQUEST message, the MME checks whether the resources requested by the UE can be established, modified or released by verifying the EPS bearer identity given in the EPS bearer identity for packet filter IE.

If the bearer resource modification requested is accepted by the network, the MME shall initiate either a dedicated EPS bearer context activation procedure, an EPS bearer context modification procedure or an EPS bearer context deactivation procedure.

Upon receipt of an ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST, MODIFY EPS BEARER CONTEXT REQUEST or DEACTIVATE EPS BEARER CONTEXT REQUEST with a PTI which matches the value used for the BEARER RESOURCE MODIFICATION REQUEST, the UE shall stop timer T3481 and enter the state PROCEDURE TRANSACTION INACTIVE.

i) If the ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST is received, the UE shall verify that the EPS bearer identity given in the EPS bearer identity IE is not already used by any dedicated EPS bearer contexts associated with the included linked EPS bearer identity. The UE shall then proceed as described in subclause 6.4.2.3 or subclause 6.4.2.4.

...

10.8.1.3 Test description

10.8.1.3.1 Pre-test conditions

System Simulator:

- Cell A

UE:

None.

Preamble:

- The UE is in state Generic RB Established (state 3) according to [18].
- A default EPS bearer and a dedicated bearer are established between the first PDN and the UE.

10.8.1.3.2 Test procedure sequence

Table 10.8.1.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Cause the UE to request bearer resource modification of dedicated EPS bearer associated with first PDN connectivity.(see Note)	-	-	-	-
2	Check: Does the UE transmit a BEARER RESOURCE MODIFICATION REQUEST message?	-->	BEARER RESOURCE MODIFICATION REQUEST	1	P
3	The SS transmits an ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message.	<--	ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST	-	-
4	Check: Does the UE transmit an ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT message?	-->	ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT	2	P
Note: The trigger in step 1 and the RRC messages in steps 2 to 4 are the same as in the generic procedure in 36.508 clause 6.4.3.3.					

10.8.1.3.3 Specific message contents

Table 10.8.1.3.3-1: Message ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST (step 3, Table 10.8.1.3.2-1)

Derivation path: 36.508 table 4.7.3-3, condition UE-INITIATED and table 4.6.1-8 with condition AM-DRB-ADD(3)			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	7		
EPS QoS	According to reference dedicated EPS bearer context #1 - see [18]		
TFT	According to reference dedicated EPS bearer context #2 - see [18]		

10.8.2 UE requested bearer resource modification accepted by the network / Existing EPS bearer context

10.8.2.1 Test Purpose (TP)

(1)

```
with { UE in PROCEDURE TRANSACTION INACTIVE state and in EMM-CONNECTED mode }
ensure that {
  when { UE is requested to modify of bearer resource corresponding to the dedicated bearer }
    then { UE sends a BEARER RESOURCE MODIFICATION REQUEST message }
          }
```

(2)

```
with { UE having sent the BEARER RESOURCE MODIFICATION REQUEST message }
ensure that {
  when { UE receives a MODIFY EPS BEARER CONTEXT REQUEST message with the procedure transaction
identity (PTI) indicated in the BEARER RESOURCE MODIFICATION REQUEST message }
    then { UE sends a MODIFY EPS BEARER CONTEXT ACCEPT message }
          }
```

10.8.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.301, clause 6.5.4.2, 6.5.4.3 and 6.4.3.3.

[TS 24.301, clause 6.5.4.2]

In order to request the modification of bearer resources for one traffic flow aggregate, the UE shall send a BEARER RESOURCE MODIFICATION REQUEST message to the MME, start timer T3481 and enter the state PROCEDURE TRANSACTION PENDING (see example in figure 6.5. 4.2.1).

...

[TS 24.301, clause 6.5.4.3]

Upon receipt of the BEARER RESOURCE MODIFICATION REQUEST message, the MME checks whether the resources requested by the UE can be established, modified or released by verifying the EPS bearer identity given in the EPS bearer identity for packet filter IE.

If the bearer resource modification requested is accepted by the network, the MME shall initiate either a dedicated EPS bearer context activation procedure, an EPS bearer context modification procedure or an EPS bearer context deactivation procedure.

Upon receipt of an ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST, MODIFY EPS BEARER CONTEXT REQUEST or DEACTIVATE EPS BEARER CONTEXT REQUEST message with a PTI which matches the value used for the BEARER RESOURCE MODIFICATION REQUEST message, the UE shall stop timer T3481 and enter the state PROCEDURE TRANSACTION INACTIVE.

...

ii) If the MODIFY EPS BEARER CONTEXT REQUEST message is received, the UE verifies that the EPS bearer identity given in the EPS bearer identity IE is any of the active EPS bearer contexts. The UE shall then proceed as described in subclause 6.4.3.3 or subclause 6.4.3.4.

...

[TS 24.301, clause 6.4.3.3]

...

If the MODIFY EPS BEARER CONTEXT REQUEST message contains a PTI value other than "no procedure transaction identity assigned" and "reserved" (see 3GPP TS 24.007 [12]), the UE uses the PTI to identify the UE requested bearer resource allocation procedure or the UE requested bearer resource modification procedure to which the EPS bearer context modification is related (see subclause 6.5.3 and subclause 6.5.4).

If the MODIFY EPS BEARER CONTEXT REQUEST message contains a PTI value other than "no procedure transaction identity assigned" and "reserved" (see 3GPP TS 24.007 [12]) and the PTI is associated to a UE requested bearer resource allocation procedure or a UE requested bearer resource modification procedure, the UE shall release the traffic flow aggregate description associated to the PTI value provided.

...

10.8.2.3 Test description

10.8.2.3.1 Pre-test conditions

System Simulator:

- Cell A

UE:

None

Preamble:

- The UE is in state Generic RB Established (state 3) according to [18].
- A default EPS bearer and a dedicated bearer are established between the first PDN and the UE.

10.8.2.3.2 Test procedure sequence

Table 10.8.2.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Cause the UE to request bearer resource modification of dedicated EPS bearer associated with first PDN connectivity.(see Note)	-	-	-	-
2	Check: Does the UE transmit a BEARER RESOURCE MODIFICATION REQUEST message?	-->	BEARER RESOURCE MODIFICATION REQUEST	1	P
3	The SS transmits a MODIFY EPS BEARER CONTEXT REQUEST message. This message is included in a DLInformationTransfer message.	<--	MODIFY EPS BEARER CONTEXT REQUEST	-	-
4	Check: Does the UE transmit a MODIFY EPS BEARER CONTEXT ACCEPT message?	-->	MODIFY EPS BEARER CONTEXT ACCEPT	2	P
Note: The trigger in step 1 and the RRC messages in steps 2 to 4 are the same as in the generic procedure in 36.508 clause 6.4.3.3.					

10.8.2.3.3 Specific message contents

Table 10.8.2.3.3-1: Message BEARER RESOURCE MODIFICATION REQUEST (step 2, Table 10.8.2.3.2-1)

Derivation path: 36.508 table 4.7.3-8			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity for packet filter	6		

Table 10.8.2.3.3-2: Message MODIFY EPS BEARER CONTEXT REQUEST (step 3, Table 10.8.2.3.2-1)

Derivation path: 36.508 table 4.7.3-18, condition UE-INITIATED			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	6		
New EPS QoS	According to reference dedicated EPS bearer context #1 - see [18]		

10.8.3 UE requested bearer resource modification not accepted by the network

10.8.3.1 Test Purpose (TP)

(1)

```
with { UE has sent the BEARER RESOURCE MODIFICATION REQUEST message }
ensure that {
  when { UE receives a BEARER RESOURCE MODIFICATION REJECT message with the procedure transaction
identity (PTI) indicated in the BEARER RESOURCE MODIFICATION REQUEST message and a cause "Protocol
error, unspecified" }
    then { UE enters state PROCEDURE TRANSACTION INACTIVE }
          }
```

10.8.3.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.301, clause 6.5.4.4 and 7.3.1.

[TS 24.301, clause 6.5.4.4]

If the bearer resource modification requested cannot be accepted by the network, the MME shall send a BEARER RESOURCE MODIFICATION REJECT message to the UE. The message shall contain the PTI and an ESM cause value indicating the reason for rejecting the UE requested bearer resource modification.

The ESM cause value typically indicates one of the following:

#26: insufficient resources;

#30: request rejected by Serving GW or PDN GW;

#31: request rejected, unspecified;

#32: service option not supported;

#33: requested service option not subscribed;

#34: service option temporarily out of order;

#35: PTI already in use;

#37: EPS QoS not accepted;

#41: semantic error in the TFT operation;

#42: syntactical error in the TFT operation;

#43: invalid EPS bearer identity;

#44: semantic error(s) in packet filter(s);

#45: syntactical error(s) in packet filter(s);

#56: collision with network initiated request;

#59: unsupported QCI value; or

#95 – 111: protocol errors.

...

Upon receipt of a BEARER RESOURCE MODIFICATION REJECT message, the UE shall stop the timer T3481, release the traffic flow aggregate description associated to the PTI value, and enter the state PROCEDURE TRANSACTION INACTIVE. If the ESM cause included in the BEARER RESOURCE MODIFICATION REJECT message is #43 "invalid EPS bearer identity", the UE locally deactivates the EPS bearer context(s) without peer-to-peer ESM signalling.

The further actions to be performed by the UE are implementation dependent as part of upper layers responsibility.

...

[TS 24.301, clause 7.3.1]

...

The following UE procedures shall apply for handling an unknown, erroneous, or unforeseen PTI received in an ESM message:

...

h) If the UE receives an ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message in which the PTI value is an assigned value that does not match any PTI in use, the UE shall respond with an ACTIVATE DEDICATED EPS BEARER CONTEXT REJECT message including ESM cause #47 "PTI mismatch".

...

10.8.3.3 Test description

10.8.3.3.1 Pre-test conditions

System Simulator:

- Cell A

UE:

None.

Preamble:

- The UE is in state Generic RB Established (state 3) according to [18].
- A default EPS bearer and a dedicated bearer are established between the first PDN and the UE.

10.8.3.3.2 Test procedure sequence

Table 10.8.3.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Cause the UE to request bearer resource modification of dedicated EPS bearer associated with first PDN connectivity.(see Note 1)	-	-	-	-
2	The UE transmits a BEARER RESOURCE MODIFICATION REQUEST message.	-->	BEARER RESOURCE MODIFICATION REQUEST	-	-
3	The SS transmits a BEARER RESOURCE MODIFICATION REJECT message.	<--	BEARER RESOURCE MODIFICATION REJECT	-	-
3A	SS waits for 500ms (Note 2).	-	-	-	-
4	The SS transmits an ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message.	<--	ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST	-	-
5	Check: Does the UE transmit an ACTIVATE DEDICATED EPS BEARER CONTEXT REJECT message?	-->	ACTIVATE DEDICATED EPS BEARER CONTEXT REJECT	1	P

Note 1: The trigger in step 1 and the RRC messages in steps 2 to 5 are the same as in the generic procedure in 36.508 clause 6.4.3.3.

Note 2: The timer of 500ms is added to ensure that UE receives BEARER RESOURCE MODIFICATION REJECT message before ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message.

10.8.3.3.3 Specific message contents

Table 10.8.3.3.3-1: Message BEARER RESOURCE MODIFICATION REQUEST (step 2, Table 10.8.3.3.2-1)

Derivation path: 36.508 table 4.7.3-8			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity for packet filter	6		

Table 10.8.3.3.3-2: Message BEARER RESOURCE MODIFICATION REJECT (step 3, Table 10.8.3.3.2-1)

Derivation path: 36.508 table 4.7.3-6A			
Information Element	**Value/Remark**	**Comment**	**Condition**
ESM cause	'0110 1111'B	Protocol error, unspecified	

Table 10.8.3.3.3-3: Message ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST (step 4, Table 10.8.3.3.2-1)

Derivation path: 36.508 table 4.7.3-3 and table 4.6.1-8 with condition AM-DRB-ADD(3)			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	7		
Procedure transaction identity	The same value as the value set in BEARER RESOURCE MODIFICATION REQUEST message in step 2.		
Linked EPS bearer identity	5		
EPS QoS	According to reference dedicated EPS bearer context #2 - see [18]		
TFT	According to reference dedicated EPS bearer context #2 - see [18]		

Table 10.8.3.3.3-4: Message ACTIVATE DEDICATED EPS BEARER CONTEXT REJECT (step 5, Table 10.8.3.3.2-1)

Derivation path: 36.508 table 4.7.3-2			
Information Element	**Value/Remark**	**Comment**	**Condition**
ESM cause	'0010 1111'B	PTI mismatch	

10.8.4 UE requested bearer resource modification / Cause #36 "regular deactivation"

10.8.4.1 Test Purpose (TP)

(1)

```
with { UE in PROCEDURE TRANSACTION INACTIVE state and in EMM-CONNECTED mode }
ensure that {
  when { UE is requested to release of bearer resources corresponding to the dedicated bearer }
    then { UE sends a BEARER RESOURCE MODIFICATION REQUEST message with a cause "regular
deactivation" }
            }
```

(2)

```
with { UE having sent the BEARER RESOURCE MODIFICATION REQUEST message }
ensure that {
  when { UE receives a DEACTIVATE EPS BEARER CONTEXT REQUEST message with the procedure transaction
identity (PTI) indicated in the BEARER RESOURCE MODIFICATION REQUEST message and the EPS bearer
identity pointing an existing EPS bearer context }
    then { UE deactivates the EPS bearer context identified by the EPS bearer identity indicated in
the DEACTIVATE EPS BEARER CONTEXT REQUEST message and sends a DEACTIVATE EPS BEARER CONTEXT ACCEPT
message }
            }
```

10.8.4.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.301, clause 6.5.4.3, 6.4.4.3 and 7.3.2.

[TS 24.301, clause 6.5.4.3]

Upon receipt of the BEARER RESOURCE MODIFICATION REQUEST message, the MME checks whether the resources requested by the UE can be established, modified or released by verifying the EPS bearer identity given in the EPS bearer identity for packet filter IE.

If the bearer resource modification requested is accepted by the network, the MME shall initiate either a dedicated EPS bearer context activation procedure, an EPS bearer context modification procedure or an EPS bearer context deactivation procedure.

Upon receipt of an ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST, MODIFY EPS BEARER CONTEXT REQUEST or DEACTIVATE EPS BEARER CONTEXT REQUEST message with a PTI which matches the value used for the BEARER RESOURCE MODIFICATION REQUEST message, the UE shall stop timer T3481 and enter the state PROCEDURE TRANSACTION INACTIVE.

...

iii) If the DEACTIVATE EPS BEARER CONTEXT REQUEST message is received, the UE verifies that the EPS bearer identity given in the EPS bearer identity IE is any of the active EPS bearer contexts associated with the included linked EPS bearer identity The UE shall then proceed as described in subclause 6.4.4.3.

...

[TS 24.301, clause 6.4.4.3]

Upon receipt of the DEACTIVATE EPS BEARER CONTEXT REQUEST message, the UE shall delete the EPS bearer context identified by the EPS bearer identity. After deactivating the identified EPS bearer context, the UE shall respond to the MME with the DEACTIVATE EPS BEARER CONTEXT ACCEPT.

...

Upon sending the DEACTIVATE EPS BEARER CONTEXT ACCEPT message, the UE shall enter the state BEARER CONTEXT INACTIVE

If the DEACTIVATE EPS BEARER CONTEXT REQUEST message contains a PTI value other than "no procedure transaction identity assigned" and "reserved" (see 3GPP TS 24.007 [12]), the UE uses the PTI to identify the UE requested bearer resource modification procedure or UE requested PDN disconnect procedure to which the EPS bearer context deactivation is related (see subclause 6.5.4).

If the DEACTIVATE EPS BEARER CONTEXT REQUEST message contains a PTI value other than "no procedure transaction identity assigned" and "reserved" (see 3GPP TS 24.007 [12]), the UE shall release the traffic flow aggregate description associated to the PTI value provided.

...

[TS 24.301, clause 7.3.2]

...

The following UE procedures shall apply for handling an unknown, erroneous, or unforeseen EPS bearer identity received in the header of an ESM message:

...

i) If the UE receives a MODIFY EPS BEARER CONTEXT REQUEST message which includes an unassigned or reserved EPS bearer identity value or an assigned EPS bearer identity value that does not match an existing EPS bearer context, the UE shall respond with a MODIFY EPS BEARER CONTEXT REJECT message including ESM cause #43 "invalid EPS bearer identity".

...

10.8.4.3 Test description

10.8.4.3.1 Pre-test conditions

System Simulator:

- Cell A

UE:

None.

Preamble:

- The UE is in state Generic RB Established (state 3) according to [18].
- A default EPS bearer and a dedicated bearer are established between the first PDN and the UE.

10.8.4.3.2 Test procedure sequence

Table 10.8.4.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Cause the UE to request bearer resource release of dedicated EPS bearer associated with first PDN connectivity (see Note).	-	-	-	-
2	Check: Does the UE transmit a BEARER RESOURCE MODIFICATION REQUEST message?	-->	BEARER RESOURCE MODIFICATION REQUEST	1	P
3	The SS transmits a DEACTIVATE EPS BEARER CONTEXT REQUEST message.	<--	DEACTIVATE EPS BEARER CONTEXT REQUEST	-	-
4	Check: Does the UE transmit a DEACTIVATE EPS BEARER CONTEXT ACCEPT message?	-->	DEACTIVATE EPS BEARER CONTEXT ACCEPT	2	P
5	The SS transmits a MODIFY EPS BEARER CONTEXT REQUEST message. This message is included in a DLInformationTransfer message.	<--	MODIFY EPS BEARER CONTEXT REQUEST	-	-
6	Check: Does the UE transmit a MODIFY EPS BEARER CONTEXT REJECT message?	-->	MODIFY EPS BEARER CONTEXT REJECT	2	P
Note: The trigger in step 1 and the RRC messages in steps 2 to 4 are the same as in the generic procedure in 36.508 clause 6.4.3.4.					

10.8.4.3.3 Specific message contents

Table 10.8.4.3.3-1: Message BEARER RESOURCE MODIFICATION REQUEST (step 2, Table 10.8.4.3.2-1)

Derivation path: 36.508 table 4.7.3-8, condition RELEASE-REQUESTED			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity for packet filter	6		
ESM cause	'0010 0100'B	Regular deactivation	

Table 10.8.4.3.3-2: Message DEACTIVATE EPS BEARER CONTEXT REQUEST (step 3, Table 10.8.4.3.2-1)

Derivation path: 36.508 table 4.7.3-12, condition UE-INITIATED and table 4.6.1-8 with condition DRB-REL(2)			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	6		

Table 10.8.4.3.3-3: Message MODIFY EPS BEARER CONTEXT REQUEST (step 5, Table 10.8.4.3.2-1)

Derivation path: 36.508 table 4.7.3-18, condition NETWORK-INITIATED			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	6		
New EPS QoS	According to reference dedicated EPS bearer context #2 - see [18]		
TFT	According to reference dedicated EPS bearer context #2 except for TFT operation code - see [18]		
TFT operation code	'100'B	Replace packet filters in existing TFT	

Table 10.8.4.3.3-4: Message MODIFY EPS BEARER CONTEXT REJECT (step 6, Table 10.8.4.3.2-1)

Derivation path: 36.508 table 4.7.3-17			
Information Element	**Value/Remark**	**Comment**	**Condition**
ESM cause	'0010 1011'B	Invalid EPS bearer identity	

10.8.5 UE requested bearer resource modification / BEARER RESOURCE MODIFICATION REJECT message including cause #43 "invalid EPS bearer identity"

10.8.5.1 Test Purpose (TP)

(1)

```
with { UE has sent the BEARER RESOURCE MODIFICATION REQUEST message }
ensure that {
  when { UE receives a BEARER RESOURCE MODIFICATION REJECT message with the procedure transaction
identity (PTI) indicated in the BEARER RESOURCE MODIFICATION REQUEST message and a cause "invalid
EPS bearer identity" }
    then { UE deactivates the EPS bearer context identified by the EPS bearer identity indicated in
the BEARER RESOURCE MODIFICATION REQUEST message }
           }
```

10.8.5.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.301, clause 6.5.4.4, 6.5.4.5 and 7.3.2.

[TS 24.301, clause 6.5.4.4]

If the bearer resource modification requested cannot be accepted by the network, the MME shall send a BEARER RESOURCE MODIFICATION REJECT message to the UE. The message shall contain the PTI and an ESM cause value indicating the reason for rejecting the UE requested bearer resource modification.

The ESM cause value typically indicates one of the following:

...

#43: invalid EPS bearer identity;

...

Upon receipt of a BEARER RESOURCE MODIFICATION REJECT message, the UE shall stop the timer T3481, release the traffic flow aggregate description associated to the PTI value, and enter the state PROCEDURE TRANSACTION INACTIVE. If the ESM cause included in the BEARER RESOURCE MODIFICATION REJECT message is #43 "invalid EPS bearer identity", the UE locally deactivates the EPS bearer context(s) without peer-to-peer ESM signalling.

The further actions to be performed by the UE are implementation dependent as part of upper layers responsibility.

[TS 24.301, clause 6.5.4.5]

The following abnormal cases can be identified:

...

b) Unknown EPS bearer context

Upon receipt of the BEARER RESOURCE MODIFICATION REJECT message including ESM cause #43 "invalid EPS bearer identity", the UE shall deactivate the existing EPS bearer context locally without peer-to-peer signalling between the UE and the MME.

...

[TS 24.301, clause 7.3.2]

...

The following UE procedures shall apply for handling an unknown, erroneous, or unforeseen EPS bearer identity received in the header of an ESM message:

...

h) If the UE receives a MODIFY EPS BEARER CONTEXT REQUEST message which includes an unassigned or reserved EPS bearer identity value or an assigned EPS bearer identity value that does not match an existing EPS bearer context, the UE shall respond with a MODIFY EPS BEARER CONTEXT REJECT message including ESM cause #43 "invalid EPS bearer identity".

...

10.8.5.3 Test description

10.8.5.3.1 Pre-test conditions

System Simulator:

- Cell A

UE:

None.

Preamble:

- The UE is in state Generic RB Established (state 3) according to [18].
- A default EPS bearer and a dedicated bearer are established between the first PDN and the UE.

10.8.5.3.2 Test procedure sequence

Table 10.8.5.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Cause the UE to request bearer resource modification of dedicated EPS bearer associated with first PDN connectivity.(see Note)	-	-	-	-
2	The UE transmits a BEARER RESOURCE MODIFICATION REQUEST message.	-->	BEARER RESOURCE MODIFICATION REQUEST	-	-
3	The SS transmits a BEARER RESOURCE MODIFICATION REJECT message.	<--	BEARER RESOURCE MODIFICATION REJECT	-	-
4	The SS transmits a MODIFY EPS BEARER CONTEXT REQUEST message. This message is included in a DLInformationTransfer message.	<--	MODIFY EPS BEARER CONTEXT REQUEST	-	-
5	Check: Does the UE transmit a MODIFY EPS BEARER CONTEXT REJECT message?	-->	MODIFY EPS BEARER CONTEXT REJECT	1	P
Note: The trigger in step 1 and the RRC messages in steps 2 to 5 are the same as in the generic procedure in 36.508 clause 6.4.3.3.					

10.8.5.3.3 Specific message contents

Table 10.8.5.3.3-1: Message BEARER RESOURCE MODIFICATION REQUEST (step 2, Table 10.8.5.3.2-1)

Derivation path: 36.508 table 4.7.3-8			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity for packet filter	6		

Table 10.8.5.3.3-2: Message BEARER RESOURCE MODIFICATION REJECT (step 3, Table 10.8.5.3.2-1)

Derivation path: 36.508 table 4.7.3-7			
Information Element	**Value/Remark**	**Comment**	**Condition**
ESM cause	'0010 1011'B	Invalid EPS bearer identity	

Table 10.8.5.3.3-3: Message MODIFY EPS BEARER CONTEXT REQUEST (step 4, Table 10.8.5.3.2-1)

Derivation path: 36.508 table 4.7.3-18 and table 4.6.1-8 with condition AM-DRB-ADD(2)			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	6		
Procedure transaction identity	0	No procedure transaction identity assigned	
New EPS QoS	According to reference dedicated EPS bearer context #2 - see [18]		
TFT	According to reference dedicated EPS bearer context #2 except for TFT operation code - see [18]		
TFT operation code	'100'B	Replace packet filters in existing TFT	

Table 10.8.5.3.3-4: Message MODIFY EPS BEARER CONTEXT REJECT (step 5, Table 10.8.5.3.2-1)

Derivation path: 36.508 table 4.7.3-17			
Information Element	**Value/Remark**	**Comment**	**Condition**
ESM cause	'0010 1011'B	Invalid EPS bearer identity	

10.8.6 UE requested bearer resource modification / Collision of a UE requested bearer resource modification procedure and EPS bearer context deactivation procedure

10.8.6.1 Test Purpose (TP)

(1)

```
with { UE having sent the BEARER RESOURCE MODIFICATION REQUEST message }
ensure that {
  when { UE receives a DEACTIVATE EPS BEARER CONTEXT REQUEST message with an unassigned PTI value
and the EPS bearer identity indicated in the BEARER RESOURCE MODIFICATION REQUEST message }
    then { UE aborts the UE requested bearer resource modification procedure and deactivates the EPS
bearer context identified by the EPS bearer identity indicated in DEACTIVATE EPS BEARER CONTEXT
REQUEST message and sends a DEACTIVATE EPS BEARER CONTEXT ACCEPT message }
           }
```

10.8.6.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.301, clause 6.5.4.5 and 7.3.2.

[TS 24.301, clause 6.5.4.5]

The following abnormal cases can be identified:

...

c) Collision of a UE requested bearer resource modification procedure and an EPS bearer context deactivation procedure.

When the UE receives a DEACTIVATE EPS BEARER CONTEXT REQUEST message during the bearer resource modification procedure, and the EPS bearer identity indicated in the DEACTIVATE EPS BEARER CONTEXT REQUEST message is a EPS bearer context the UE indicated in the UE requested bearer resource modification procedure, then the UE shall abort the UE requested bearer resource modification procedure and proceed with the EPS bearer context deactivation procedure.

[TS 24.301, clause 7.3.1]

The following UE procedures shall apply for handling an unknown, erroneous, or unforeseen PTI received in an ESM message:

...

j) If the UE receives a MODIFY EPS BEARER CONTEXT REQUEST message in which the PTI value is an assigned value that does not match any PTI in use, the UE shall respond with a MODIFY EPS BEARER CONTEXT REJECT message including ESM cause #47 "PTI mismatch".

10.8.6.3 Test description

10.8.6.3.1 Pre-test conditions

System Simulator:

- Cell A

UE:

None.

Preamble:

- The UE is in state Generic RB Established (state 3) according to [18].
- A default EPS bearer and a dedicated bearer are established between the first PDN and the UE.

10.8.6.3.2 Test procedure sequence

Table 10.8.6.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Cause the UE to request bearer resource modification of dedicated EPS bearer associated with first PDN connectivity.(see Note)	-	-	-	-
2	The UE transmits a BEARER RESOURCE MODIFICATION REQUEST message.	-->	BEARER RESOURCE MODIFICATION REQUEST	-	-
3	The SS transmits a DEACTIVATE EPS BEARER CONTEXT REQUEST message.	<--	DEACTIVATE EPS BEARER CONTEXT REQUEST	-	-
4	Check: Does the UE transmit a DEACTIVATE EPS BEARER CONTEXT ACCEPT message?	-->	DEACTIVATE EPS BEARER CONTEXT ACCEPT	1	P
5	The SS transmits a MODIFY EPS BEARER CONTEXT REQUEST message. This message is included in a DLInformationTransfer message.	<--	MODIFY EPS BEARER CONTEXT REQUEST	-	-
6	Check: Does the UE transmit a MODIFY EPS BEARER CONTEXT REJECT message?	-->	MODIFY EPS BEARER CONTEXT REJECT	1	P
Note: The trigger in step 1 and the RRC messages in steps 2 to 4 are the same as in the generic procedure in 36.508 clause 6.4.3.4.					

10.8.6.3.3 Specific message contents

Table 10.8.6.3.3-1: Message BEARER RESOURCE MODIFICATION REQUEST (step 2, Table 10.8.6.3.2-1)

Derivation path: 36.508 table 4.7.3-8			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity for packet filter	6		

Table 10.8.6.3.3-2: Message DEACTIVATE EPS BEARER CONTEXT REQUEST (step 3, Table 10.8.6.3.2-1)

Derivation path: 36.508 table 4.7.3-12, condition NETWORK-INITIATED and table 4.6.1-8 with condition DRB-REL(2)			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	6		

Table 10.8.6.3.3-3: Message MODIFY EPS BEARER CONTEXT REQUEST (step 5, Table 10.8.6.3.2-1)

Derivation path: 36.508 table 4.7.3-18			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	6		
Procedure transaction identity	The same value as the value set in BEARER RESOURCE MODIFICATION REQUEST message in step 2.		
New EPS QoS	According to reference dedicated EPS bearer context #2 - see [18]		
TFT	According to reference dedicated EPS bearer context #2 except for TFT operation code - see [18]		
TFT operation code	'100'B	Replace packet filters in existing TFT	

Table 10.8.6.3.3-4: Message MODIFY EPS BEARER CONTEXT REJECT (step 6, Table 10.8.6.3.2-1)

Derivation path: 36.508 table 4.7.3-17			
Information Element	**Value/Remark**	**Comment**	**Condition**
ESM cause	'0010 1111'B	PTI mismatch	

10.8.7 UE requested bearer resource modification / Expiry of timer T3481

10.8.7.1 Test Purpose (TP)

(1)

```
with { UE has sent a BEARER RESOURCE MODIFICATION REQUEST message }
ensure that {
  when { UE detects less than fifth expiry of timer T3481 }
    then { UE re-sends a BEARER RESOURCE MODIFICATION REQUEST message }
           }
```

(2)

```
with { UE is in EMM-REGISTERED.NO-CELL-AVAILABLE state and has deactivated the EPS bearer context
without peer-to-peer signalling between the UE and the MME }
ensure that {
  when { UE receives indication of "back to E-UTRAN coverage" from the lower layers }
    then { UE sends TRACKING AREA UPDATE REQUEST message }
           }
```

10.8.7.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.301, clause 5.5.3.2.2 and 6.5.4.5.

[TS 24.301, clause 5.5.3.2.2]

The UE in state EMM-REGISTERED shall initiate the tracking area updating procedure by sending a TRACKING AREA UPDATE REQUEST message to the MME,

...

f) when the UE deactivated EPS bearer context(s) locally while in EMM-REGISTERED.NO-CELL-AVAILABLE, and then returns to EMM-REGISTERED.NORMAL-SERVICE;

...

[TS 24.301, clause 6.5.4.5]

The following abnormal cases can be identified:

a) Expiry of timer T3481:

On the first expiry of the timer T3481, the UE shall resend the BEARER RESOURCE MODIFICATION REQUEST and shall reset and restart timer T3481. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3481, the UE shall abort the procedure, release the PTI allocated for this activation and enter the state PROCEDURE TRANSACTION INACTIVE. In addition, if the UE had initiated resource release for all the traffic flows for the bearer, it shall deactivate the EPS bearer context locally without peer-to-peer signalling between the UE and the MME. In order to synchronize the EPS bearer context status with the MME, on indication of "back to E-UTRAN coverage" from the lower layers, the UE shall send a TRACKING AREA UPDATE REQUEST message that includes the EPS bearer context status IE to the MME.

...

10.8.7.3 Test description

10.8.7.3.1 Pre-test conditions

System Simulator:

- Cell A

UE:

None.

Preamble:

- The UE is in state Generic RB Established (state 3) according to [18].
- A default EPS bearer and a dedicated bearer are established between the first PDN and the UE.

10.8.7.3.2 Test procedure sequence

Table 10.8.7.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Cause the UE to request bearer resource release of dedicated EPS bearer associated with first PDN connectivity.(see Note)	-	-	-	-
2	The UE transmits a BEARER RESOURCE MODIFICATION REQUEST message.	-->	BEARER RESOURCE MODIFICATION REQUEST	-	-
3	Wait for 8 s to ensure that T3481 expires (1st expiry).	-	-	-	-
4	Check: Does the UE transmit a BEARER RESOURCE MODIFICATION REQUEST message?	-->	BEARER RESOURCE MODIFICATION REQUEST	1	P
5	Wait for 8 s to ensure that T3481 expires (2nd expiry).	-	-	-	-
6	Check: Does the UE transmit a BEARER RESOURCE MODIFICATION REQUEST message?	-->	BEARER RESOURCE MODIFICATION REQUEST	1	P
7	Wait for 8 s to ensure that T3481 expires (3rd expiry).	-	-	-	-
8	Check: Does the UE transmit a BEARER RESOURCE MODIFICATION REQUEST message?	-->	BEARER RESOURCE MODIFICATION REQUEST	1	P
9	Wait for 8 s to ensure that T3481 expires (4th expiry).	-	-	-	-
10	Check: Does the UE transmit a BEARER RESOURCE MODIFICATION REQUEST message?	-->	BEARER RESOURCE MODIFICATION REQUEST	1	P
11	Set the cell type of Cell A to the "Non-suitable “Off” cell".	-	-	-	-
12	Wait for 12 s to ensure that T310 plus T311 as well as T3481 expire (5th expiry).	-	-	-	-
13	Set the cell type of Cell A to the "Suitable cell".	-	-	-	-
14	Check: Does the UE transmit a TRACKING AREA UPDATE REQUEST message?	-->	TRACKING AREA UPDATE REQUEST	2	P
15	The SS transmits a TRACKING AREA UPDATE ACCEPT message.	<--	TRACKING AREA UPDATE ACCEPT	-	-
16	The UE transmits a TRACKING AREA UPDATE COMPLETE message.	-->	TRACKING AREA UPDATE COMPLETE	-	-
-	At the end of this test procedure sequence, the UE is in end state E-UTRA connected (E2_T3440) according to TS 36.508.	-	-	-	-
Note: The trigger in step 1 and the RRC messages in steps 2 to 10 are the same as in the generic procedure in 36.508 clause 6.4.3.3.					

10.8.7.3.3 Specific message contents

Table 10.8.7.3.3-1: Message BEARER RESOURCE MODIFICATION REQUEST (step 2, step 4, step 6, step 8 and step 10, Table 10.8.7.3.2-1)

Derivation path: 36.508 table 4.7.3-8, condition RELEASE-REQUESTED			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity for packet filter	6		

Table 10.8.7.3.3-2: Message TRACKING AREA UPDATE REQUEST (step 14, Table 10.8.7.3.2-1)

Derivation path: 36.508 table 4.7.2-27			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer context status			
EPS bearer context status IEI	57		
Length of EPS bearer context status contents	2	2 octets	
EBI(0)-EBI(4)	'0 0000'B		
EBI(5-7)	'001'B		
EBI(8)-EBI(15)	'0000 0000'B		

Table 10.8.7.3.3-3: Message TRACKING AREA UPDATE ACCEPT (step 15, Table 10.8.7.3.2-1)

Derivation path: 36.508 table 4.7.2-24			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer context status			
EPS bearer context status IEI	57		
Length of EPS bearer context status contents	2	2 octets	
EBI(0)-EBI(4)	'0 0000'B		
EBI(5-7)	'001'B		
EBI(8)-EBI(15)	'0000 0000'B		

10.9 UE routing of uplink packets

10.9.1 UE routing of uplinks packets

10.9.1.1 Test Purpose (TP)

(1)

```
with { the UE is in BEARER CONTEXT ACTIVE STATE state and in EMM-CONNECTED mode with a default EPS
bearer and two dedicated EPS bearers active }
ensure that {
  when { the UE has IP packets for transmission where each IP packet matches at least one of the
different packet filters configured in the UL TFTs for the dedicated EPS bearers }
    then { the UE evaluates the packet filters in the correct evaluation order and transmits IP
packets in uplink on the dedicated EPS bearer associated with the matched packet filter }
            }
```

(2)

```
with { the UE is in BEARER CONTEXT ACTIVE STATE state and in EMM-CONNECTED mode with a default EPS
bearer and two dedicated EPS bearers active }
ensure that {
  when { the UE has an IP packet for transmission where the IP header does not satisfy any of the
configured packet filters configured in the UL TFT for the dedicated EPS bearers AND no packet
filter is configured for the default EPS bearer }
    then { the UE transmits the IP packet in uplink on the default EPS bearer }
            }
```

(3)

```
with { the UE is in BEARER CONTEXT ACTIVE STATE state and in EMM-CONNECTED mode with a default EPS
bearer and two dedicated EPS bearers active }
ensure that {
  when { the UE has an IP packet for transmission where the IP header only satisfies a packet filter
configured in the UL TFT for the default EPS bearers }
    then { the UE transmits the IP packet in uplink on the default EPS bearer }
            }
```

(4)

```
with { the UE is in BEARER CONTEXT ACTIVE STATE state and in EMM-CONNECTED mode with a default EPS
bearer and two dedicated EPS bearers active }
ensure that {
  when { the UE has an IP packet for transmission where the IP header does not satisfy any of the
configured packet filters in the UL TFT configured for the default and dedicated EPS bearers }
```

```
then { the UE discards the IP packet }
       }
```

10.9.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 23.060, clause 15.3.2.0 and TS 24.008, clause 10.5.6.12.

[TS 23.060, clause 15.3.2.0]

Each valid downlink- and uplink-packet filter contains a unique identifier within a given TFT, an evaluation precedence index that is unique among all packet filters for the same direction (downlink or uplink) for one PDP address and APN pair, and at least one of the following attributes:

- Remote Address and Subnet Mask.
- Protocol Number (IPv4) / Next Header (IPv6).
- Local Port Range.
- Remote Port Range.
- IPSec Security Parameter Index (SPI).
- Type of Service (TOS) (IPv4) / Traffic class (IPv6) and Mask.
- Flow Label (IPv6).

In the list of attributes above 'Remote' refers to the external network entity, and 'Local' to the MS.

Some of the above-listed attributes may coexist in a packet filter while others mutually exclude each other. In table 12 below, the possible combinations are shown. Only those attributes marked with an "X" may be specified for a single packet filter. All marked attributes may be specified, but at least one shall be specified.

If the parameters of the header of a received PDP PDU match all specified attribute values in a packet filter, then it is considered that a match is found for this packet filter. In this case, the evaluation procedure is aborted. Other packet filters in increasing order of their evaluation precedence index are evaluated until such match is found.

There may be potential conflicts if attribute values are combined in such a way that the defined filter can never achieve a match to a valid IP packet header. However, the determination of such conflicts is outside the scope of GPRS standardization.

Table 12: Valid Packet Filter Attribute Combinations

	Valid combination types		
Packet filter attribute	**I**	**II**	**III**
Remote Address and Subnet Mask	X	X	X
Protocol Number (IPv4) / Next Header (IPv6)	X	X	
Local Port Range	X		
Remote Port Range	X		
IPSec SPI		X	
TOS (IPv4) / Traffic Class (IPv6) and Mask	X	X	X
Flow Label (IPv6)			X

[TS 24.008, clause 10.5.6.12]

The purpose of the *traffic flow template* information element is to specify the TFT parameters and operations for a PDP context. In addition, this information element may be used to transfer extra parameters to the network (e.g. the Authorization Token; see 3GPP TS 24.229 [95]). The TFT may contain packet filters for the downlink direction, the uplink direction or packet filters that apply for both directions. The packet filters determine the traffic mapping to PDP contexts. The downlink packet filters shall be applied by the network and the uplink packet filters shall be applied by the MS. A packet filter that applies for both directions shall be applied by the network as a downlink packet filter and by the MS as an uplink filter.

The *traffic flow template* is a type 4 information element with a minimum length of 3 octets. The maximum length for the IE is 257 octets.

NOTE 1: The IE length restriction is due to the maximum length that can be encoded in a single length octet.

NOTE 2: A maximum size IPv4 packet filter can be 32 bytes. Therefore, 7 maximum size IPv4 type packet filters, plus the last packet filter which can contain max 30 octets can fit into one TFT, i.e. if needed not all packet filter components can be defined into one message. A maximum size Ipv6 packet filter can be 60 bytes. Therefore, only 4 maximum size IPv6 packet filters can fit into one TFT. However, using "Add packet filters to existing TFT", it's possible to create a TFT including 16 maximum size Ipv4 or IPv6 filters.

The *traffic flow template* information element is coded as shown in figure 10.5.144/3GPP TS 24.008 and table 10.5.162/3GPP TS 24.008.

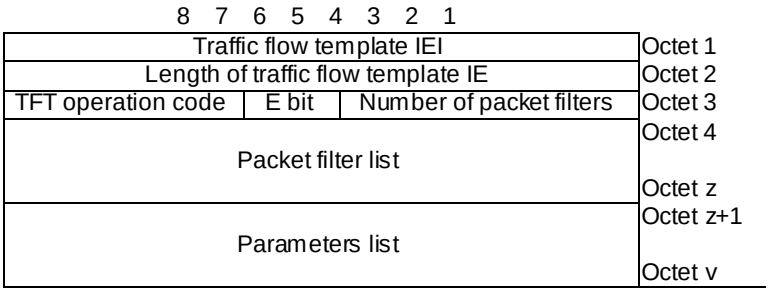

Figure 10.5.144/3GPP TS 24.008: *Traffic flow template* information element

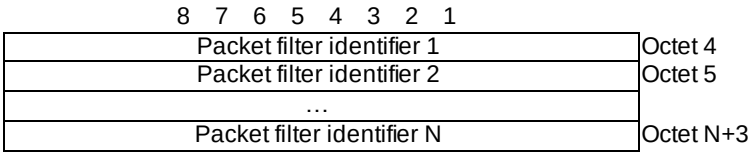

Figure 10.5.144a/3GPP TS 24.008: *Packet filter list* when the TFT operation is "delete packet filters from existing TFT" (z=N+3)

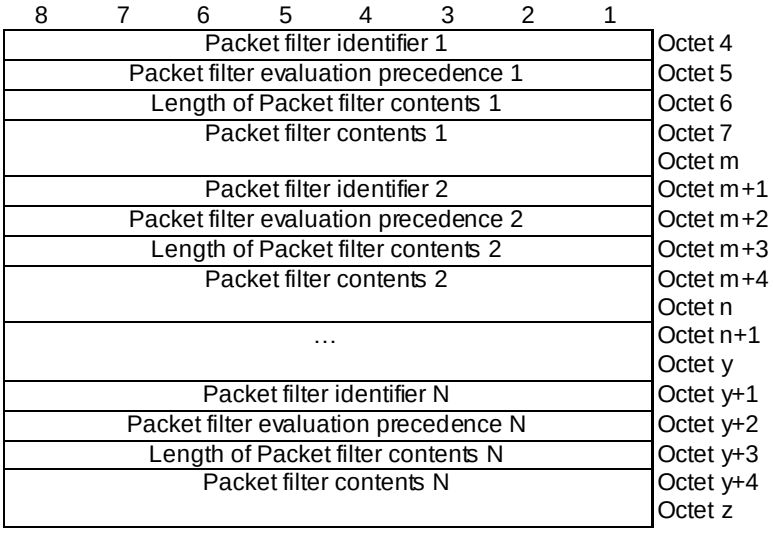

Figure 10.5.144b/3GPP TS 24.008: *Packet filter list* when the TFT operation is "create new TFT", or "add packet filters to existing TFT" or "replace packet filters in existing TFT"

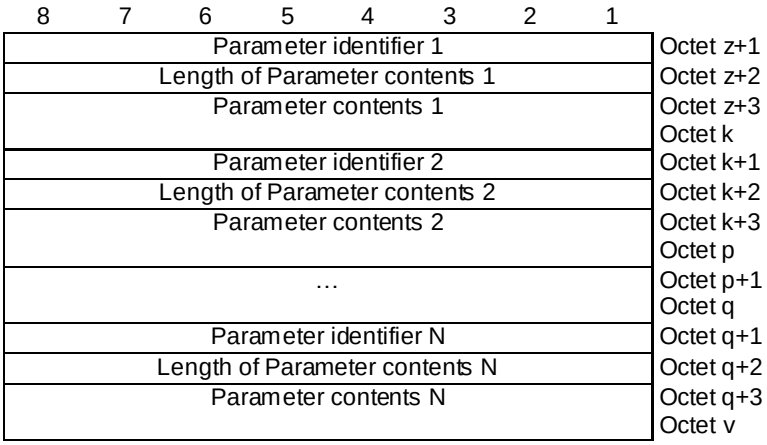

Figure 10.5.144c/3GPP TS 24.008: *Parameters list*

Table 10.5.162/3GPP TS 24.008: *Traffic flow template* information element

TFT operation code (octet 3)
Bits
8 7 6

0 0 0 Spare
0 0 1 Create new TFT

0 1 0 Delete existing TFT
0 1 1 Add packet filters to existing TFT

1 0 0 Replace packet filters in existing TFT

1 0 1 Delete packet filters from existing TFT
1 1 0 No TFT operation

1 1 1 Reserved

The TFT operation code "No TFT operation" shall be used if a *parameters list* is included but no *packet filter list* is included in the *traffic flow template* information element.

E bit (bit 5 of octet 3)

The *E bit* indicates if a *parameters list* is included in the TFT IE and it is encoded as follows:
0 *parameters list* is not included
1 *parameters list* is included

Number of packet filters (octet 3)

The *number of packet filters* contains the binary coding for the number of packet filters in the *packet filter list*. The *number of packet filters* field is encoded in bits 4 through 1 of octet 3 where bit 4 is the most significant and bit 1 is the least significant bit. For the "delete existing TFT" operation and for the "no TFT operation", the *number of packet filters* shall be coded as 0. For all other operations, the number of packet filters shall be greater than 0 and less than or equal to 16.

Packet filter list (octets 4 to z)

The *packet filter list* contains a variable number of packet filters. For the "delete existing TFT" operation and the "no TFT operation", the *packet filter list* shall be empty.

For the "delete packet filters from existing TFT" operation, the *packet filter list* shall contain a variable number of packet filter identifiers. This number shall be derived from the coding of the *number of packet filters* field in octet 3.

For the "create new TFT", "add packet filters to existing TFT" and "replace packet filters in existing TFT" operations, the *packet filter list* shall contain a variable number of packet filters. This number shall be derived from the coding of the *number of packet filters* field in octet 3.

Each packet filter is of variable length and consists of

- a packet filter identifier and direction (1 octet);
- a packet filter evaluation precedence (1 octet);
- the length of the packet filter contents (1 octet); and
- the packet filter contents itself (v octets).

The *packet filter identifier* field is used to identify each packet filter in a TFT. The least significant 4 bits are used.

The *packet filter direction* is used to indicate, in bits 5 and 6, for what traffic direction

the filter applies:

00 - pre Rel-7 TFT filter
01 - downlink only
10 - uplink only
11 - bidirectional

Bits 8 through 7 are spare bits.

The *packet filter evaluation precedence* field is used to specify the precedence for the packet filter among all packet filters in all TFTs associated with this PDP address. Higher the value of the *packet filter evaluation precedence* field, lower the precedence of that packet filter is. The first bit in transmission order is the most significant bit.

The *length of the packet filter contents* field contains the binary coded representation of the length of the *packet filter contents* field of a packet filter. The first bit in transmission order is the most significant bit.

The *packet filter contents* field is of variable size and contains a variable number (at least one) of *packet filter components*. Each *packet filter component* shall be encoded as a sequence of a one octet *packet filter component type identifier* and a fixed length *packet filter component value* field. The *packet filter component type identifier* shall be transmitted first.

In each packet filter, there shall not be more than one occurrence of each packet filter component type. Among the "IPv4 remote address type" and "IPv6 remote address type" packet filter components, only one shall be present in one packet filter. Among the "single local port type" and "local port range type" packet filter components, only one shall be present in one packet filter. Among the "single remote port type" and "remote port range type" packet filter components, only one shall be present in one packet filter.

The term *local* refers to the MS and the term *remote* refers to an external network entity.

Packet filter component type identifier
Bits
8 7 6 5 4 3 2 1

0 0 0 1 0 0 0 0	IPv4 remote address type
0 0 1 0 0 0 0 0	IPv6 remote address type
0 0 1 1 0 0 0 0	Protocol identifier/Next header type
0 1 0 0 0 0 0 0	Single local port type
0 1 0 0 0 0 0 1	Local port range type
0 1 0 1 0 0 0 0	Single remote port type
0 1 0 1 0 0 0 1	Remote port range type
0 1 1 0 0 0 0 0	Security parameter index type
0 1 1 1 0 0 0 0	Type of service/Traffic class type
1 0 0 0 0 0 0 0	Flow label type

All other values are reserved.

For "IPv4 remote address type", the *packet filter component value* field shall be encoded as a sequence of a four octet *IPv4 address* field and a four octet *IPv4 address mask* field. The *IPv4 address* field shall be transmitted first.

For "IPv6 remote address type", the *packet filter component value* field shall be encoded as a sequence of a sixteen octet *IPv6 address* field and a sixteen octet *IPv6 address mask* field. The *IPv6 address* field shall be transmitted first.

For "Protocol identifier/Next header type", the *packet filter component value* field shall be encoded as one octet which specifies the IPv4 protocol identifier or IPv6 next header.

For "Single local port type" and "Single remote port type", the *packet filter component value* field shall be encoded as two octet which specifies a port number.

For "Local port range type" and "Remote port range type", the *packet filter component value* field shall be encoded as a sequence of a two octet *port range low*

limit field and a two octet *port range high limit* field. The *port range low limit* field shall be transmitted first.

For "Security parameter index", the *packet filter component value* field shall be encoded as four octet which specifies the IPSec security parameter index.

For "Type of service/Traffic class type", the *packet filter component value* field shall be encoded as a sequence of a one octet *Type-of-Service/Traffic Class* field and a one octet *Type-of-Service/Traffic Class mask* field. The *Type-of-Service/Traffic Class* field shall be transmitted first.

For "Flow label type", the *packet filter component value* field shall be encoded as three octet which specifies the IPv6 flow label. The bits 8 through 5 of the first octet shall be spare whereas the remaining 20 bits shall contain the IPv6 flow label.

Parameters list (octets z+1 to v)

The *parameters list* contains a variable number of parameters that may be transferred. If the *parameters list* is included, the *E bit* is set to 1; otherwise, the *E bit* is set to 0.

Each parameter included in the *parameters list* is of variable length and consists of:

- a parameter identifier (1 octet);
- the length of the parameter contents (1 octet); and
- the parameter contents itself (v octets).

The *parameter identifier* field is used to identify each parameter included in the *parameters list* and it contains the hexadecimal coding of the parameter identifier. Bit 8 of the *parameter identifier* field contains the most significant bit and bit 1 contains the least significant bit. In this version of the protocol, the following parameter identifiers are specified:

- 01H (Authorization Token);
- 02H (Flow Identifier) ; and
- 03H (Packet Filter Identifier).

If the *parameters list* contains a parameter identifier that is not supported by the receiving entity the corresponding parameter shall be discarded.

The *length of parameter contents* field contains the binary coded representation of the length of the *parameter contents* field. The first bit in transmission order is the most significant bit.

When the *parameter identifier* indicates Authorization Token, the *parameter contents* field contains an authorization token, as specified in 3GPP TS 29.207 [100]. The first octet is the most significant octet of the authorization token and the last octet is the least significant octet of the authorization token.

The *parameters list* shall be coded in a way that an Authorization Token (i.e. a parameter with identifier 01H) is always followed by one or more Flow Identifiers (i.e. one or more parameters with identifier 02H).

If the *parameters list* contains two or more consecutive Authorization Tokens without any Flow Identifiers in between, the receiver shall treat this as a semantical TFT error.

When the *parameter identifier* indicates Flow Identifier, the *parameter contents* field contains the binary representation of a flow identifier. The Flow Identifier consists of four octets. Octets 1 and 2 contains the Media Component number as specified in 3GPP TS 29.207 [100]. Bit 1 of octet 2 is the least significant bit, and bit 8 of octet 1 is the most significant bit. Octets 3 and 4 contains the IP flow number as specified in 3GPP TS 29.207 [100]. Bit 1 of octet 4 is the least significant bit, and bit 8 of octet 3 is the most significant bit.

When the parameter identifier indicates Packet Filter Identifier, the parameter contents field contains the binary representation of one or more packet filter identifiers. Each packet filter identifier is encoded in one octet, in the 4 least significant bits. This parameter is used by the MS to identify one or more packet filters in a TFT when modifying the QoS of a PDP context without modifying the

packet filter itself.

10.9.1.3 Test description

10.9.1.3.1 Pre-test conditions

System Simulator:

- Cell A is configured according to Table 6.3.2.2-1 in [18].

UE:

- None.

Preamble:

- The UE is in state Switched OFF (State 1).

10.9.1.3.2 Test procedure sequence

Table 10.9.1.3.2-1: Packet filters

		Packet filter components										
Packet filter ID	**UL TFT**	**Packet filter evaluation precedence**	**Protocol Number (IPv4) / Next Header (IPv6)**	**Remote address and Subnet mask**	**Single Local Port (UE)**	**Local Port Range (UE)**	**Single Remote Port (NW)**	**Remote Port Range (NW)**	**IPSec SPI range**	**Type of Service (IPv4) / Traffic Class (IPv6) and Mask**	**Flow Label (IPv6)**	**Comments**
1	DRB2	6	17 (UDP)	IPv4: 172.168.8.0 [255.255.255.0] IPv6: 2001:0ba0:: [ffff:ffff::]	60001	-	-	60350: 60450	-	10101000, Mask= 11111100	-	UDP application identified by remote address, type of service/traffic class and specific local and remote port numbers This is a valid Packet Filter Attribute Combination Type I according to TS 23.060, subclause 15.3.2.0.
2	DRB3	7	17 (UDP)	IPv4: 172.168.8.0 [255.255.255.0] IPv6: 2001:0ba0:: [ffff:ffff::]	-	60000:60100	-	60350	-	10101000, Mask= 11111100	-	UDP application identified by remote address, type of service/traffic class and range of local and remote port numbers. This is a valid Packet Filter Attribute Combination Type I according to TS 23.060, subclause 15.3.2.0.
3	DRB3	5	50 IPSec (ESP)	IPv4: 172.168.8.0 [255.255.255.0] IPv6: 2001:0ba0:: [ffff:ffff::]	-	-	-	-	0x0F80F0000	10100000, Mask= 11111100	-	IPSec session. Example from TS 23.060 cl 15.3.3.3 This is a valid Packet Filter Attribute Combination Type II according to TS 23.060, subclause 15.3.2.0.
4	DRB3	2	-	IPv6: 2001:0ba0:: [ffff:ffff::]	-	-	-	-	-	10110000, Mask= 11111100	5	IPv6 Flow Label filter. This is a valid Packet Filter Attribute Combination Type III according to TS 23.060, subclause 15.3.2.0.
5	DRB1 (default bearer)	255	-	IPv4: 172.168.8.0 [255.255.255.0] IPv6: 2001:0ba0:: [ffff:ffff::]	-	-	-	-	-	-	-	Application identified by remote address. This is a valid Packet Filter Attribute Combination Type I according to TS 23.060, subclause 15.3.2.0.

Table 10.9.1.3.2-2: Sub-test test parameters and test requirements

Sub-test Index	Test data (IP packet) Note 1	Expected DRB associated with the EPS bearer context for the matching packet filter	Packet Filter Attribute Combination under test	Packet Filter Component under test	Comment
1	IP packet#1	DRB2	Type I	All Type I packet filter components match	The IP packet is only matching Packet Filter 1 and 2 in Table 10.9.1.3.2-1. The IP packet is returned on DRB2 as Packet Filter 1 is evaluated before Packet Filter 2.
2	IP packet#2	DRB1	Type I	Remote Address does not match	No packet filter matches. The IP packet is returned on DRB1 (default bearer)
3	IP packet#3	DRB1	Type I	Protocol identifier/Next header does not match	No packet filter matches. The IP packet is returned on DRB1 (default bearer)
4	IP packet#4	DRB3	Type I	Single local port does not match	The IP packet is only matching Packet Filter 2 in Table 10.9.1.3.2-1. The IP packet is returned on DRB3.
5	IP packet#5	DRB1	Type I	Local port range does not match	No packet filter matches. The IP packet is returned on DRB1 (default bearer)
6	IP packet#6	DRB2	Type I	Single remote port does not match	IP packet is only matching Packet Filter 1 in Table 10.9.1.3.2-1. The IP packet is returned on DRB2.
7	IP packet#7	DRB1	Type I	Remote port range does not match	No packet filter matches. The IP packet is returned on DRB1 (default bearer)
8	IP packet#8	DRB1	Type I	Type of service/Traffic class does not match	No packet filter matches. The IP packet is returned on DRB1 (default bearer)
9	IP packet#9	DRB3	Type II	All Type II packet filter components match	The IP packet is only matching Packet Filter 3 in Table 10.9.1.3.2-1. The IP packet is returned on DRB3.
10	IP packet#10	DRB1	Type II	Remote Address does not match	No packet filter matches. The IP packet is returned on DRB1 (default bearer)
11	IP packet#11	DRB1	Type II	Protocol identifier/Next header does not match	No packet filter matches. The IP packet is returned on DRB1 (default bearer)
12	IP packet#12	DRB1	Type II	Security parameter index does not match	No packet filter matches. The IP packet is returned on DRB1 (default bearer)
13	IP packet#13	DRB1	Type II	Type of service/Traffic class does not match	No packet filter matches. The IP packet is returned on DRB1 (default bearer)
14	IP packet#14	DRB3	Type III	All Type III packet filter components match	The IP packet is only matching Packet Filter 4 in Table 10.9.1.3.2-1. The IP packet is returned on DRB2.
15	IP packet#15	DRB1	Type III	Remote Address does not match	No packet filter matches. The IP packet is returned on DRB1 (default bearer)
16	IP packet#16	DRB1	Type III	Type of service/Traffic class does not match	No packet filter matches. The IP packet is returned on DRB1 (default bearer)
17	IP packet#17	DRB1	Type III	Flow Label does not match	No packet filter matches. The IP packet is returned on DRB1 (default bearer)
18	IP packet#18	DRB1	Type I	Remote Address match	IP packet is only matching Packet Filter 5 in Table 10.9.1.3.2-1.
19	IP packet#19	None	Type I	Remote Address does not match	IP packet does not match any Packet Filters.

Note 1: IP Packet details are specified in Tables 10.9.1.3.3-5 to 10.9.1.3.3-14 in clause 10.9.1.3.3.
Note 2: IP packets for sub-test index 1 to 17 are sent by the SS while no TFT is assigned to the default EPS bearer (associated by DRB1). IP packets for sub-test index 18 and 19 are sent by the SS after adding a TFT to the default EPS bearer.

The test procedure in Table 10.9.1.3.2-3 is executed once for IPv4 case (sub test 1) and once for IPv6 case (sub test 2) dependent on UE capability as specified in Table 10.9.1.3.2-2a.

Table 10.9.1.3.2-2a: Test executions and test parameters

Sub test	Applicability	IPtyp
1	UE supporting IPv4	'IPv4'
2	UE supporting IPv6	'IPv6'
Note 1: For UEs supporting both IPv4 and IPv6 then both test execution 1 and 2 shall be performed.		

Table 10.9.1.3.2-3: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U – S	Message		
0	The SS performs the generic procedure to get UE in Loopback Activated (state 4) on Cell A establishing a default EPS bearer in accordance to Reference default EPS bearer context #1 (DRB1) as specified in subclause 6.6.1 in [18] and two dedicated EPS bearers (DRB2 and DRB3) with EPS bearer context as specified in ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message for DRB2 and DRB3 in subclause 10.9.1.3.3.	-	-	-	-
	EXCEPTION: IF IPtype='IPv4' then test steps 1 to 2 are repeated for N= 1 to 13 using the IPv4 packet filters components in Table 10.9.1.3.2-1. IF IPtype='IPv6' then test steps 1 to 2 are repeated for N= 1 to 17 using the IPv6 packet filters components in Table 10.9.1.3.2-1.	-	-	-	-
1	The SS transmits one IP Packet according to Table 10.9.1.3.2-2 for Sub-test index=N on DRB1	-	-	-	-
2	Check: Does UE send the IP Packet on the data radio bearer as specified by Table 10.9.1.3.2-2 for Sub-test index=N?	-	-	1,2	P
3	The SS transmits a MODIFY EPS BEARER CONTEXT REQUEST message to add TFT to the default EPS bearer. This message is included in a DLInformationTransfer message.	<--	MODIFY EPS BEARER CONTEXT REQUEST	-	-
4	UE transmits a MODIFY EPS BEARER CONTEXT ACCEPT message	-->	MODIFY EPS BEARER CONTEXT ACCEPT	-	-
5	The SS transmits one IP Packet according to Table 10.9.1.3.2-2 for Sub-test index=18 on DRB1	-	-	-	-
6	Check: Does UE send the IP Packet on the data radio bearer as specified by Table 10.9.1.3.2-2 for Sub-test index=18?	-	-	3	P
7	The SS transmits one IP Packet according to Table 10.9.1.3.2-2 for Sub-test index=19 on DRB1	-	-	-	-
8	Check: Does UE send an IP Packet on any of the dedicated or default data radio bearers?	-	-	4	F
-	EXCEPTION: Steps 9 – 18 are executed only if two executions apply and this is the first execution.	-	-	-	-
9	The SS transmits an OPEN UE TEST LOOP message to exit the UE test loop mode.	<--	RRC: *DLInformationTransfer* TC: OPEN UE TEST LOOP	-	-
10	The UE transmits an OPEN UE TEST LOOP COMPLETE message.	-->	RRC: *ULInformationTransfer* TC: OPEN UE TEST LOOP COMPLETE	-	-
11	The SS transmits an DEACTIVATE TEST MODE message to de-activate UE radio bearer test mode procedure.	<--	RRC: *DLInformationTransfer* TC: DEACTIVATE TEST MODE	-	-
12	The UE transmits an DEACTIVATE TEST MODE COMPLETE message.	-->	RRC: *ULInformationTransfer* TC: DEACTIVATE TEST MODE COMPLETE	-	-
13	VOID	-	-	-	-
14	VOID	-	-	-	-
15	VOID	-	-	-	-
16	VOID	-	-	-	-
17	The UE is switched OFF. See Note.	-	-	-	-
18	The UE is switched ON.	-	-	-	-
Note: This implies detaching of the UE, releasing of the RRC connection and resetting of the radio bearers at the SS side.					

10.9.1.3.3 Specific message contents

Table 10.9.1.3.3-0A: ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST (Test execution 2: step 0, Table 10.9.1.3.2-3)

Derivation Path: 36.508 table 4.7.3-6			
Information Element	**Value/remark**	**Comment**	**Condition**
PDN address			
Length of PDN address contents	9 octets		
PDN type value	'010'B	IPv6	
PDN address information	IPv6 interface identifier	The SS provides a valid IPv6 interface identifier	
ESM cause	IF "PDN type" IE in step 4 (preamble) is 'IPv4v6' THEN '00110011'B ELSE Not present	"PDN type IPv6 only allowed"	

Table 10.9.1.3.3-0B: ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST (Test execution 1: step 0, Table 10.9.1.3.2-3)

Derivation Path: 36.508 table 4.7.3-6			
Information Element	**Value/remark**	**Comment**	**Condition**
PDN address			
Length of PDN address contents	5 octets		
PDN type value	'001'B	IPv4	
PDN address information	IPv4 address	The SS provides a valid IPv4 address	
ESM cause	IF "PDN type" IE in step 4 (preamble) is 'IPv4v6' THEN '00110010'B ELSE Not present	"PDN type IPv4 only allowed"	

Table 10.9.1.3.3-1: Message ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST step 0, Table 10.9.1.3.2-3 (, DRB2)

Derivation path: 36.508 table 4.7.3-3 and table 4.6.1-8 with condition AM-DRB-ADD(2)			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	6		
Procedure transaction identity	0	"No procedure transaction identity assigned"	
Linked EPS bearer identity	5	SS re-uses the EPS bearer identity of the default EPS bearer context.	
EPS QoS	According to reference dedicated EPS bearer context #1 - see [18]		
TFT			
TFT operation code	"create new TFT"		
E bit	0		
Packet filters (Note 1)	1		
Note 1: This row refers to the packet filters defined in Table 10.9.1.3.2-1.			

Table 10.9.1.3.3-2: Message ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST (step 0, Table 10.9.1.3.2-3, DRB3)

Derivation path: 36.508 table 4.7.3-3 and table 4.6.1-8 with condition AM-DRB-ADD(3)			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	7		
Procedure transaction identity	0	"No procedure transaction identity assigned"	
Linked EPS bearer identity	5	SS re-uses the EPS bearer identity of the default EPS bearer context.	
EPS QoS	According to reference dedicated EPS bearer context #1 - see [18]		
TFT			
TFT operation code	"create new TFT"		
E bit	0		
Packet filters (Note 1)	2, 3		IPv4
	2, 3, 4		IPv6
Note 1: This row refers to the packet filters defined in Table 10.9.1.3.2-1.			

Condition	Explanation
IPv4	This condition applies if test variable IP type is set to 'IPv4'.
IPv6	This condition applies if test variable IP type is set to 'IPv6'.

Table 10.9.1.3.3-3: Message MODIFY EPS BEARER CONTEXT REQUEST (step 3, Table 10.9.1.3.2-3)

Derivation path: 36.508 table 4.7.3-16 and table 4.6.1-3			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	The same value as the value set in ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message	SS assigns the current default EPS bearer context.	
Procedure transaction identity	0	"No procedure transaction identity assigned"	
TFT			
TFT operation code	“Create new TFT”		
E bit	0		
Packet filters (Note 1)	5	SS adds packet filter to the default EPS bearer context.	
Note 1: This row refers to the packet filters defined in Table 10.9.1.3.2-1.			

Table 10.9.1.3.3-4: Message MODIFY EPS BEARER CONTEXT ACCEPT (step 4, Table 10.9.1.3.2-3)

Derivation path: 36.508 table 4.7.3-14			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	The same value as the value set in ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message	Same value as in MODIFY EPS BEARER CONTEXT REQUEST	
Procedure transaction identity	0	"No procedure transaction identity assigned"	

Table 10.9.1.3.3-4A: Void

Table 10.9.1.3.3-5: IP packet#1 (Table 10.9.1.3.2-2)

Derivation path: IETF RFC 791 section 3.1 (IPv4) or RFC 2460 section 3 (IPv6) and RFC 769 introduction			
Information Element	**Value/Remark**	**Comment**	**Condition**
Type of service (IPv4) / Traffic Class (IPv6)	10101001	Significant for packet filters 1, 2, 3, and 4. Value matches packet filters 1 and 2. Value does not match packet filters 3 or 4.	
Protocol	17	UDP Significant packet filters 1, 2 and 3. Value matches packet filters 1 and 2. Value does not match packet filter 3.	
Source Address	192.168.0.1	Not significant for any packet filters	IPv4
	fe80::1:1	Not significant for any packet filters	IPv6
Destination Address	172.168.8.1	Significant for packet filters 1, 2 and 3. Value matches packet filters 1, 2 and 3.	IPv4
	2001:0ba0::0001:0001	Significant for packet filters 1, 2, 3 and 4. Value matches packet filters 1, 2, 3 and 4.	IPv6
Source Port	60001	Significant for packet filters 1 and 2. Value matches packet filters 1 and 2.	
Destination Port	60350	Significant for packet filters 1 and 2. Value matches packet filters 1 and 2.	
Flow Label	10	Significant for packet filter 4. Value does not match packet filter 4.	IPv6

Condition	Explanation
IPv4	This condition applies if test variable IP type is set to 'IPv4'.
IPv6	This condition applies if test variable IP type is set to 'IPv6'.

Table 10.9.1.3.3-6: IP packet#2 (Table 10.9.1.3.2-2)

Derivation path: IP packet#1, Table 10.9.1.3.3-5			
Information Element	**Value/Remark**	**Comment**	**Condition**
Destination Address	172.168.9.1	Significant for packet filter 1, 2 and 3. Value does not match packet filters 1, 2 or 3.	IPv4
	2001:0bb0::0001:0001	Significant for packet filter 1, 2, 3 and 4. Value does not match packet filters 1, 2, 3 or 4.	IPv6

Condition	Explanation
IPv4	This condition applies if test variable IP type is set to 'IPv4'.
IPv6	This condition applies if test variable IP type is set to 'IPv6'.

Table 10.9.1.3.3-7: IP packet#3 (Table 10.9.1.3.2-2)

Derivation path: IP packet#1, Table 10.9.1.3.3-5			
Information Element	**Value/Remark**	**Comment**	**Condition**
Protocol	6	TCP Significant packet filters 1, 2 and 3. Value does not match packet filters 1, 2 or 3.	

Table 10.9.1.3.3-8: IP packet#4 (Table 10.9.1.3.2-2)

Derivation path: IP packet#1, Table 10.9.1.3.3-5			
Information Element	**Value/Remark**	**Comment**	**Condition**
Source Port	60002	Significant for packet filters 1 and 2. Value matches packet filter 2. Value does not match packet filter 1.	

Table 10.9.1.3.3-9: IP packet#5 (Table 10.9.1.3.2-2)

Derivation path: IP packet#1, Table 10.9.1.3.3-5			
Information Element	**Value/Remark**	**Comment**	**Condition**
Source Port	60101	Significant for packet filters 1 and 2. Value does not match packet filters 1 or 2.	

Table 10.9.1.3.3-10: IP packet#6 (Table 10.9.1.3.2-2)

Derivation path: IP packet#1, Table 10.9.1.3.3-5			
Information Element	**Value/Remark**	**Comment**	**Condition**
Destination Port	60351	Significant for packet filters 1 and 2. Value matches packet filter 1. Value does not match packet filter 2	

Table 10.9.1.3.3-11: IP packet#7 (Table 10.9.1.3.2-2)

Derivation path: IP packet#1, Table 10.9.1.3.3-5			
Information Element	**Value/Remark**	**Comment**	**Condition**
Destination Port	60451	Significant for packet filters 1 and 2. Value does not match packet filter 1 or 2.	

Table 10.9.1.3.3-12: IP packet#8 (Table 10.9.1.3.2-2)

Derivation path: IP packet#1, Table 10.9.1.3.3-5			
Information Element	**Value/Remark**	**Comment**	**Condition**
Type of service (IPv4) / Traffic Class (IPv6)	11101001	Significant for packet filters 1, 2, 3, and 4. Value does not match packet filters 1, 2, 3 or 4.	

Table 10.9.1.3.3-13: IP packet#9 (Table 10.9.1.3.2-2)

Derivation path: IETF RFC 791 section 3.1 (IPv4) or RFC 2460 section 3 (IPv6) and RFC 769 introduction			
Information Element	**Value/Remark**	**Comment**	**Condition**
Type of service (IPv4) / Traffic Class (IPv6)	10100010	Significant for packet filters 1, 2, 3, and 4. Value matches packet filter 3. Value does not match packet filters 1, 2 or 4.	
Protocol	50	IPSec (ESP) Significant packet filters 1, 2 and 3. Value matches packet filter 3. Value does not match packet filters 1 or 2.	
Source Address	192.168.0.1	Not significant for any packet filters	IPv4
	Fe80::1:1	Not significant for any packet filters	IPv6
Destination Address	172.168.8.1	Significant for packet filters 1, 2 and 3. Value matches packet filters 1, 2 and 3.	IPv4
	2001:0ba0::0001:0001	Significant for packet filters 1, 2, 3 and 4. Value matches packet filters 1, 2, 3 and 4.	IPv6
Source Port	60101	Significant for packet filters 1 and 2. Value does not match packet filters 1 or 2.	
Destination Port	60451	Significant for packet filters 1 and 2. Value does not match packet filters 1 or 2.	
IP Sec SPI range	0x0F80F0000	Significant for packet filter 3. Value matches packet filter 3.	
Flow Label	10	Significant for packet filter 4. Value does not match packet filter 4.	IPv6

Condition	Explanation
IPv4	This condition applies if test variable IP type is set to 'IPv4'.
IPv6	This condition applies if test variable IP type is set to 'IPv6'.

Table 10.9.1.3.3-14: IP packet#10 (Table 10.9.1.3.2-2)

Derivation path: IP packet#9, Table 10.9.1.3.3-13			
Information Element	**Value/Remark**	**Comment**	**Condition**
Destination Address	172.168.9.1	Significant for packet filter 1, 2 and 3. Value does not match packet filters 1, 2 or 3.	IPv4
	2001:0bb0::0001:0001	Significant for packet filter 1, 2, 3 and 4. Value does not match packet filters 1, 2, 3 or 4.	IPv6

Condition	Explanation
IPv4	This condition applies if test variable IP type is set to 'IPv4'.
IPv6	This condition applies if test variable IP type is set to 'IPv6'.

Table 10.9.1.3.3-15: IP packet#11 (Table 10.9.1.3.2-2)

Derivation path: IP packet#9, Table 10.9.1.3.3-13			
Information Element	**Value/Remark**	**Comment**	**Condition**
Protocol	6	TCP Significant packet filters 1, 2 and 3. Value does not match packet filters 1, 2 or 3.	

Table 10.9.1.3.3-16: IP packet#12 (Table 10.9.1.3.2-2)

Derivation path: IP packet#9, Table 10.9.1.3.3-13			
Information Element	**Value/Remark**	**Comment**	**Condition**
IP Sec SPI range	0x0F90F0000	Significant for packet filter 3. Value does not match packet filter 3.	

Table 10.9.1.3.3-17: IP packet#13 (Table 10.9.1.3.2-2)

Derivation path: IP packet#9, Table 10.9.1.3.3-13			
Information Element	**Value/Remark**	**Comment**	**Condition**
Type of service (IPv4) / Traffic Class (IPv6)	11101001	Significant for packet filters 1, 2, 3 and 4. Value does not match packet filters 1, 2, 3 or 4.	

Table 10.9.1.3.3-18: IP packet#14 (Table 10.9.1.3.2-2)

Derivation path: RFC 2460 section 3 (IPv6) and RFC 769 introduction			
Information Element	**Value/Remark**	**Comment**	**Condition**
Type of service (IPv4) / Traffic Class (IPv6)	10110011	Significant for packet filters 1, 2, 3, and 4. Value matches packet filter 4. Value does not match packet filters 1, 2 or 3.	
Protocol	6	TCP Significant packet filters 1, 2 and 3. Value does not match packet filters 1, 2 or 3.	
Source Address	Fe80::1:1	IPv6 Not significant for any packet filters	
Destination Address	2001:0ba0::0001:0001	IPv6 Significant for packet filters 1, 2, 3 and 4. Value matches packet filters 1, 2, 3 and 4.	
Source Port	60101	Significant for packet filters 1 and 2. Value does not match packet filters 1 or 2.	
Destination Port	60451	Significant for packet filters 1 and 2. Value does not match packet filters 1 or 2.	
Flow Label	5	IPv6 Significant for packet filter 4. Value matches packet filter 4.	

Table 10.9.1.3.3-19: IP packet#15 (Table 10.9.1.3.2-2)

Derivation path: IP packet#14, Table 10.9.1.3.3-18			
Information Element	**Value/Remark**	**Comment**	**Condition**
Destination Address	2001:0bb0::0001:0001	IPv6 Significant for packet filter 1, 2, 3 and 4. Value does not match packet filters 1, 2, 3 or 4.	

Table 10.9.1.3.3-20: IP packet#16 (Table 10.9.1.3.2-2)

Derivation path: IP packet#14, Table 10.9.1.3.3-18			
Information Element	**Value/Remark**	**Comment**	**Condition**
Type of service (IPv4) / Traffic Class (IPv6)	11101001	Significant for packet filters 1, 2, 3 and 4. Value does not match packet filters 1, 2, 3 or 4.	

Table 10.9.1.3.3-21: IP packet#17 (Table 10.9.1.3.2-2)

Derivation path: IP packet#14, Table 10.9.1.3.3-18			
Information Element	**Value/Remark**	**Comment**	**Condition**
Flow Label	10	IPv6 Significant for packet filter 4. Value does not match packet filter 4.	

Table 10.9.1.3.3-22: IP packet#18 (Table 10.9.1.3.2-2)

Derivation path: IETF RFC 791 section 3.1 (IPv4) or RFC 2460 section 3 (IPv6) and RFC 769 introduction			
Information Element	**Value/Remark**	**Comment**	**Condition**
Type of service (IPv4) / Traffic Class (IPv6)	10101010	Significant for packet filters 1, 2, 3, and 4. Value matches packet filter 1 and 2. Value does not match packet filters 3 or 4.	
Protocol	6	TCP Significant packet filters 1, 2 and 3Value does not match packet filters 1, 2 or 3.	
Source Address	192.168.0.1	Not significant for any packet filters	IPv4
	Fe80::1:1	Not significant for any packet filters	IPv6
Destination Address	172.168.8.1	Significant for packet filters 1, 2, 3 and 5. Value matches packet filters 1, 2, 3 and 5.	IPv4
	2001:0ba0: :0001:0001	Significant for packet filters 1, 2, 3, 4 and 5. Value matches packet filters 1, 2, 3, 4 and 5.	IPv6
Source Port	60101	Significant for packet filters 1 and 2. Value does not match packet filters 1 or 2.	
Destination Port	60451	Significant for packet filters 1 and 2. Value does not match packet filters 1 or 2.	
Flow Label	10	Significant for packet filter 4. Value does not match packet filter 4.	IPv6

Condition	Explanation
IPv4	This condition applies if test variable IP type is set to 'IPv4'.
IPv6	This condition applies if test variable IP type is set to 'IPv6'.

Table 10.9.1.3.3-23: IP packet#19 (Table 10.9.1.3.2-2)

Derivation path: IP packet#18, Table 10.9.1.3.3-22			
Information Element	**Value/Remark**	**Comment**	**Condition**
Destination Address	172.168.9.1	Significant for packet filters 1, 2, 3 and 5. Value does not match packet filters 1, 2, 3 and 5.	IPv4
	2001:0ba1::0001:0001	Significant for packet filters 1, 2, 3, 4 and 5. Value does not match packet filters 1, 2, 3, 4 and 5.	IPv6

11 General tests

11.1 SMS over SGs

11.1.1 MT-SMS over SGs / Idle mode

11.1.1.1 Test Purpose (TP)

(1)

```
with { UE is IMSI attached for non-EPS services and UE has received a paging request with CN domain
indicator set to "PS" in EMM-IDLE mode and UE has sent a SERVICE REQUEST message}
ensure that {
  when { UE receives a CP-DATA containing an RP-DATA RPDU (SMS DELIVER TPDU) encapsulated in a
Downlink NAS transport message }
   then { UE sends a CP-ACK encapsulated in an Uplink NAS transport message followed by a CP-DATA
containing an RP-ACK RPDU encapsulated in an Uplink NAS transport message}
            }
```

11.1.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: 3GPP TS 24.301, clauses 5.6.3.1, 5.6.3.3 and 9.9.3.22.

[TS 24.301, clause 5.6.3.1]

The purpose of the transport of NAS messages procedure is to carry SMS messages in an encapsulated form between the MME and the UE. The procedure may be initiated by the UE or the network and can only be used when the UE is attached for EPS services and IMSI attached for non-EPS services and is in EMM-CONNECTED mode.

[TS 24.301, clause 5.6.3.3]

The network initiates the procedure by sending a DOWNLINK NAS TRANSPORT message. When receiving the DOWNLINK NAS TRANSPORT message, the EMM entity in the UE shall forward the contents of the NAS message container IE to the SMS entity.

[TS 24.301, clause 9.9.3.22]

This information element is used to encapsulate the SMS messages transferred between the UE and the network. The NAS message container information element is coded as shown in figure 9.9.3.22.1 and table 9.9.3.22.1.

The NAS message container is a type 4 information element with a minimum length of 4 octets and a maximum length of 253 octets.

8	7	6	5	4	3	2	1	
NAS message container IEI								octet 1
Length of NAS message container contents								octet 2
								octet 3
NAS message container contents								
								octet n

Figure 9.9.3.22.1: NAS message container information element

Table 9.9.3.22.1: NAS message container information element

NAS message container contents (octet 3 to octet n) This IE can contain an SMS message (i.e. CP-DATA, CP-ACK or CP-ERROR) as defined in subclause 7.2 in 3GPP TS 24.011 [13A].

11.1.1.3 Test description

11.1.1.3.1 Pre-test conditions

System Simulator:

- Cell A is configured according to Table 6.3.2.2-1 in [18].
- Cell A belongs TAI-1.
- Cell A is set to the "Serving cell".

UE:

- The UE does not have any stored SMS message.

Preamble:

- UE is in state Registered, Idle Mode (state 2) on Cell A according to [18].

11.1.1.3.2 Test procedure sequence

Table 11.1.1.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS pages the UE using S-TMSI with CN domain indicator set to "PS'.	-	-	-	-
2	The UE transmits a SERVICE REQUEST message.	-->	SERVICE REQUEST	-	-
3	The SS transmits a CP-DATA containing an RP-DATA RPDU (SMS DELIVER TPDU) encapsulated in a Downlink NAS transport message to the UE.	<--	DOWNLINK NAS TRANSPORT	-	-
4	Check: Does the UE transmit a CP-ACK encapsulated in an Uplink NAS transport message?	-->	UPLINK NAS TRANSPORT	1	P
5	Check: Does the UE transmit a CP-DATA containing an RP-ACK RPDU encapsulated in an Uplink NAS transport message?	-->	UPLINK NAS TRANSPORT	1	P
6	The SS transmits a CP-ACK encapsulated in a Downlink NAS transport message to the UE.	<--	DOWNLINK NAS TRANSPORT	-	-

11.1.1.3.3 Specific message contents

Table 11.1.1.3.3-1: Message DOWNLINK NAS TRANSPORT (step 3, Table 11.1.1.3.2-1)

Derivation Path: 36.508 clause 4.7.2-12A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-DATA		

Table 11.1.1.3.3-2: Message CP-DATA (step 3, Table 11.1.1.3.2-1)

Information Element	Value/remark	Comment	Condition
CP-User data	RP-DATA		

Table 11.1.1.3.3-3: Void

Table 11.1.1.3.3-4: Void

Table 11.1.1.3.3-5: Message UPLINK NAS TRANSPORT (step 4, Table 11.1.1.3.2-1)

Derivation Path: 36.508 clause 4.7.2-27A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-ACK		

Table 11.1.1.3.3-6: Void

Table 11.1.1.3.3-7: Message UPLINK NAS TRANSPORT (step 5, Table 11.1.1.3.2-1)

Derivation Path: 36.508 clause 4.7.2-27A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-DATA		

Table 11.1.1.3.3-8: Message CP-DATA (step 5, Table 11.1.1.3.2-1)

Information Element	**Value/remark**	**Comment**	**Condition**
CP-User data	RP-ACK		

Table 11.1.1.3.3-9: Void

Table 11.1.1.3.3-10: Void

Table 11.1.1.3.3-11: Message DOWNLINK NAS TRANSPORT (step 6, Table 11.1.1.3.2-1)

Derivation Path: 36.508 clause 4.7.2-12A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-ACK		

Table 11.1.1.3.3-12: Void

11.1.2 MT-SMS over SGs / Active mode

11.1.2.1 Test Purpose (TP)

(1)

```
with { UE is IMSI attached for non-EPS services and in EMM-CONNECTED mode }
ensure that {
  when { UE receives a CP-DATA containing an RP-DATA RPDU (SMS DELIVER TPDU) encapsulated in a
Downlink NAS transport message }
   then { UE sends a CP-ACK encapsulated in an Uplink NAS transport message followed by a CP-DATA
containing an RP-ACK RPDU encapsulated in an Uplink NAS transport message}
            }
```

11.1.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: 3GPP TS 24.301, clauses 5.6.3.1, 5.6.3.3, and 9.9.3.22.

[TS 24.301, clause 5.6.3.1]

The purpose of the transport of NAS messages procedure is to carry SMS messages in an encapsulated form between the MME and the UE. The procedure may be initiated by the UE or the network and can only be used when the UE is attached for EPS services and IMSI attached for non-EPS services and is in EMM-CONNECTED mode.

[TS 24.301, clause 5.6.3.3]

The network initiates the procedure by sending a DOWNLINK NAS TRANSPORT message. When receiving the DOWNLINK NAS TRANSPORT message, the EMM entity in the UE shall forward the contents of the NAS message container IE to the SMS entity.

[TS 24.301, clause 9.9.3.22]

This information element is used to encapsulate the SMS messages transferred between the UE and the network.The NAS message container information element is coded as shown in figure 9.9.3.22.1 and table 9.9.3.22.1.

The NAS message container is a type 4 information element with a minimum length of 4 octets and a maximum length of 253 octets.

8	7	6	5	4	3	2	1	
NAS message container IEI								octet 1
Length of NAS message container contents								octet 2
								octet 3
NAS message container contents								
								octet n

Figure 9.9.3.22.1: NAS message container information element

Table 9.9.3.22.1: NAS message container information element

NAS message container contents (octet 3 to octet n) This IE can contain an SMS message (i.e. CP-DATA, CP-ACK or CP-ERROR) as defined in subclause 7.2 in 3GPP TS 24.011 [13A].

11.1.2.3 Test description

11.1.2.3.1 Pre-test conditions

System Simulator:

- Cell A is configured according to Table 6.3.2.2-1 in [18].
- Cell A belongs TAI-1.
- Cell A is set to the "Serving cell".

UE:

- The UE does not have any stored SMS message.

Preamble:

- UE is in state Generic RB Established (state 3) on Cell A according to [18].

11.1.2.3.2 Test procedure sequence

Table 11.1.2.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS transmits a CP-DATA containing an RP-DATA RPDU (SMS DELIVER TPDU) encapsulated in a Downlink NAS transport message to the UE.	<--	DOWNLINK NAS TRANSPORT	-	-
2	Check: Does the UE transmit a CP-ACK encapsulated in an Uplink NAS transport message?	-->	UPLINK NAS TRANSPORT	1	P
3	Check: Does the UE transmit a CP-DATA containing an RP-ACK RPDU encapsulated in an Uplink NAS transport message?	-->	UPLINK NAS TRANSPORT	1	P
4	The SS transmits a CP-ACK encapsulated in a Downlink NAS transport message to the UE.	<--	DOWNLINK NAS TRANSPORT	-	-

11.1.2.3.3 Specific message contents

Table 11.1.2.3.3-1: Message DOWNLINK NAS TRANSPORT (step 1, Table 11.1.2.3.2-1)

Derivation Path: 36.508 clause 4.7.2-12A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-DATA		

Table 11.1.2.3.3-2: Message CP-DATA (step 1, Table 11.1.2.3.2-1)

Information Element	Value/remark	Comment	Condition
CP-User data	RP-DATA		

Table 11.1.2.3.3-3: Void

Table 11.1.2.3.3-4: Void

Table 11.1.2.3.3-5: Message UPLINK NAS TRANSPORT (step 2, Table 11.1.2.3.2-1)

Derivation Path: 36.508 clause 4.7.2-27A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-ACK		

Table 11.1.2.3.3-6: Void

Table 11.1.2.3.3-7: Message UPLINK NAS TRANSPORT (step 3, Table 11.1.2.3.2-1)

Derivation Path: 36.508 clause 4.7.2-27A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-DATA		

Table 11.1.2.3.3-8: Message CP-DATA (step 3, Table 11.1.2.3.2-1)

Information Element	Value/remark	Comment	Condition
CP-User data	RP-ACK		

Table 11.1.2.3.3-9: Void

Table 11.1.2.3.3-10: Void

Table 11.1.2.3.3-12: Message DOWNLINK NAS TRANSPORT (step 4, Table 11.1.2.3.2-1)

Derivation Path: 36.508 clause 4.7.2-12A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-ACK		

Table 11.1.2.3.3-12: Void

11.1.3 MO-SMS over SGs / Idle mode

11.1.3.1 Test Purpose (TP)

(1)

```
with { UE is IMSI attached for non-EPS services and in EMM-IDLE mode }
ensure that {
  when { a MO SMS is initiated at the UE }
    then { UE sends an SERVICE REQUEST message  followed by a CP-DATA containing an RP-DATA RPDU
(SMS SUBMIT TPDU) encapsulated in an Uplink NAS transport message }
            }
```

(2)

```
with { UE is IMSI attached for non-EPS services and UE has sent an SERVICE REQUEST message triggered
by MO SMS followed by a CP-DATA containing an RP-DATA RPDU (SMS SUBMIT TPDU) encapsulated in an
Uplink NAS transport message }
ensure that {
  when { UE receives a CP-DATA containing an RP-ACK RPDU encapsulated in a Downlink NAS transport
message }
   then { UE sends a CP-ACK encapsulated in an Uplink NAS Transport message }
            }
```

11.1.3.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: 3GPP TS 24.301, clauses 5.6.3.1, 5.6.3.2 and 9.9.3.22., TS 23.401 clause 5.3.4.1.

[TS 24.301, clause 5.6.3.1]

The purpose of the transport of NAS messages procedure is to carry SMS messages in an encapsulated form between the MME and the UE. The procedure may be initiated by the UE or the network and can only be used when the UE is attached for EPS services and IMSI attached for non-EPS services and is in EMM-CONNECTED mode.

[TS 24.301, clause 5.6.3.2]

Upon request from the SMS entity to send an SMS message, the EMM entity in the UE initiates the procedure by sending an UPLINK NAS TRANSPORT message including the SMS message in the NAS message container IE.

[TS 24.301, clause 9.9.3.22]

This information element is used to encapsulate the SMS messages transferred between the UE and the network. The NAS message container information element is coded as shown in figure 9.9.3.22.1 and table 9.9.3.22.1.

The NAS message container is a type 4 information element with a minimum length of 4 octets and a maximum length of 253 octets.

8	7	6	5	4	3	2	1	
NAS message container IEI								octet 1
Length of NAS message container contents								octet 2
								octet 3
NAS message container contents								
								octet n

Figure 9.9.3.22.1: NAS message container information element

Table 9.9.3.22.1: NAS message container information element

NAS message container contents (octet 3 to octet n)
This IE can contain an SMS message (i.e. CP-DATA, CP-ACK or CP-ERROR) as defined in subclause 7.2 in 3GPP TS 24.011 [13A].

…

[TS 23.401, clause 5.3.4.1]

1. The UE sends NAS message Service Request towards the MME encapsulated in an RRC message to the eNodeB. The RRC message(s) that can be used to carry the S-TMSI and this NAS message are described in TS 36.300 [5].

2. The eNodeB forwards NAS message to MME. NAS message is encapsulated in an S1-AP: Initial UE Message (NAS message, TAI+ECGI of the serving cell, S-TMSI, CSG ID, CSG access Mode). Details of this step are described in TS 36.300 [5]. If the MME can't handle the Service Request it will reject it. CSG ID is provided if the UE sends the Service Request message via a CSG cell or a hybrid cell. CSG access mode is provided if the UE sends the Service Request message via a hybrid cell. If the CSG access mode is not provided but the CSG ID is provided, the MME shall consider the cell as a CSG cell.

   If a CSG ID is indicated and CSG access mode is not provided, and there is no subscription data for this CSG ID or the CSG subscription is expired, the MME rejects the Service Request with an appropriate cause. The UE shall remove the CSG ID of the cell where the UE has initiated the service request procedure from the Allowed CSG list, if present.

   For UEs with emergency EPS bearers, i.e. at least one EPS bearer has an ARP values reserved for emergency services, if CSG access restrictions do not allow the UE to get normal services the MME shall deactivate all non-emergency bearers and accept the Service Request.

3. NAS authentication/security procedures as defined in clause 5.3.10 on "Security function" may be performed.

4. The MME sends S1-AP Initial Context Setup Request (Serving GW address, S1-TEID(s) (UL), EPS Bearer QoS(s), Security Context, MME Signalling Connection Id, Handover Restriction List, CSG Membership Indication) message to the eNodeB. This step activates the radio and S1 bearers for all the active EPS Bearers. The eNodeB stores the Security Context, MME Signalling Connection Id, EPS Bearer QoS(s) and S1-TEID(s) in the UE RAN context. The step is described in detail in TS 36.300 [5]. Handover Restriction List is described in clause 4.3.5.7 "Mobility Restrictions".

   The MME shall only request to establish Emergency EPS Bearer if the UE is not allowed to access the cell where the UE initiated the service request procedure due to CSG access restriction.

   If the Service Request is performed via a hybrid cell, CSG Membership Indication indicating whether the UE is a CSG member shall be included in the S1-AP message from the MME to the RAN. Based on this information the RAN can perform differentiated treatment for CSG and non-CSG members.

5. The eNodeB performs the radio bearer establishment procedure. The user plane security is established at this step, which is described in detail in TS 36.300 [5]. When the user plane radio bearers are setup. EPS bearer state synchronization is performed between the UE and the network, i.e. the UE shall locally remove any EPS bearer for which no radio bearers are setup and, if the radio bearer for a default EPS bearer is not established, the UE shall locally deactivate all EPS bearers associated to that default EPS bearer.

…

11.1.3.3 Test description

11.1.3.3.1 Pre-test conditions

System Simulator:

- Cell A is configured according to Table 6.3.2.2-1 in [18].

- Cell A belongs TAI-1.

- Cell A is set to the "Serving cell".

UE:

- The UE does not have any stored SMS message.

Preamble:

- UE is in state Registered, Idle Mode (state 2) on Cell A according to [18].

11.1.3.3.2 Test procedure sequence

Table 11.1.3.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Sending of a 160 character MO SMS is initiated at the UE via MMI or AT command	-	-	-	-
2	Check: Does the UE transmit an SERVICE REQUEST message?	-->	SERVICE REQUEST	1	P
3	Check: Does the UE transmit a CP-DATA containing an RP-DATA RPDU (SMS SUBMIT TPDU) encapsulated in an Uplink NAS transport message?	-->	UPLINK NAS TRANSPORT	1	P
4	The SS transmits a CP-ACK encapsulated in a Downlink NAS Transport message.	<--	DOWNLINK NAS TRANSPORT	-	-
5	The SS transmits a CP-DATA containing an RP-ACK RPDU encapsulated in an Downlink NAS transport message	<--	DOWNLINK NAS TRANSPORT	-	-
6	Check: Does the UE transmit a CP-ACK encapsulated in an Uplink NAS Transport message?	-->	UPLINK NAS TRANSPORT	2	P

11.1.3.3.3 Specific message contents

Table 11.1.3.3.3-1: Message UPLINK NAS TRANSPORT (step 3, Table 11.1.3.3.2-1)

Derivation Path: 36.508 clause 4.7.2-27A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-DATA		

Table 11.1.3.3.3-2: Message CP-DATA (step 3, Table 11.1.3.3.2-1)

Information Element	Value/remark	Comment	Condition
CP-User data	RP-DATA		

Table 11.1.3.3.3-3: Void

Table 11.1.3.3.3-4: Void

Table 11.1.3.3.3-5: Message DOWNLINK NAS TRANSPORT (step 4, Table 11.1.3.3.2-1)

Derivation Path: 36.508 clause 4.7.2-12A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-ACK		

Table 11.1.3.3.3-6: Void

Table 11.1.3.3.3-7: Message DOWNLINK NAS TRANSPORT (step 5, Table 11.1.3.3.2-1)

Derivation Path: 36.508 clause 4.7.2-12A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-DATA		

Table 11.1.3.3.3-8: Message CP-DATA (step 5, Table 11.1.3.3.2-1)

Information Element	Value/remark	Comment	Condition
CP-User data	RP-ACK		

Table 11.1.3.3.3-9: Void

Table 11.1.3.3.3-10: Void

Table 11.1.3.3.3-11: Message UPLINK NAS TRANSPORT (step 6, Table 11.1.3.3.2-1)

Derivation Path: 36.508 clause 4.7.2-27A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-ACK		

Table Void

11.1.4 MO-SMS over SGs / Active mode

11.1.4.1 Test Purpose (TP)

(1)

```
with { UE is IMSI attached for non-EPS services and in EMM-CONNECTED mode }
ensure that {
  when { a MO SMS is initiated at the UE }
    then { UE sends a CP-DATA containing an RP-DATA RPDU (SMS SUBMIT TPDU) encapsulated in an Uplink
NAS transport message }
            }
```

(2)

```
with { UE is IMSI attached for non-EPS services and in EMM-CONNECTED mode and UE has sent a CP-DATA
containing an RP-DATA RPDU (SMS SUBMIT TPDU) encapsulated in an Uplink NAS transport message }
ensure that {
  when { UE receives a CP-DATA containing an RP-ACK RPDU encapsulated in a Downlink NAS transport
message }
   then { UE sends a CP-ACK encapsulated in an Uplink NAS Transport message }
            }
```

11.1.4.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: 3GPP TS 24.301, clauses 5.6.3.1, 5.6.3.2 and 9.9.3.22, and TS 23.401, clause 5.3.4.1.

[TS 24.301, clause 5.6.3.1]

The purpose of the transport of NAS messages procedure is to carry SMS messages in an encapsulated form between the MME and the UE. The procedure may be initiated by the UE or the network and can only be used when the UE is attached for EPS services and IMSI attached for non-EPS services and is in EMM-CONNECTED mode.

[TS 24.301, clause 5.6.3.2]

Upon request from the SMS entity to send an SMS message, the EMM entity in the UE initiates the procedure by sending an UPLINK NAS TRANSPORT message including the SMS message in the NAS message container IE.

[TS 24.301, clause 9.9.3.22]

This information element is used to encapsulate the SMS messages transferred between the UE and the network. The NAS message container information element is coded as shown in Table 9.9.3.22.1 and 9.9.3.22.2.

The NAS message container is a type 4 information element with a minimum length of 4 octets and a maximum length of 253 octets.

Table 9.9.3.22.1: NAS message container information element

8	7	6	5	4	3	2	1	
NAS message container IEI								octet 1
Length of NAS message container contents								octet 2
								octet 3
NAS message container contents								
								octet n

Table 9.9.3.22.2: NAS message container information element

NAS message container contents (octet 3 to octet n) This IE can contain an SMS message (i.e. CP-DATA, CP-ACK or CP-ERROR) as defined in subclause 7.2 in 3GPP TS 24.011 [13A].

…

[TS 23.401, clause 5.3.4]

1. The UE sends NAS message Service Request towards the MME encapsulated in an RRC message to the eNodeB. The RRC message(s) that can be used to carry the S-TMSI and this NAS message are described in TS 36.300 [5].

2. The eNodeB forwards NAS message to MME. NAS message is encapsulated in an S1-AP: Initial UE Message (NAS message, TAI+ECGI of the serving cell, S-TMSI, CSG ID, CSG access Mode). Details of this step are described in TS 36.300 [5]. If the MME can't handle the Service Request it will reject it. CSG ID is provided if the UE attaches via a closed or hybrid mode CSG cell. CSG access mode is provided if the UE sends the Service Request message via a hybrid mode CSG cell. If the CSG access mode is not provided but the CSG ID is provided, the MME shall consider the CSG cell as a closed mode CSG cell.

   If a CSG ID is indicated and CSG access mode is "closed" or CSG access mode is not provided, and there is no subscription data for this CSG ID or the CSG subscription is expired, the MME rejects the Service Request with an appropriate cause. The UE shall remove the CSG ID of the cell where the UE has initiated the service request procedure from the Allowed CSG list.

3. NAS authentication procedures may be performed.

4. The MME sends S1-AP Initial Context Setup Request (Serving GW address, S1-TEID(s) (UL), EPS Bearer QoS(s), Security Context, MME Signalling Connection Id, Handover Restriction List) message to the eNodeB. This step activates the radio and S1 bearers for all the active EPS Bearers. The eNodeB stores the Security Context, MME Signalling Connection Id, EPS Bearer QoS(s) and S1-TEID(s) in the UE RAN context. The step is described in detail in TS 36.300 [5]. Handover Restriction List is described in clause 4.3.5.7 "Mobility Restrictions".

5. The eNodeB performs the radio bearer establishment procedure. The user plane security is established at this step, which is described in detail in TS 36.300 [5]. When the user plane radio bearers are setup the Service Request is completed and EPS bearer state is synchronized between the UE and the network, i.e. the UE should remove the EPS bearer for which no radio bearers are setup.

…

11.1.4.3 Test description

11.1.4.3.1 Pre-test conditions

System Simulator:

- Cell A is configured according to Table 6.3.2.2-1 in [18].
- Cell A belongs TAI-1.
- Cell A is set to the "Serving cell".

UE:

- The UE does not have any stored SMS message.

Preamble:

- UE is in state Generic RB Established (state 3) on Cell A according to [18].

11.1.4.3.2 Test procedure sequence

Table 11.1.4.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Sending of a 160 character MO SMS is initiated at the UE via MMI or AT command	-	-	-	-
2	Check: Does the UE transmit a CP-DATA containing an RP-DATA RPDU (SMS SUBMIT TPDU) encapsulated in an Uplink NAS transport message?	-->	UPLINK NAS TRANSPORT	1	P
3	The SS transmits a CP-ACK encapsulated in a Downlink NAS Transport message.	<--	DOWNLINK NAS TRANSPORT	-	-
4	The SS transmits a CP-DATA containing an RP-ACK RPDU encapsulated in an Downlink NAS transport message	<--	DOWNLINK NAS TRANSPORT	-	-
5	Check: Does the UE transmit a CP-ACK encapsulated in an Uplink NAS Transport message?	-->	UPLINK NAS TRANSPORT	2	P

11.1.4.3.3 Specific message contents

Table 11.1.4.3.3-1: Message UPLINK NAS TRANSPORT (step 2, Table 11.1.4.3.2-1)

Derivation Path: 36.508 clause 4.7.2-27A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-DATA		

Table 11.1.4.3.3-2: Message CP-DATA (step 2, Table 11.1.4.3.2-1)

Information Element	Value/remark	Comment	Condition
CP-User data	RP-DATA		

Table 11.1.4.3.3-3: Void

Table 11.1.4.3.3-4: Void

Table 11.1.4.3.3-5: Message DOWNLINK NAS TRANSPORT (step 3, Table 11.1.4.3.2-1)

Derivation Path: 36.508 clause 4.7.2-12A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-ACK		

Table 11.1.4.3.3-6: Void

Table 11.1.4.3.3-7: Message DOWNLINK NAS TRANSPORT (step 4, Table 11.1.4.3.2-1)

Derivation Path: 36.508 clause 4.7.2-12A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-DATA		

Table 11.1.4.3.3-8: Message CP-DATA (step 4, Table 11.1.4.3.2-1)

Information Element	Value/remark	Comment	Condition
CP-User data	RP-ACK		

Table 11.1.4.3.3-9: Void

Table 11.1.4.3.3-10: Void

Table 11.1.4.3.3-11: Message UPLINK NAS TRANSPORT (step 5, Table 11.1.4.3.2-1)

Derivation Path: 36.508 clause 4.7.2-27A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-ACK		

Table 11.1.4.3.3-12: Void

11.1.5 Multiple MO-SMS over SGs / Idle mode

11.1.5.1 Test Purpose (TP)

(1)

```
with { UE is IMSI attached for non-EPS services and in EMM-IDLE mode }
ensure that {
  when { a MO SMS is initiated at the UE }
    then { UE sends an SERVICE REQUEST message followed by a CP-DATA containing an RP-DATA RPDU (SMS
SUBMIT TPDU) encapsulated in an Uplink NAS transport message }
            }
```

(2)

```
with { UE is IMSI attached for non-EPS services and UE has sent an SERVICE REQUEST message triggered
by MO SMS followed by a CP-DATA containing an RP-DATA RPDU (SMS SUBMIT TPDU) encapsulated in an
Uplink NAS Transport message }
ensure that {
  when { UE receives a CP-DATA containing an RP-ACK RPDU (SMS SUBMIT REPORT TPDU) encapsulated in a
Downlink NAS transport message and has another MO SMS to send }
   then { UE does not send a final CP-ACK before it sends a CP-DATA containing the successive RP-
DATA RPDU (SMS SUBMIT TPDU) encapsulated in an Uplink NAS Transport message }
            }
```

(3)

```
with { UE is IMSI attached for non-EPS services and UE has sent an SERVICE REQUEST message triggered
by MO SMS followed by a CP-DATA containing an RP-DATA RPDU encapsulated in an Uplink NAS transport
message }
ensure that {
  when { UE receives a CP-DATA containing an RP-ACK RPDU (SMS SUBMIT REPORT TPDU) encapsulated in a
Downlink NAS transport message and does not have any further MO SMS to send }
   then { UE sends a CP-ACK encapsulated in an Uplink NAS Transport message }
            }
```

11.1.5.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: 3GPP TS 24.301, clauses 5.6.3.1, 5.6.3.2 and 9.9.3.22, TS 23.401 clause 5.3.4.1 and TS 24.011 clause 5.4.

[TS 24.301, clause 5.6.3.1]

The purpose of the transport of NAS messages procedure is to carry SMS messages in an encapsulated form between the MME and the UE. The procedure may be initiated by the UE or the network and can only be used when the UE is attached for EPS services and IMSI attached for non-EPS services and is in EMM-CONNECTED mode.

[TS 24.301, clause 5.6.3.2]

Upon request from the SMS entity to send an SMS message, the EMM entity in the UE initiates the procedure by sending an UPLINK NAS TRANSPORT message including the SMS message in the NAS message container IE.

[TS 24.301, clause 9.9.3.22]

This information element is used to encapsulate the SMS messages transferred between the UE and the network. The NAS message container information element is coded as shown in figure 9.9.3.22.1 and table 9.9.3.22.1.

The NAS message container is a type 4 information element with a minimum length of 4 octets and a maximum length of 253 octets.

8	7	6	5	4	3	2	1	
NAS message container IEI								octet 1
Length of NAS message container contents								octet 2
								octet 3
NAS message container contents								
								octet n

Figure 9.9.3.22.1: NAS message container information element

Table 9.9.3.22.1: NAS message container information element

NAS message container contents (octet 3 to octet n)
This IE can contain an SMS message (i.e. CP-DATA, CP-ACK or CP-ERROR) as defined in subclause 7.2 in 3GPP TS 24.011 [13A].

[TS 23.401, clause 5.3.4.1]

1. The UE sends NAS message Service Request towards the MME encapsulated in an RRC message to the eNodeB. The RRC message(s) that can be used to carry the S-TMSI and this NAS message are described in TS 36.300 [5].

2. The eNodeB forwards NAS message to MME. NAS message is encapsulated in an S1-AP: Initial UE Message (NAS message, TAI+ECGI of the serving cell, S-TMSI, CSG ID, CSG access Mode). Details of this step are described in TS 36.300 [5]. If the MME can't handle the Service Request it will reject it. CSG ID is provided if the UE sends the Service Request message via a CSG cell or a hybrid cell. CSG access mode is provided if the UE sends the Service Request message via a hybrid cell. If the CSG access mode is not provided but the CSG ID is provided, the MME shall consider the cell as a CSG cell.

   If a CSG ID is indicated and CSG access mode is not provided, and there is no subscription data for this CSG ID or the CSG subscription is expired, the MME rejects the Service Request with an appropriate cause. The UE shall remove the CSG ID of the cell where the UE has initiated the service request procedure from the Allowed CSG list, if present.

   For UEs with emergency EPS bearers, i.e. at least one EPS bearer has an ARP values reserved for emergency services, if CSG access restrictions do not allow the UE to get normal services the MME shall deactivate all non-emergency bearers and accept the Service Request.

3. NAS authentication/security procedures as defined in clause 5.3.10 on "Security function" may be performed.

4. The MME sends S1-AP Initial Context Setup Request (Serving GW address, S1-TEID(s) (UL), EPS Bearer QoS(s), Security Context, MME Signalling Connection Id, Handover Restriction List, CSG Membership Indication) message to the eNodeB. This step activates the radio and S1 bearers for all the active EPS Bearers. The eNodeB stores the Security Context, MME Signalling Connection Id, EPS Bearer QoS(s) and S1-TEID(s) in the UE RAN context. The step is described in detail in TS 36.300 [5]. Handover Restriction List is described in clause 4.3.5.7 "Mobility Restrictions".

   The MME shall only request to establish Emergency EPS Bearer if the UE is not allowed to access the cell where the UE initiated the service request procedure due to CSG access restriction.

If the Service Request is performed via a hybrid cell, CSG Membership Indication indicating whether the UE is a CSG member shall be included in the S1-AP message from the MME to the RAN. Based on this information the RAN can perform differentiated treatment for CSG and non-CSG members.

5. The eNodeB performs the radio bearer establishment procedure. The user plane security is established at this step, which is described in detail in TS 36.300 [5]. When the user plane radio bearers are setup. EPS bearer state synchronization is performed between the UE and the network, i.e. the UE shall locally remove any EPS bearer for which no radio bearers are setup and, if the radio bearer for a default EPS bearer is not established, the UE shall locally deactivate all EPS bearers associated to that default EPS bearer.

…

[TS 24.011, clause 5.4]

In the case of a SMS transfer via the PS domain, when the MS chooses to use the same PS signalling connection (in Iu mode and in S1 mode if packet-switched service is used); or in the case of a SMS transfer via the PS domain in A/Gb mode; or in the case of SMS transfer through the EPS, then:

- the MS shall transmit the CP-DATA for the successive RPDU and shall not transmit the final CP-ACK for the current SMS (i.e. the one that acknowledges the CP-DATA that carried the RP-ACK);

- the Transaction Identifier used for the successive RPDU shall be different to that used for the current RPDU; and

- the MS shall not transmit the CP-DATA for the successive RPDU before the final CP-DATA (i.e. the one that carried the RP-ACK) has been received.

NOTE: When an MS sends successive memory available notifications and/or mobile originated short messages on different RR connections (in A/Gb mode) or signalling connections (in Iu mode and S1 mode), the MS is strongly recommended to use different Transaction Identifiers for the old and new MM connections.

…

11.1.5.3 Test description

11.1.5.3.1 Pre-test conditions

System Simulator:

- Cell A is configured according to Table 6.3.2.2-1 in [18].

- Cell A belongs TAI-1.

- Cell A is set to the "Serving cell".

UE:

- The UE does not have any stored SMS message.

Preamble:

- UE is in state Registered, Idle Mode (state 2) on Cell A according to [18].

11.1.5.3.2 Test procedure sequence

Table 11.1.5.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Sending of 3 MO SMS as multiple SMS, i.e. one concatenated SMS that is being sent, is initiated at the UE via MMI or AT command	-	-	-	-
2	Check: Does the UE transmit an SERVICE REQUEST message?	-->	SERVICE REQUEST	1	P
3	Check: Does the UE transmit a CP-DATA containing an RP-DATA RPDU (SMS SUBMIT TPDU) encapsulated in an Uplink NAS transport message?	-->	UPLINK NAS TRANSPORT	1	P
4	The SS transmits a CP-ACK encapsulated in a Downlink NAS Transport message.	<--	DOWNLINK NAS TRANSPORT	-	-
5	The SS transmits a CP-DATA containing an RP-ACK RPDU encapsulated in a Downlink NAS transport message	<--	DOWNLINK NAS TRANSPORT	-	-
6	Check: Does the UE transmit a CP-ACK encapsulated in an Uplink NAS Transport message before the CP-DATA in step 7 is transmitted?	-->	UPLINK NAS TRANSPORT	2	F
7	Check: Does the UE transmit a CP-DATA containing an RP-DATA RPDU (SMS SUBMIT TPDU) encapsulated in an Uplink NAS transport message?	-->	UPLINK NAS TRANSPORT	2	P
8	The SS transmits a CP-ACK encapsulated in a Downlink NAS Transport message.	<--	DOWNLINK NAS TRANSPORT	-	-
9	The SS transmits a CP-DATA containing an RP-ACK RPDU encapsulated in a Downlink NAS transport message	<--	DOWNLINK NAS TRANSPORT	-	-
10	Check: Does the UE transmit a CP-ACK encapsulated in an Uplink NAS Transport message before the CP-DATA in step 11 is transmitted?	-->	UPLINK NAS TRANSPORT	2	F
11	Check: Does the UE transmit a CP-DATA containing an RP-DATA RPDU (SMS SUBMIT TPDU) encapsulated in an Uplink NAS transport message?	-->	UPLINK NAS TRANSPORT	2	P
12	The SS transmits a CP-ACK encapsulated in a Downlink NAS Transport message.	<--	DOWNLINK NAS TRANSPORT	-	-
13	The SS transmits a CP-DATA containing an RP-ACK RPDU encapsulated in a Downlink NAS transport message	<--	DOWNLINK NAS TRANSPORT	-	-
14	Check: Does the UE transmit a CP-ACK encapsulated in an Uplink NAS Transport message?	-->	UPLINK NAS TRANSPORT	3	P

11.1.5.3.3 Specific message contents

Table 11.1.5.3.3-1: Message UPLINK NAS TRANSPORT (step 3, Table 11.1.5.3.2-1)

Derivation Path: 36.508 clause 4.7.2-27A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-DATA		

Table 11.1.5.3.3-2: Message CP-DATA (step 3, Table 11.1.5.3.2-1)

Information Element	Value/remark	Comment	Condition
Transaction identifier	TI used in steps 3, 4 and 5 shall be x.		
CP-User data	RP-DATA		

Table 11.1.5.3.3-3: Message DOWNLINK NAS TRANSPORT (step 4, Table 11.1.5.3.2-1)

Derivation Path: 36.508 clause 4.7.2-12A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-ACK		

Table 11.1.5.3.3-4: Message DOWNLINK NAS TRANSPORT (step 5, Table 11.1.5.3.2-1)

Derivation Path: 36.508 clause 4.7.2-12A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-DATA		

Table 11.1.5.3.3-5: Message UPLINK NAS TRANSPORT (step 7, Table 11.1.5.3.2-1)

Derivation Path: 36.508 clause 4.7.2-27A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-DATA		

Table 11.1.5.3.3-6: Message CP-DATA (step 7, Table 11.1.5.3.2-1)

Information Element	**Value/remark**	**Comment**	**Condition**
Transaction identifier	TI used in steps 7, 8 and 9 shall be y, with y <> x (see step 3).		
CP-User data	RP-DATA		

Table 11.1.5.3.3-7: Message DOWNLINK NAS TRANSPORT (step 8, Table 11.1.5.3.2-1)

Derivation Path: 36.508 clause 4.7.2-12A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-ACK		

Table 11.1.5.3.3-8: Message DOWNLINK NAS TRANSPORT (step 9, Table 11.1.5.3.2-1)

Derivation Path: 36.508 clause 4.7.2-12A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-DATA		

Table 11.1.5.3.3-9: Message UPLINK NAS TRANSPORT (step 11, Table 11.1.5.3.2-1)

Derivation Path: 36.508 clause 4.7.2-27A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-DATA		

Table 11.1.5.3.3-10: Message CP-DATA (step 11, Table 11.1.5.3.2-1)

Information Element	**Value/remark**	**Comment**	**Condition**
Transaction identifier	TI used in steps 11, 12, 13 and 14 shall be z, with z <> y (see step 7).		
CP-User data	RP-DATA		

Table 11.1.5.3.3-11: Message DOWNLINK NAS TRANSPORT (step 12, Table 11.1.5.3.2-1)

Derivation Path: 36.508 clause 4.7.2-12A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-ACK		

Table 11.1.5.3.3-12: Message DOWNLINK NAS TRANSPORT (step 13, Table 11.1.5.3.2-1)

Derivation Path: 36.508 clause 4.7.2-12A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-DATA		

Table 11.1.5.3.3-13: Message UPLINK NAS TRANSPORT (step 14, Table 11.1.5.3.2-1)

Derivation Path: 36.508 clause 4.7.2-27A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-ACK		

11.1.6 Multiple MO-SMS over SGs / Active mode

11.1.6.1 Test Purpose (TP)

(1)

```
with { UE is IMSI attached for non-EPS services and in EMM-CONNECTED mode }
ensure that {
  when { a MO SMS is initiated at the UE }
    then { UE sends a CP-DATA containing an RP-DATA RPDU (SMS SUBMIT TPDU) encapsulated in an Uplink
NAS transport message }
            }
```

(2)

```
with { UE is IMSI attached for non-EPS services and in EMM-CONNECTED mode and UE has sent a CP-DATA
containing an RP-DATA RPDU (SMS SUBMIT TPDU) encapsulated in an Uplink NAS transport message }
ensure that {
  when { UE receives a CP-DATA containing an RP-ACK RPDU encapsulated in a Downlink NAS transport
message and has another MO SMS to send }
   then { UE does not send a final CP-ACK before it sends a CP-DATA containing the successive RP-
DATA RPDU (SMS SUBMIT TPDU) encapsulated in an Uplink NAS Transport message }
            }
```

(3)

```
with { UE is IMSI attached for non-EPS services and in EMM-CONNECTED mode and UE has sent a CP-DATA
containing an RP-DATA RPDU (SMS SUBMIT TPDU) encapsulated in an Uplink NAS transport message }
ensure that {
  when { UE receives a CP-DATA containing an RP-ACK RPDU encapsulated in a Downlink NAS transport
message and does not have any further MO SMS to send }
   then { UE sends a CP-ACK encapsulated in an Uplink NAS Transport message }
            }
```

11.1.6.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: 3GPP TS 24.301, clauses 5.6.3.1, 5.6.3.2 and 9.9.3.22, and TS 24.011, clause 5.4.

[TS 24.301, clause 5.6.3.1]

The purpose of the transport of NAS messages procedure is to carry SMS messages in an encapsulated form between the MME and the UE. The procedure may be initiated by the UE or the network and can only be used when the UE is attached for EPS services and IMSI attached for non-EPS services and is in EMM-CONNECTED mode.

[TS 24.301, clause 5.6.3.2]

Upon request from the SMS entity to send an SMS message, the EMM entity in the UE initiates the procedure by sending an UPLINK NAS TRANSPORT message including the SMS message in the NAS message container IE.

[TS 24.011, clause 5.4]

In the case of a SMS transfer via the PS domain, when the MS chooses to use the same PS signalling connection (in Iu mode and in S1 mode if packet-switched service is used); or in the case of a SMS transfer via the PS domain in A/Gb mode; or in the case of SMS transfer through the EPS, then:

- the MS shall transmit the CP-DATA for the successive RPDU and shall not transmit the final CP-ACK for the current SMS (i.e. the one that acknowledges the CP-DATA that carried the RP-ACK);
- the Transaction Identifier used for the successive RPDU shall be different to that used for the current RPDU; and
- the MS shall not transmit the CP-DATA for the successive RPDU before the final CP-DATA (i.e. the one that carried the RP-ACK) has been received.

NOTE: When an MS sends successive memory available notifications and/or mobile originated short messages on different RR connections (in A/Gb mode) or signalling connections (in Iu mode and S1 mode), the MS is strongly recommended to use different Transaction Identifiers for the old and new MM connections.

…

11.1.6.3 Test description

11.1.6.3.1 Pre-test conditions

System Simulator:

- Cell A is configured according to Table 6.3.2.2-1 in [18].
- Cell A belongs TAI-1.
- Cell A is set to the "Serving cell".

UE:

- The UE does not have any stored SMS message.

Preamble:

- UE is in state Generic RB Established (state 3) on Cell A according to [18].

11.1.6.3.2 Test procedure sequence

Table 11.1.6.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Sending of 3 MO SMS as multiple SMS, i.e. one concatenated SMS that is being sent, is initiated at the UE via MMI or AT command	-	-	-	-
2	Check: Does the UE transmit a CP-DATA containing an RP-DATA RPDU (SMS SUBMIT TPDU) encapsulated in an Uplink NAS transport message?	-->	UPLINK NAS TRANSPORT	1	P
3	The SS transmits a CP-ACK encapsulated in a Downlink NAS Transport message.	<--	DOWNLINK NAS TRANSPORT	-	-
4	The SS transmits a CP-DATA containing an RP-ACK RPDU encapsulated in a Downlink NAS transport message	<--	DOWNLINK NAS TRANSPORT	-	-
5	Check: Does the UE transmit a CP-ACK encapsulated in an Uplink NAS Transport message before the CP-DATA in step 6 is transmitted?	-->	UPLINK NAS TRANSPORT	2	F
6	Check: Does the UE transmit a CP-DATA containing an RP-DATA RPDU (SMS SUBMIT TPDU) encapsulated in an Uplink NAS transport message?	-->	UPLINK NAS TRANSPORT	2	P
7	The SS transmits a CP-ACK encapsulated in a Downlink NAS Transport message.	<--	DOWNLINK NAS TRANSPORT	-	-
8	The SS transmits a CP-DATA containing an RP-ACK RPDU encapsulated in a Downlink NAS transport message	<--	DOWNLINK NAS TRANSPORT	-	-
9	Check: Does the UE transmit a CP-ACK encapsulated in an Uplink NAS Transport message before the CP-DATA in step 10 is transmitted?	-->	UPLINK NAS TRANSPORT	2	F
10	Check: Does the UE transmit a CP-DATA containing an RP-DATA RPDU (SMS SUBMIT TPDU) encapsulated in an Uplink NAS transport message?	-->	UPLINK NAS TRANSPORT	2	P
11	The SS transmits a CP-ACK encapsulated in a Downlink NAS Transport message.	<--	DOWNLINK NAS TRANSPORT	-	-
12	The SS transmits a CP-DATA containing an RP-ACK RPDU encapsulated in a Downlink NAS transport message	<--	DOWNLINK NAS TRANSPORT	-	-
13	Check: Does the UE transmit a CP-ACK encapsulated in an Uplink NAS Transport message?	-->	UPLINK NAS TRANSPORT	3	P

11.1.6.3.3 Specific message contents

Table 11.1.6.3.3-1: Message UPLINK NAS TRANSPORT (step 2, Table 11.1.6.3.2-1)

Derivation Path: 36.508 clause 4.7.2-27A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-DATA		

Table 11.1.6.3.3-2: Message CP-DATA (step 2, Table 11.1.6.3.2-1)

Information Element	Value/remark	Comment	Condition
Transaction identifier	TI used in steps 2, 3 and 4 shall be x.		
CP-User data	RP-DATA		

Table 11.1.6.3.3-3: Message DOWNLINK NAS TRANSPORT (step 3, Table 11.1.6.3.2-1)

Derivation Path: 36.508 clause 4.7.2-12A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-ACK		

Table 11.1.6.3.3-4: Message DOWNLINK NAS TRANSPORT (step 4, Table 11.1.6.3.2-1)

Derivation Path: 36.508 clause 4.7.2-12A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-DATA		

Table 11.1.6.3.3-5: Message UPLINK NAS TRANSPORT (step 6, Table 11.1.6.3.2-1)

Derivation Path: 36.508 clause 4.7.2-27A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-DATA		

Table 11.1.6.3.3-6: Message CP-DATA (step 6, Table 11.1.6.3.2-1)

Information Element	**Value/remark**	**Comment**	**Condition**
Transaction identifier	TI used in steps 6, 7 and 8 shall be y, with y <> x (see step 2).		
CP-User data	RP-DATA		

Table 11.1.6.3.3-7: Message DOWNLINK NAS TRANSPORT (step 7, Table 11.1.6.3.2-1)

Derivation Path: 36.508 clause 4.7.2-12A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-ACK		

Table 11.1.6.3.3-8: Message DOWNLINK NAS TRANSPORT (step 8, Table 11.1.6.3.2-1)

Derivation Path: 36.508 clause 4.7.2-12A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-DATA		

Table 11.1.6.3.3-9: Message UPLINK NAS TRANSPORT (step 10, Table 11.1.6.3.2-1)

Derivation Path: 36.508 clause 4.7.2-27A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-DATA		

Table 11.1.6.3.3-10: Message CP-DATA (step 10, Table 11.1.6.3.2-1)

Information Element	**Value/remark**	**Comment**	**Condition**
Transaction identifier	TI used in steps 10, 11, 12 and 13 shall be z, with z <> y (see step 6).		
CP-User data	RP-DATA		

Table 11.1.6.3.3-11: Message DOWNLINK NAS TRANSPORT (step 11, Table 11.1.6.3.2-1)

Derivation Path: 36.508 clause 4.7.2-12A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-ACK		

Table 11.1.6.3.3-12: Message DOWNLINK NAS TRANSPORT (step 12, Table 11.1.6.3.2-1)

Derivation Path: 36.508 clause 4.7.2-12A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-DATA		

Table 11.1.6.3.3-13: Message UPLINK NAS TRANSPORT (step 13, Table 11.1.6.3.2-1)

Derivation Path: 36.508 clause 4.7.2-27A			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS message container	CP-ACK		

11.2 Emergency calls over IMS

11.2.0 General

Unless stated otherwise in a test case, for all test cases in this clause, the UE shall contain either ISIM and USIM applications or only a USIM application on UICC.

11.2.1 Emergency bearer services / Normal cell / NORMAL-SERVICE / Local Emergency Numbers List sent in the Attach / PDN connect new emergency EPS bearer context / Service request / Emergency PDN disconnect

11.2.1.1 Test Purpose (TP)

(1)

```
with { UE in EMM-REGISTERED state and EMM-IDLE mode }
ensure that {
  when { UE has uplink signalling pending for establishing a PDN connection for emergency bearer
service }
    then { UE establishes the RRC connection with the RRC establishmentCause set to 'emergency' and
sends a SERVICE REQUEST message }
}
```

(2)

```
with { UE is in EMM-REGISTERED state }
ensure that {
  when { UE is triggered to request connectivity to an additional PDN for emergency bearer service }
    then { the UE transmits a PDN CONNECTIVITY REQUEST message with the request type set to
"emergency" and not including APN }
            }
```

(3)

```
with { UE has sent a PDN CONNECTIVITY REQUEST message }
ensure that {
  when { UE receives an RRCConnectionReconfiguration message including an ACTIVATE DEFAULT EPS
BEARER CONTEXT REQUEST message with IE Procedure transaction identity matching the PDN CONNECTIVITY
REQUEST message }
    then { UE transmits an ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT message containing the EPS
bearer identity }
            }
```

(4)

```
with { UE is in EMM-REGISTERED state and PDN connection for emergency bearer service established }
ensure that {
  when { UE is triggered to request connectivity to an additional PDN for emergency bearer service }
    then { the UE does not transmit a PDN CONNECTIVITY REQUEST message }
            }
```

(5)

```
with { UE is in BEARER CONTEXT ACTIVE STATE state and in EMM-CONNECTED mode }
ensure that {
  when { UE receives a DEACTIVATE EPS BEARER CONTEXT REQUEST message for Emergency bearer service }
    then { UE deletes the emergency EPS bearer context identified by the EPS bearer identity and
transmits a DEACTIVATE EPS BEARER CONTEXT ACCEPT }
           }
```

11.2.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.301, clauses 5.3.7, 6.5.1.1, 6.5.1.2, 6.4.1.3, 6.4.4.2, 5.5.3.2.4, 5.6.1.4, 6.4.4.3 and 6.4.4.6.

[TS 24.301, clause 6.5.1.1]

The purpose of the UE requested PDN connectivity procedure is for a UE to request the setup of a default EPS bearer to a PDN. The UE requests connectivity to a PDN by sending a PDN CONNECTIVITY REQUEST message to the network. If accepted by the network, this procedure initiates the establishment of a default EPS bearer context. The procedure is used either to establish the first default bearer by including the PDN CONNECTIVITY REQUEST message into the initial attach message, or to establish subsequent default bearers to additional PDNs in order to allow the UE simultaneous access to multiple PDNs by sending the message stand-alone.

If there is already a PDN connection for emergency bearer services established, the UE shall not request an additional PDN connection for emergency bearer services.

[TS 24.301, clause 6.5.1.2]

In order to request connectivity to an additional PDN, the UE shall send a PDN CONNECTIVITY REQUEST message to the MME, start timer T3482 and enter the state PROCEDURE TRANSACTION PENDING (see example in figure 6.5.1.2.1). If the additional PDN connection is for emergency bearer services, the UE shall not include an APN in the PDN CONNECTIVITY REQUEST message; otherwise the UE shall include the requested APN.

In the PDN type information element the UE shall indicate the IP version capability of the IP stack associated with the UE as specified in subclause 6.4.1.

The UE shall set the request type to "initial request" when the UE is establishing a new PDN connectivity to a PDN in an attach procedure or in a stand-alone PDN connectivity procedure. The UE shall set the request type to "emergency" when the UE is requesting a new PDN connectivity for emergency bearer services. The UE shall set the request type to "handover" when the connectivity to a PDN is established upon handover from a non-3GPP access network and the UE was connected to that PDN before the handover to the 3GPP access network.

[TS 24.301, clause 6.4.1.3]

Upon receipt of the ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message, the UE shall send an ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT message and enter the state BEARER CONTEXT ACTIVE. When the default bearer is activated as part of the attach procedure, the UE shall send the ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT message together with ATTACH COMPLETE message. When the default bearer is activated as the response to the stand-alone PDN CONNECTIVITY REQUEST message, the UE shall send the ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT message alone.

The UE checks the PTI in the ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message to identify the UE requested PDN connectivity procedure to which the default bearer context activation is related (see subclause 6.5.1).

Upon receipt of the ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT message, the MME shall enter the state BEARER CONTEXT ACTIVE and stop the timer T3485, if the timer is running.

[TS 24.301, clause 6.4.4.2]

…

When the MME wants to deactivate all EPS bearer contexts to a PDN and thus disconnect the UE from the PDN, the MME shall include the EPS bearer identity of the default bearer associated to the PDN in the DEACTIVATE EPS BEARER CONTEXT REQUEST message.

If no NAS signalling connection exists when the MME initiates the EPS bearer context deactivation, the ESM entity in the MME shall locally deactivate the EPS bearer context towards the UE without any peer-to-peer ESM signalling between the MME and the UE.

NOTE: The EPS bearer context state(s) can be synchronized between the UE and the MME at the next EMM-IDLE to EMM-CONNECTED transition, e.g. during a service request or tracking area updating procedure.

[TS 24.301, clause 6.4.4.3]

Upon receipt of the DEACTIVATE EPS BEARER CONTEXT REQUEST message, the UE shall delete the EPS bearer context identified by the EPS bearer identity. After deactivating the identified EPS bearer context, the UE shall respond to the MME with the DEACTIVATE EPS BEARER CONTEXT ACCEPT.

If the EPS bearer identity indicated in the DEACTIVATE EPS BEARER CONTEXT REQUEST is that of the default bearer to a PDN, the UE shall delete all EPS bearer contexts associated to the PDN. After deactivating all EPS bearer contexts, the UE shall respond to the MME with the DEACTIVATE EPS BEARER CONTEXT ACCEPT.

Upon sending the DEACTIVATE EPS BEARER CONTEXT ACCEPT message, the UE shall enter the state BEARER CONTEXT INACTIVE

If the PTI is included in the DEACTIVATE EPS BEARER CONTEXT REQUEST message, the UE uses the PTI to identify the UE requested bearer resource modification procedure or UE requested PDN disconnect procedure to which the EPS bearer context deactivation is related (see subclause 6.5.4).

If the PTI is included in the DEACTIVATE EPS BEARER CONTEXT REQUEST message, the UE shall release the traffic flow aggregate description associated to the PTI value provided.

[TS 24.301 clause 5.3.7]

The network may send a Local Emergency Numbers List in the ATTACH ACCEPT or in the TRACKING AREA UPDATE ACCEPT messages, by including the Emergency Number List IE. The user equipment shall store the Local Emergency Numbers List, as provided by the network, except that any emergency number that is already stored in the USIM shall be removed from the Local Emergency Numbers List before it is stored by the user equipment. If there are no emergency numbers stored on the USIM, then before storing the received Local Emergency Numbers List, the user equipment shall remove from the Local Emergency Numbers List any emergency number stored permanently in the user equipment for use in this case (see 3GPP TS 22.101 [8]). The Local Emergency Numbers List stored in the user equipment shall be replaced on each receipt of a new Emergency Number List IE.

The emergency number(s) received in the Emergency Number List IE are valid only in networks with the same MCC as in the cell on which this IE is received. If no Local Emergency Numbers List is contained in the ATTACH ACCEPT or in the TRACKING AREA UPDATE ACCEPT message, then the stored Local Emergency Numbers List in the user equipment shall be kept, except if the user equipment has successfully registered to a PLMN with an MCC different from that of the last registered PLMN.

The Local Emergency Numbers List shall be deleted at switch off and removal of the USIM. The user equipment shall be able to store up to ten local emergency numbers received from the network.

11.2.1.3 Test description

11.2.1.3.1 Pre-test conditions

System Simulator:

- Cell A is configured according to Table 6.3.2.2-1 in [18] and is the serving cell.

UE:

None.

Preamble:

- The UE is in state Registered, Idle mode (state 2) according to [18] on Cell A. UE received local emergency numbers list in 'Attach Accept' message. The local emergency number list is different from all emergency numbers stored in the UE.

11.2.1.3.2 Test procedure sequence

Table 11.2.1.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U – S	Message		
1	Cause the UE to request connectivity to an additional PDN for emergency bearer service and an emergency call to one of the numbers received in Attach Accept message (see Note 1)	-	-	-	-
2	Check: Does UE transmit an *RRCConnectionRequest* message with *establishmentCause* set to 'emergency" followed by a SERVICE REQUEST message?	-->	SERVICE REQUEST	1	P
3-13	Steps 5 to 15 of the generic test procedure for IMS Emergency call establishment in EUTRA: in EUTRA: Normal Service (TS 36.508 subclause 4.5A.4.3-1).	-	-	2,3	P
13A	Release IMS Call (see Note 4)	-	-	-	-
14	The SS releases the RRC connection.	-	-	-	-
15	Cause the UE to request connectivity to an additional PDN for emergency bearer service (see Note 1)	-	-	-	-
16	Check: Does UE transmit a SERVICE REQUEST message?	-->	SERVICE REQUEST	4	F
17	The SS transmits a Paging message to the UE using S-TMSI with CN domain indicator set to "PS".	-	-	-	-
18	The UE transmits the SERVICE REQUEST message	-->	SERVICE REQUEST	-	-
19	The SS establishes SRB2 and DRBs associated with two default EPS bearer context (a first PDN obtained during the attach procedure and an additional PDN).(see Note 2)	-	-	-	-
20	The SS transmits a DEACTIVATE EPS BEARER CONTEXT REQUEST including the EPS bearer identity of the default EPS bearer to the additional PDN.	<--	DEACTIVATE EPS BEARER CONTEXT REQUEST	-	-
21	Check: Does the UE transmit a DEACTIVATE EPS BEARER CONTEXT ACCEPT? (see Note 3)	-->	DEACTIVATE EPS BEARER CONTEXT ACCEPT	5	P

Note 1: The request of connectivity to an additional PDN and the sending of data may be performed by MMI or AT command. (e.g. AT command +cgdcont with <Emergency Indication> set to 1)

Note 2: After a correct SERVICE REQUEST is received then the SS performs the Radio Bearer Establishment procedure. The UE transmission of the RRCConnectionReconfigurationComplete message indicates the completion of the radio bearer establishment procedure and that the UE has changed EMM mode from EMM-IDLE to EMM-CONNECTED.

Note 3: It can be confirmed that the additional default EPS bearer has been deactivated by UE.

Note 4: The IMS Call is released using the generic procedure in 36.508 subclause 4.5A.13.

11.2.1.3.3 Specific message contents

Table 11.2.1.3.3-1: ATTACH ACCEPT (Preamble)

Derivation path: 36.508 table 4.7.2-1			
Information Element	**Value/Remark**	**Comment**	**Condition**
Emergency number list	2 numbers TS 24.008, 10.5.3.13	The numbers shall be different than any of those indicated in TS 22.101 clause 10.1.1 AND the numbers stored in the USIM AND any emergency number stored permanently in the ME	
EPS network feature support	'0000 0111'B	- IMS voice over PS session in S1 mode supported - emergency bearer services in S1 mode supported - location services via EPC supported - no information about support of location services via CS domain is available	

Table 11.2.1.3.3-2: Message PDN CONNECTIVITY REQUEST (step 4, Table 11.2.1.3.2-1)

Derivation Path: 36.508 table 4.7.2-1			
Information Element	**Value/Remark**	**Comment**	**Condition**
Request type	'0100'B	emergency	
Access point name	Not present		

Table 11.2.1.3.3-3: Message ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST (step 5, Table 11.2.1.3.2-1)

Derivation path: 36.508 table 4.7.3-6 and table 4.6.1-8 with condition UM-DRB-ADD(2)			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	6	SS assigns an additional EPS Bearer Id different from default EPS Bearer Id between 5 and 15.	
Access point name	APN-1		

Table 11.2.1.3.3-4: Message DEACTIVATE EPS BEARER CONTEXT REQUEST (step 13, Table 11.2.1.3.2-1)

Derivation path: 36.508 table 4.7.3-12 and table 4.6.1-8 with condition and condition NETWORK-INITIATED			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	Default EBId-2	Same value as in ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST of step 3	
ESM cause	00100100	regular deactivation	

11.2.2 Emergency bearer services / Normal cell / LIMITED-SERVICE / Attach / PDN connect

11.2.2.1 Test Purpose (TP)

(1)

```
with { UE in EMM-DEREGISTERED.LIMITED-SERVICE state }
ensure that {
  when { UE is requested to make an outgoing emergency call }
    then { UE transmits an ATTACH REQUEST message }
     }
```

11.2.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: 3GPP TS 24.301 clauses 5.2.2.3.2, 5.5.1.2.2, 5.5.2.1 and 6.5.1.2.

[TS 24.301, clause 5.2.2.3.2]

The UE shall initiate an attach or combined attach procedure when entering a cell which provides normal service.

The UE may initiate attach for emergency bearer services.

[TS 24.301, clause 5.5.1.2.2]

In state EMM-DEREGISTERED, the UE initiates the attach procedure by sending an ATTACH REQUEST message to the MME, starting timer T3410 and entering state EMM-REGISTERED-INITIATED (see example in figure 5.5.1.2.2.1). If timer T3402 is currently running, the UE shall stop timer T3402. If timer T3411 is currently running, the UE shall stop timer T3411.

...

The UE shall send the ATTACH REQUEST message together with a PDN CONNECTIVITY REQUEST message contained in the ESM message container information element to request PDN connectivity.

If UE supports A/Gb mode or Iu mode or if the UE wants to indicate its UE specific DRX parameter to the network, the UE shall include the UE specific DRX parameter in the DRX parameter IE in the ATTACH REQUEST message.

If a valid NAS security context exists, the UE shall integrity protect the ATTACH REQUEST message combined with the PDN CONNECTIVITY REQUEST message. When the UE does not have a valid NAS security context, the ATTACH REQUEST message combined with the PDN CONNECTIVITY REQUEST message is not integrity protected.

[TS 24.301, clause 5.5.2.1]

...

After the completion of application for which the emergency services were invoked, in order to regain normal services, a UE attached for emergency bearer services may perform a detach procedure, followed by a subsequent re-attach, if the UE moves to a new cell that provides normal service.

[TS 24.301, clause 6.5.1.2]

When the PDN CONNECTIVITY REQUEST message is sent together with an ATTACH REQUEST message, the UE shall not include the APN.

11.2.2.3 Test description

11.2.2.3.1 Pre-test conditions

System Simulator:

- Cell A

- The PLMN is defined in Table 11.2.2.3.1-1.

Table 11.2.2.3.1–1: PLMN identifier

Cell	PLMN name	MCC / MNC
A	PLMN4	004 / 31

UE:

- The UE is equipped with either ISIM and USIM applications or only a USIM application on UICC. The USIM contains default values except for those listed in Table 11.2.2.3.1-2.

Table 11.2.2.3.1–2: USIM configuration

USIM field	Priority	Value	Access Technology Identifier
EF_{IMSI}		The HPLMN (MCC+MNC) of the IMSI is set to PLMN1.	
EF_{FPLMN}		PLMN4	
$EF_{PLMNwAcT}$	1	Default	E-UTRAN
$EF_{OPLMNwACT}$	1	PLMN1	E-UTRAN
$EF_{HPLMNwAcT}$	1	PLMN1	E-UTRAN

Preamble:

- The UE is Switched OFF (State 1) according to [18].

11.2.2.3.2 Test procedure sequence

Table 11.2.2.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Power on the UE.	-	-	-	-
2	Wait 60s for the UE to camp on Cell 1 as an acceptable cell.	-	-	-	-
3-5	Steps 1 to 3 of the generic test procedure for IMS Emergency call establishment in EUTRA: Limited Service (TS 36.508 subclause 4.5A.5.3-1).	-	-	-	-
6	Check: Does the UE transmit an ATTACH REQUEST message to attach for emergency bearer services, together with a PDN CONNECTIVITY REQUEST message for emergency bearer services?	-->	ATTACH REQUEST PDN CONNECTIVITY REQUEST	1	P
7-21	Steps 5 to 19 of the generic test procedure for IMS Emergency call establishment in EUTRA: Limited Service (TS 36.508 subclause 4.5A.5.3-1).	-	-	-	-
22	Release IMS Call (see Note 1)	-	-	-	-
23	The SS releases the RRC connection.	-	-	-	-
Note 1: The IMS Call is released using the generic procedure in 36.508 subclause 4.5A.13.					

Table 11.2.2.3.2-2: Void

11.2.2.3.3 Specific message contents

Table 11.2.2.3.3-1: ATTACH REQUEST (Step6, Table 11.2.2.3.2-1)

Derivation Path: 36.508, Table 4.7.2-4			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS attach type	'0110'B	EPS emergency attach	
ESM message container	PDN CONNECTIVITY REQUEST message to request PDN connectivity to an emergency PDN		

Table 11.2.2.3.3-2: PDN CONNECTIVITY REQUEST (Step 6, Table 11.2.2.3.2-1)

Derivation Path: 36.508, Table 4.7.3-20			
Information Element	**Value/remark**	**Comment**	**Condition**
Request type	'0100'B	emergency	

11.2.3 Emergency bearer services / CSG cell / LIMITED-SERVICE / Attach / Security mode control procedure without prior authentication / PDN connect / Service request / PDN disconnect / Detach upon UE switched off / Temporary storage of EMM information

11.2.3.1 Test Purpose (TP)

(1)

```
with { the only suitable cell is a non-allowed CSG cell }
ensure that {
  when { a call to send user data related to Emergency call is originated at the UE }
    then { UE performs an Attach for emergency bearer services on non-allowed CSG cell }
          }
```

(2)

void

(3)

```
with { the UE is attached for emergency bearer services }
ensure that {
  when { the UE is detached }
    then { the UE deletes EMM parameters stored temporarily while attached for emergency bearer
services }
        }
```

11.2.3.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: 3GPP TS 24.301 clauses 5.2.3.2.3, 5.4.3.2, 5.5.1.2.2, 5.5.2.1, 5.6.1.4 and Annex C.

[TS 24.301, clause 5.2.3.2.3]

The UE:

- shall perform cell selection/reselection according to 3GPP TS 36.304 [21];
- may respond to paging (with IMSI); and
- may initiate attach for emergency bearer services.

If a valid NAS security context exists, the UE shall integrity protect the ATTACH REQUEST message combined with the PDN CONNECTIVITY REQUEST message. When the UE does not have a valid NAS security context, the ATTACH REQUEST message combined with the PDN CONNECTIVITY REQUEST message is not integrity protected.

[TS 24.301, clause 5.4.3.2]

...

The MME shall create a locally generated K_{ASME} and send the SECURITY MODE COMMAND message including a KSI value in the NAS key set identifier IE set to "000" and EIA0 and EEA0 as the selected NAS security algorithms when the security mode control procedure is initiated:

- during an attach procedure for emergency bearer services if no shared EPS security context is available;
- during a tracking area updating procedure for a UE that has a PDN connection for emergency bearer services if no shared EPS security context is available; or
- after a failed authentication procedure for a UE that has a PDN connection for emergency bearer services if continued usage of a shared security context is not possible.

The UE shall process a SECURITY MODE COMMAND message including a KSI value in the NAS key set identifier IE set to "000" and EIA0 and EEA0 as the selected NAS security algorithms and, if accepted, create a locally generated K_{ASME} when the security mode control procedure is initiated:

- during an attach procedure for emergency bearer services;
- during a tracking area updating procedure when the UE has a PDN connection for emergency bearer services; or
- after an authentication procedure when the UE has a PDN connection for emergency bearer services.

NOTE 1: The process for creation of the locally generated K_{ASME} by the MME and the UE is implementation dependent.

...

[TS 24.301, clause 5.5.1.2.2]

...

In state EMM-DEREGISTERED, the UE initiates the attach procedure by sending an ATTACH REQUEST message to the MME, starting timer T3410 and entering state EMM-REGISTERED-INITIATED (see example in figure 5.5.1.2.2.1). If timer T3402 is currently running, the UE shall stop timer T3402. If timer T3411 is currently running, the UE shall stop timer T3411.

If the UE supports neither A/Gb mode nor Iu mode, the UE shall handle the EPS mobile identity IE in the ATTACH REQUEST message as follows:

- The UE shall include in the ATTACH REQUEST message a valid GUTI together with the last visited registered TAI, if available. If there is no valid GUTI available, the UE shall include the IMSI in the ATTACH REQUEST message.

If the UE supports A/Gb mode or Iu mode, the UE shall handle the EPS mobile identity as follows:

- If the TIN indicates "P-TMSI" and the UE holds a valid P-TMSI and RAI, the UE shall map the P-TMSI and RAI into the EPS mobile identity IE. If a P-TMSI signature is associated with the P-TMSI, the UE shall include it in the Old P-TMSI signature IE. Additionally, if the UE holds a valid GUTI, the UE shall indicate the GUTI in the Additional GUTI IE.

NOTE: The mapping of the P-TMSI and the RAI to the GUTI is specified in 3GPP TS 23.003 [2].

- If the TIN indicates "GUTI" or "RAT-related TMSI" and the UE holds a valid GUTI, the UE shall indicate the GUTI in the EPS mobile identity IE.

- If the TIN is deleted and

  - the UE holds a valid GUTI, the UE shall indicate the GUTI in the EPS mobile identity IE; or

  - otherwise, if the UE holds a valid P-TMSI and RAI, the UE shall map the P-TMSI and RAI into the EPS mobile identity IE. If a P-TMSI signature is associated with the P-TMSI, the UE shall include it in the Old P-TMSI signature IE.

- Otherwise the UE shall include the IMSI in the EPS mobile identity IE.

If the UE is attaching for emergency bearer services and does not hold a valid GUTI, P-TMSI or IMSI as described above, the IMEI shall be included in the EPS mobile identity IE.

The UE shall send the ATTACH REQUEST message together with a PDN CONNECTIVITY REQUEST message contained in the ESM message container information element to request PDN connectivity.

If UE supports A/Gb mode or Iu mode or if the UE wants to indicate its UE specific DRX parameter to the network, the UE shall include the UE specific DRX parameter in the DRX parameter IE in the ATTACH REQUEST message.

If a valid NAS security context exists, the UE shall integrity protect the ATTACH REQUEST message combined with the PDN CONNECTIVITY REQUEST message. When the UE does not have a valid NAS security context, the ATTACH REQUEST message combined with the PDN CONNECTIVITY REQUEST message is not integrity protected.

[TS 24.301, clause 5.5.2.1]

...

After the completion of application for which the emergency services were invoked, in order to regain normal services, a UE attached for emergency bearer services may perform a detach procedure, followed by a subsequent re-attach, if the UE moves to a new cell that provides normal service.

If a detach is requested by the HSS for a UE that has bearers for emergency services, the MME shall not send a DETACH REQUEST message to the UE, and shall follow the procedures in subclause 6.4.4.1 for a UE that has bearers for emergency services.

If the detach procedure for EPS services is performed, the EPS bearer context(s) for this particular UE are deactivated locally without peer-to-peer signalling between the UE and the MME.

...

[TS 24.301, clause 5.6.1.4]

…

If the SERVICE REQUEST message was sent in a CSG cell and the CSG subscription has expired or was removed for a UE, but the UE has a PDN connection for emergency bearer services established, the network shall accept the SERVICE REQUEST message and deactivate all non-emergency EPS bearers locally. The emergency EPS bearers shall not be deactivated.

...

[TS 24.301, Annex C]

The following EMM parameters shall be stored on the USIM if the corresponding file is present:

- GUTI;
- last visited registered TAI;
- EPS update status;
- Allowed CSG list;
- Operator CSG list; and
- EPS security context parameters from a full native EPS security context (see 3GPP TS 33.401 [19]).

...

...

The following EMM parameter shall be stored in a non-volatile memory in the ME together with the IMSI from the USIM:

- TIN.

...

If the UE is attached for emergency bearer services, the UE shall not store the EMM parameters described in this annex on the USIM or in non-volatile memory. Instead the UE shall temporarily store these parameters locally in the ME and the UE shall delete these parameters when the UE is detached.

11.2.3.3 Test description

11.2.3.3.1 Pre-test conditions

System Simulator:

- cell A and cell B.
  - cell A is not a CSG cell and is “Serving cell”;
  - cell B is a CSG cell and is “Non-suitable cell”.
- System information combination 7 as defined in TS 36.508[18] clause 4.4.3.1 is used in E-UTRA cells.

UE:

- if pc_Allowed_CSG_list, the UE’s Allowed CSG list is empty.

Preamble:

- the UE is in state Registered, Idle mode (state 2) on cell A according to 36.508 [18].
- the UE is not attached for emergency bearer services.

11.2.3.3.2 Test procedure sequence

Table 11.2.3.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS configures: - cell A as a "Non-suitable “Off” cell". - cell B as a "Serving cell".	-	-	-	-
2	The SS waits 1 min to ensure the UE is in limited service on Cell B.	-	-	-	-
3	Cause the UE to originate a call to send user data related to Emergency call. (Note 1)	-	-	-	-
4	Check: Does the UE transmit an ATTACH REQUEST message to attach for emergency bearer services, together with a PDN CONNECTIVITY REQUEST message for emergency bearer services, on Cell B?	-->	ATTACH REQUEST PDN CONNECTIVITY REQUEST	1	P
5-14	Steps 7 to 16 of the generic test procedure in TS 36.508 subclause 4.5A.5.3 are performed on cell B. NOTE: The Attach procedure for emergency bearer services is completed and a default EPS bearer context for emergency bearer services is activated. Authentication is not performed.	-	-	-	-
15-23	Steps 8 to 10a7 of the generic test procedure in TS 36.508 subclause 4.5.3.3 are performed on cell B. NOTE: Radio bearer establishment procedure is performed to successfully complete the Service Request procedure.	-	-	-	-
23A	Release IMS Call (see Note 2)	-	-	-	-
24	If possible (see ICS) switch off is performed. Otherwise the power is removed.	-	-	-	-
	EXCEPTION: Step 25 describes behaviour that depends on the UE capability.				
25	If pc_SwitchOnOff then the UE transmits a DETACH REQUEST with the Detach Type IE indicating "switch off".	-->	DETACH REQUEST	-	-
26	The SS configures: - cell A as a "Serving cell". - cell B as a "Non-suitable “Off” cell".	-	-	-	-
27	The UE is brought back to operation or the USIM is inserted.	-	-	-	-
28	Check: Does the UE transmit an ATTACH REQUEST on Cell A with EMM parameters not reflecting previous ATTACH on cell B?	-->	ATTACH REQUEST	3	P
Note 1: This could be done by e.g. MMI or AT command. Note 2: The IMS Call is released using the generic procedure in 36.508 subclause 4.5A.13.					

11.2.3.3.3 Specific message contents

Table 11.2.3.3.3-1: Conditions for Table 11.2.3.3.3-2

Condition	Explanation
Cell A	This condition applies to system information transmitted on Cell A.
Cell B	This condition applies to system information transmitted on Cell B.

Table 11.2.3.3.3-2: *SystemInformationBlockType1* for cell A and B (Pre-test conditions and all steps, Table 11.2.3.3.2-1)

Derivation Path: 36.508 clause 4.4.3.2			
Information Element	**Value/remark**	**Comment**	**Condition**
SystemInformationBlockType1 ::= SEQUENCE {			
cellAccessRelatedInfo SEQUENCE {			
csg-Indication	FALSE		Cell A
	TRUE		Cell B
csg-Identity	Not present		Cell A
	'000 0000 0000 0000 0000 0000 0010'B		Cell B
}			
}			

Table 11.2.3.3.3-3: *SystemInformationBlockType4* for cell A and B (Pre-test conditions and all steps, Table 11.2.3.3.2-1)

Derivation Path: 36.508 clause 4.4.3.3, Table 4.4.3.3-3			
Information Element	**Value/remark**	**Comment**	**Condition**
SystemInformationBlockType4 ::= SEQUENCE {			
csg-PhysCellIdRange ::= SEQUENCE {			
Start	2		
Range	Not present	The UE shall apply value 1 in case the field is absent, in which case only the physical cell identity value indicated by start applies.	
}			
}			

Table 11.2.3.3.3-4: ATTACH REQUEST (Step 4, Table 11.2.3.3.2-1)

Derivation Path: 36.508, Table 4.7.2-4			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS attach type	'0110'B	EPS emergency attach	
NAS key set identifier			
NAS key set identifier	NAS key set identifier allocated to UE during authentication in test preamble		
TSC	‘0’B	Native security context	
EPS Mobile Identity	GUTI allocated to UE during previous attach on Cell A.		
Last visited registered TAI	TAI-1		
Old location area identification	Not present		
TMSI status	Not present		

Table 11.2.3.3.3-5: PDN CONNECTIVITY REQUEST (Step 4, Table 11.2.3.3.2-1)

Derivation Path: 36.508, Table 4.7.3-20			
Information Element	**Value/remark**	**Comment**	**Condition**
Request type	'0100'B	emergency	

Table 11.2.3.3.3-6: ATTACH REQUEST (Step 28, Table 11.2.3.3.2-1)

Derivation Path: 36.508, Table 4.7.2-4			
Information Element	**Value/remark**	**Comment**	**Condition**
NAS key set identifier			
NAS key set identifier	NAS key set identifier allocated to UE during authentication in test preamble		
TSC	'0'B	Native security context	
Old GUTI or IMSI	GUTI allocated to UE during previous attach on Cell A.		
Last visited registered TAI	TAI-1		
Old location area identification	Not present		
TMSI status	Not present		

11.2.4 Emergency bearer services / Normal cell / NO-IMSI / Attach / No EPS security context / PDN connect / Service request / Timer T3412 expires

11.2.4.1 Test Purpose (TP)

(1)

```
with { UE is swithed-on without a valid USIM inserted }
ensure that {
  when { the UE was triggered to originate an emergency bearer service }
    then { the UE establishes the RRC connection with the RRC establishmentCause set to " emergency
calls " }
            }
```

(2)

```
with { UE is swithed-on without a valid USIM inserted, and has originated an emergency bearer
service }
ensure that {
  when { the UE receives an RRCConnectionSetup message }
    then { the UE sends an ATTACH REQUEST message with the EPS attach type set to " EPS emergency
attach " }
            }
```

(3)

```
with { UE has sent an ATTACH REQUEST message for emergency bearer service }
ensure that {
  when { The UE receives an ATTACH ACCEPT message }
    then { The UE sends an ATTACH COMPLETE message }
            }
```

(4)

```
void
```

(5)

```
with { UE has completed Emergency service and enters EMM-IDLE MODE}
ensure that {
  when { the periodic tracking area updating timer T3412 expires }
   then { UE does not send an TRACKING AREA UPDATE REQUEST message }
            }
```

11.2.4.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.301, clauses 5.2.2.3.5, 5.3.1.1, 5.3.5, 5.4.2.1, 5.5.1.2.1, 5.5.1.2.2, 5.5.1.2.3, 6.4.1.3and Annex D.

[TS 24.301, clause 5.2.2.3.5]

The UE shall perform cell selection according to 3GPP TS 36.304 [21].

The UE may initiate attach for emergency bearer services.

[TS 24.301, clause 5.3.1.1]

When the UE is in EMM-IDLE mode and needs to transmit an initial NAS message, the UE shall request the lower layer to establish a RRC connection. In this request to the lower layer the NAS shall provide to the lower layer the RRC establishment cause and the call type as specified in annex D of this specification.

...

For the routing of the initial NAS message to the appropriate MME, the UE NAS provides the lower layers with either the S-TMSI or the registered globally unique MME identifier (GUMMEI) that consists of the PLMN ID, the MME group ID, and the MME code (see 3GPP TS 23.003 [2]) according to the following rules:

- When the UE is registered in the tracking area of the current cell during the NAS signalling connection establishment, the UE NAS shall provide the lower layers with the S-TMSI, but shall not provide the registered MME identifier to the lower layers. Exceptionally, when the UE in EMM-IDLE mode initiates a tracking area updating or combined tracking area updating procedure for load balancing purposes, the UE NAS shall provide the lower layers with neither S-TMSI nor registered MME identifier.

- When the UE is not registered in the tracking area of the current cell during the NAS signalling connection establishment, the UE NAS does not provide the lower layers with the S-TMSI. Instead,

  a) if the TIN indicates "GUTI" or "RAT-related TMSI", or the TIN is not available, and the UE holds a valid GUTI, the UE NAS shall provide the lower layers with the MME identifier part of the valid GUTI; or

  b) if the TIN indicates "P-TMSI" and the UE holds a valid P-TMSI and RAI, the UE NAS shall provide the lower layers with the MME identifier part of the mapped GUTI, which is generated from the P-TMSI and RAI.

[TS24.301 clause5.3.5]

Periodic tracking area updating is used to periodically notify the availability of the UE to the network. The procedure is controlled in the UE by the periodic tracking area update timer (timer T3412). The value of timer T3412 is sent by the network to the UE in the ATTACH ACCEPT message and can be sent in the TRACKING AREA UPDATE ACCEPT message. The UE shall apply this value in all tracking areas of the list of tracking areas assigned to the UE, until a new value is received.

The timer T3412 is reset and started with its initial value, when the UE goes from EMM-CONNECTED to EMM-IDLE mode. The timer T3412 is stopped when the UE enters EMM-CONNECTED mode or EMM-DEREGISTERED state.

If the UE is attached for emergency bearer services, and timer T3412 expires, the UE shall not initiate a periodic tracking area updating procedure, but shall locally detach from the network.

When a UE is not attached for emergency bearer services, and timer T3412 expires, the periodic tracking area updating procedure shall be started and the timer shall be set to its initial value for the next start.

…

If the UE is not attached for emergency bearer services, the mobile reachable timer shall be longer than T3412.In this case, by default, the mobile reachable timer is 4 minutes greater than T3412. If ISR is not activated, the network behaviour upon expiry of the mobile reachable timer is network dependent, but typically the network stops sending paging messages to the UE on the first expiry, and may take other appropriate actions.

If the UE is attached for emergency bearer services, the MME shall set the mobile reachable timer with a value equal toT3412. When the mobile reachable timer expires, the MME shall locally detach the UE.

….

[TS 24.301, clause 5.4.2.1]

The purpose of the EPS authentication and key agreement (AKA) procedure is to provide mutual authentication between the user and the network and to agree on a key K_{ASME} (see 3GPP TS 33.401 [19]). The cases when the EPS AKA procedure should be used are defined in 3GPP TS 33.401 [19].

The EPS AKA procedure is always initiated and controlled by the network. However, the UE can reject the EPS authentication challenge sent by the network.

The UE shall proceed with an EPS authentication challenge only if a USIM is present.

…

[TS 24.301, clause 5.5.1.1]

The attach procedure is used to attach to an EPC for packet services in EPS.x

The attach procedure is used for three purposes:

- by a UE in PS mode of operation to attach for EPS services only;
- by a UE in CS/PS mode 1 or CS/PS mode 2 of operation to attach for both EPS and non-EPS services; or
- to attach for emergency bearer services.

If the MME does not support an attach for emergency bearer services, the MME shall reject any request to attach with an attach type set to "EPS emergency attach".

With a successful attach procedure, a context is established for the UE in the MME, and a default bearer is established between the UE and the PDN GW, thus enabling always-on IP connectivity to the UE. The network may also initiate the activation of dedicated bearers as part of the attach procedure.

...

[TS 24.301, clause 5.5.1.2.1]

When the UE initiates the attach procedure for emergency bearer services, the UE shall indicate " EPS emergency attach" in the EPS attach type IE.

[TS 24.301, clause 5.5.1.2.2]

In state EMM-DEREGISTERED, the UE initiates the attach procedure by sending an ATTACH REQUEST message to the MME, starting timer T3410 and entering state EMM-REGISTERED-INITIATED (see example in figure 5.5.1.2.2.1). If timer T3402 is currently running, the UE shall stop timer T3402. If timer T3411 is currently running, the UE shall stop timer T3411.

If the UE supports neither A/Gb mode nor Iu mode, the UE shall handle the Old GUTI or IMSI IE in the ATTACH REQUEST message as follows:

- The UE shall include in the ATTACH REQUEST message a valid GUTI together with the last visited registered TAI, if available. If there is no valid GUTI available, the UE shall include the IMSI in the ATTACH REQUEST message.

If the UE is attaching for emergency bearer services and does not hold a valid GUTI, P-TMSI or IMSI as described above, the IMEI shall be included in the EPS mobile identity IE.

...

The UE shall send the ATTACH REQUEST message together with a PDN CONNECTIVITY REQUEST message contained in the ESM message container information element to request PDN connectivity.

...

If a valid NAS security context exists, the UE shall integrity protect the ATTACH REQUEST message combined with the PDN CONNECTIVITY REQUEST message. When the UE does not have a valid NAS security context, the ATTACH REQUEST message combined with the PDN CONNECTIVITY REQUEST message is not integrity protected.

...

[TS 24.301, clause 5.5.1.2.3]

During an attach for emergency bearer services, the MME may choose to skip the authentication procedure even if no EPS security context is available and proceed directly to the execution of the security mode control procedure as specified in subclause 5.4.3.

...

[TS 24.301, clause 6.4.1.3]

Upon receipt of the ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message, the UE shall send an ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT message and enter the state BEARER CONTEXT ACTIVE. When the default bearer is activated as part of the attach procedure, the UE shall send the ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT message together with ATTACH COMPLETE message. When the default bearer is activated as the response to the stand-alone PDN CONNECTIVITY REQUEST message, the UE shall send the ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT message alone.

The UE checks the PTI in the ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message to identify the UE requested PDN connectivity procedure to which the default bearer context activation is related (see subclause 6.5.1).

...

[TS 24.301, Annex D]

Table D.1.1: Mapping of NAS procedure to establishment cause and call type

NAS procedure	RRC establishment cause (according 3GPP TS 36.331 [22])	Call type
Attach	If an ATTACH REQUEST has EPS attach type not set to "EPS emergency attach", the RRC establishment cause shall be set to MO signalling. (See Note 1)	"originating signalling"
	If an ATTACH REQUEST has EPS attach type set to "EPS emergency attach", the RRC establishment cause shall be set to Emergency call. (See Note 1)	"emergency calls"
Note 1: For these NAS procedures initiated by UEs of access class 12, 13 or 14 in their home country, the RRC establishment cause will be set to "High priority access AC 11 – 15". For this purpose the home country is defined as the country of the MCC part of the IMSI, see 3GPP TS 22.011 [1A]. For these NAS procedures initiated by UE of access class 11 or 15 in their HPLMN (if the EHPLMN list is not present or is empty) or EHPLMN (if the EHPLMN list is present), the RRC establishment cause will be set to "High priority access AC 11 – 15".		

11.2.4.3 Test description

11.2.4.3.1 Pre-test conditions

System Simulator:

- Cell A is configured according to Table 6.3.2.2-1 in [18].

UE:

- Without a valid USIM inserted

Preamble:

- The UE is in state Switched OFF (state 1) according to [18].

11.2.4.3.2 Test procedure sequence

Table: 11.2.4.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U – S	Message		
1	The UE is switched on without a valid USIM inserted.	-	-	-	-
2	Causes the UE originate an emergency bearer service (Note1).	-	-	-	-
3	Check: Does the UE transmit an *RRCConnectionRequest* message with *establishmentCause* set to 'Emergency call'?	-	-	1	P
4	The SS transmits an *RRCConnectionSetup* message.	-	-	-	-
5	Check: Does the UE transmit an ATTACH REQUEST message to attach for emergency bearer services, together with a PDN CONNECTIVITY REQUEST message for emergency bearer services?	-->	ATTACH REQUEST PDN CONNECTIVITY REQUEST	2	P
6-16	Steps 5 to 15 of the generic test procedure for IMS Emergency call establishment in EUTRA: Limited Service (TS 36.508 subclause 4.5A.5.3-1).	-	-	-	-
17	Check: Does the UE transmit an ATTACH COMPLETE message , and the The ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT message is piggybacked in ATTACH COMPLETE?	-->	ATTACH COMPLETE ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT	3	P
18-20	Steps17 to 19 of the generic test procedure for IMS Emergency call establishment in EUTRA: Limited Service (TS 36.508 subclause 4.5A.5.3-1).	-	-	-	-
20A	Release IMS Call (see Note 2)	-	-	-	-
21	The SS releases the RRC connection.	-	-	-	-
22	The SS waits 6minutes. (Expiry of T3412)	-	-	-	-
23	Check: Does the UE send TRACKING AREA UPDATE REQUEST message?	-->	TRACKNG AREA UPDATE REQUEST	5	F
Note 1: The request to originate a emergency service may be performed by MMI or AT command. Note 2: The IMS Call is released using the generic procedure in 36.508 subclause 4.5A.13.					

11.2.4.3.3 Specific message contents

Table 11.2.4.3.3-1: Message *RRCConnectionRequest* (step 3, Table 11.2.4.3.2-1)

Derivation path: 36.508 table 4.6.1-16			
Information Element	**Value/Remark**	**Comment**	**Condition**
RRCConnectionRequest ::= SEQUENCE {			
criticalExtensions CHOICE {			
rrcConnectionRequest-r8 SEQUENCE {			
ue-Identity CHOICE {			
randomValue	Not checked		
}			
establishmentCause	Emergency call		
}			
}			
}			

Table 11.2.4.3.3-2: Message ATTACH REQUEST (step 5, Table 11.2.4.3.2-1)

Derivation path: TS 36.508 table 4.7.2-4			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS attach type	'0110'B	EPS emergency attach	
EPS mobile identity	IMEI		

Table 11.2.4.3.3-3: Message ATTACH ACCEPT (step 14, 36.508 table 4.5A.5.3-11)

Derivation path: 36.508 table 4.7.2-1			
Information Element	**Value/Remark**	**Comment**	**Condition**
T3412 value			
Unit	'010'	"value is incremented in multiples of decihours"	
Timer value	'00001'	"6 minutes"	
EPS attach result	'0110'B	EPS emergency attach	

11.2.5 Emergency bearer services / Normal cell / NORMAL-SERVICE / Local Emergency Numbers List NOT sent in the Attach / PDN connect new emergency EPS bearer context / Authentication SQN code failure - MME aborts authentication continues using current security context / Service request

11.2.5.1 Test Purpose (TP)

(1)

```
with { UE is in state Registered, Idle mode }
ensure that {
  when { the UE is triggered to originate an emergency bearer service }
    then { the UE sends a SERVICE REQUEST message }
      }
```

(2)

```
with { UE in EMM-REGISTERED state and EMM-IDLE mode }
ensure that {
  when { UE originates an emergency bearer service }
    then { the UE sends a PDN connectivity request message without an APN }
}
```

(3)

```
with { UE having sent an AUTHENTICATION FAILURE message to the network, with EMM cause "synch
failure" }
ensure that {
  when { UE receives a SECURITY MODE COMMAND message }
    then { the UE sends a SECURITY MODE COMPLETE message }
            }
```

(4)

```
with { UE has sent a PDN CONNECTIVITY REQUEST message }
ensure that {
  when { UE receives an RRCConnectionReconfiguration message including an ACTIVATE DEFAULT EPS
BEARER CONTEXT REQUEST message with IE Procedure transaction identity matching the PDN CONNECTIVITY
REQUEST message and an ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message linked to the EPS
bearer context activated in the first message}
    then { UE transmits an ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT message and an ACTIVATE
DEDICATED EPS BEARER CONTEXT ACCEPT message both containing the EPS bearer identity and enters EMM-
REGISTERED state }
            }
```

11.2.5.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.301, clauses 5.4.2.7, and 6.5.1.2.

[TS 24.301, clause 5.4.2.7]

…

For items c, d, and e:

> Depending on local requirements or operator preference for emergency bearer services, if the UE has a PDN connection for emergency bearer services established or is establishing a PDN connection for emergency bearer services, the MME need not follow the procedures specified for the authentication failure specified in the present subclause. The MME may respond to the AUTHENTICATION FAILURE message by initiating the security mode control procedure selecting the "null integrity protection algorithm" EIA0, null ciphering algorithm or may abort the authentication procedure and continue using the current security context, if any. The MME shall deactivate all non-emergency EPS bearer contexts, if any, by initiating an EPS bearer context deactivation procedure. The network shall consider the UE to be attached for emergency bearer services only.
>
> If a UE has a PDN connection for emergency bearer services established or is establishing a PDN connection for emergency bearer services and sends an AUTHENTICATION FAILURE message to the MME with the EMM cause appropriate for these cases (#20, #21, or #26, respectively) and receives the SECURITY MODE COMMAND message before the timeout of timer T3418 or T3420, the UE shall deem that the network has passed the authentication check successfully, stop timer T3418 or T3420, respectively, and execute the security mode control procedure.
>
> If a UE has a PDN connection for emergency bearer services established when timer T3418 or T3420 expires, the UE shall not deem that the network has failed the authentication check and not behave as described in item f. Instead the UE shall continue using the current security context, if any, deactivate all non-emergency EPS bearer contexts, if any, by initiating UE requested PDN disconnect procedure and consider itself to be attached for emergency bearer services only.

[TS 24.301, clause 6.5.1.2]

When the PDN CONNECTIVITY REQUEST message is sent together with an ATTACH REQUEST message, the UE shall not include the APN.

NOTE 1: If the UE needs to provide protocol configuration options which require ciphering or provide an APN, or both, during the attach procedure, the ESM information transfer flag is included in the PDN CONNECTIVITY REQUEST. The MME then at a later stage in the PDN connectivity procedure initiates the ESM information request procedure in which the UE can provide the MME with protocol configuration options or APN or both.

In order to request connectivity to a PDN using the default APN, the UE includes the Access point name IE in the PDN CONNECTIVITY REQUEST message or, when applicable, in the ESM INFORMATION RESPONSE message, according to the following conditions:

- if use of a PDN using the default APN requires PAP/CHAP, then the UE should include the Access point name IE; and
- in all other conditions, the UE need not include the Access point name IE.

In order to request connectivity to an additional PDN, the UE shall send a PDN CONNECTIVITY REQUEST message to the MME, start timer T3482 and enter the state PROCEDURE TRANSACTION PENDING (see example in figure 6.5.1.2.1). If the additional PDN connection is for emergency bearer services, the UE shall not include an APN in the PDN CONNECTIVITY REQUEST message; otherwise the UE shall include the requested APN.

In the PDN type information element the UE shall indicate the IP version capability of the IP stack associated with the UE as specified in subclause 6.4.1.

The UE shall set the request type to "initial request" when the UE is establishing a new PDN connectivity to a PDN in an attach procedure or in a stand-alone PDN connectivity procedure. The UE shall set the request type to "emergency" when the UE is requesting PDN connectivity for emergency bearer services for the first time. The UE shall set the

request type to "handover" when the connectivity to a PDN is established upon handover from a non-3GPP access network and the UE was connected to that PDN before the handover to the 3GPP access network.

NOTE 2: For emergency bearer services, the handover from non-3GPP access to E-UTRA is not supported.

If the UE supports DSMIPv6, the UE may include a request for obtaining the IPv6 address and optionally the IPv4 address of the home agent in the Protocol configuration options IE in the PDN CONNECTIVITY REQUEST message. The UE may also include a request for obtaining the IPv6 Home Network Prefix. The UE shall request the IPv6 Home Network Prefix only if the UE has requested the home agent IPv6 address. The requested home agent address(es) and the Home Network Prefix are related to the APN the UE requested connectivity for.

The UE may set the ESM information transfer flag in the PDN CONNECTIVITY REQUEST message to indicate that it has ESM information, i.e. protocol configuration options, APN, or both, that needs to be sent after the NAS signalling security has been activated between the UE and the MME.

If the UE supports A/Gb mode or Iu mode, the UE shall indicate the support of the network requested bearer control procedures (see 3GPP TS 24.008 [13]) in A/Gb mode or Iu mode in the Protocol configuration options IE.

Protocol configuration options provided in the ESM INFORMATION RESPONSE message replace any protocol configuration options provided in the PDN CONNECTIVITY REQUEST message.

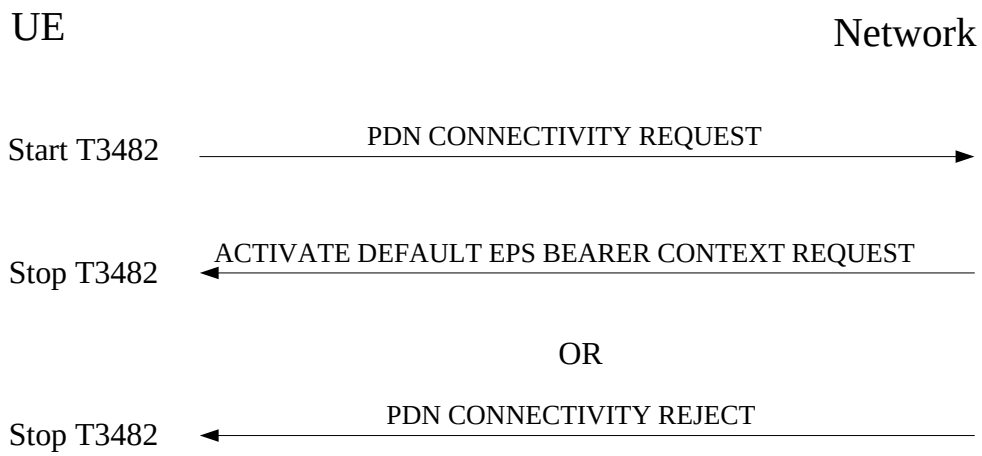

Figure 6.5.1.2.1: UE requested PDN connectivity procedure

11.2.5.3 Test description

11.2.5.3.1 Pre-test conditions

System Simulator:

- Cell A (PLMN1) is configured according to Table 6.3.2.2-1 in [18].

UE:

- None.

Preamble:

- The UE is in state Registered, Idle mode (state 2) according to [18] on Cell A.

11.2.5.3.2 Test procedure sequence

Table 11.2.5.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U – S	Message		
1-3	Steps 1 to 3 of the generic test procedure for IMS Emergency call establishment in EUTRA: Normal Service (TS 36.508 subclause 4.5A.4.3-1).	-	-	-	-
4	Check: Does the UE transmit an *RRCConnectionSetupComplete* message to confirm the successful completion of the connection establishment and to initiate the session management procedure by including the SERVICE REQUEST message.	-->	SERVICE REQUEST	1	P
5	The SS transmits an AUTHENTICATION REQUEST message to initiate the EPS authentication and AKA procedure.	<--	AUTHENTICATION REQUEST	-	-
6	The UE transmits an AUTHENTICATION FAILURE message with EMM cause #21 "synch failure".	-->	AUTHENTICATION FAILURE	-	-
7	The SS transmits a NAS SECURITY MODE COMMAND message to activate NAS security using parameters from AKA performed in preamble.	<--	SECURITY MODE COMMAND	-	-
8	Check: Does UE transmit a NAS SECURITY MODE COMPLETE message and establish the initial security configuration.	-->	SECURITY MODE COMPLETE	3	P-
9-12	Steps 5 to 8 of the generic test procedure for IMS Emergency call establishment in EUTRA: Normal Service (TS 36.508 subclause 4.5A.4.3-1).	-	-	-	-
13	Check: Does the UE transmit a PDN CONNECTIVITY REQUEST message as specified to request an emergency PDN?	-->	PDN CONNECTIVITY REQUEST	2	P
14-18	Steps 10 to14 of the generic test procedure for IMS Emergency call establishment in EUTRA: Normal Service (TS 36.508 4.5A.4.3-1).	-	-	-	-
19	Check: Does the UE transmit an ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT message for the additional dedicated EPS Bearer?	-->	ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT	4	P
20	Release IMS Call (see Note 1)	-	-	-	-
21	The SS releases the RRC connection.	-	-	-	-
Note 1: The IMS Call is released using the generic procedure in 36.508 subclause 4.5A.13.					

Table 11.2.5.3.2-2: Void

11.2.5.3.3 Specific message contents

Table 11.2.5.3.3-1: Message RRCConnectionReconfiguration (step 1, Table 11.2.5.3.3-2 and step 12, Table 11.2.5.3.3-1)

Derivation path: 36.508 table 4.6.1-8 using condition DRB-REL(2)

Table 11.2.5.3.3-2: Message DEACTIVATE EPS BEARER CONTEXT REQUEST (step 1, Table 11.2.5.3.3-2)

Derivation Path: TS 36.508 Table 4.7.3-12			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS bearer identity	5	The EPS bearer context setuped during the attach.	
Procedure transaction identity	'0000 0000'B	No procedure transaction identity assigned	
ESM cause	#36	regular deactivation	

Table 11.2.5.3.3-3: Message DEACTIVATE EPS BEARER CONTEXT ACCEPT (step 2, Table 11.2.5.3.3-2)

Derivation Path: TS 36.508 Table 4.7.3-11			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS bearer identity	5	The same value as the value set in DEACTIVATE EPS BEARER CONTEXT REQUEST message.	
Procedure transaction identity	0	No procedure transaction identity assigned	

Table 11.2.5.3.3-4: Message AUTHENTICATION REQUEST(step5, Table11.2.5.3.2-1)

Derivation Path: 36.508 Table 4.7.2-7			
Information Element	**Value/remark**	**Comment**	**Condition**
Authentication parameter AUTN (EPS challenge)	The SQN is out of correct range($SEQ - SEQ_{MS} > \Delta$).		

Table 11.2.5.3.3-5: Message PDN CONNECTIVITY REQUEST (step13, Table11.2.5.3.2-1)

Derivation Path: 36.508 table 4.7.3-20			
Information Element	**Value/remark**	**Comment**	**Condition**
ESM information transfer flag	Not present		
Request type	'0100'B	emergency	
Access point name	Not present		

11.2.6 Handling of Local Emergency Numbers List provided during Attach and Normal tracking area update procedures

11.2.6.1 Test Purpose (TP)

(1)

```
with { UE in state EMM-REGISTERED and EMM-IDLE mode, Emergency numbers stored in the USIM and a
Local Emergency Numbers List provided during the Attach procedure }
ensure that {
  when { UE is requested to intiate a call with a number belonging to the emergency numbers stored
in the USIM }
   then { UE intiates an emergency call }
            }
```

(2)

```
with { UE in state EMM-REGISTERED and EMM-IDLE mode, Emergency numbers stored in the USIM and a
Local Emergency Numbers List provided during the Attach procedure }
ensure that {
  when { UE performs a tracking area update to a new tracking area not included in the TAI list and
belonging to a network with the same MCC and the TRACKING AREA UPDATE ACCEPT message sent by the
network includes a Local Emergency Numbers List with 10 new numbers }
   then { UE overwites the old list with the new one and recognises each of the new numbers as an
emergency number }
            }
```

(3)

```
with { UE in state EMM-REGISTERED and EMM-IDLE mode, Emergency numbers stored in the USIM and a
Local Emergency Numbers List provided during a tracking area update }
ensure that {
  when { UE performs a tracking area update to a new tracking area not included in the TAI list and
not belonging to a network with the same MCC }
   then { UE considers the old Local Emergency Numbers List as invaid and recognises the numbers
stored in the USIM as emergency numbers }
            }
```

(4)

```
with { UE in state EMM-REGISTERED and EMM-IDLE mode, Emergency numbers stored in the USIM and a
Local Emergency Numbers List provided during the Attach procedure }
ensure that {
  when { UE is requested to intiate a call with a number belonging to the Local Emergency Numbers
List }
   then { UE intiates an emergency call }
            }
```

11.2.6.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: 3GPP TS 24.301 clause 5.3.7, TS 22.101 clause 10.1.1.

[TS 24.301 clause 5.3.7]

The Local Emergency Numbers List contains additional emergency numbers used by the serving network. The list can be downloaded by the network to the UE at successful registration and subsequent registration updates. There is only one Local Emergency Numbers List in the UE, and it can be updated with EMM procedures if the UE is in S1 mode and with GMM and MM procedures if the UE is in A/Gb or Iu mode.

The UE shall use the stored Local Emergency Numbers List received from the network in addition to the emergency numbers stored on the USIM or user equipment to detect that the number dialled is an emergency number.

NOTE: The user equipment may use the emergency numbers list to assist the end user in determining whether the dialled number is intended for an emergency service or for another destination, e.g. a local directory service. The possible interactions with the end user are implementation specific.

The network may send a Local Emergency Numbers List in the ATTACH ACCEPT or in the TRACKING AREA UPDATE ACCEPT messages, by including the Emergency Number List IE. The user equipment shall store the Local Emergency Numbers List, as provided by the network, except that any emergency number that is already stored in the USIM shall be removed from the Local Emergency Numbers List before it is stored by the user equipment. If there are no emergency numbers stored on the USIM, then before storing the received Local Emergency Numbers List, the user equipment shall remove from the Local Emergency Numbers List any emergency number stored permanently in the user equipment for use in this case (see 3GPP TS 22.101 [8]). The Local Emergency Numbers List stored in the user equipment shall be replaced on each receipt of a new Emergency Number List IE.

The emergency number(s) received in the Emergency Number List IE are valid only in networks with the same MCC as in the cell on which this IE is received. If no Local Emergency Numbers List is contained in the ATTACH ACCEPT or in the TRACKING AREA UPDATE ACCEPT message, then the stored Local Emergency Numbers List in the user equipment shall be kept, except if the user equipment has successfully registered to a PLMN with an MCC different from that of the last registered PLMN.

The Local Emergency Numbers List shall be deleted at switch off and removal of the USIM. The user equipment shall be able to store up to ten local emergency numbers received from the network.

[TS 22.101 clause 10.1.1]

The ME shall identify an emergency number dialled by the end user as a valid emergency number and initiate emergency call establishment if it occurs under one or more of the following conditions. If it occurs outside of the following conditions, the ME should not initiate emergency call establishment but normal call establishment. Emergency number identification takes place before and takes precedence over any other (e.g. supplementary service related) number analysis.

a) 112 and 911 shall always be available. These numbers shall be stored on the ME.

b) Any emergency call number stored on a SIM/USIM when the SIM/USIM is present.

c) 000, 08, 110, 999, 118 and 119 when a SIM/USIM is not present. These numbers shall be stored on the ME.

d) Additional emergency call numbers that may have been downloaded by the serving network when the SIM/USIM is present.

11.2.6.3 Test description

11.2.6.3.1 Pre-test conditions

System Simulator:

- Cell A is set to "Serving cell";
- Cell C is set to "Non- Suitable cell";
- Cell E is set to "Non- Suitable cell".
- System information combination 3 as defined in TS 36.508[18] clause 4.4.3.1 is used in E-UTRA cells

UE:

- USIM contains 2 Emergency Numbers (see TS 22.101 clause 10.1.1).

Preamble:

- the UE is in state Registered, Idle Mode (state 2) on Cell A according to TS 36.508 [18].
- During the attach the ATTACH ACCEPT message provides Local Emergency Numbers List. The local emergency number list is different from all emergency numbers stored in the UE.

11.2.6.3.2 Test procedure sequence

Table 11.2.6.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
-	The following messages are sent and shall be received on Cell A.	-	-	-	-
1	Cause the UE to start a "call" using one of the Emergency Numbers stored on the USIM.	-	-	-	-
2	Check: Does UE transmit an *RRCConnectionRequest* message with *establishmentCause* set to 'emergency"?	-->	RRC: *RRCConnectionRequest*	1	P
3	SS transmit an *RRCConnectionSetup* message.	<--	RRC: *RRCConnectionSetup*	-	-
4	The UE transmits an *RRCConnectionSetupComplete* message to confirm the successful completion of the connection establishment and to initiate the session management procedure by including the SERVICE REQUEST message.	->	RRC: *RRCConnectionSetupComplete* NAS: SERVICE REQUEST	-	-
5	The SS transmits SERVICE REJECT.	<--	SERVICE REJECT	-	-
6	The SS releases the RRC connection.	-	-	-	-
7	Cause the UE to start a "call" using one of the Emergency Numbers received in the ATTACH ACCEPT message IE Local Emergency Numbers List sent in the preamble. (Note 1)	-	-	-	-
8	Check: Does UE transmit an *RRCConnectionRequest* message with *establishmentCause* set to 'emergency"?	-->	RRC: *RRCConnectionRequest*	4	P
9	SS transmit an *RRCConnectionSetup* message.	<--	RRC: *RRCConnectionSetup*	-	-
10	The UE transmits an *RRCConnectionSetupComplete* message to confirm the successful completion of the connection establishment and to initiate the session management procedure by including the SERVICE REQUEST message.	->	RRC: *RRCConnectionSetupComplete* NAS: SERVICE REQUEST	-	-
11	The SS transmits SERVICE REJECT.	<--	SERVICE REJECT	-	-
12	The SS releases the RRC connection.	-	-	-	-
13	The SS configures: - Cell A as the "Non-Suitable cell". - Cell C as a "Serving cell".	-	-	-	-
-	The following messages are sent and shall be received on Cell C.	-	-	-	-
14	The UE transmit a TRACKING AREA UPDATE REQUEST message.	-->	TRACKING AREA UPDATE REQUEST	-	-
15	The SS transmits a TRACKING AREA UPDATE ACCEPT message including IE Local Emergency Numbers List with 10 numbers different to the numbers stored on the USIM and those provided in the ATTACH ACCEPT in the preamble.	<--	TRACKING AREA UPDATE ACCEPT	-	-
16	The UE transmit a TRACKING AREA UPDATE COMPLETE message.	-->	TRACKING AREA UPDATE COMPLETE	-	-
17	The SS releases the RRC connection.	-	-	-	-
18	Cause the UE to start a "call" using one of the Emergency Numbers which the SS sent in the ATTACH ACCEPT message IE Local Emergency Numbers List in the preamble. The UE is expected to have them deleted(Note 1)	-	-	-	-
19	Check: Does UE transmit an *RRCConnectionRequest* message with *establishmentCause* set to 'mo-Data"?	-->	RRC: *RRCConnectionRequest*	2	P
20	SS transmit an *RRCConnectionSetup* message.	<--	RRC: *RRCConnectionSetup*	-	-

21	The UE transmits an *RRCConnectionSetupComplete* message to confirm the successful completion of the connection establishment and to initiate the session management procedure by including the SERVICE REQUEST message.	->	RRC: *RRCConnectionSetupComplete* NAS: SERVICE REQUEST	-	-
22	The SS transmits SERVICE REJECT	<--	SERVICE REJECT	-	-
23	The SS releases the RRC connection.	-	-	-	-
-	EXCEPTION: Steps 24 to 29 are repeated 10 times - each time with a different call number from one of the Emergency Numbers provided in the TRACKING AREA UPDATE ACCEPT message in step 15.	-	-	-	-
24	Cause the UE to start a "call" using one of the Emergency Numbers received in the TRACKING AREA UPDATE ACCEPT message in step 15. (Note 1)	-	-	-	-
25	Check: Does UE transmit an *RRCConnectionRequest* message with *establishmentCause* set to 'emergency"?	-->	*RRCConnectionRequest*	2	P
26	SS transmit an *RRCConnectionSetup* message.	<--	RRC: *RRCConnectionSetup*	-	-
27	The UE transmits an *RRCConnectionSetupComplete* message to confirm the successful completion of the connection establishment and to initiate the session management procedure by including the SERVICE REQUEST message.	->	RRC: *RRCConnectionSetupComplete* NAS: SERVICE REQUEST	-	-
28	The SS transmits SERVICE REJECT.	<--	SERVICE REJECT	-	-
29	The SS releases the RRC connection.	-	-	-	-
30	The SS configures: - Cell C as the "Non-Suitable cell". - Cell E as a "Serving cell".	-	-	-	-
-	The following messages are sent and shall be received on Cell E.	-	-	-	-
31	The UE transmit a TRACKING AREA UPDATE REQUEST message.	-->	TRACKING AREA UPDATE REQUEST	-	-
32	The SS transmits a TRACKING AREA UPDATE ACCEPT message which does not include IE Local Emergency Numbers List.	<--	TRACKING AREA UPDATE ACCEPT	-	-
33	The UE transmit a TRACKING AREA UPDATE COMPLETE message.	-->	TRACKING AREA UPDATE COMPLETE	-	-
34	The SS releases the RRC connection.	-	-	-	-
35	Cause the UE to start a "call" using one of the Emergency Numbers provided by the SS in the TRACKING AREA UPDATE ACCEPT message in step 15. (Note 1)	-	-	-	-
36	Check: Does UE transmit an *RRCConnectionRequest* message with *establishmentCause* set to 'mo-Data"?	-->	RRC: *RRCConnectionRequest*	3	P
37	SS transmit an *RRCConnectionSetup* message.	<--	RRC: *RRCConnectionSetup*	-	-
38	The UE transmits an *RRCConnectionSetupComplete* message to confirm the successful completion of the connection establishment and to initiate the session management procedure by including the SERVICE REQUEST message.	->	RRC: *RRCConnectionSetupComplete* NAS: SERVICE REQUEST	-	-
39	The SS transmits SERVICE REJECT	<--	SERVICE REJECT	-	-
40	The SS releases the RRC connection.	-	-	-	-
41	Cause the UE to start a "call" using one of the Emergency Numbers stored on the USIM.	-	-	-	-
42	Check: Does UE transmit an *RRCConnectionRequest* message with *establishmentCause* set to 'emergency"	-->	RRC: *RRCConnectionRequest*	3	P

43-56	Steps 2-15 from the Generic Test Procedure for IMS Emergency call establishment in EUTRA: Normal Service as described in 36.508 Table 4.5A.4.3-1 take place.	-	-	-	-
57	Release IMS Call (see Note 2)	-	-	-	-
58	The SS releases the RRC connection.	-	-	-	-
-	At the end of this test procedure sequence, the UE is in end state E-UTRA idle (E1) according to TS 36.508.	-	-	-	-
Note 1: This could be done by e.g. MMI or by AT command. Note 2: The IMS Call is released using the generic procedure in 36.508 subclause 4.5A.13.					

11.2.6.3.3 Specific message contents

Table 11.2.6.3.3-1: Message ATTACH ACCEPT (in the preamble)

Derivation path: 36.508 table 4.7.2-1			
Information Element	**Value/Remark**	**Comment**	**Condition**
Emergency number list	2 numbers TS 24.008, 10.5.3.13	The numbers shall be different than any of those indicated in TS 22.101 clause 10.1.1 AND the numbers stored in the USIM AND any emergency number stored permanently in the ME	
EPS network feature support	'0000 0111'B	- IMS voice over PS session in S1 mode supported - emergency bearer services in S1 mode supported - location services via EPC supported - no information about support of location services via CS domain is available	

Table 11.2.6.3.3-2: Message *RRCConnectionRequest* (steps 2, 8, 25, 42 Table 11.2.6.3.2-1)

Derivation path: 36.508 table 4.6.1-16			
Information Element	**Value/Remark**	**Comment**	**Condition**
RRCConnectionRequest ::= SEQUENCE {			
criticalExtensions CHOICE {			
rrcConnectionRequest-r8 SEQUENCE {			
establishmentCause	emergency		
}			
}			
}			

Table 11.2.6.3.3-3: Message SERVICE REJECT (steps 5, 11, 22, 28, 39, Table 11.2.6.3.2-1)

Derivation Path: 36.508 table 4.7.2-22			
Information Element	**Value/remark**	**Comment**	**Condition**
EMM cause	'0001 0110'B	#22 Congestion	

Table 11.2.6.3.3-4: Message TRACKING AREA UPDATE ACCEPT (step 15, Table 11.2.6.3.2-1)

Derivation path: 36.508 table 4.7.2-24			
Information Element	**Value/Remark**	**Comment**	**Condition**
Emergency number list	10 numbers TS 24.008, 10.5.3.13	The numbers shall be different than any of those indicated in TS 22.101 clause 10.1.1 AND the numbers provided in ATTACH ACCEPT in Table 11.2.6.3.3-1 AND the numbers stored in the USIM AND any emergency number stored permanently in the ME	
EPS network feature support	'0000 0111'B	- IMS voice over PS session in S1 mode supported - emergency bearer services in S1 mode supported - location services via EPC supported - no information about support of location services via CS domain is available	

Table 11.2.6.3.3-5: Message *RRCConnectionRequest* (steps 19, 36 Table 11.2.6.3.2-1)

Derivation path: 36.508 table 4.6.1-16			
Information Element	**Value/Remark**	**Comment**	**Condition**
RRCConnectionRequest ::= SEQUENCE {			
criticalExtensions CHOICE {			
rrcConnectionRequest-r8 SEQUENCE {			
establishmentCause	mo-Data		
}			
}			
}			

11.2.7 UE has PDN connection for emergency bearer services / Normal tracking area update / Accepted / Local Emergency Numbers List is not sent by the network / Handling of the lists of forbidden tracking areas

11.2.7.1 Test Purpose (TP)

(1)

```
with { UE having established a PDN connection for emergency bearer services }
ensure that {
  when { UE moves to another TA and receives a list of equivalent PLMNs in the TRACKING AREA UPDATE
ACCEPT message which includes a PLMN which is on the UE list with forbidden PLMNs }
   then { UE stores the received list of equivalent PLMNs not removing from the list the forbidden
PLMN }
             }
```

(2)

```
with { UE having established a PDN connection for emergency bearer services and UE has stored a list
of equivalent PLMNs which includes a PLMN which is on the UE list with forbidden PLMNs }
ensure that {
  when { PDN connection for emergency bearer services is released }
   then { UE removes from the list of equivalent PLMNs any PLMN code present in the list of
forbidden PLMNs }
            }
```

(3)

```
with { UE having received a Local Emergency Numbers List }
ensure that {
  when { UE does not receive a new Local Emergency Numbers List when roaming in the area with the
same MCC code }
   then { UE keeps the old Local Emergency Numbers List }
            }
```

11.2.7.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: 3GPP TS 24.301 clauses 5.5.3.2.4 and 5.3.7.

[TS 24.301 clause 5.5.3.2.4]

If due to regional subscription restrictions or access restrictions the UE is not allowed to access the TA, but it has a PDN connection for emergency bearer services established, the MME may accept the TRACKING AREA UPDATE REQUEST message and deactivate all non-emergency EPS bearer contexts by initiating an EPS bearer context deactivation procedure when the TAU is initiated in EMM-CONNECTED mode. When the TAU is initiated in EMM-IDLE mode, the MME locally deactivates all non-emergency EPS bearer contexts and informs the UE via the EPS bearer context status IE in the TRACKING AREA UPDATE ACCEPT message. The MME shall not deactivate the emergency EPS bearer contexts. The network shall consider the UE to be attached for emergency bearer services only and shall indicate in the EPS update result IE in the TRACKING AREA UPDATE ACCEPT message that ISR is not activated.

...

If an EPS bearer context status IE is included in the TRACKING AREA UPDATE ACCEPT message, the UE shall deactivate all those EPS bearers contexts locally (without peer-to-peer signalling between the UE and the MME) which are active in the UE, but are indicated by the MME as being inactive. If a default EPS bearer context is marked as inactive in the EPS bearer context status IE included in the TRACKING AREA UPDATE ACCEPT message, and this default bearer is not associated with the last PDN in the UE, the UE shall locally deactivate all EPS bearer contexts associated to the PDN connection with the default EPS bearer context without peer-to-peer ESM signalling to the MME. If only the PDN connection for emergency bearer services remains established, the UE shall consider itself attached for emergency bearer services only.

The MME may also include of list of equivalent PLMNs in the TRACKING AREA UPDATE ACCEPT message. Each entry in the list contains a PLMN code (MCC+MNC). The UE shall store the list as provided by the network, and if there is no PDN connection for emergency bearer services established, the UE shall remove from the list any PLMN code that is already in the list of forbidden PLMNs. If there is a PDN connection for emergency bearer services established, the UE shall remove from the list of equivalent PLMNs any PLMN code present in the list of forbidden PLMNs when the PDN connection for emergency bearer services is released. In addition, the UE shall add to the stored list the PLMN code of the registered PLMN that sent the list. The UE shall replace the stored list on each receipt of the TRACKING AREA UPDATE ACCEPT message. If the TRACKING AREA UPDATE ACCEPT message does not contain a list, then the UE shall delete the stored list.

If the UE is not attached for emergency bearer services and if the PLMN identity of the registered PLMN is a member of the list of "forbidden PLMNs" or the list of "forbidden PLMNs for GPRS service", any such PLMN identity shall be deleted from the corresponding list(s).

The network may also indicate in the EPS update result IE in the TRACKING AREA UPDATE ACCEPT message that ISR is active. If the UE is attached for emergency bearer services, the network shall indicate in the EPS update result IE in the TRACKING AREA UPDATE ACCEPT message that ISR is not activated. If the TRACKING AREA UPDATE ACCEPT message contains:

i) no indication that ISR is activated, the UE shall set the TIN to "GUTI";

ii) an indication that ISR is activated, the UE shall regard a previously assigned P-TMSI and RAI as valid and registered with the network. If the TIN currently indicates "P-TMSI", the UE shall set the TIN to "RAT-related TMSI".

The network informs the UE about the support of specific features, such as IMS voice over PS session, location services (EPC-LCS, CS-LCS) or emergency bearer services, in the EPS network feature support information element. In a UE with IMS voice over PS capability, the IMS voice over PS session indicator and the emergency bearer services indicator shall be provided to the upper layers. The upper layers take the IMS voice over PS session indicator into account as specified in 3GPP TS 23.221 [8A], subclause 7.2a, when selecting the access domain for voice sessions or calls. When initiating an emergency call, the upper layers also take the emergency bearer services indicator into account for the access domain selection. In a UE with LCS capability, location services indicators (EPC-LCS, CS-LCS) shall be provided to the upper layers. When MO-LR procedure is triggered by the UE's application, those indicators are taken into account as specified in 3GPP TS 24.171 [13C].

[TS 24.301 clause 5.3.7]

The Local Emergency Numbers List contains additional emergency numbers used by the serving network. The list can be downloaded by the network to the UE at successful registration and subsequent registration updates. There is only one Local Emergency Numbers List in the UE, and it can be updated with EMM procedures if the UE is in S1 mode and with GMM and MM procedures if the UE is in A/Gb or Iu mode.

The UE shall use the stored Local Emergency Numbers List received from the network in addition to the emergency numbers stored on the USIM or user equipment to detect that the number dialled is an emergency number.

...

The emergency number(s) received in the Emergency Number List IE are valid only in networks with the same MCC as in the cell on which this IE is received. If no Local Emergency Numbers List is contained in the ATTACH ACCEPT or in the TRACKING AREA UPDATE ACCEPT message, then the stored Local Emergency Numbers List in the user equipment shall be kept, except if the user equipment has successfully registered to a PLMN with an MCC different from that of the last registered PLMN.

11.2.7.3 Test description

11.2.7.3.1 Pre-test conditions

System Simulator:

- Cell A is set to "Serving cell";
- Cell B is set to "Non- Suitable cell";
- Cell G is set to "Non- Suitable Off cell"
- Cell I is set to "Non- Suitable Off cell"
- Cell A and Cell B are on the same PLMN1, Cell G is on different PLMN2 and Cell I is on different PLMN3. PLMN1 and PLMN2 have the same MCC
- System information combination 3 as defined in TS 36.508[18] clause 4.4.3.1 is used in E-UTRA cells

UE:

- USIM contains 2 Emergency Numbers (see TS 22.101 clause 10.1.1).
- PLMN2 and PLMN3 are in the UE's list with forbidden PLMNs

Preamble:

- the UE is in state Registered, Idle Mode (state 2) on Cell A according to TS 36.508 [18] with a PDN connection for emergency bearer services established (i.e. an Emergency call established according to TS 36.508 [18] section 4.5A.4 and released).

Table 11.2.7.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
-	The SS configures: Cell B as the "Serving cell". Cell A as a "Non-Suitable Off cell".	-	-	-	-
-	The following messages are to be observed on Cell B unless explicitly stated otherwise.	-	-	-	-
1	The UE transmit a TRACKING AREA UPDATE REQUEST message.	-->	TRACKING AREA UPDATE REQUEST	-	-
2	The SS transmits a TRACKING AREA UPDATE ACCEPT message providing a list of equivalent PLMNs which includes PLMN2 and PLMN3 which are on the UE list with forbidden PLMNs and providing a Local Emergency Numbers List.	<--	TRACKING AREA UPDATE ACCEPT	-	-
3	The UE transmits a TRACKING AREA UPDATE COMPLETE message.	-->	TRACKING AREA UPDATE COMPLETE	-	-
3A	The SS transmits an *RRCConnectionRelease* message.	-	*RRCConnectionRelease*	-	-
-	The SS configures: Cell G as the "Serving cell". Cell B as a " Non-Suitable Off cell"	-	-	-	-
-	The following messages are to be observed on Cell G unless explicitly stated otherwise.	-	-	-	-
4	Check: Does the UE transmit a TRACKING AREA UPDATE REQUEST message?	-->	TRACKING AREA UPDATE REQUEST	1	P
5	The SS transmits a TRACKING AREA UPDATE ACCEPT message providing a list of equivalent PLMNs which includes PLMN1 (the UE is expected to store the provided PLMN and add to the stored list the PLMN code of the registered PLMN that sent the list (PLMN2)). No Local Emergency Numbers List is provided.	<--	TRACKING AREA UPDATE ACCEPT	-	-
6	The UE transmits a TRACKING AREA UPDATE COMPLETE message.	-->	TRACKING AREA UPDATE COMPLETE	-	-
6A	The SS transmits an *RRCConnectionRelease* message.	-	*RRCConnectionRelease*	-	-
7	Cause the UE to request disconnection from the emergency PDN (Note 1)	-	-	-	-
7A	Check: Does the UE transmit an *RRCConnectionRequest* message with *establishmentCause* set to ‘emergency’?	-->	*RRCConnectionRequest*	-	-
-	The SS configures: cell I as a "Suitable cell"	-	-	-	-
7B	The SS transmits an *RRCConnectionSetup* message.	<--	RRC: *RRCConnectionSetup*	-	-
7C	The UE transmits an *RRCConnectionSetupComplete* message to confirm the successful completion of the connection establishment and to initiate the session management procedure by including the SERVICE REQUEST message.	-->	RRC: *RRCConnectionSetupComplete* NAS: SERVICE REQUEST	-	-
7D	The SS establishes SRB2 and DRBs associated with two default EPS bearer context (a first PDN obtained during the attach procedure and an additional PDN).	-	-	-	-
8	The UE transmit a PDN DISCONNECT REQUEST message.	-->	PDN DISCONNECT REQUEST	-	-
9	The SS transmits a DEACTIVATE EPS BEARER CONTEXT REQUEST message included in an RRCConnectionReconfiguration message.	<--	DEACTIVATE EPS BEARER CONTEXT REQUEST	-	-
10	The UE transmits a DEACTIVATE EPS BEARER CONTEXT ACCEPT message.	-->	DEACTIVATE EPS BEARER CONTEXT ACCEPT	-	-

10 A	The SS transmits an *RRCConnectionRelease* message.	-	*RRCConnectionRelease*	-	-
-	The SS configures: cell G as a "Non-Suitable Off cell"	-	-	-	-
10 B	Check: Does the UE transmit a TRACKING AREA UPDATE REQUEST message in the following 1 minute?	-->	TRACKING AREA UPDATE REQUEST	2	F
-	The SS configures: cell A as a "Suitable cell"	-	-	-	-
-	The following messages are to be observed on Cell A unless explicitly stated otherwise.	-	-	-	-
-	EXCEPTION: Steps 11a1 to 11b1 describe behaviour that depends on the UE implementation; the "lower case letter" identifies a step sequence that takes place in a particular implementation.	-	-	-	-
11a 1	A generic procedure for UE camping on Cell A with TAU as described in TS 36.508 Table 6.4.2.7-1 takes place. No Local Emergency Numbers List is provided.	-	-	-	-
11b 1	Generic procedure for UE registration on Cell A as described in 36.508 Table 4.5.2.3-1 takes place. No Local Emergency Numbers List is provided.	-	-	-	-
12	Cause the UE to start a "call" using one of the Emergency Numbers received at step 2 in the TRACKING AREA UPDATE ACCEPT message within IE Local Emergency Numbers List. (Note 2).	-	-	-	-
13	Check: Does UE transmit an *RRCConnectionRequest* message with *establishmentCause* set to 'emergency"?	-->	*RRCConnectionRequest*	3	P
14	SS transmit an *RRCConnectionSetup* message.	<--	RRC: *RRCConnectionSetup*	-	-
15	The UE transmits an *RRCConnectionSetupComplete* message to confirm the successful completion of the connection establishment and to initiate the session management procedure by including the SERVICE REQUEST message.	->	RRC: *RRCConnectionSetupComplete* NAS: SERVICE REQUEST	-	-
16	The SS transmits SERVICE REJECT.	<--	SERVICE REJECT	-	-
17	The SS releases the RRC connection.	-	-	-	-
-	At the end of this test procedure sequence, the UE is in end state E-UTRA idle (E1) according to TS 36.508.	-	-	-	-
Note 1: The request to disconnect from a PDN may be performed by MMI or AT command. Note 2: The request to originate an emergency service may be performed by MMI or AT command.					

11.2.7.3.3 Specific message contents

Table 11.2.7.3.3-1: Message ATTACH ACCEPT (in the preamble)

Derivation path: 36.508 table 4.7.2-1			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS network feature support	'0000 0111'B	- IMS voice over PS session in S1 mode supported - emergency bearer services in S1 mode supported - location services via EPC supported - no information about support of location services via CS domain is available	

Table 11.2.7.3.3-2: Message TRACKING AREA UPDATE ACCEPT (step 2, Table 11.2.7.3.2-1)

Derivation path: 36.508 table 4.7.2-24			
Information Element	**Value/Remark**	**Comment**	**Condition**
Equivalent PLMNs	-	Includes MCC and MNC digits for PLMN2	
Emergency number list	2 numbers TS 24.008, 10.5.3.13	The numbers shall be different than any of those indicated in TS 22.101 clause 10.1.1 AND the numbers stored in the USIM AND any emergency number stored permanently in the ME	
EPS network feature support	'0000 0111'B	- IMS voice over PS session in S1 mode supported - emergency bearer services in S1 mode supported - location services via EPC supported - no information about support of location services via CS domain is available	

Table 11.2.7.3.3-3: Message TRACKING AREA UPDATE ACCEPT (step 5, Table 11.2.7.3.2-1)

Derivation path: 36.508 table 4.7.2-24			
Information Element	**Value/Remark**	**Comment**	**Condition**
Emergency number list	-	This IE is not present.	
Equivalent PLMNs	-	Includes MCC and MNC digits for PLMN1 and PLMN3	
EPS network feature support	'0000 0111'B	- IMS voice over PS session in S1 mode supported - emergency bearer services in S1 mode supported - location services via EPC supported - no information about support of location services via CS domain is available	

Table 11.2.7.3.3-4: Message ATTACH ACCEPT (step 11b1, Table 11.2.7.3.2-1)

Derivation path: 36.508 table 4.7.2-1			
Information Element	**Value/Remark**	**Comment**	**Condition**
Emergency number list	-	This IE is not present.	
EPS network feature support	'0000 0111'B	- IMS voice over PS session in S1 mode supported - emergency bearer services in S1 mode supported - location services via EPC supported - no information about support of location services via CS domain is available	

Table 11.2.7.3.3-5: Message *RRCConnectionRequest* (step 13, Table 11.2.7.3.2-1)

Derivation path: 36.508 table 4.6.1-16			
Information Element	**Value/Remark**	**Comment**	**Condition**
RRCConnectionRequest ::= SEQUENCE {			
criticalExtensions CHOICE {			
rrcConnectionRequest-r8 SEQUENCE {			
establishmentCause	emergency		
}			
}			
}			

Table 11.2.7.3.3-6: Message SERVICE REJECT (step 16, Table 11.2.7.3.2-1)

Derivation Path: 36.508 table 4.7.2-22			
Information Element	**Value/remark**	**Comment**	**Condition**
EMM cause	'0001 0110'B	#22 Congestion	

Table 11.2.7.3.3-7: Message TRACKING AREA UPDATE ACCEPT (step 11a1, Table 11.2.7.3.2-1)

Derivation path: 36.508 table 4.7.2-24			
Information Element	**Value/Remark**	**Comment**	**Condition**
Emergency number list	-	This IE is not present.	
EPS network feature support	'0000 0111'B	- IMS voice over PS session in S1 mode supported - emergency bearer services in S1 mode supported - location services via EPC supported - no information about support of location services via CS domain is available	

11.2.8 Attach for emergency bearer services / Rejected / No suitable cells in tracking area / Emergency call using the CS domain / UTRA or GERAN

11.2.8.1 Test Purpose (TP)

(1)

```
with { the UE has sent an ATTACH REQUEST for emergency bearer services }
ensure that {
  when { the UE receives an ATTACH REJECT message with the EMM cause set to "No suitable cells in
tracking area" }
    then { UE establishes the emergency call using the CS domain (UTRA or GERAN) }
        }
```

11.2.8.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: 3GPP TS 24.301, clause 5.5.1.2.5A.

[TS 24.301, clause 5.5.1.2.5A]

If the attach request for emergency bearer services cannot be accepted by the network, the MME shall send an ATTACH REJECT message to the UE including EMM cause #5 "IMEI not accepted" or one of the EMM cause values as described in subclause 5.5.1.2.5.

Upon receiving the ATTACH REJECT message including EMM cause #5, the UE shall enter the state EMM-DEREGISTERED.NO-IMSI.

Upon receiving the ATTACH REJECT message including one of the other EMM cause values, the UE shall perform the actions as described in subclause 5.5.1.2.5 with the following addition: upon request from upper layers a CS voice capable UE may establish the emergency call using the CS domain.

...

11.2.8.3 Test description

11.2.8.3.1 Pre-test conditions

System Simulator:

- cell A is set to "Serving cell"
- If (px_RATComb_Tested = EUTRA_UTRA AND pc_CS_Em_Call_in_UTRA)
  - cell 5 is configured as "Suitable Neighbour cell''
  - System information combination 4 as defined in TS 36.508[18] clause 4.4.3.1 is used in E-UTRA cells
- If (px_RATComb_Tested = EUTRA_GERAN AND pc_CS_Em_Call_in_GERAN)
  - cell 24 is configured as "Suitable Neighbour cell"
  - System information combination 5 as defined in TS 36.508[18] clause 4.4.3.1 is used in E-UTRA cells

UE:

None.

Preamble:

- the UE is switched on and camped on cell A in EMM-DEREGISTERED.LIMITED-SERVICE state according to 36.508 [18].
- the UE is not attached for emergency bearer services.

11.2.8.3.2 Test procedure sequence

Table 11.2.8.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Steps 1 to 3 of the generic procedures in TS 36.508 subclause 4.5A.5.3 are performed on cell A.	-	-	-	-
2	The UE transmits an ATTACH REQUEST message to attach for emergency bearer services, together with a PDN CONNECTIVITY REQUEST message for emergency bearer services, on Cell A.	-->	ATTACH REQUEST PDN CONNECTIVITY REQUEST	-	-
3	The SS transmits an ATTACH REJECT message, EMM cause = “No suitable cells in tracking area”.	<--	ATTACH REJECT	-	-
3A	The SS releases the RRC connection.	-	-	-	-
-	EXCEPTION: Steps 4a1 to 4b14 describe behaviour that depends on the UE capability; the "lower case letter" identifies a step sequence that takes place if a capability is supported.	-	-	-	-
4a1	IF (px_RATComb_Tested = EUTRA_UTRA AND pc_CS_Em_Call_in_UTRA, the SS reconfigures: Cell A as a "Suitable cell", Cell 5 as the "Serving cell".	-	-	-	-
4a2	Check: Does the UE transmit an RRC CONNECTION REQUEST message on Cell 5 with Establishment cause: Emergency Call in the next 60 seconds?	-->	RRC CONNECTION REQUEST	1	P
4a3	The SS transmits an RRC CONNECTION SETUP message.	<--	RRC CONNECTION SETUP	-	-
4a4	The UE transmits an RRC CONNECTION SETUP COMPLETE message.	-->	RRC CONNECTION SETUP COMPLETE	-	-
4a5	Check: Does the UE transmit a CM SERVICE REQUEST with CM service type IE indicating “Emergency call establishment”?	-->	CM SERVICE REQUEST	1	P
4a6	The SS transmits an AUTHENTICATION REQUEST message.	<--	AUTHENTICATION REQUEST	-	-
4a7	The UE transmits an AUTHENTICATION RESPONSE message.	-->	AUTHENTICATION RESPONSE	-	-
4a8	Check: Does the UE transmit an EMERGENCY SETUP message?	-->	EMERGENCY SETUP	1	P
4a9-4a14	Steps 11 to 16 of the generic test procedure in TS 34.108 subclause 7.2.3.2.3 are performed on Cell 5. NOTE: the CS call setup is completed.	-	-	-	-
4b1	IF (px_RATComb_Tested = EUTRA_GERAN AND pc_CS_Em_Call_in_GERAN), the SS reconfigures: Cell A as a "Suitable cell", Cell 24 as the "Serving cell".	-	-	-	-
4b2	Check: Does the UE transmit a CHANNEL REQUEST message on Cell 24 with Establishment cause: Emergency call in the next 60 seconds?	-->	CHANNEL REQUEST	1	P
4b3	The SS transmits an IMMEDIATE ASSIGNMENT message.	<--	IMMEDIATE ASSIGNMENT	-	-
4b4	Check: Does the UE transmit a CM SERVICE REQUEST with CM service type IE indicating “Emergency call establishment”?	-->	CM SERVICE REQUEST	1	P
4b5	The SS transmits an AUTHENTICATION REQUEST message.	<--	AUTHENTICATION REQUEST	-	-
4b6	The UE transmits an AUTHENTICATION	-->	AUTHENTICATION RESPONSE	-	-

	RESPONSE message.				
4b7	Check: Does the UE transmit an EMERGENCY SETUP message?	-->	EMERGENCY SETUP	1	P
4b8-4b14	Steps 11 to 17 of the generic test procedure in TS 51.010-1 subclause 10.2.3 are performed on Cell 24. NOTE: the CS call setup is completed.	-	-	-	-

11.2.8.3.3 Specific message contents

Table 11.2.8.3.3-1: ATTACH REQUEST (Step 2, Table 11.2.8.3.2-1)

Derivation Path: 36.508, Table 4.7.2-4			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS attach type	'0110'B	EPS emergency attach	
NAS key set identifier			
NAS key set identifier		No key is available	
EPS mobile identity	IMSI		
Old location area identification	Not present		
TMSI status	Not present		

Table 11.2.8.3.3-2: PDN CONNECTIVITY REQUEST (Step 2, Table 11.2.8.3.2-1)

Derivation Path: 36.508, Table 4.7.3-20			
Information Element	**Value/remark**	**Comment**	**Condition**
Request type	'0100'B	emergency	

Table 11.2.8.3.3-3: ATTACH REJECT (Step 3, Table 11.2.8.3.2-1)

Derivation Path: TS 36.508 Table 4.7.2-3			
Information Element	**Value/remark**	**Comment**	**Condition**
EMM cause	0000 1111	#15 “No suitable cells in tracking area”	
ESM message container	Not present		

Table 11.2.8.3.3-4: RRC CONNECTION REQUEST (Step 4a2, Table 11.2.8.3.2-1)

Derivation Path: TS 34.108 clause 9.1.1			
Information Element	**Value/remark**	**Comment**	**Condition**
Establishment cause	Emergency Call		

Table 11.2.8.3.3-5: CM SERVICE REQUEST (Steps 4a5 and 4b4, Table 11.2.8.3.2-1)

Derivation Path: TS 24.008 Table 9.2.11			
Information Element	**Value/remark**	**Comment**	**Condition**
CM service type	0010	Emergency call establishment	

Table 11.2.8.3.3-6: EMERGENCY SETUP (Steps 4a8 and 4b7, Table 11.2.8.3.2-1)

Derivation Path: TS 24.008 clause			
Information Element	**Value/remark**	**Comment**	**Condition**
Emergency setup message type	001110	EMERGENCY SETUP	

Table 11.2.8.3.3-7: CHANNEL REQUEST (Step 4b2, Table 11.2.8.3.2-1)

Derivation Path: TS 44.018 Table 9.1.8.1			
Information Element	**Value/remark**	**Comment**	**Condition**
Establishment cause	101	Emergency call	

11.2.8a Attach for emergency bearer services / Rejected / No suitable cells in tracking area / Emergency call using the CS domain / CDMA 2000 1xRTT

11.2.8a.1 Test Purpose (TP)

Same Test Purpose as in clause 11.2.8.1 except: UE establishes the emergency call using the CDMA 2000 1xRTT as CS domain.

11.2.8a.2 Conformance requirements

Same conformance requirements as in clause 11.2.8.2. For the present TCs the CS domain shall be understood as the CDMA 2000 1xRTT CS domain.

11.2.8a.3 Test description

11.2.8a.3.1 Pre-test conditions

System Simulator:

- Cell A is set to "Serving cell"
- Cell 19 is set to "Suitable Neighbour cell"
- System information combination 6 as defined in TS 36.508[18] clause 4.4.3.1 is used in E-UTRA cells.
- The SS broadcasts Emergency Call support in System Information Block 1 on Cell A.

UE:

- UE contains ISIM and USIM and CSIM applications on UICC.

Preamble:

- The UE is switched on and camped on cell A in EMM-DEREGISTERED.LIMITED-SERVICE state according to 36.508 [18].
- The UE is not attached for emergency bearer services.

11.2.8a.3.2 Test procedure sequence

Table 11.2.8a.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Steps 1 to 3 of the generic procedures in TS 36.508 subclause 4.5A.5.3 are performed on cell A.	-	-	-	-
2	The UE transmits an ATTACH REQUEST message to attach for emergency bearer services, together with a PDN CONNECTIVITY REQUEST message for emergency bearer services, on Cell A.	-->	ATTACH REQUEST PDN CONNECTIVITY REQUEST	-	-
3	The SS transmits an ATTACH REJECT message, EMM cause = “No suitable cells in tracking area”.	<--	ATTACH REJECT	-	-
4	The SS releases the RRC connection.	-	-	-	-
5	The SS reconfigures: Cell A as a "Suitable cell", Cell 19 as the "Serving cell".	-	-	-	-
6	Check: Does the UE transmit an *Origination* message on Cell 19 in the next [60] seconds?	-->	*Origination*	1	P
7	The SS transmits an *Extended Channel Assignment* message on Cell 19.	<--	*Extended Channel Assignment*	-	-
8	After the SS detects that Traffic Channel Initialization is successful, it transmits an *Acknowledgement Order* message on Cell 19.	<--	*Acknowledgement Order*	-	-
9	The SS transmits a *Service Connect* message on Cell 19.	<--	*Service Connect*	-	-
10	The UE transmits a *Service Connect Completion* message on Cell 19.	-->	*Service Connect Completion*	-	-

11.2.8a.3.3 Specific message contents

Table 11.2.8a.3.3-1: ATTACH REQUEST (Step 2, Table 11.2.8a.3.2-1)

Derivation Path: 36.508, Table 4.7.2-4			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS attach type	'0110'B	EPS emergency attach	
NAS key set identifier			
NAS key set identifier		No key is available	
EPS mobile identity	IMSI		
Old location area identification	Not present		
TMSI status	Not present		

Table 11.2.8a.3.3-2: PDN CONNECTIVITY REQUEST (Step 2, Table 11.2.8a.3.2-1)

Derivation Path: 36.508, Table 4.7.3-20			
Information Element	**Value/remark**	**Comment**	**Condition**
Request type	'0100'B	emergency	

Table 11.2.8a.3.3-3: ATTACH REJECT (Step 3, Table 11.2.8a.3.2-1)

Derivation Path: TS 36.508 Table 4.7.2-3			
Information Element	**Value/remark**	**Comment**	**Condition**
EMM cause	0000 1111	#15 “No suitable cells in tracking area”	
ESM message container	Not present		

Table 11.2.8a.3.3-4: *Origination* (Step 6, Table 11.2.8a.3.2-1)

Field	Value/remark	Comment	Condition
MSG_ID	'000100'B	Origination Message	this value shall be verified by TTCN
SPECIAL_SERVICE	'1'B		
SERVICE_OPTION	Any value mapping to a voice service option		

Table 11.2.8a.3.3-5: *Extended Channel Assignment* (Step 7, Table 11.2.8a.3.2-1)

Field	Value/remark	Comment	Condition
MSG_ID	'010101'B	Extended Channel Assignment Message	
ASSIGN_MODE	'000'B	Traffic Channel Assignment	

Table 11.2.8a.3.3-6: *Acknowledgment Order* (Step 8, Table 11.2.8a.3.2-1)

Field	Value/remark	Comment	Condition
MSG_ID	'00000001'B	Order Message	
ORDER	'010000'B	Base Station Acknowledgment Order	
ORDQ	'00000000'B		

Table 11.2.8a.3.3-7: *Service Connect* (Step 9, Table 11.2.8a.3.2-1)

Field	Value/remark	Comment	Condition
MSG_ID	'00010100'B	Service Connect Message	
SERV_CON_SEQ	Set by SS		

Table 11.2.8a.3.3-8: *Service Connect Completion* (Step 10, Table 11.2.8a.3.2-1)

Information Element	Value/remark	Comment	Condition
MSG_ID	'00001110'B	Service Connect Completion Message	this value shall be verified by TTCN
SERV_CON_SEQ	Same value as SERV_CON_SEQ received in Service Connect Message (Table 11.2.8a.3.3-7		

11.2.9 Void

11.2.10 LIMITED-SERVICE / EPS does not support IMS Emergency / Emergency call using the CS domain

11.2.10.1 Test Purpose (TP)

(1)

```
with { UE not equipped with a USIM and UE supporting IMS Emergency and Voice services}
ensure that {
  when { UE is switched on and LTE cell does not support IMS emergency call}
    then { UE camps on a non-LTE cell }
```

```
            }
```

(2)

```
with { UE supporting IMS Emergency and Voice services not equipped with a USIM and camped on a non-
LTE cell }
ensure that {
  when { UE is requested to make an emergency call }
    then { UE transmits an RRC CONNECTION REQUEST message }
            }
```

11.2.10.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.304, clause 4.15.2.2, 5.2.9.

[TS 36.304, clause 5.2.2]

Figure 2 shows the states and state transitions and procedures in RRC_IDLE. Whenever a new PLMN selection is performed, it causes an exit to number 1.

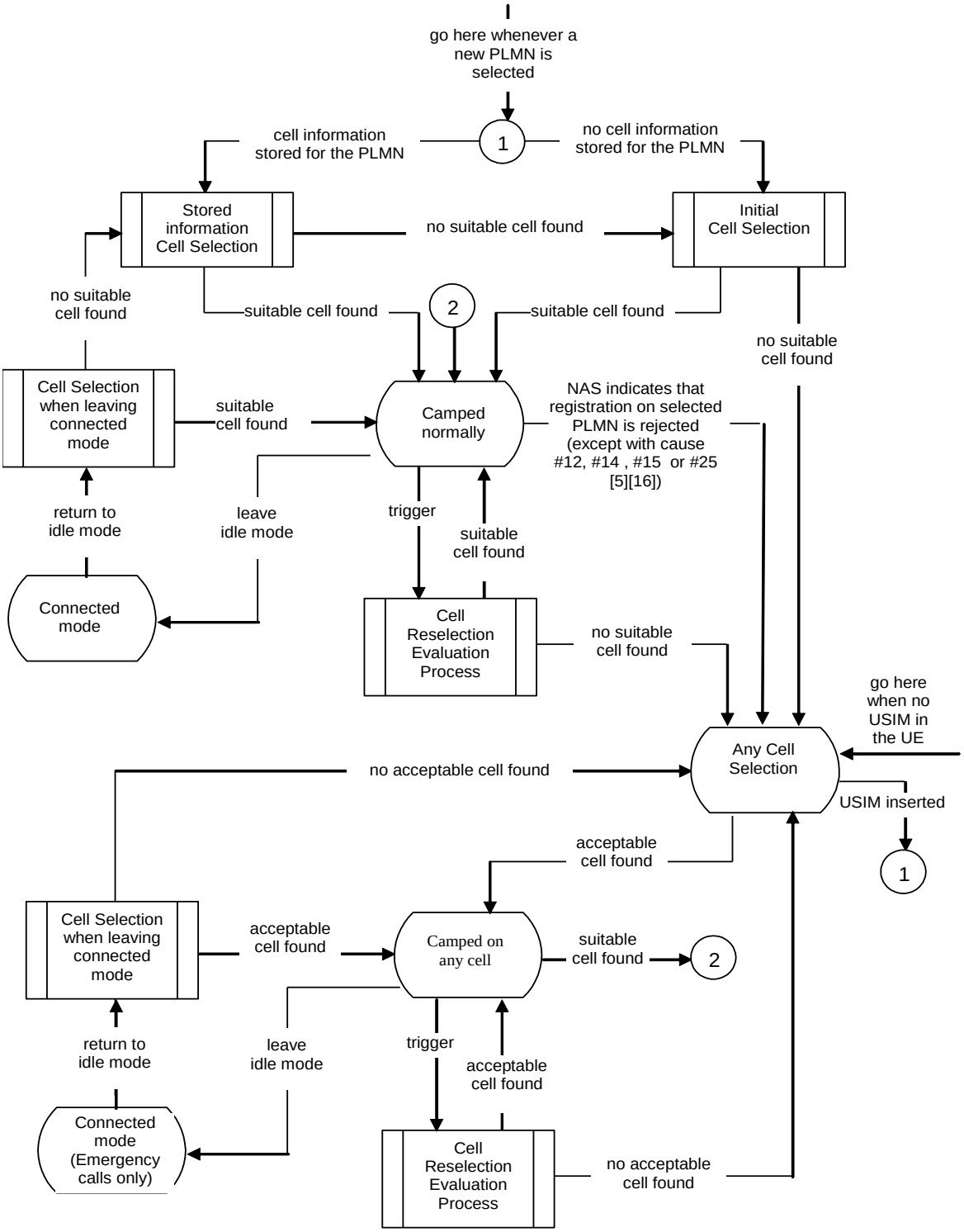

Figure 5.2.2-1: RRC_IDLE Cell Selection and Reselection

[TS 36.304, clause 5.2.9]

In this state, the UE shall perform the following tasks:

- select and monitor the indicated paging channels of the cell as specified in clause 7;
- monitor relevant System Information as specified in [3];
- perform necessary measurements for the cell reselection evaluation procedure;
- execute the cell reselection evaluation process on the following occasions/triggers:
  1) UE internal triggers, so as to meet performance as specified in [10];
  2) When information on the BCCH used for the cell reselection evaluation procedure has been modified;
- regularly attempt to find a suitable cell trying all frequencies of all RATs that are supported by the UE. If a suitable cell is found, UE shall move to *camped normally* state;
- if the UE supports voice services and the current cell does not support emergency call as indicated in System information specified in [3], the UE should perform cell selection/ reselection to an acceptable cell of any supported RAT regardless of priorities provided in system information from current cell, if no suitable cell is found.

NOTE1: The UE is allowed to not perform reselection to an inter-frequency E-UTRAN cell in order to prevent camping on a cell on which it cannot initiate an IMS emergency call.

11.2.10.3 Test description

11.2.10.3.1 Pre-test conditions

System Simulator:

- Cell A and Cell 5.

Table 11.2.10.3.1-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell A	Cell 5
T0	Cell-specific RS EPRE	dBm	-70	-
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-75
	PCCPCH RSCP (UTRA LCR TDD)	dBm/1.28 MHz	-	-75

UE:

- The UE is not equipped with either a USIM or ISIM.

Preamble:

- The UE is in state Switched OFF (state 1) according to [18].

11.2.10.3.2 Test procedure sequence

Table 11.2.10.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The UE is switched on.	-	-	-	-
2	Wait for 60s for the UE to complete cell selection. E-UTRA cell is more powerful than UTRA cell	-	-	-	-
3	Cause the UE to originate Emergency call. (see Note 1)	-	-	-	-
4	Check: Does the UE transmit an RRC CONNECTION REQUEST message on Cell 5?	-->	RRC CONNECTION REQUEST	1, 2	P
5	The SS transmits an RRC CONNECTION SETUP message on Cell 5.	<--	RRC CONNECTION SETUP	-	-
6	The UE transmits an RRC CONNECTION SETUP COMPLETE message on Cell 5.	-->	RRC CONNECTION SETUP COMPLETE	-	-
7	The UE transmits an INITIAL DIRECT TRANSFER message on Cell 5. This message includes a CM SERVICE REQUEST message.	-->	INITIAL DIRECT TRANSFER	-	-
8	The SS transmits a DOWNLINK DIRECT TRANSFER message on Cell 5. This message includes a CM SERVICE ACCEPT message.	<--	DOWNLINK DIRECT TRANSFER	-	-
9	The UE transmits an UPLINK DIRECT TRANSFER message on Cell 5. This message includes an EMERGENCY SETUP message.	-->	UPLINK DIRECT TRANSFER	-	-
10-15	Steps 11 to 16 of the generic test procedure in TS 34.108 subclause 7.2.3.2.3 are performed on Cell 5.	-	-	-	-
Note 1: The request is assumed to be triggered by AT command D.					

11.2.10.3.3 Specific message contents

Table 11.2.10.3.3-1: SystemInformationBlockType1 for Cell1 (preamble and all steps)

Derivation Path: 36.508 clause 4.4.3.2			
Information Element	**Value/remark**	**Comment**	**Condition**
SystemInformationBlockType1 ::= SEQUENCE {			
ims-EmergencySupport-r9	Not present	Not support IMS emergency call	
}			

11.2.11 LIMITED-SERVICE / Inter-system mobility / E-UTRA to UTRA CS / SRVCC Emergency Call Handover to UTRAN

11.2.11.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_CONNECTED state }
ensure that {
  when { UE receives a MobilityFromEUTRACommand message and an IMS emergency call is ongoing and an
UTRA Speech RAB combination is configured for an UTRA cell}
    then { UE transmits a HANDOVER TO UTRAN COMPLETE message on the UTRA cell}
          }
```

11.2.11.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.331, clause 5.4.3.3, TS 23.216, clause 6.2.2.1 and TS 23.216, clause 6.2.2.1A.

[TS 36.331, clause 5.4.3.3]

The UE shall be able to receive a *MobilityFromEUTRACommand* message and perform a cell change order to GERAN, even if no prior UE measurements have been performed on the target cell.

The UE shall:

1> stop timer T310, if running;

1> if the *MobilityFromEUTRACommand* message includes the *purpose* set to '*handover*':

2> if the *targetRAT-Type* is set to '*utra*' or '*geran*':

3> consider inter-RAT mobility as initiated towards the RAT indicated by the *targetRAT-Type* included in the *MobilityFromEUTRACommand* message;

3> forward the *nas-SecurityParamFromEUTRA* to the upper layers;

3> access the target cell indicated in the inter-RAT message in accordance with the specifications of the target RAT;

[TS 23.216, clause 6.2.2.1]

Depicted in figure 6.2.2.1-1 is a call flow for SRVCC from E-UTRAN to GERAN without DTM support. The flow requires that eNB can determine that the target is GERAN without DTM support or that the UE is without DTM support.

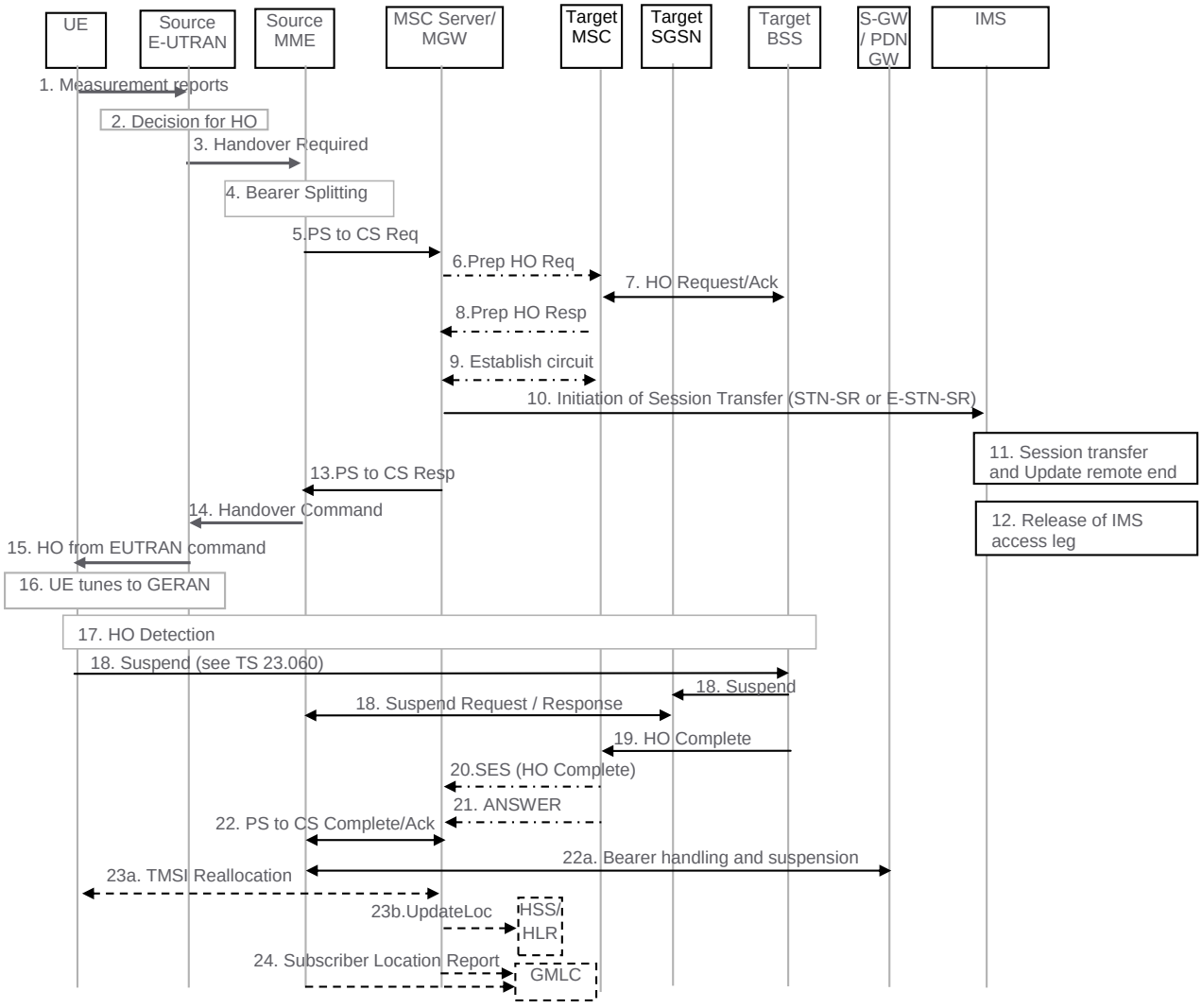

Figure 6.2.2.1-1: SRVCC from E-UTRAN to GERAN without DTM support

1. UE sends measurement reports to E-UTRAN.

2. Based on UE measurement reports the source E-UTRAN decides to trigger an SRVCC handover to GERAN.

3. Source E-UTRAN sends Handover Required (Target ID, generic Source to Target Transparent Container, SRVCC HO Indication) message to the source MME. The E-UTRAN places the "old BSS to new BSS information IE" for the CS domain in the generic Source to Target Transparent Container. The SRVCC HO indication indicates to the MME that target is only CS capable; hence this is a SRVCC handover operation only towards the CS domain. The message includes an indication that the UE is not available for the PS service in the target cell.

4. Based on the QCI associated with the voice bearer (QCI 1) and the SRVCC HO indication, the source MME splits the voice bearer from the non voice bearers and initiates the PS-CS handover procedure for the voice bearer only towards MSC Server.

5. The MME sends a SRVCC PS to CS Request (IMSI, Target ID, STN-SR, C-MSISDN, generic Source to Target Transparent Container, MM Context, and Emergency Indication) message to the MSC Server. The Emergency Indication and the equipment identifier are included if the ongoing session is emergency session. Authenticated IMSI and C-MSISDN shall also be included, if available. The MME received STN-SR and C-MSISDN from the HSS as part of the subscription profile downloaded during the E-UTRAN attach procedure. The MM Context contains security related information. CS security key is derived by the MME from the E-UTRAN/EPS domain key as defined in TS 33.401 [22]. The CS Security key is sent in the MM Context.

6. The MSC Server interworks the PS-CS handover request with a CS inter-MSC handover request by sending a Prepare Handover Request message to the target MSC. The MSC Server assigns a default SAI as Source ID on the interface to the target BSS and uses BSSMAP encapsulated for the Prepare Handover Request.

NOTE 1: The value of the default SAI is configured in the MSC and allows a release 8 and later BSC to identify that the source for the SRVCC Handover is E-UTRAN. To ensure correct statistics in the target BSS the default SAI should be different from the SAIs used in UTRAN.

7. Target MSC performs resource allocation with the target BSS by exchanging Handover Request/ Acknowledge messages.

8. Target MSC sends a Prepare Handover Response message to the MSC Server.

9. Establishment of circuit connection between the target MSC and the MGW associated with the MSC Server e.g. using ISUP IAM and ACM messages.

10. For non-emergency session, the MSC Server initiates the Session Transfer by using the STN-SR e.g. by sending an ISUP IAM (STN-SR) message towards the IMS. For emergency session, the MSC Server initiates the Session Transfer by using the locally configured E-STN-SR and by including the equipment identifier. Standard IMS Service Continuity or Emergency IMS Service Continuity procedures are applied for execution of the Session Transfer; see TS 23.237 [14].

NOTE 2: This step can be started after step 8.

NOTE 3: If the MSC Server is using an ISUP interface, then the initiation of the session transfer for non-emergency session may fail if the subscriber profile including CAMEL triggers is not available prior handover (see clause 7.3.2.1.3 in TS 23.292 [13]).

11. During the execution of the Session Transfer procedure the remote end is updated with the SDP of the CS access leg. The downlink flow of VoIP packets is switched towards the CS access leg at this point.

12. Source IMS access leg is released as per TS 23.237 [14].

NOTE 4: Steps 11 and 12 are independent of step 13.

13. MSC Server sends a SRVCC PS to CS Response (Target to Source Transparent Container) message to the source MME.

14. Source MME sends a Handover Command (Target to Source Transparent Container) message to the source E-UTRAN. The message includes information about the voice component only.

15. Source E-UTRAN sends a Handover from E-UTRAN Command message to the UE.

16. UE tunes to GERAN.

17. Handover Detection at the target BSS occurs. The UE sends a Handover Complete message via the target BSS to the target MSC. If the target MSC is not the MSC Server, then the Target MSC sends an SES (Handover Complete) message to the MSC Server.

18. The UE starts the Suspend procedure specified in TS 23.060 [10], clause 16.2.1.1.2. The TLLI and RAI pair are derived from the GUTI as described in TS 23.003 [27]. This triggers the Target SGSN to send a Suspend Notification message to the Source MME. The MME returns a Suspend Acknowledge to the Target SGSN.

NOTE 5: The MME might not be able to derive the GUTI from the received P-TMSI and RAI pair and therefore it might not be able to identify which UE context is associated with the Suspend Notification message. Also in this case the bearers are deactivated and/or suspended as in step 22a.

19. Target BSS sends a Handover Complete message to the target MSC.

20. Target MSC sends an SES (Handover Complete) message to the MSC Server. The speech circuit is through connected in the MSC Server/MGW according to TS 23.009 [18].

21. Completion of the establishment procedure with ISUP Answer message to the MSC Server according to TS 23.009 [18].

22. MSC Server sends a SRVCC PS to CS Complete Notification message to the source MME, informing it that the UE has arrived on the target side. Source MME acknowledges the information by sending a SRVCC PS to CS Complete Acknowledge message to the MSC Server.

22a. The MME deactivates bearers used for voice and other GBR bearers. All GBR bearers are deactivated towards S-GW and P-GW by initiating MME-initiated Dedicated Bearer Deactivation procedure as specified in TS 23.401 [2]. The MME does not send deactivation request toward the eNodeB on receiving PS-to-CS Complete Notification in step 22. PS-to-CS handover indicator is notified to P-GW for voice bearer during the bearer deactivation procedure. For GTP-based S5/S8, the S-GW requests the P-GW to delete all GBR bearer contexts by sending a Delete Bearer Command message. If dynamic PCC is deployed, the P-GW may interact with PCRF as defined in TS 23.203 [31]. For PMIP-based S5/S8, S-GW interacts with the PCRF which in turn updates PCC rules for GBR traffic in the P-GW.

The MME starts preservation and suspension of non-GBR bearers by sending Suspend Notification message towards S-GW. For these non-GBR bearers, the S-GW releases S1-U bearers for the UE and sends Suspend Notification message to the P-GW(s). The MME stores in the UE context that UE is in suspended status. All the preserved non-GBR bearers are marked as suspended status in the S-GW and P-GW. The P-GW should discard packets if received for the suspended UE.

23a. If the HLR is to be updated, i.e. if the IMSI is authenticated but unknown in the VLR, the MSC Server performs a TMSI reallocation towards the UE using its own non-broadcast LAI and, if the MSC Server and other MSC/VLRs serve the same (target) LAI, with its own Network Resource Identifier (NRI).

NOTE 5: The TMSI reallocation is performed by the MSC Server towards the UE via target MSC.

23b. If the MSC Server performed a TMSI reallocation in step 23a, and if this TMSI reallocation was completed successfully, the MSC Server performs a MAP Update Location to the HSS/HLR.

NOTE 6: This Update Location is not initiated by the UE.

24. For an emergency services session after handover is complete, the source MME or the MSC Server may send a Subscriber Location Report carrying the identity of the MSC Server to a GMLC associated with the source or target side, respectively, as defined in TS 23.271 [29] to support location continuity.

NOTE 7: Any configuration of the choice between a source MME versus MSC Server update to a GMLC needs to ensure that a single update occurs from one of these entities when the control plane location solution is used on the source and/or target sides.

After the CS voice call is terminated and if the UE is still in GERAN (or for any other reason specified in TS 24.008), then the UE shall resume PS services as specified in TS 23.060 [10]. A Gn SGSN will follow TS 23.060 [10] to resume the PDP Context(s). An S4 SGSN will follow TS 23.060 [10] to resume the bearers, and will in addition inform S-GW

and P-GW(s) to resume the suspended bearers. If the UE has returned to E-UTRAN after the CS voice call was terminated, then the UE shall resume PS service by sending TAU to MME. The MME will in addition inform S-GW and P-GW(s) to resume the suspended bearers. Resuming the suspended bearers in the S-GW and in the P-GW should be done by implicit resume using the Modify Bearer request message if it is triggered by the procedure in operation, e.g. RAU, TAU or Service Request. The S-GW is aware of the suspend state of the bearers and will forward the Modify Bearer request to the P-GW. Explicit resume using the Resume Notification message should be used in cases when Modify Bearer Request is not triggered by the procedure in operation.

[TS 23.216, clause 6.2.2.1A]

The call flow for this scenario is similar to the call flow depicted in figure 6.2.2.1-1, with the exceptions that the Suspend procedure (step 18 and step 22a in figure 6.2.2.1-1) is not performed and that the MME only deactivates bearers used for voice (step 22a in figure 6.2.2.1-1) and sets the PS-to-CS handover indicator. The scenario requires that eNB can determine that the target is either GERAN with DTM but without DTM HO support and that the UE is supporting DTM or that the target is UTRAN (HSPA) without PS HO support. The message in step 3 in figure 6.2.2.1-1 includes an indication to the MME that the UE is available for PS service in the target cell. Furthermore, if the target is GERAN, the E-UTRAN places in the generic Source to Target Transparent Container the "old BSS to new BSS information IE", while if the target is UTRAN, the generic Source to Target Transparent container is encoded according to the Source RNC to Target RNC Transparent Container IE definition. At the end of the procedure described in figure 6.2.2.1-1, the remaining PS resources are re-established when the UE performs the Routeing Area update procedure. Triggers for performing Routeing Area update procedure are described in TS 23.060 [10]. The target SGSN may deactivate the PDP contexts that cannot be established as described in TS 23.060 [10].

11.2.11.3 Test description

11.2.11.3.1 Pre-test conditions

System Simulator:

- Cell A and Cell 5.
- System information combination 4 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cells.
- The PLMN is defined in Table 11.2.11.3.1-1.

Table 11.2.11.3.1–1: PLMN identifier

Cell	PLMN name
A	PLMN4

UE:

- The UE is equipped with either ISIM and USIM applications or only a USIM application on UICC. The USIM containing default values except for those listed in Table 11.2.11.3.1-2.

Table 11.2.11.3.1–2: USIM configuration

USIM field	Priority	Value	Access Technology Identifier
EF_{IMSI}	-	The HPLMN (MCC+MNC) of the IMSI is set to PLMN1.	-
EF_{FPLMN}	-	PLMN4	-
$EF_{PLMNwAcT}$	1	Default	E-UTRAN
$EF_{OPLMNwACT}$	1	PLMN1	E-UTRAN
$EF_{HPLMNwAcT}$	1	PLMN1	E-UTRAN

Preamble:

- The UE is Switched OFF (State 1) according to [18].

11.2.11.3.2 Test procedure sequence

Table 11.2.11.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while

columns marked "T1" is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 11.2.11.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell A	Cell 5	Remark
T0	Cell-specific RS EPRE	dBm/15kHz	-60	-	The power level values are such that entering conditions for event B2 are not satisfied.
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-88	
	PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-88	
T1	Cell-specific RS EPRE	dBm/15kHz	-84	-	The power level values are such that entering conditions for event B2 are satisfied.
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-64	
	PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-64	

Table 11.2.11.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS configures UTRA cell 5 to reference configuration according 36.508 table 4.8.3-1, condition UTRA Speech.	-	-	-	-
2	Power on the UE.	-	-	-	-
3	Wait 60s for the UE to camp on Cell A as an acceptable cell.	-	-	-	-
4-6	Steps 1 to 3 of the generic test procedure for IMS Emergency call establishment in EUTRA: Limited Service (TS 36.508 subclause 4.5A.5.3-1).	-	-	-	-
7	The UE transmits an *RRCConnectionSetupComplete* message.	-->	RRC: *RRCConnectionSetupComplete* NAS: ATTACH REQUEST NAS: PDN CONNECTIVITY REQUEST	-	-
8-22	Steps 5 to 19 of the generic test procedure for IMS Emergency call establishment in EUTRA: Limited Service (TS 36.508 subclause 4.5A.5.3-1).	-	-	-	-
23	The SS transmits an RRCConnectionReconfiguration message on Cell A to setup inter RAT measurement and reporting for event B2.	<--	RRCConnectionReconfiguration	-	-
24	The UE transmits an RRCConnectionReconfigurationComplete message on Cell A.	-->	RRCConnectionReconfigurationComplete	-	-
25	The SS changes the power level for Cell A and Cell 5 according to the row "T1" in table 11.2.11.3.2-1	-	-	-	-
26	The UE transmits a MeasurementReport message on Cell A to report event B2 for Cell 5.	-->	MeasurementReport	-	-
27	The SS transmits a MobilityFromEUTRACommand message on Cell A.	<--	MobilityFromEUTRACommand	-	-
28	Check: Does the UE transmit a HANDOVER TO UTRAN COMPLETE message on cell 5?	-->	HANDOVER TO UTRAN COMPLETE	1	P
-	EXCEPTION: In parallel to the events described in step 29 to 34 the steps specified in table 11.2.11.3.2-3 takes place.	-	-	-	-
29	The SS transmits a SECURITY MODE COMMAND message for the CS domain.	<--	SECURITY MODE COMMAND	-	-
30	The UE transmits a SECURITY MODE COMPLETE message.	-->	SECURITY MODE COMPLETE	-	-
31	The SS transmits an UTRAN MOBILITY INFORMATION message to notify CN information.	<--	UTRAN MOBILITY INFORMATION	-	-
32	The UE transmits an UTRAN MOBILITY INFORMATION CONFIRM message.	-->	UTRAN MOBILITY INFORMATION CONFIRM	-	-
33	The SS transmits a TMSI REALLOCATION COMMAND message.	<--	TMSI REALLOCATION COMMAND	-	-
34	The UE transmits a TMSI REALLOCATION COMPLETE message.	-->	TMSI REALLOCATION COMPLETE	-	-

Table 11.2.11.3.2-3: Parallel behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Check: Does the UE transmit a ROUTING AREA UPDATE REQUEST message?	-->	ROUTING AREA UPDATE REQUEST	-	P
2	The SS transmits a ROUTING AREA UPDATE ACCEPT message.	<--	ROUTING AREA UPDATE ACCEPT	-	-
3	The UE transmits a ROUTING AREA UPDATE COMPLETE message.	-->	ROUTING AREA UPDATE COMPLETE	-	-

Table 11.2.11.3.2-4: Void

11.2.11.3.3 Specific message contents

Table 11.2.11.3.3-1: ATTACH REQUEST (Step 7, Table 11.2.11.3.2-2)

Derivation path: 36.508 table 4.7.2-4			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS attach type	'0110'B	EPS emergency attach	
ESM message container	PDN CONNECTIVITY REQUEST message to request PDN connectivity to an emergency PDN		
MS network capability	SRVCC from UTRAN HSPA or E-UTRAN to GERAN/UTRAN supported		
Mobile station classmark 2	Any allowed value		
Supported Codecs	Any allowed value		

Table 11.2.11.3.3-2: *RRCConnectionReconfiguration* (step 23, Table 11.2.11.3.2-2)

Derivation Path: 36.508 clause 4.6.1 table 4.6.1-8 with condition MEAS

Table 11.2.11.3.3-3: *MeasConfig* (step 23, Table 11.2.11.3.3-2)

Derivation path: 36.508 clause 4.6.6 table 4.6.6-1 with condition UTRAN			
Information Element	**Value/Remark**	**Comment**	**Condition**
measurementConfiguration ::= SEQUENCE {			
measObjectToAddModifyList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entries		
measObjectId[1]	IdMeasObject-f8		
measObject[1]	MeasObjectUTRA-GENERIC(f8)		
measObjectId[2]	IdMeasObject-f1		
measObject[2]	MeasObjectEUTRA-GENERIC(f1)		
}			
reportConfigToAddModifyList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	1 entry		
reportConfigId[1]	IdReportConfigInterRAT-B2-UTRA		
reportConfig[1]	ReportConfigInterRAT-B2-UTRA(-72, -76)		
}			
measIdToAddModifyList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	1 entry		
measId[1]	1		
measObjectId[1]	IdMeasObject-f8		
reportConfigId[1]	IdReportConfigInterRAT-B2-UTRA		
}			
}			

Table 11.2.11.3.3-4: *MeasurementReport* (step 26, Table 11.2.11.3.2-2)

Derivation Path: 36.508, table 4.6.1-5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
measurementReport-r8 SEQUENCE {			
measResults SEQUENCE {			
measId	1		
measResultServCell SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListUTRA SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {	1 entry		
physCellId[1]	PhysicalCellIdentity of Cell 5		
cgi-Info[1]	Not present		
measResult[1] SEQUENCE {			
utra-RSCP	(-5..91)		
}			
}			
}			
}			
}			
}			
}			
}			

Table 11.2.11.3.3-5: *MobilityFromEUTRACommand* (step 27, Table 11.2.11.3.2-2)

Derivation Path: 36.508, Table 4.6.1-6			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityFromEUTRACommand ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
mobilityFromEUTRACommand-r8 SEQUENCE {			
cs-FallbackIndicator	True		
purpose CHOICE{			
handover SEQUENCE {			
targetRAT-Type	Utra		
targetRAT-MessageContainer	HANDOVER TO UTRAN COMMAND(UTRA RRC message)		
nas-SecurityParamFromEUTRA	The 4 least significant bits of the NAS downlink COUNT value		
systemInformation	Not present		
}			
}			
}			
}			
}			
}			

Table 11.2.11.3.3-7: HANDOVER TO UTRAN COMMAND (step 27, Table 11.2.11.3.3-5)

Derivation Path: 36.508, Table 4.7B.1-1, condition UTRA Speech

Table 11.2.11.3.3-8: SECURITY MODE COMMAND (step 29, Table 11.2.11.3.2-2)

Derivation Path: 36.508, Table 4.7B.1-n		
Information Element	**Condition**	**Value/remark**
Ciphering mode info		Not Present

12 E-UTRA radio bearer tests

12.1 General

The present clause defines radio bearer combinations as well as generic E-UTRA radio bearer test procedures. The generic E-UTRA radio bearer test procedures include generic TPs and test description. The TCs that follow verify specific E-UTRA radio bearer combinations by indicating the relevant combinations and making reference to the generic procedures' TPs and test description as appropriate. The reference to the generic TP shall be understood not as having the same TP rather as applying the same TP to a different E-UTRA radio bearer combination.

12.1.0 Definition of radio bearer combinations

The radio bearer combinations tested are listed in table 12-1. The radio bearer combinations and identifiers (1 to 13) are according to the radio bearer combinations and identifier in TS 36.331 Annex B.1.

Table 12-1: Radio Bearer Combinations

RB combination identifier	Radio bearer combination
1	SRB1 and SRB2 for DCCH + 1xAM DRB
2	SRB1 and SRB2 for DCCH + 1xAM DRB + 1xUM DRB
3	SRB1 and SRB2 for DCCH + 2xAM DRB
4	SRB1 and SRB2 for DCCH + 2xAM DRB + 1xUM DRB
5	SRB1 and SRB2 for DCCH + 2xAM DRB + 2xUM DRB
6	SRB1 and SRB2 for DCCH + 3xAM DRB
7	SRB1 and SRB2 for DCCH + 3xAM DRB + 1xUM DRB
8	SRB1 and SRB2 for DCCH + 3xAM DRB + 2xUM DRB
9	SRB1 and SRB2 for DCCH + 4xAM DRB
10	SRB1 and SRB2 for DCCH + 4xAM DRB + 1xUM DRB
11	SRB1 and SRB2 for DCCH + 4xAM DRB + 2xUM DRB
12	SRB1 and SRB2 for DCCH + 5xAM DRB + 3xUM DRB
13	SRB1 and SRB2 for DCCH + 8xAM DRB

12.1.1 Generic E-UTRA radio bearer test procedure / MIMO not configured

12.1.1.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_CONNECTED state with a "n x AM DRB + m x UM DRB" radio bearer combination
established and physical layer configured for SISO transmission}
ensure that {
  when { UE receives a PDCP SDU on each configured AM and UM DRB within the same TTI }
    then { UE forward the received PDCP SDUs to upper layer }
}
```

(2)

```
with { UE in E-UTRA RRC_CONNECTED state with "an x AM DRB + m x UM DRB" radio bearer combination
established }
ensure that {
  when { UE has pending data in the transmission buffer corresponding to a complete PDCP SDU on each
configured AM and UM DRB and UE receives an UL Grant allowing UE to transmit all pending data }
    then { UE transmits a PDCP SDU on each configured AM and UM DRB within the same TTI }
}
```

12.1.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: 3GPP TS 36-series Layer 1, Layer 2 and Layer 3 core specifications.

12.1.1.3 Test description

12.1.1.3.1 Pre-test conditions

System Simulator

- Cell 1

UE:

- None

Preamble

- The UE is in state Loopback Activated (state 4) according to [18].
- Radio bearer for combination SRB1 and SRB2 for n x AM DRB + m x UM DRB is used where n and m are specified in the test case.

Table 12.1.1.3.1-1: RLC settings

Parameter	Value
t-PollRetransmit	250 ms

NOTE: In case of multiple iterations of this procedure, the generic test procedures in TS 36.508 Tables 4.5.3.3-1 and 4.5.4.3-1 are performed between each iteration to bring the UE back to state Loopback Activated (state 4).

12.1.1.3.2 Test procedure sequence

Table 12.1.1.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS ignores scheduling requests and does not allocate any uplink grant.	-	-	-	-
2	The SS transmits a PDCP SDU of size 40 bytes on each configured AM DRB and a PDCP SDU of size 40 bytes on each configured UM DRB in the same TTI	<--	PDCP SDUs	-	-
2A	SS respond to any scheduling request from the UE by an UL Grant of 32 bits. (Note 1)	<--	(UL Grant, 32 bits)	-	-
3	SS waits until UE transmit a BSR with 'Buffer size' field set to value indicating that all data received in step 2 is pending for transmission.	-	-	-	-
4	After 100ms SS transmits an UL grants to enable UE to return all pending data in one TTI	<--	(UL grant)	-	-
5	Check: Does UE transmit a PDCP SDU on each configure AM and UM DRB of the same size and content as transmitted by the SS in step 2?	-->	PDCP SDUs	1,2	P
5A	The SS transmits an OPEN UE TEST LOOP message to exit the UE test loop mode.	<--	RRC: *DLInformationTransfer* TC: OPEN UE TEST LOOP	-	-
5B	The UE transmits an OPEN UE TEST LOOP COMPLETE message.	-->	RRC: *ULInformationTransfer* TC: OPEN UE TEST LOOP COMPLETE	-	-
6	The SS releases the connection.	-	-	-	-
Note 1: 32 bits enables UE to transmit a MAC PDU with a MAC BSR header and a Short BSR (1 bytes) or a Long BSR (3 byte).					

12.1.1.3.3 Specific Message Contents

Table 12.1.1.3.3-1: PDCP-Config-DRB-UM (preamble: Table 4.5.3.3-1, step 8)

Derivation Path: 36.508 clause 4.8.2.1.2.1-1			
Information Element	**Value/remark**	**Comment**	**Condition**
PDCP-Config-DRB-UM ::= SEQUENCE {			
discardTimer	ms300		

12.1.2 Generic E-UTRA radio bearer test procedure / MIMO configured

12.1.2.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_CONNECTED state with a "n x AM DRB + m x UM DRB" radio bearer combination
established and physical layer configured for MIMO transmission}
ensure that {
  when { UE receives PDCP SDUs from one or more logical channels multiplexed on transport block 1
and transport block 2within the same TTI }
    then { UE forward the received PDCP SDUs to upper layer }
}
```

(2)

```
with { UE in E-UTRA RRC_CONNECTED state with a "n x AM DRB + m x UM DRB" radio bearer combination
established }
ensure that {
  when { UE has pending data in the transmission buffer corresponding to two complete PDCP SDUs on
each configured AM and UM DRB and UE receives an UL Grant allowing UE to transmit all pending data }
    then { UE transmits two PDCP SDUs on each configured AM and UM DRB }
}
```

12.1.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: 3GPP TS 36-series Layer 1, Layer 2 and Layer 3 core specifications.

12.1.2.3 Test description

12.1.2.3.1 Pre-test conditions

System Simulator

- Cell 1 (MIMO)

UE:

- None

Preamble

- The UE is in state Loopback Activated (state 4) according to [18] using condition 2TX to configure MIMO.
- Radio bearer for combination SRB1 and SRB2 for n x AM DRB + m x UM DRB is used where n and m are specified in the test case.

12.1.2.3.2 Test procedure sequence

Table 12.1.2.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS ignores scheduling requests and does not allocate any uplink grant.	-	-	-	-
2	The SS transmits two PDCP SDUs of size 40 bytes on each configured AM DRB and two PDCP SDUs of size 40 bytes on each configured UM DRB in the same TTI. The PDCP SDUs are multiplexed on transport block 1 and 2 based on logical channel priority with data from higher MAC logical channel priority mapped to transport block 1. If more than one DRB have same logical channel priority then data from DRB with lower DRB-ID value gets mapped on transport block 1.	<--	PDCP SDUs	-	-
2a	SS respond to any scheduling request from the UE by an UL Grant of 32 bits. (Note 1)	<--	(UL Grant, 32 bits)	-	-
3	SS waits until UE transmit a BSR with 'Buffer size' field set to value indicating that all data received in step 2 is pending for transmission.	-	-	-	-
4	After 100ms SS transmits an UL grants to enable UE to return all pending data in one TTI	-	-	-	-
5	Check: Does UE transmit two PDCP SDUs on each configured AM and UM DRB of the same size and content as transmitted by the SS in step 2?	-->	PDCP SDUs	1,2	P
6	The SS releases the connection	-	-	-	-
Note 1: 32 bits enables UE to transmit a MAC PDU with a MAC BSR header and a Short BSR (1 bytes) or a Long BSR (3 byte).					

12.1.2.3.3 Specific Message Contents

Table 12.1.2.3.3-1: PDCP-Config-DRB-UM (preamble: Table 4.5.3.3-1, step 8)

Derivation Path: 36.508 clause 4.8.2.1.2.1-1			
Information Element	**Value/remark**	**Comment**	**Condition**
PDCP-Config-DRB-UM ::= SEQUENCE {			
discardTimer	ms300		

12.2 MIMO not configured

12.2.1 Data transfer of E-UTRA radio bearer combinations 1, 3, 6 and 9

12.2.1.1 Test Purpose (TP)

See 12.1.1.1

12.2.1.2 Conformance requirements

See 12.1.1.2

12.2.1.3 Test description

12.2.1.3.1 Pre-test conditions

System Simulator

- See 12.1.1.3

UE:

- See 12.1.1.3

Preamble

- The number of AM data radio bearers (n) and UM data radio bearers (m) for each execution is specified in table 12.2.1.3.1-1.

Table 12.2.1.3.1-1: Test parameters (m,n) for each execution (k)

Execution k	Number of AM DRBs n	Number of UM DRBs m	Radio bearer combination
1	1	-	1: SRB1 and SRB2 for DCCH + 1xAM DRB
2	2	-	3: SRB1 and SRB2 for DCCH + 2xAM DRB
3	3	-	6: SRB1 and SRB2 for DCCH + 3xAM DRB
4	4	-	9: SRB1 and SRB2 for DCCH + 4xAM DRB

12.2.1.3.2 Test procedure sequence

Table 12.2.1.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
	EXCEPTION: Step 1 is repeated for execution counter k=1 to 4	-	-	-	-
1	Generic test procedure in 12.1.1 is executed for execution k with number of AM DRB (n) and number of UM DRB (m) as specified in table 12.2.1.3.1-1.	-	-	-	-

12.2.1.3.3 Specific Message Contents

None

12.2.2 Data transfer of E-UTRA radio bearer combinations 2,4,7 and 10

12.2.2.1 Test Purpose (TP)

See 12.1.1.1

12.2.2.2 Conformance requirements

See 12.1.1.2

12.2.2.3 Test description

12.2.2.3.1 Pre-test conditions

System Simulator

- See 12.1.1.3

UE:

- See 12.1.1.3

Preamble

- The number of AM data radio bearers (n) and UM data radio bearers (m) for each execution is specified in table 12.2.2.3.1-1.

Table 12.2.2.3.1-1: Test parameters (m,n) for each execution (k)1

Execution k	Number of AM DRBs n	Number of UM DRBs m	Radio bearer combination
1	1	1	2: SRB1 and SRB2 for DCCH + 1xAM DRB + 1xUM DRB
2	2	1	4: SRB1 and SRB2 for DCCH + 2xAM DRB + 1xUM DRB
3	3	1	7: SRB1 and SRB2 for DCCH + 3xAM DRB + 1xUM DRB
4	4	1	10: SRB1 and SRB2 for DCCH + 4xAM DRB + 1xUM DRB

12.2.2.3.2 Test procedure sequence

Table 12.2.2.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
	EXCEPTION: Step 1 is repeated for execution counter k=1 to 4	-	-	-	-
1	Generic test procedure in 12.1.1 is executed for execution k with number of AM DRB (n) and number of UM DRB (m) as specified in table 12.2.2.3.1-1.	-	-	-	-

12.2.2.3.3 Specific Message Contents

None

12.2.3 Data transfer of E-UTRA radio bearer combinations 5,8,11 and 12

12.2.3.1 Test Purpose (TP)

See 12.1.1.1

12.2.3.2 Conformance requirements

See 12.1.1.2

12.2.3.3 Test description

12.2.3.3.1 Pre-test conditions

System Simulator

- See 12.1.1.3

UE:

- See 12.1.1.3

Preamble

- The number of AM data radio bearers (n) and UM data radio bearers (m) for each execution is specified in table 12.2.3.3.1-1.

Table 12.2.3.3.1-1: Test parameters (m,n) for each execution (k)

Execution K	Number of AM DRBs n	Number of UM DRBs m	Radio bearer combination
1	2	2	5: SRB1 and SRB2 for DCCH + 2xAM DRB + 2xUM DRB
2	3	2	8: SRB1 and SRB2 for DCCH + 3xAM DRB + 2xUM DRB
3	4	2	11: SRB1 and SRB2 for DCCH + 4xAM DRB + 2xUM DRB
4	5	3	12: SRB1 and SRB2 for DCCH + 5xAM DRB + 3xUM DRB

12.2.3.3.2 Test procedure sequence

Table 12.2.3.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
	EXCEPTION: Step 1 is repeated for execution counter k=1 to 4	-	-	-	-
1	Generic test procedure in 12.1.1 is executed for execution k with number of AM DRB (n) and number of UM DRB (m) as specified in table 12.2.3.3.1-1.	-	-	-	-

12.2.3.3.3 Specific Message Contents

None

12.2.4 Data transfer of E-UTRA radio bearer combination 13

12.2.4.1 Test Purpose (TP)

See 12.1.1.1

12.2.4.2 Conformance requirements

See 12.1.1.2

12.2.4.3 Test description

12.2.4.3.1 Pre-test conditions

System Simulator

- See 12.1.1.3

UE:

- See 12.1.1.3

Preamble

- The number of AM data radio bearers (n) and UM data radio bearers (m) is specified in table 12.2.4.3.1-1.

Table 12.2.4.3.1-1: Test parameters (m,n) for execution (k)

Execution k	Number of AM DRBs n	Number of UM DRBs m	Radio bearer combination
1	8	0	13: SRB1 and SRB2 for DCCH + 8xAM DRB

12.2.4.3.2 Test procedure sequence

Table 12.2.4.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Generic test procedure in 12.1.1 is executed for execution 1 with number of AM DRB (n) and number of UM DRB (m) as specified in table 12.2.4.3.1-1.	-	-	-	-

12.2.4.3.3 Specific Message Contents

None

12.3 MIMO configured

12.3.1 Data transfer of E-UTRA radio bearer combinations 1,3,6 and 9 / MIMO

12.3.1.1 Test Purpose (TP)

See 12.1.2.1

12.3.1.2 Conformance requirements

See 12.1.2.2

12.3.1.3 Test description

12.3.1.3.1 Pre-test conditions

System Simulator

- See 12.1.2.3

UE:

- See 12.1.2.3

Preamble

- The number of AM data radio bearers (n) and UM data radio bearers (m) for each execution is specified in table 12.3.1.3.1-1.

Table 12.3.1.3.1-1: Test parameters (m,n) for each execution (k)

Execution k	Number of AM DRBs n	Number of UM DRBs m	Radio bearer combination
1	1	-	1: SRB1 and SRB2 for DCCH + 1xAM DRB
2	2	-	3: SRB1 and SRB2 for DCCH + 2xAM DRB
3	3	-	6: SRB1 and SRB2 for DCCH + 3xAM DRB
4	4	-	9: SRB1 and SRB2 for DCCH + 4xAM DRB

12.3.1.3.2 Test procedure sequence

Table 12.3.1.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
	EXCEPTION: Step 1 is repeated for execution counter k=1 to 4	-	-	-	-
1	Generic test procedure in 12.1.2 is executed for execution k with number of AM DRB (n) and number of UM DRB (m) as specified in table 12.3.1.3.1-1.	-	-	-	-

12.3.1.3.3 Specific Message Contents

None

12.3.2 Data transfer of E-UTRA radio bearer combinations 2,4,7 and 10 / MIMO

12.3.2.1 Test Purpose (TP)

See 12.1.2.1

12.3.2.2 Conformance requirements

See 12.1.2.2

12.3.2.3 Test description

12.3.2.3.1 Pre-test conditions

System Simulator

- See 12.1.2.3

UE:

- See 12.1.2.3

Preamble

- The number of AM data radio bearers (n) and UM data radio bearers (m) for each execution is specified in table 12.3.2.3.1-1.

Table 12.3.2.3.1-1: Test parameters (m,n) for each execution (k)

Execution k	Number of AM DRBs n	Number of UM DRBs M	Radio bearer combination
1	1	1	2: SRB1 and SRB2 for DCCH + 1xAM DRB + 1xUM DRB
2	2	1	4: SRB1 and SRB2 for DCCH + 2xAM DRB + 1xUM DRB
3	3	1	7: SRB1 and SRB2 for DCCH + 3xAM DRB + 1xUM DRB
4	4	1	10: SRB1 and SRB2 for DCCH + 4xAM DRB + 1xUM DRB

12.3.2.3.2 Test procedure sequence

Table 12.3.2.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
	EXCEPTION: Step 1 is repeated for execution counter k=1 to 4	-	-	-	-
1	Generic test procedure in 12.1.2 is executed for execution k with number of AM DRB (n) and number of UM DRB (m) as specified in table 12.3.2.3.1-1.	-	-	-	-

12.3.2.3.3 Specific Message Contents

None

12.3.3 Data transfer of E-UTRA radio bearer combinations 5,8,11 and 12 / MIMO

12.3.3.1 Test Purpose (TP)

See 12.1.2.1

12.3.3.2 Conformance requirements

See 12.1.2.2

12.3.3.3 Test description

12.3.3.3.1 Pre-test conditions

System Simulator

- See 12.1.2.3

UE:

- See 12.1.2.3

Preamble

- The number of AM data radio bearers (n) and UM data radio bearers (m) for each execution is specified in table 12.3.3.3.1-1.

Table 12.3.3.3.1-1: Test parameters (m,n) for each execution (k)

Execution K	Number of AM DRBs n	Number of UM DRBs m	Radio bearer combination
1	2	2	5: SRB1 and SRB2 for DCCH + 2xAM DRB + 2xUM DRB
2	3	2	8: SRB1 and SRB2 for DCCH + 3xAM DRB + 2xUM DRB
3	4	2	11: SRB1 and SRB2 for DCCH + 4xAM DRB + 2xUM DRB
4	5	3	12: SRB1 and SRB2 for DCCH + 5xAM DRB + 3xUM DRB

12.3.3.3.2 Test procedure sequence

Table 12.3.3.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
	EXCEPTION: Step 1 is repeated for execution counter k=1 to 4	-	-	-	-
1	Generic test procedure in 12.1.2 is executed for execution k with number of AM DRB (n) and number of UM DRB (m) as specified in table 12.3.3.3.1-1.	-	-	-	-

12.3.3.3.3 Specific Message Contents

None

12.3.4 Data transfer of E-UTRA radio bearer combination 13 / MIMO

12.3.4.1 Test Purpose (TP)

See 12.1.2.1

12.3.4.2 Conformance requirements

See 12.1.2.2

12.3.4.3 Test description

12.3.4.3.1 Pre-test conditions

System Simulator

- See 12.1.2.3

UE:

- See 12.1.2.3

Preamble

- The number of AM data radio bearers (n) and UM data radio bearers (m) is specified in table 12.3.4.3.1-1.

Table 12.3.4.3.1-1: Test parameters (m,n) for each execution (k)

Execution k	Number of AM DRBs n	Number of UM DRBs m	Radio bearer combination
1	8	0	13: SRB1 and SRB2 for DCCH + 8xAM DRB

12.3.4.3.2 Test procedure sequence

Table 12.3.4.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Generic test procedure in 12.1.2 is executed for execution 1 with number of AM DRB (n) and number of UM DRB (m) as specified in table 12.3.4.3.1-1.	-	-	-	-

12.3.4.3.3 Specific Message Contents

None

13 Multi layer Procedures

13.1 Call setup

13.1.1 Activation and deactivation of additional data radio bearer in E-UTRA

13.1.1.1 Test Purpose (TP)

(1)

```
with { UE has a default EPS bearer context and dedicated EPS bearer context active and the
associated DRBs are established }
ensure that {
  when { UE receives downlink data on the radio bearer associated with the default or the dedicated
EPS bearer context }
    then { UE delivers the downlink data to upper layers }
              }
```

(2)

```
with { UE has a default EPS bearer context and dedicated EPS bearer context active and the
associated DRBs are established }
ensure that {
  when { uplink data are submitted for transmission }
    then { UE transmits the uplink data on the radio bearer associated with the default EPS bearer
context or the dedicated EPS bearer context according to configured TFT}
              }
```

(3)

```
with { UE has a default EPS bearer context and the dedicated EPS bearer context was deactivated }
ensure that {
  when { UE receives downlink data on the radio bearer associated with the default EPS bearer
context }
    then { UE delivers the downlink data to upper layers }
              }
```

(4)

```
with { UE has a default EPS bearer context and the dedicated EPS bearer context was deactivated }
ensure that {
  when { uplink data are submitted for transmission }
    then { UE transmits the uplink data on the radio bearer associated with the default EPS bearer
context }
              }
```

13.1.1.2 Conformance requirements

Same Conformance requirements as in clause 8.2.1.3, 8.2.3.1, 10.2.1 and 10.4.1

13.1.1.3 Test description

13.1.1.3.1 Pre-test conditions

System Simulator:

- Cell 1.

UE:

None.

Preamble:

- The UE is in state Generic RB Established, UE test mode activated (state 3A) according to [18] using the UE TEST LOOP MODE B.

13.1.1.3.2 Test procedure sequence

Table 13.1.1.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	SS transmits an *RRCConnectionReconfiguration* message to establish a data radio bearer. The SS transmits a ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message activating a new EPS bearer context. The NAS message is included in a *RRCConnectionReconfiguration* message.	<--	*RRCConnectionReconfiguration* NAS: ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST	-	-
2	The UE transmit a *RRCConnectionReconfigurationComplete* message to confirm the establishment of data radio bearer.	-->	*RRCConnectionReconfigurationComplete*	-	-
3	The UE transmits an ACTIVATE DEDICATE EPS BEARER CONTEXT ACCEPT message.	-->	*ULInformationTransfer* NAS: ACTIVATE DEDICATE EPS BEARER CONTEXT ACCEPT	-	-
4	The SS closes the UE test loop mode.	-	-	-	-
5	The SS transmits one IP packet to the UE on the DRB associated with the default EPS bearer context.	<--	IP packet	-	-
6	Check: Does the UE loop back the IP packet on the DRB associated with the default EPS bearer context?	-->	IP packet	1,2	P
7	The SS transmits one IP packet to the UE on the DRB associated with the dedicated EPS bearer context.	<--	IP packet	-	-
8	Check: Does the UE loop back the IP packet on the DRB associated with the dedicated EPS bearer context?	-->	IP packet	1,2	P
9	SS transmits an *RRCConnectionReconfiguration* message to release a data radio bearer. The SS transmits a DEACTIVATE EPS BEARER CONTEXT REQUEST including the EPS bearer identity of the dedicated EPS bearer. The NAS message is included in a *RRCConnectionReconfiguration* message.	<--	*RRCConnectionReconfiguration* NAS: DEACTIVATE EPS BEARER CONTEXT REQUEST	-	-
10	The UE transmits an *RRCConnectionReconfigurationComplete* message.	-->	*RRCConnectionReconfigurationComplete*	-	-
11	The UE transmit a DEACTIVATE EPS BEARER CONTEXT ACCEPT.	-->	*ULInformationTransfer* NAS:DEACTIVATE EPS BEARER CONTEXT ACCEPT	-	-
12	The SS transmits one IP packet to the UE on the DRB associated with the default EPS bearer context.	<--	IP packet	-	-
13	Check: Does the UE loop back the IP packet on the DRB associated with the default EPS bearer context?	-->	IP packet	3, 4	P

13.1.1.3.3 Specific message contents

Table 13.1.1.3.3-1: Message *RRCConnectionReconfiguration* (step 1, Table 13.1.1.3.2-1)

Derivation Path: 36.508 table 4.6.1-8, condition DRB(1,0)			
Information Element	**Value/remark**	**Comment**	**Condition**
RRCConnectionReconfiguration ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
rrcConnectionReconfiguration-r8 SEQUENCE {			
dedicatedInfoNASList SEQUENCE (SIZE(1..maxDRB)) OF	1 entry		
dedicatedInfoNAS [1]	octet string	ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST according 36.508 table 4.7.3-3	
}			
}			
}			
}			

Table 13.1.1.3.3-2: Message ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST (step 1, Table 13.1.1.3.2-1)

Derivation path: 36.508 table 4.7.3-3			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	EBId-1	SS defines a dedicated bearer Id different from default EBId and between 5 and 15.	
Procedure transaction identity	0	"No procedure transaction identity assigned"	
Linked EPS bearer identity	Default EBId	SS re-uses the EPS bearer identity of the default EPS bearer context.	
EPS QoS	According to reference dedicated EPS bearer context #1 - see [18]		
TFT	According to reference dedicated EPS bearer context #1- see [18]		

Table 13.1.1.3.3-3: Message ACTIVATE DEDICATE EPS BEARER CONTEXT ACCEPT (step 3, Table 13.1.1.3.2-1)

Derivation path: 36.508 table 4.7.3-1			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	EBId-1	Same value as in ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST	
Procedure transaction identity	0	"No procedure transaction identity assigned"	

Table 13.1.1.3.3-4: Message *RRCConnectionReconfiguration* (step 9, Table 13.1.1.3.2-1)

Derivation Path: 36.508 table 4.6.1-8			
Information Element	**Value/remark**	**Comment**	**Condition**
RRCConnectionReconfiguration ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
rrcConnectionReconfiguration-r8 SEQUENCE {			
dedicatedInfoNASList SEQUENCE (SIZE(1..maxDRB)) OF SEQUENCE {			
DedicatedInfoNAS[1]	DEACTIVATE EPS BEARER CONTEXT REQUEST		
}			
radioResourceConfigDedicated	RadioResourceConfigDedicated-DRB-RELEASE		
}			
}			
}			
}			

Table 13.1.1.3.3-5: Message RadioResourceConfigDedicated-DRB-RELEASE (step 9, Table 13.1.1.3.2-1)

Derivation Path: 36.331 clause 6.3.2			
Information Element	**Value/remark**	**Comment**	**Condition**
RadioResourceConfigDedicated ::= SEQUENCE {			
srb-ToAddModList	Not present		
drb-ToAddModList	Not present		
drb-ToReleaseList SEQUENCE (SIZE (1..maxDRB)) OF SEQUENCE {	1 entry		
drb-Identity[1]	2		
}			
mac-MainConfig CHOICE { }	Not present		
sps-Config	Not present		
physicalConfigDedicated	Not present		
}			

Table 13.1.1.3.3-6: Message DEACTIVATE EPS BEARER CONTEXT REQUEST (step 9, Table 13.1.1.3.2-1)

Derivation path: 36.508 table 4.7.3-12			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	EBId-1	Same value as in ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST of step 1	
Procedure transaction identity	0	No procedure transaction identity assigned	
ESM cause	00100100	"*Regular deactivation*"	
Protocol configuration options	Not present		

Table 13.1.1.3.3-7: Message DEACTIVATE EPS BEARER CONTEXT REQUEST (step 11, Table 13.1.1.3.2-1)

Derivation path: 36.508 table 4.7.3-11			
Information Element	**Value/Remark**	**Comment**	**Condition**
EPS bearer identity	EBId-1	Same value as in ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST of step 1	
Procedure transaction identity	0	No procedure transaction identity assigned	

13.1.2 Call setup from E-UTRAN RRC_IDLE / CS fallback to UTRAN with redirection / MO call

13.1.2.1 Test Purpose (TP)

(1)

```
with { the UE is in E-UTRA RRC_IDLE state }
ensure that {
  when { the user initiates a CS voice call }
    then { the UE transmits an EXTENDED SERVICE REQUEST message with Service Type IE set to "mobile
originating CS fallback or 1xCS fallback" }
            }
```

(2)

```
with { the UE transmitted an EXTENDED SERVICE REQUEST message with Service Type IE set to "mobile
originating CS fallback or 1xCS fallback" }
ensure that {
  when { the UE receives an RRCConnectionRelease message with redirection to a UMTS cell which
belongs to the LA allocated to the UE during the previous registration procedure in E-UTRAN }
    then { UE establishes a connection to the designated UMTS cell, performs a RA update procedure
and establishes a CS call }
            }
```

13.1.2.2 Conformance requirements

The conformance requirements covered in the present TC are specified in: TS 24.301 clauses 5.6.1.1 and TS 24.008, clause 4.5.1.1.

[TS 24.301, clause 5.6.1.1]

...

The UE shall invoke the service request procedure when:

...

d) the UE in EMM-IDLE or EMM-CONNECTED mode is configured to use CS fallback and has a mobile originating CS fallback request from the upper layer;

[TS 24.008, clause 4.5.1.1]

...

In order to establish an MM connection, the mobile station proceeds as follows:

...

d) When the MS is IMSI attached for CS services via EMM combined procedures, as described in 3GPP TS 24.301 [120], and the MS is camping on an E-UTRAN cell, the MM sublayer requests EMM to initiate a service request procedure for CS fallback. The MM connection establishment is delayed until the MS changes to a GERAN or UTRAN cell.

If the MS enters a GERAN or UTRAN cell, then the MS shall initiate the MM connection establishment and send a CM SERVICE REQUEST message. If the MS determines that it is in a different location area than the stored location area, the MS shall first initiate a normal location updating procedure or a combined routing area update procedure, depending on Network Mode of Operation. If the location area of the current cell is not available, the MS may initiate a normal location updating procedure directly. The MM connection establishment is delayed until successful completion of the normal location updating or combined routing area update procedure. The MS may perform location area updating procedure instead of combined routing area update procedure in NMO I. If the normal location updating procedure is initiated, the MS shall indicate the "follow-on request pending" in the LOCATION UPDATING REQUEST message.

13.1.2.3 Test description

13.1.2.3.1 Pre-test conditions

System Simulator:

- cell 1 (E-UTRA) and cell 5 (UTRA);
- power levels are constant and as defined in table 13.1.2.3.1-1;
- cell 5 is in NMO 1.
- System information combination 4 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cells.

Table 13.1.2.3.1-1: Cell power levels

	Parameter name	Unit	Cell 1	Cell 5
T0	RS EPRE	dBm/15kHz	-75	
	CPICH_Ec	dBm/3.84 MHz		-70
	P-CCPCH	dBm/1.28 MHz		-72
T1	RS EPRE	dBm/15kHz	Non-suitable “Off”	
	CPICH_Ec	dBm/3.84 MHz		-70
	P-CCPCH	dBm/1.28 MHz		-72

UE:

None.Preamble:

- the UE is in state Registered, Idle Mode (state 2) according to TS 36.508 [18].

13.1.2.3.2 Test procedure sequence

Table 13.1.2.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	A CS call is initiated (see Note 1)				
2	The UE transmits an *RRCConnectionRequest* message.	-->	*RRCConnectionRequest*	-	-
3	The SS transmits an *RRCConnectionSetup* message	<--	*RRCConnectionSetup*	-	-
4	Check: Does the UE transmit an EXTENDED SERVICE REQUEST message?	-->	EXTENDED SERVICE REQUEST	1	P
5	Void			-	-
6	Void			-	-
7	Void			-	-
8	The SS transmits an *RRCConnectionRelease* message indicating redirection to cell 5	<--	*RRCConnectionRelease*	-	-
9	The UE transmits an RRC CONNECTION REQUEST with an establishment cause indicating ' Originating Conversational Call '.	-->	RRC CONNECTION REQUEST	-	-
9A	SS adjusts cell levels according to row T1 of table 13.1.2.3.1-1.				
10-27	Check: Does steps 2 to 19 of the generic test procedure in TS 36.508 subclause 6.4.3.7.2 are performed?	-	-	2	-
-	The UE is in end state UTRA CS call (U5).	-	-	-	-
Note 1: The request is assumed to be triggered by AT command D. Note 2: Void					

Table 13.1.2.3.2-2: Void

13.1.2.3.3 Specific message contents

Table 13.1.2.3.3-1: SystemInformationBlockType6 for cell 1 (preamble and all steps, table 13.1.2.3.2-1)

Derivation path: 36.508 table 4.4.3.3-5			
Information Element	**Value/Remark**	**Comment**	**Condition**
SystemInformationBlockType6 ::= SEQUENCE {			
carrierFreqListUTRA-FDD SEQUENCE (SIZE (1..maxUTRA-FDD-Carrier)) OF SEQUENCE {			FDD
carrierFreq[n]	Same as cell 5		
cellReselectionPriority[n]	3	Lower than cell 1 priority (priority = 4)	
}			
carrierFreqListUTRA-TDD SEQUENCE (SIZE (1..maxUTRA-TDD-Carrier)) OF SEQUENCE {	1 entry		TDD
carrierFreq[n]	Same as cell 5		
cellReselectionPriority[n]	3	Lower than cell 1 priority (priority = 4)	
}			
}			

Table 13.1.2.3.3-2: EXTENDED SERVICE REQUEST (step 4, table 13.1.2.3.2-1)

Derivation path: 36.508 table 4.7.2-14A			
Information Element	**Value/Remark**	**Comment**	**Condition**
Service type	0000 'mobile originating CS fallback or 1xCS fallback'		
CSFB response	Not present		
EPS bearer context status	Not present or any allowed value		

Table 13.1.2.3.3-3: RRCConnectionRelease (step 8, table 13.1.2.3.2-1)

Derivation path: 36.508 table 4.6.1-15			
Information Element	**Value/Remark**	**Comment**	**Condition**
RRCConnectionRelease ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
rrcConnectionRelease-r8 SEQUENCE {			
redirectedCarrierInfo ::= CHOICE {			
utra-FDD	Downlink UARFCN of cell 5		FDD
utra-TDD	Downlink UARFCN of cell 5		TDD
}			
}			
}			

Table 13.1.2.3.3-4: CM SERVICE REQUEST (step 12, table 13.1.2.3.2-1)

Derivation path: 24.008 table 9.2.11			
Information Element	**Value/Remark**	**Comment**	**Condition**
CM service type	0001 'Mobile originating call establishment or packet mode connection establishment'		
Ciphering key sequence number	Any allowed value		
Mobile station classmark	Any allowed value		
Mobile identity			
TMSI	TMSI-1		
Priority	Not present or any allowed value		

Table 13.1.2.3.3-5: Void

Table 13.1.2.3.3-6: ATTACH ACCEPT (Preamble)

Derivation Path: 36.508 Table 4.7.2-1			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS network feature support	Not present		

13.1.2a Call setup from E-UTRAN RRC_IDLE / CS fallback to UTRAN with redirection including System Information / MO call

13.1.2a.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_CONNECTED state }
ensure that {
```

```
  when { UE receives an RRCConnectionRelease message with redirection to UTRAN including System
Information }
    then { UE uses the received System Information and UE sends an RRC CONNECTION REQUEST message in
the cell which belongs to the frequency indicated in RRCConnectionRelease message }
           }
```

13.1.2a.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.301 clauses 5.6.1.1, TS 24.008, clause 4.5.1.1 and TS 25.331, clause 8.1.1.8.

[TS 24.301, clause 5.6.1.1]

The UE shall invoke the service request procedure when:

...

d) the UE in EMM-IDLE or EMM-CONNECTED mode is configured to use CS fallback and has a mobile originating CS fallback request from the upper layer;

[TS 24.008, clause 4.5.1.1]

In order to establish an MM connection, the mobile station proceeds as follows:

...

d) When the MS is IMSI attached for CS services via EMM combined procedures, as described in 3GPP TS 24.301 [120], and the MS is camping on an E-UTRAN cell, the MM sublayer requests EMM to initiate a service request procedure for CS fallback. The MM connection establishment is delayed until the MS changes to a GERAN or UTRAN cell.

   If the MS enters a GERAN or UTRAN cell, then the MS shall initiate the MM connection establishment and send a CM SERVICE REQUEST message. If the MS determines that it is in a different location area than the stored location area, the MS shall first initiate a normal location updating procedure or a combined routing area update procedure, depending on Network Mode of Operation. If the location area of the current cell is not available, the MS may initiate a normal location updating procedure directly. The MM connection establishment is delayed until successful completion of the normal location updating or combined routing area update procedure. The MS may perform location area updating procedure instead of combined routing area update procedure in NMO I. If the normal location updating procedure is initiated, the MS shall indicate the "follow-on request pending" in the LOCATION UPDATING REQUEST message.

[TS 25.331, clause 8.1.1.8]

If the UE was redirected from a different RAT:

1> if the UE receives the System Information Container message corresponding to a cell, on which UE is camped after a cell selection procedure triggered by the redirection procedure:

   2> the UE may store the System Information Container message into variable SYSTEM INFORMATION CONTAINER and use the stored master information block, scheduling blocks and system information blocks in the variable SYSTEM_INFORMATION_CONTAINER until the variable is cleared, and act as if this system information was scheduled on BCCH of this cell.

13.1.2a.3 Test description

13.1.2a.3.1 Pre-test conditions

System Simulator:

- Cell 1 (E-UTRA) and Cell 5 (UTRA);
- power levels are constant and as defined in Table 13.1.2a.3.1-1;
- Cell 5 is in NMO I.
- System information combination 4 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cell.

Table 13.1.2a.3.1-1: Cell power levels

	Parameter name	Unit	Cell 1	Cell 5
T0	RS EPRE	dBm/15kHz	-75	
	CPICH_Ec	dBm/3.84 MHz		-70
	P-CCPCH	dBm/1.28 MHz		-72
T1	RS EPRE	dBm/15kHz	Non-suitable "Off"	
	CPICH_Ec	dBm/3.84 MHz		-70
	P-CCPCH	dBm/1.28 MHz		-72

UE:

None.Preamble:

- the UE is in state Registered, Idle Mode (state 2) on Cell 1 according to TS 36.508 [18].

13.1.2a.3.2 Test procedure sequence

Table 13.1.2a.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	A CS call is initiated (see Note 1)	-	-	-	-
2	The UE transmits an *RRCConnectionRequest* message on Cell 1.	-->	*RRCConnectionRequest*	-	-
3	The SS transmits an *RRCConnectionSetup* message on Cell 1.	<--	*RRCConnectionSetup*	-	-
4	The UE transmits an EXTENDED SERVICE REQUEST message on Cell 1.	-->	EXTENDED SERVICE REQUEST	-	-
5	The SS transmits an *RRCConnectionRelease* message indicating redirection to cell 5 on Cell 1.	<--	*RRCConnectionRelease*	-	-
6	Check: Does the UE transmit an RRC CONNECTION REQUEST message with an establishment cause indicating ' Originating Conversational Call ' on Cell 5?	-->	RRC CONNECTION REQUEST	1	P
6A	SS adjusts cell levels according to row T1 of table 13.1.2a.3.1-1.				
7	The SS transmits an RRC CONNECTION SETUP message on Cell 5.	<--	RRC CONNECTION SETUP	-	-
8	The UE transmits an RRC CONNECTION SETUP COMPLETE message on Cell 5.	-->	RRC CONNECTION SETUP COMPLETE	-	-
-	EXCEPTION: In parallel to step 9, the parallel behaviour in Table 13.1.2a.3.2-2 is taking place.	-	-	-	-
9	The UE transmits a CM SERVICE REQUEST message on Cell 5.	-->	CM SERVICE REQUEST	-	-
10	The SS transmits a SECURITY MODE COMMAND message for the PS domain on Cell 5. (see Note 2)	<--	SECURITY MODE COMMAND	-	-
11	The UE transmits a SECURITY MODE COMPLETE message on Cell 5.	-->	SECURITY MODE COMPLETE	-	-
12	The SS transmits a ROUTING AREA UPDATE ACCEPT message not including P-TMSI on Cell 5.	<--	ROUTING AREA UPDATE ACCEPT	-	-
13-21	Steps 8 to 16 of the generic test procedure in TS 34.108 subclause 7.2.3.2 are performed on Cell 5 (the SS performs a SMC procedure and the CS call is set up).	-	-	-	-
-	The UE is in end state UTRA CS call (U5).	-	-	-	-

Note 1: The trigger in step 1 is the same as in the generic procedure in 36.508 clause 6.4.3.5.
Note 2: A real network will initiate the security mode command procedure for the CS domain immediately after receiving the CM SERVICE REQUEST, but in this test case it was chosen to complete the procedure for PS domain first in order to avoid the possibility of a security mode command procedure running in parallel with another RRC procedure.

Table 13.1.2a.3.2-2: Parallel behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The UE transmits a ROUTING AREA UPDATE REQUEST message.	-->	ROUTING AREA UPDATE REQUEST	-	-

13.1.2a.3.3 Specific message contents

Table 13.1.2a.3.3-1: *SystemInformationBlockType6* for cell 1 (preamble and all steps, Table 13.1.2a.3.2-1)

Derivation path: 36.508 Table 4.4.3.3-5			
Information Element	**Value/Remark**	**Comment**	**Condition**
SystemInformationBlockType6 ::= SEQUENCE {			
carrierFreqListUTRA-FDD SEQUENCE (SIZE (1..maxUTRA-FDD-Carrier)) OF SEQUENCE {			FDD
carrierFreq[n]	Same as cell 5		
cellReselectionPriority[n]	3	Lower than cell 1 priority (priority = 4)	
}			
carrierFreqListUTRA-TDD SEQUENCE (SIZE (1..maxUTRA-TDD-Carrier)) OF SEQUENCE {	1 entry		TDD
carrierFreq[n]	Same as cell 5		
cellReselectionPriority[n]	3	Lower than cell 1 priority (priority = 4)	
}			
}			

Condition	Explanation
FDD	FDD cell environment
TDD	TDD cell environment

Table 13.1.2a.3.3-2: EXTENDED SERVICE REQUEST (step 4, Table 13.1.2a.3.2-1)

Derivation path: 36.508 Table 4.7.2-14A			
Information Element	**Value/Remark**	**Comment**	**Condition**
Service type	'0000'B	'mobile originating CS fallback or 1xCS fallback'	
CSFB response	Not present		
EPS bearer context status	Not present or any allowed value		

Table 13.1.2a.3.3-3: *RRCConnectionRelease* (step 5, Table 13.1.2a.3.2-1)

Derivation path: 36.508 Table 4.6.1-15			
Information Element	**Value/Remark**	**Comment**	**Condition**
RRCConnectionRelease ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
rrcConnectionRelease-r8 SEQUENCE {			
redirectedCarrierInfo CHOICE {			
utra-FDD	Downlink UARFCN of cell 5		FDD
utra-TDD	Downlink UARFCN of cell 5		TDD
}			
nonCriticalExtension SEQUENCE {			
cellInfoList-r9 CHOICE {			
utra-FDD-r9 SEQUENCE {	1 entry		FDD
physCellId-r9[1]	PhysicalCellIdentity of Cell 5		
utra-BCCH-Container-r9[1]	SYSTEM INFORMATION CONTAINER		
}			
utra-TDD-r9 SEQUENCE {	1 entry		TDD
physCellId-r9[1]	PhysicalCellIdentity of Cell 5		
utra-BCCH-Container-r9[1]	SYSTEM INFORMATION CONTAINER		
}			
}			
}			
}			
}			
}			
}			

Condition	Explanation
FDD	FDD cell environment
TDD	TDD cell environment

Table 13.1.2a.3.3-4: SYSTEM INFORMATION CONTAINER (Table 13.1.2a.3.3-3)

Derivation path: 25.331 clause 11.2			
Information Element	**Value/Remark**	**Comment**	**Condition**
mib	See Table 13.1.2a.3.3-5		
sysInfoTypeSB1	See 34.108 6.1.0a		
sysInfoTypeSB2	Not present		
sysInfoType1	See 34.108 6.1.0b		
sysInfoType3	See 34.108 6.1.0b		
sysInfoType5	See 34.108 6.1.0b		
sysInfoType7	See 34.108 6.1.0b		
sysInfoType11	See 34.108 6.1.0b		
sysInfoType11bis	Not present		
sysInfoType12	See 34.108 6.1.0b		

Table 13.1.2a.3.3-5: Master Information Block (Table 13.1.2a.3.3-4)

Derivation Path: 34.108 clause 6.1.0a.3			
Information Element	**Value/remark**	**Comment**	**Condition**
- MIB value tag	1		

Table 13.1.2a.3.3-6: System Information Block type 3 for Cell 5 (preamble and all steps, Table 13.1.2a.3.2-1)

Derivation path: 34.108 clause 6.1.0b			
Information Element	**Value/Remark**	**Comment**	**Condition**
Access Class Barred List			
- Access Class Barred0	barred		
- Access Class Barred1	barred		
- Access Class Barred2	barred		
- Access Class Barred3	barred		
- Access Class Barred4	barred		
- Access Class Barred5	barred		
- Access Class Barred6	barred		
- Access Class Barred7	barred		
- Access Class Barred8	barred		
- Access Class Barred9	barred		
- Access Class Barred10	barred		
- Access Class Barred11	barred		
- Access Class Barred12	barred		
- Access Class Barred13	barred		
- Access Class Barred14	barred		
- Access Class Barred15	barred		

NOTE: To confirm that the UE uses System Information included in *RRCConnectionRelease* message, the parameters of System Information included in *RRCConnectionRelease* message is intentionally different from the target cell.

Table 13.1.2a.3.3-7: Master Information Block for Cell 5 (preamble and all steps, Table 13.1.2a.3.2-1)

Derivation Path: 34.108 clause 6.1.0a.3			
Information Element	**Value/remark**	**Comment**	**Condition**
- MIB value tag	2		

Table 13.1.2a.3.3-8: CM SERVICE REQUEST (step 9, Table 13.1.2a.3.2-1)

Derivation path: 24.008 Table 9.2.11			
Information Element	**Value/Remark**	**Comment**	**Condition**
CM service type	'0001'B	'Mobile originating call establishment or packet mode connection establishment'	
Ciphering key sequence number	Any allowed value		
Mobile station classmark	Any allowed value		
Mobile identity			
TMSI	TMSI-1		
Priority	Not present or any allowed value		

Table 13.1.2a.3.3-9: ROUTING AREA UPDATE ACCEPT (step 12, Table 13.1.2a.3.2-1)

Derivation path: 24.008 Table 9.4.15			
Information Element	**Value/Remark**	**Comment**	**Condition**
P-TMSI signature	Not present		
Allocated P-TMSI	Not present		

Table 13.1.2a.3.3-10: ATTACH ACCEPT (Preamble)

Derivation Path: 36.508 Table 4.7.2-1			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS network feature support	Not present		

13.1.3 Call setup from E-UTRAN RRC_CONNECTED / CS fallback to UTRAN with Redirection / MT call

13.1.3.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_CONNECTED state }
ensure that {
  when { UE receives a DLInformationTransfer message containing a CS SERVICE NOTIFICATION message }
    then { UE transmits an ULInformationTransfer message containing an EXTENDED SERVICE REQUEST
message with Service Type IE set to "mobile terminating CS fallback or 1xCS fallback" }
            }
```

(2)

```
with { UE having transmitted an ULInformationTranfer message containing an EXTENDED SERVICE REQUEST
message with Service Type IE set to "mobile terminating CS fallback or 1xCS fallback" }
ensure that {
  when { SS transmits an RRCConnectionRelease message with redirection to a UTRA cell in same
location area and operating in NMO I }
    then { UE tunes to UTRA cell and initiates a CS domain PAGING RESPONSE procedure and a parallel
PS domain RA Update procedure }
            }
```

(3)

```
void
```

(4)

```
with { UE having transmitted an ULInformationTranfer message containing an EXTENDED SERVICE REQUEST
message with Service Type IE set to "mobile terminating CS fallback or 1xCS fallback" and tuned to
UTRA cell and initiated a RA Update procedure and having pending UL data to send}
ensure that {
  when { UE completes the RA Update procedure }
    then { UE transmits a SERVICE REQUEST to set up PS bearers on UTRA cell }
            }
```

(5)

```
with { UE having transmitted an ULInformationTranfer message containing an EXTENDED SERVICE REQUEST
message with Service Type IE set to "mobile terminating CS fallback or 1xCS fallback" and tuned to
UTRA cell and initiated a RA Update procedure and having pending UL data to send}
ensure that {
  when { PS bearers have been set up on UTRA cell }
    then { UE transmits pending UL data }
            }
```

13.1.3.2 Conformance requirements

References: The conformance requirements covered in the current TC are those listed in TC 8.1.3.6, plus those specified in: TS 23.272, clause 7.4, and TS 24.301, clause 5.6.2.3.

[TS 23.272, clause 7.4]

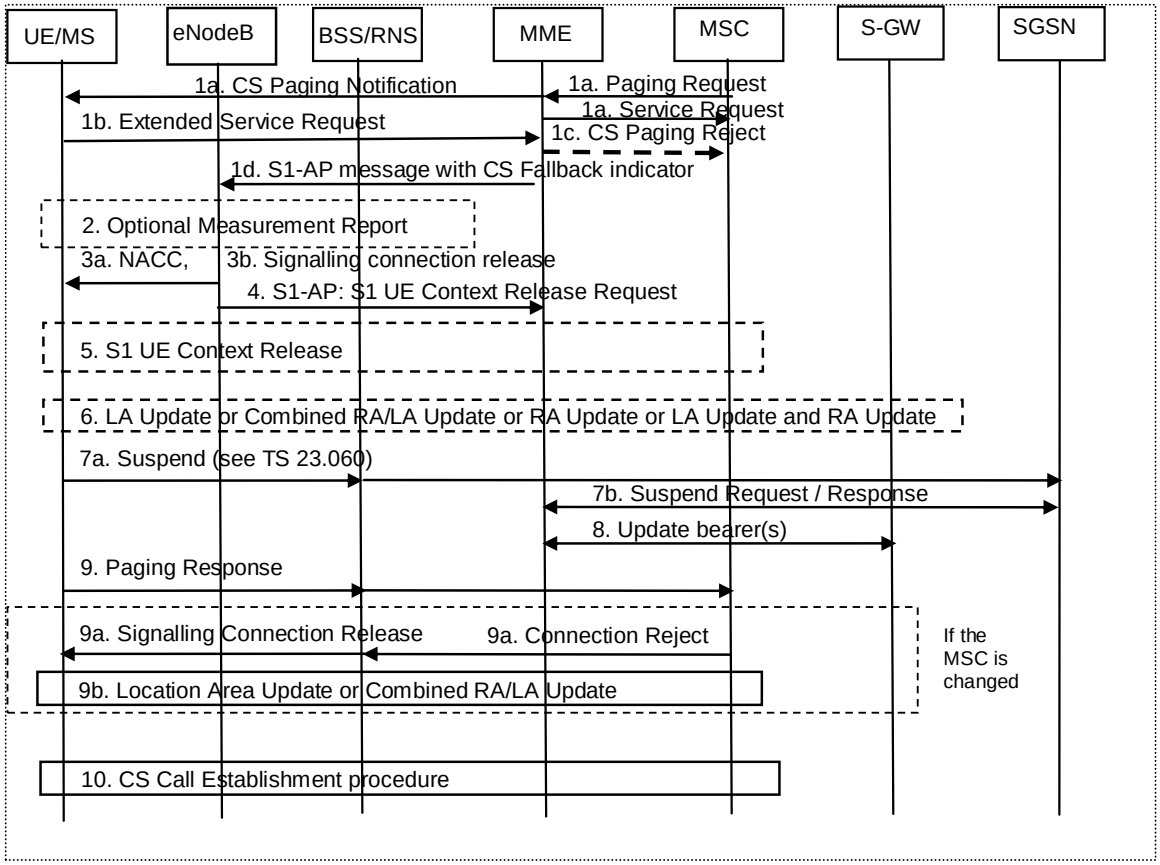

Figure 7.4-1: CS Page in E-UTRAN, Call in GERAN/UTRAN without PS HO

1a. The MSC receives an incoming voice call and responds by sending a Paging Request (IMSI or TMSI, optional Caller Line Identification and Connection Management information, priority indication) to the MME over a SGs interface. The MSC only sends a CS Page for an UE that provides location update information using the SGs interface. In active mode the MME has an established S1 connection and if the MME did not return the "SMS-only" indication to the UE during Attach or Combined TA/LA Update procedures, the MME reuses the existing connection to relay the CS Service Notification to the UE.

If the MME returned the "SMS-only" indication to the UE during Attach or Combined TA/LA Update procedures, the MME shall not send the CS Page to the UE and sends CS Paging Reject towards MSC to stop CS Paging procedure, and this CSFB procedure stops.

The eNB forwards the paging message to the UE. The message contains CN Domain indicator and, if received from the MSC, the Caller Line Identification.

The MME immediately sends the SGs Service Request message to the MSC containing an indication that the UE was in connected mode. The MSC uses this connected mode indication to start the Call Forwarding on No Reply timer for that UE and the MSC should send an indication of user alerting to the calling party. Receipt of the SGs Service Request message stops the MSC retransmitting the SGs interface Paging message.

NOTE 1: The pre-configured policy may be used by UE to avoid being disturbed without Caller Line Identification display and the detailed handling is to be decided by CT WG1 and CT WG6.

NOTE 2: This procedure can also take place immediately after MSC receives MAP_PRN from HSS, if pre-paging is deployed. Caller Line Identification is also provided in the case of pre-paging.

If the MME receives paging request message with priority indication, e.g. eMLPP priority, from the MSC, then the MME processes this message and also the subsequent CS fallback procedure preferentially compared to other normal procedures.

1b. UE sends an Extended Service Request (CS Fallback Indicator, Reject or Accept) message to the MME. Extended Service Request message is encapsulated in RRC and S1-AP messages. CS Fallback Indicator indicates MME to perform CS Fallback. The UE may decide to reject CSFB based on Caller Line Identification.

1c. Upon receiving the Extended Service Request (CSFB, Reject), the MME sends Paging Reject towards MSC to stop CS Paging procedure and this CSFB procedure stops.

1d. The MME sends an S1-AP UE Context Modification Request message to eNodeB that includes a CS Fallback Indicator. This message indicates to the eNB that the UE should be moved to UTRAN/GERAN.

If MME received priority indication in Step 1a, the MME sends S1-AP UE Context Modification Request message to the eNodeB with priority indication, i.e. "CSFB High Priority", as specified in TS 36.413 [35].

1e. The eNB shall reply with S1-AP UE Context Modification Response message.

2. The eNodeB may optionally solicit a measurement report from the UE to determine the target GERAN cell to which the redirection procedure will be performed.

The network performs one of steps 3a or 3b or 3c.

3a. If the UE and network support inter-RAT cell change order to GERAN and the target cell is GERAN:

The eNodeB can trigger an inter-RAT cell change order (optionally with NACC) to a GERAN neighbour cell by sending an RRC message to the UE. The inter-RAT cell change order may contain a CS Fallback Indicator which indicates to UE that the cell change order is triggered due to a CS fallback request. If the inter-RAT cell change order contains a CS Fallback Indicator and the UE fails to establish connection to the target RAT, then the UE considers that CS fallback has failed. Service Request procedure is considered to be successfully completed when cell change order procedure is completed successfully.

3b. If the UE or the network does not support inter-RAT PS handover from E-UTRAN to GERAN/UTRAN nor inter-RAT cell change order to GERAN:

The eNodeB can trigger RRC connection release with redirection to GERAN or UTRAN instead of PS HO or NACC.

3c. If the UE and network support "RRC connection release with redirection and Multi Cell System Information to GERAN/UTRAN":

The eNodeB can trigger RRC connection release with redirection to GERAN or UTRAN and include one or more physical cell identities and their associated System Information.

NOTE 3: Service Request procedure supervision timer shall be sufficiently long considering the optional measurement reporting at step 2.NOTE 4: Service Request procedure supervision timer shall be sufficiently long considering the optional measurement reporting at step 2.

4. The eNodeB sends an S1 UE Context Release Request message to the MME. If the target cell is GERAN and either the target cell or the UE does not support DTM the message includes an indication that the UE is not available for PS service.

5. The MME releases the UE Context in the eNodeB as well as all eNodeB related information in the S-GW as specified in TS 23.401 [2].

In case the Cause indicates that RRC was released due to abnormal conditions, e.g. radio link failure, the MME suspends the EPS bearers (Step 8).

The UE performs one of steps 6a or 6b or 6c and THEN performs step 6d.

6a. (Step 6a is performed if step 3a, Cell Change Order to GERAN, was performed)

The UE moves to the new cell in GERAN. The UE uses the NACC information and/or receives the broadcast System Information and when it has the necessary information to access the GERAN cell, establishes a radio signalling connection.

6b. (Step 6b is performed if step 3b, RRC release with redirection, was performed)

The UE moves to the target RAT, identifies a suitable cell preferably of the same PLMN as received in LAI IE of combined EPS/IMSI Attach/TAU Accept message,, receives the broadcast System Information and when it has the necessary information to access GERAN/UTRAN, establishes a radio signalling connection.

6c. (Step 6c is performed if step 3c, RRC connection release with redirection and Multi Cell System Information, was performed)

The UE moves to the target RAT and identifies a suitable cell preferably of the same PLMN as received in LAI IE of combined EPS/IMSI Attach/TAU Accept message. The UE uses the NACC information and/or receives the broadcast System Information and when it has the necessary information to access GERAN/UTRAN, the UE establishes the radio signalling connection.

6d. If the LA of the new cell is different from the one stored in the UE, the UE shall initiate a Location Area Update or a Combined RA/LA Update as specified in TS 23.060 [3] for the different Network Modes of Operation (NMO). The UE shall set the "CSMT" flag in the LAU Request. The "CSMT" flag is used to avoid missing MT call in roaming retry case. In NMO I, the UE in GERAN may perform LA update over the RR connection instead of combined RA/LA update over the packet access as defined in TS 24.008 [21], clause 4.7.5.2.5, unless enhanced CS establishment in DTM is supported. Further the UE performs any Routing Area Update procedure as specified in TS 23.060 [3].

In NMO I a CSFB UE should perform LAU (and if it does so, shall set the "CSMT" flag) and RAU procedures instead of a Combined RA/LA Update procedure to speed up the CSFB procedure.

When the MSC receives a LA Update Request, it shall check for pending terminating CS calls and, if the "CSMT" flag is set, maintain the CS signalling connection after the Location Area Update procedure for pending terminating CS calls.

7. If the target RAT is GERAN and DTM is not supported, the UE starts the Suspend procedure specified in TS 23.060 [3], clause 16.2.1.1.2. This triggers the SGSN to send a Suspend Request message to the MME. The MME returns a Suspend Response to the SGSN even though GUTI cannot be derived from the P-TMSI and RAI pair.

8. If the S1-AP UE Context Release Request message, received from the eNodeB in step 4, indicates that the UE is not available for the PS services in the target cell, the MME deactivates GBR bearers towards S-GW and P-GW(s) by initiating MME-initiated Dedicated Bearer Deactivation procedure as specified in TS 23.401 [2], and starts the preservation and suspension of non-GBR bearers by sending Suspend Notification message to the S-GW. The S-GW releases all eNodeB related information (address and TEIDs) for the UE, and sends Suspend Notification message to the P-GW(s). The MME stores in the UE context that the UE is in suspended status. All the preserved non-GBR bearers are marked as suspended status in the S-GW and P-GW(s). The P-GW should discard packets if received for the suspended UE.

NOTE 4: Step 8 can not be triggered by the Suspend procedure since the full GUTI can not be derived from the P-TMSI and RAI included in the Suspend Request message.

9. If the UE does not initiate a LAU procedure, the UE responds to the paging by sending a Paging Response message as specified in TS 44.018 [4] or TS 25.331 [7]. When received at the BSS/RNS, the Paging Response is forwarded to the MSC.

NOTE 6: The MSC should be prepared to receive a Paging Response after a relatively long time from when the CS Paging Request was sent (step 1a).

9a. If UE is registered in the MSC serving the 2G/3G cell and the UE is allowed in the LA the MSC shall establish the CS call.

9b. If the UE is not registered in the MSC that receives the Paging Response or the UE is not allowed in the LA, the MSC shall reject the Paging Response by releasing the A/Iu-cs connection. The BSS/RNS in turn releases the signalling connection for CS domain.

9c. The signalling connection release shall trigger the UE to obtain the LAI, which causes the initiation of a Location Area Update or a Combined RA/LA procedure as specified in TS 23.060 [3] for the different Network Modes of Operation (NMO).

The Location Area Update triggers the Roaming Retry for CS Fallback procedure as defined in clause 7.5.

After performing the LAU procedure the MSC shall establish the CS call if the UE is allowed in the LA.

[TS 24.301, clause 5.6.2.3]

The network may initiate the paging procedure for non-EPS services when the UE is IMSI attached for non-EPS services (see example in figure 5.6.2.3.1).

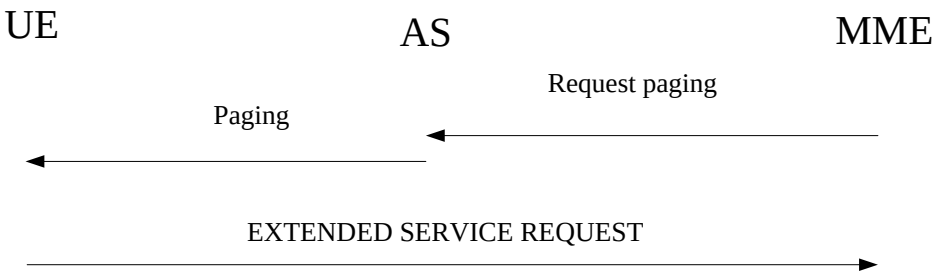

Figure 5.6.2.3.1: Paging procedure for CS fallback to A/Gb or Iu mode

To initiate the procedure when no NAS signalling connection exists, the EMM entity in the network requests the lower layer to start paging (see 3GPP TS 36.300 [20], 3GPP TS 36.413 [23]). The paging message includes a CN domain indicator set to "CS" in order to indicate that this is paging for CS fallback.

NOTE: The timer T3413 is not started in the network when the paging procedure is initiated for CS fallback.

To notify the UE about an incoming mobile terminating CS service when a NAS signalling connection exists, the EMM entity in the network shall send a CS SERVICE NOTIFICATION message. This message may also include CS service related parameters (e.g. Calling Line Identification, SS or LCS related parameters).

Upon reception of a paging indication, the UE shall respond with an EXTENDED SERVICE REQUEST. If the paging is received in EMM-IDLE mode, the UE shall respond immediately. If the paging is received as NAS CS NOTIFICATION message in EMM-CONNECTED mode, the UE may request upper layers input i.e. to accept or reject CS fallback before responding with an EXTENDED SERVICE REQUEST. The response is indicated in the CSFB response information element in the EXTENDED SERVICE REQUEST message in both EMM-IDLE and EMM-CONNECTED modes.

13.1.3.3 Test description

13.1.3.3.1 Pre-test conditions

System Simulator:

- 2 cells, one E-UTRA and one UTRA cell and same Location areas but different Routing areas:
  - Cell 1 E-UTRA serving cell
  - Cell 5 suitable neighbour UTRA cell
  - The parameters settings and power levels for Cell 1 and Cell 5 are selected according to [18], [5] and Table 13.1.3.3.2-1 so that camping on Cell 1 is guaranteed and no cell re-selection to Cell 5 can take place (utra priority is lower than serving and $S_{Cell\,1} > Thresh_{Cell\,1,low}$).
  - System information combination 4 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cells.

UE:

None.

Preamble:

- The UE is in state Loopback activated (state 4) on cell 1 according to [18] using UE test loop mode B with IP_PDU_delay set according to PIXIT parameter px_TestLoopModeB_Delay.

13.1.3.3.2 Test procedure sequence

Table 13.1.3.3.2-1 shows the cell power levels after the preamble.

Table 13.1.3.3.2-1: Cell power levels

Parameter	Unit	Cell 1	Cell 5	Remark
Cell-specific RS EPRE	dBm/15kHz	-75	-	The power levels are such that camping on Cell 1 is guaranteed.
CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-70	
PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-72	

Table 13.1.3.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS transmits one IP packet to the UE on the DRB associated with the default EPS bearer context on Cell 1.	<--	IP packet	-	-
2	The SS transmits a *DLInformationTransfer* message on Cell 1 containing a CS SERVICE NOTIFICATION message.	<--	*DLInformationTransfer* NAS: CS SERVICE NOTIFICATION	-	-
-	EXCEPTION: Step 3a1 describes behaviour that depends on the UE capability; the "lower case letter" identifies a step sequence that takes place if a capability is supported.	-	-	-	-
3a1	IF the UE needs to request upper layer input before accepting the CS fallback, the incoming CS call is accepted at the UE through MMI or AT command.	-	-	-	-
4	Check: Does the UE transmit an *ULInformationTranfer* message containing an EXTENDED SERVICE REQUEST with Service Type IE set to "mobile terminating CS fallback or 1xCS fallback" on Cell 1?	-->	*ULInformationTransfer* NAS: EXTENDED SERVICE REQUEST	1	P
5	The SS transmits an *RRCConnectionRelease* message on Cell 1 with IE *redirectionInformation* including *UTRA-CarrierFreq* of Cell 5.	<--	*RRCConnectionRelease*	-	-
6	Check: Does the UE transmit an RRC CONNECTION REQUEST message with Establishment cause 'Registration' or 'Terminating Conversational Call'?	-->	RRC CONNECTION REQUEST	2	P
6A 1	The SS transmits an RRC CONNECTION SETUP message.	<--	RRC CONNECTION SETUP	-	-
6A 2	The UE transmits an RRC CONNECTION SETUP COMPLETE message.	-->	RRC CONNECTION SETUP COMPLETE	-	-
7-11	Void	-	-	-	-
-	EXCEPTION: In parallel to the events described in steps 12 to 13 A11, the steps specified in Table 13.1.3.3.2-3 shall take place.	-	-	-	-
12	Check: Does the UE transmit a PAGING RESPONSE on Cell 5?	-->	PAGING RESPONSE	2	P
13 A1-13 A11	Steps 7 to 17 of the generic test procedure in TS 34.108 subclause 7.2.3.1 are performed on Cell 5. NOTE: Mobile terminating CS call is set up.	-	-	-	-
14	The SS transmits a SECURITY MODE COMMAND message for the PS domain on Cell 5. See Note.	<--	SECURITY MODE COMMAND	-	-
15	The UE transmits a SECURITY MODE COMPLETE message on Cell 5.	-->	SECURITY MODE COMPLETE	-	-
16	The SS transmits a ROUTING AREA UPDATE ACCEPT message on Cell 5.	<--	ROUTING AREA UPDATE ACCEPT	-	-
17	The UE transmits a ROUTING AREA UPDATE COMPLETE message on Cell 5.	-->	ROUTING AREA UPDATE COMPLETE	-	-
18	Check: Does the UE transmit a SERVICE REQUEST message on Cell 5?	-->	SERVICE REQUEST	4	P
18A	The SS transmits a SERVICE ACCEPT message on Cell 5	<--	SERVICE ACCEPT	-	-
19-20	Steps 11 to 12 of the generic test procedure in TS 34.108 subclause 7.2.4.2 are performed on Cell 5. NOTE: Mobile originating packet switched session is set up.	-	-	-	-
21	Check: Does the UE loop back the IP packet received in Step 1 on the RAB associated with	-->	IP packet	5	P

	the PDP context active on Cell 5?				
Note: A real network will initiate the security mode command procedure for the PS domain immediately after receiving the ROUTING AREA UPDATE REQUEST, but in this test case it was chosen to complete the procedure for CS domain first in order to avoid the possibility of a security mode command procedure running in parallel with another RRC procedure.					

Table 13.1.3.3.2-3: Parallel behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
0A – 0E	Void	-		-	-
1	The UE transmits a ROUTING AREA UPDATE REQUEST message on Cell 5.	-->	ROUTING AREA UPDATE REQUEST	-	-
2	Void			-	-
3	Void			-	-
4-5	Void			-	-
6	Void			-	-

Table 13.1.3.3.2-4: Void

Table 13.1.3.3.2-5: Void

13.1.3.3.3 Specific message contents

Table 13.1.3.3.3-1: Void

Table 13.1.3.3.3-1A: ACTIVATE TEST MODE (preamble)

Derivation Path: 36.508, Table 4.7A-3, condition UE TEST LOOP MODE B			
Information Element	**Value/remark**	**Comment**	**Condition**
UE test loop mode B LB setup			
IP PDU delay	Set according to PIXIT parameter px_TestLoopModeB_Delay		

Table 13.1.3.3.3-2: *SystemInformationBlockType6* for cell 1 (preamble and all steps, Table 13.1.3.3.2-2)

Derivation Path: 36.508 Table 4.4.3.3-5			
Information Element	**Value/remark**	**Comment**	**Condition**
SystemInformationBlockType6 ::= SEQUENCE {			
carrierFreqListUTRA-FDD SEQUENCE (SIZE (1..maxUTRA-FDD-Carrier)) OF SEQUENCE {			UTRA-FDD
carrierFreq[n]	Same downlink UARFCN as used for cell 5		
cellReselectionPriority[n]	3	Lower priority than E-UTRA	
}			
carrierFreqListUTRA-TDD SEQUENCE (SIZE (1..maxUTRA-TDD-Carrier)) OF SEQUENCE {			UTRA-TDD
carrierFreq[n]	Same downlink UARFCN as used for cell 5		
cellReselectionPriority[n]	3	Lower priority than E-UTRA	
}			
}			

Table 13.1.3.3.3-3: *DLInformationTransfer* (step 2, Table 13.1.3.3.2-2)

Derivation Path: 36.508 Table 4.6.1-3			
Information Element	**Value/remark**	**Comment**	**Condition**
DLInformationTransfer ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
dlInformationTransfer-r8 SEQUENCE {			
dedicatedInfoType CHOICE {			
dedicatedInfoNAS	Set according to 36.508 Table 4.7.2-8A	CS SERVICE NOTIFICATION	
}			
}			
}			
}			
}			

Table 13.1.3.3.3-4: *ULInformationTransfer* (step 4, Table 13.1.3.3.2-2)

Derivation Path: 36.508 Table 4.6.1-25			
Information Element	**Value/remark**	**Comment**	**Condition**
ULInformationTransfer ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
ulInformationTransfer-r8 SEQUENCE {			
dedicatedInfoType CHOICE {			
dedicatedInfoNAS	Set according to 36.508 Table 4.7.2-14A	EXTENDED SERVICE REQUEST	
}			
}			
}			
}			
}			

Table 13.1.3.3.3-5: Void

Table 13.1.3.3.3-6: *RRCConnectionRelease* (step 5, Table 13.1.3.3.2-2)

Derivation Path: 36.508 Table 4.6.1-15			
Information Element	**Value/remark**	**Comment**	**Condition**
RRCConnectionRelease ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
rrcConnectionRelease-r8 SEQUENCE {			
redirectedCarrierInfo ::= CHOICE {			
utra-FDD	Downlink UARFCN of cell 5		UTRA-FDD
utra-TDD	Downlink UARFCN of cell 5		UTRA-TDD
}			
}			
}			

Table 13.1.3.3.3-7: RRC CONNECTION REQUEST (step 6, Table 13.1.3.3.2-2)

Derivation Path: 34.108 clause 9.1.1			
Information Element	**Value/remark**	**Comment**	**Condition**
Establishment cause	Registration or Terminating Conversational Call		

Table 13.1.3.3.3-8: SERVICE REQUEST (step 1, Table 13.1.3.3.2-3)

Derivation Path: 24.008 Table 9.4.20			
Information Element	**Value/remark**	**Comment**	**Condition**
Service type	'001'B	Data	

Table 13.1.3.3.3-9: ATTACH ACCEPT (Preamble)

Derivation Path: 36.508 Table 4.7.2-1			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS network feature support	Not present		

13.1.4 Call setup from E-UTRAN RRC_IDLE / CS fallback to UTRAN with Handover / MT call

13.1.4.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_IDLE state }
ensure that {
  when { UE receives a Paging message with CN domain indicator set to "CS" }
   then { UE transmits an ULInformationTransfer message containing an EXTENDED SERVICE REQUEST
message with Service Type IE set to "mobile terminating CS fallback or 1xCS fallback" }
            }
```

(2)

```
with { UE having transmitted an ULInformationTranfer message containing an EXTENDED SERVICE REQUEST
message with Service Type IE set to "mobile terminating CS fallback or 1xCS fallback" }
ensure that {
  when { SS transmits a MobilityFromEUTRACommand message with handover to a UTRA cell in a different
location area and operating in NMO I }
    then { UE transmits a HANDOVER TO UTRAN COMPLETE message on the utra cell and initiates a CS
domain PAGING RESPONSE procedure or LA update procedure and a parallel PS domain RA Update procedure
}
            }
```

13.1.4.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 23.272, clause 7.2, 7.3, and TS 24.301, clause 5.6.2.3.

[TS 23.272, clause 7.2]

The procedure for Mobile Terminating Call in idle mode is illustrated in figure 7.2-1, in the normal case. Clause 6.6 describes the procedure when the procedure is rejected by the MME.

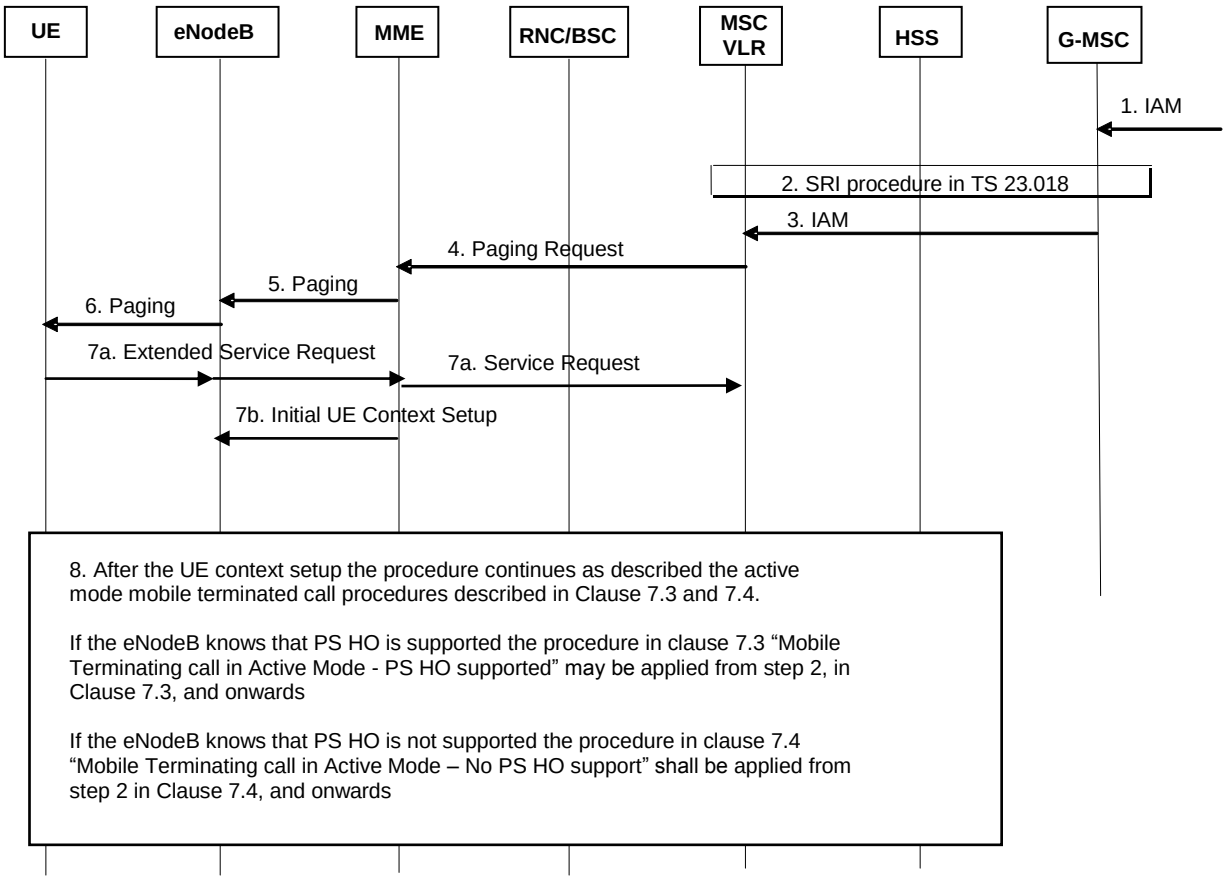

Figure 7.2-1: Mobile Terminating Call in idle mode

1. G-MSC receives IAM.
2. G-MSC retrieves routing information of the terminating UE by Send Routing Info procedures as specified in TS 23.018 [5].
3. G-MSC sends IAM to the MSC on the terminating side as specified in TS 23.018 [5].
4. The MME receives a Paging Request (IMSI, VLR TMSI, Location Information) message from the MSC over a SGs interface. If the TMSI is received from the MSC, it is used by the MME to find the S-TMSI which is used as the paging address on the radio interface. If the IMSI is received from the MSC, the IMSI shall be used as the paging address on the radio interface. If location information is reliably known by MME (i.e. MME stores the list of TAs), the MME shall page the UE in all the TAs. If the MME does not have a stored TA list for the UE, the MME should use the location information received from the MSC to page the UE.

NOTE 1: This procedure takes place before step 3, immediately after MSC receives MAP_PRN from HSS, if pre-paging is deployed.

If the MME receives a Paging Request message for an UE which is considered as detach for EPS services, the MME sends the Paging reject message to the MSC with an appropriate cause value. This rejection triggers the MSC to page the UE over A or Iu-cs interface.

NOTE 2: In case of a CS fallback capable UE in NMO II or III, there is a case where, for example, the MME releases the SGs association due to the UE idle mode mobility while the VLR still maintains the SGs association.

5. If the MME did not return an "SMS-only" indication to the UE during Attach or Combined TA/LA Update procedures, the MME sends a Paging (as specified in TS 23.401 [2]) message to each eNodeB. The Paging message includes a suitable UE Identity (i.e. S-TMSI or IMSI) and a CN Domain Indicator that indicates which domain (CS or PS) initiated the paging message. In this case it shall be set to "CS" by the MME.

If the MME returned the "SMS-only" indication to the UE during Attach or Combined TA/LA Update procedures, the MME shall not send the paging to the eNodeBs and sends Paging Reject towards MSC to stop CS Paging procedure and this CSFB procedure stops.

6. The radio resource part of the paging procedure takes place. The message contains a suitable UE Identity (i.e. S-TMSI or IMSI) and a CN Domain indicator.

7a. The UE establishes an RRC connection and sends an Extended Service Request (CS Fallback Indicator) to MME. The UE indicates its S-TMSI in the RRC signalling. The Extended Service Request message is encapsulated in RRC and S1-AP messages. The CS Fallback Indicator indicates to the MME that CS Fallback for this UE is required. The MME sends the SGs Service Request message to the MSC containing an indication that the UE was in idle mode (and hence, for example, that the UE has not received any Calling Line Identification information). Receipt of the SGs Service Request message stops the MSC retransmitting the SGs interface Paging message.

NOTE 3: In order to avoid the calling party experiencing a potentially long period of silence, the MSC may use the SGs Service Request message containing the idle mode indication as a trigger to inform the calling party that the call is progressing.

7b. MME sends S1-AP: Initial UE Context Setup (UE capabilities, CS Fallback Indicator, LAI and other parameters specified in TS 23.401 [2]) to indicate the eNodeB to move the UE to UTRAN/GERAN. The registered PLMN for CS domain is identified by the PLMN ID included in the LAI, which is allocated by the MME.

7c. The eNodeB shall reply with S1-AP: Initial UE Context Setup Response message.

8a. If the eNodeB knows that both the UE and the network support PS handover: The information flow may continue as described in clause 7.3 "Mobile Terminating call in Active Mode - PS HO supported" from step 2, in clause 7.3, and onwards.

. If the eNodeB knows that either the UE or the network does not support PS handover: The information flow shall continue as described in clause 7.4 "Mobile Terminating call in Active Mode – No PS HO support" from step 2, in clause 7.4, and onwards.

NOTE 4: Even in case both the UE and the network support PS HO, the eNodeB may choose to use a different inter-RAT mobility procedure.

[TS 23.272, clause 7.3]

This flow may be executed when the eNodeB knows that both the UE and the network support PS HO in the normal case. Clause 6.6 describes the procedure when the procedure is rejected by the MME.

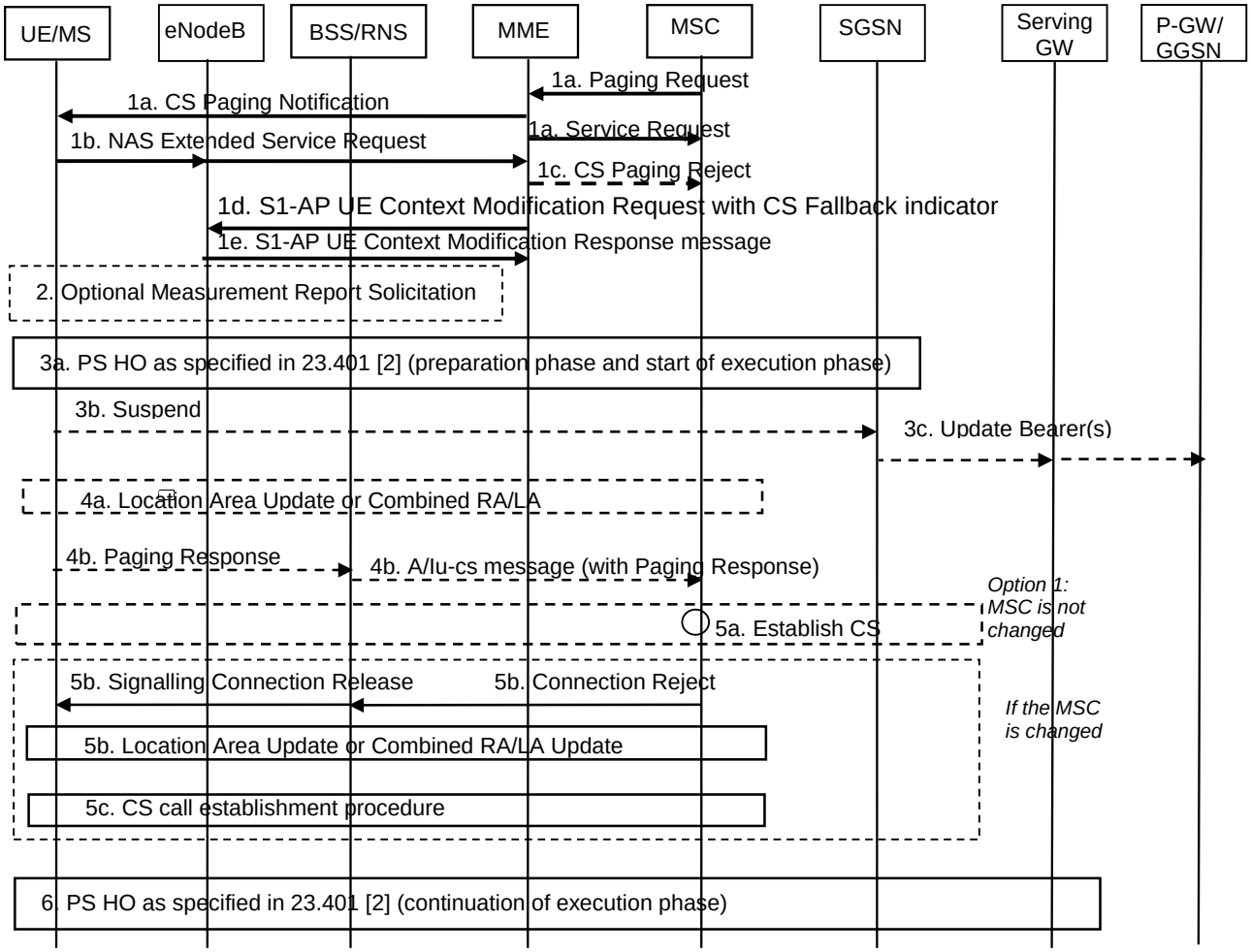

Figure 7.3-1: CS Page in E-UTRAN, Call in GERAN/UTRAN

1a. The MSC receives an incoming voice call and responds by sending a Paging Request (IMSI or TMSI, optional Caller Line Identification and Connection Management information, CS call indicator) to the MME over a SGs interface. The MSC only sends a CS Page for an UE that provides location update information using the SGs interface. In active mode the MME has an established S1 connection and if the MME did not return the "SMS-only" indication to the UE during Attach or Combined TA/LA Update procedures, the MME reuses the existing connection to relay the CS Page to the UE.

If the MME returned the "SMS-only" indication to the UE during Attach or Combined TA/LA Update procedures, the MME shall not send the CS Service Notification to the UE and shall send Paging Reject towards MSC to stop CS Paging procedure, and this CSFB procedure stops.

The eNodeB forwards the paging message to the UE. The message contains CN Domain indicator and, if received from the MSC, the Caller Line Identification.

The MME immediately sends the SGs Service Request message to the MSC containing an indication that the UE was in connected mode. The MSC uses this connected mode indication to start the Call Forwarding on No Reply timer for that UE and the MSC should send an indication of user alerting to the calling party. Receipt of the SGs Service Request message stops the MSC retransmitting the SGs interface Paging message.

NOTE 1: The pre-configured policy may be used by UE to avoid being disturbed without Caller Line Identification display and the detailed handling is to be decided by CT1 and CT6.

NOTE 2: This procedure can also take place immediately after MSC receives MAP_PRN from HSS, if pre-paging is deployed. Caller Line Identification and CS call indicator are also provided in the case of pre-paging.

NOTE 3: In order to avoid the calling party experiencing a potentially long period of silence, the MSC may use the SGs Service Request message as a trigger to inform the calling party that the call is progressing.

1b. UE sends an Extended Service Request (CS Fallback Indicator, Reject or Accept) message to the MME. The Extended Service Request message is encapsulated in RRC and S1-AP messages. CS Fallback Indicator indicates to the MME to perform CS Fallback. The UE may decide to reject CSFB based on Caller Line Identification.

1c. Upon receiving the Extended Service Request (CSFB, Reject), the MME sends Paging Reject towards MSC to stop CS Paging procedure and this CSFB procedure stops.

1d. MME sends an S1-AP UE Context Modification Request (CS Fallback Indicator, LAI) message to eNodeB. This message: indicates to the eNodeB that the UE should be moved to UTRAN/GERAN. The registered PLMN for CS domain is identified by the PLMN ID included in the LAI, which is allocated by the MME.

1e. The eNodeB shall reply with S1-AP UE Context Modification Response message.

2. The eNodeB may optionally solicit a measurement report from the UE to determine the target GERAN/UTRAN cell to which PS handover will be performed.

3a. The eNodeB triggers PS handover to a GERAN/UTRAN neighbour cell by sending a Handover Required message to MME. The eNodeB selects the target PS handover cell considering the PLMN ID and possibly the LAC for CS domain provided by the MME in step 1d. In the following an inter-RAT handover from E-UTRAN to UTRAN or GERAN as specified in TS 23.401 [2] begins. The eNodeB indicates in the Source RNC to Target RNC Transparent container that PS handover was triggered due to CSFB. The eNodeB also indicates whether CSFB was triggered for emergency purpose. As part of this handover, the UE receives a HO from E-UTRAN Command and tries to connect to a cell in the target RAT. The HO from E-UTRAN Command may contain a CS Fallback Indicator which indicates to UE that the handover was triggered due to a CS fallback request. If the HO from E-UTRAN Command contains a CS Fallback Indicator and the UE fails to establish connection to the target RAT, then the UE considers that CS fallback has failed.

The UE establishes the signalling connection as described in step 4b.

NOTE 4: During the PS HO the SGSN does not create a Gs association with the MSC/VLR.

3b. If the target RAT is GERAN and the UE has entered Dedicated Mode, the UE starts the Suspend procedure (see TS 44.018 [4]) unless both the UE and the Target cell support DTM in which case TBF re-establishment may be performed.

3c. A Gn/Gp-SGSN that receives the Suspend message from the UE follows the Suspend procedure specified in TS 23.060 [3], clause 16.2.1.1.1.

An S4-SGSN that receives the Suspend message from the UE follows the Suspend procedure specified in TS 23.060 [3]. The S4-SGSN deactivates GBR bearers towards S-GW and P-GW(s) by initiating MS-and SGSN Initiated Bearer Deactivation procedure as specified in TS 23.060 [3], and starts the preservation and suspension of non-GBR bearers by sending Suspend Notification message to the S-GW. The S-GW releases all RNC related information (address and TEIDs) for the UE if Direct Tunnel is established, and sends Suspend Notification message to the P-GW(s). The SGSN stores in the UE context that UE is in suspended status. All the preserved non-GBR bearers are marked as suspended status in the S-GW and P-GW(s). The P-GW should discard packets if received for the suspended UE.

4a. If the LA of the new cell is different from the one stored in the UE, the UE shall initiate a Location Area Update or a Combined RA/LA Update procedure as follows:

- If the network is operating in NMO-I (Network Modes of Operation), the UE should initiate a separate Location Area Update before initiating the RAU procedure instead of a Combined RA/LA Update procedure (to speed up the CSFB procedure); or

- if the network is operating in NMO-II or NMO-III the UE shall initiate a Location Area Update procedure before initiating the RAU procedure required for PS handover.

The UE shall set the "CSMT" flag in the LAU Request. The "CSMT" flag is used to avoid missing MT call in roaming retry case. Further the UE performs any Routing Area Update procedure as specified in TS 23.060 [3].

The UE may initiate a Location Area Update procedure immediately when the UE is handed over to the target cell i.e. before the UE receives e.g. LAI or NMO information as part of the RAN Mobility Information.

When the MSC receives a LA Update Request, it shall check for pending terminating CS calls and, if the "CSMT" flag is set, maintain the CS signalling connection after the Location Area Update procedure for pending terminating CS calls.

4b. If the UE does not initiate a LAU procedure, it shall respond with a Paging Response message to the MSC as follows:

- If the Target RAT is UTRAN or GERAN Iu mode: The UE establishes a radio signalling connection and responds to the paging by sending an RRC Paging Response as specified in TS 25.331 [7]. The CN Domain Indicator is set to "CS" in the Initial Direct Transfer message.

- If the Target RAT is GERAN A/Gb mode: The UE establishes a radio signalling connection and responds to paging by using the procedures specified in TS 44.018 [4] (i.e. UE requests and is assigned a dedicated channel where it sends a SABM containing a Paging Response to the BSS and the BSS responds by sending a UA). Upon receiving the SABM (containing a Paging Response message) the BSS sends a COMPLETE LAYER 3 INFORMATION message (containing a Paging Response message) to the MSC which indicates CS resources have been allocated in the GERAN cell. If both the UE and the target cell support enhanced CS establishment in DTM (indicated by GERAN system information included within the HO from E-UTRAN Command) an RR connection may be established while in packet transfer mode without release of the packet resources, see TS 43.055 [24]. After the establishment of the main signalling link as described in TS 44.018 [4] the UE enters either Dual Transfer Mode or Dedicated Mode and the CS call establishment procedure completes.

NOTE 5: The BSS should be prepared to receive a Paging Response even when the corresponding Paging Request has not been sent by this BSS.

5a. After performing the LAU procedure or after receiving the Paging Response the MSC shall establish the CS call if the UE is allowed in the LA.

5b. If the UE is not registered in the MSC that receives the Paging Response or the UE is not allowed in the LA, the MSC shall reject the Paging Response message by releasing the A/Iu-CS. The BSC/RNC in turn releases the signalling connection for UTRAN or GERAN CS domain. The signalling connection release shall trigger the UE to obtain the LAI, which causes the initiation of a Location Area Update or a Combined RA/LA procedure as specified in TS 23.060 [3] for the different Network Modes of Operation (NMO).

The Location Area Update triggers the Roaming Retry for CS Fallback procedure as defined in clause 7.5.

5c. After performing the LAU procedure the MSC shall establish the CS call if the UE is allowed in the LA.

6. The UE performs any remaining steps of the inter-RAT handover from E-UTRAN to UTRAN or GERAN as specified in TS 23.401 [2]

With the exception of steps 1a and 1c, above, Call Forwarding (see TS 23.082 [31]) is performed on the basis of the TS 24.008 [21] signalling received on the GERAN/UTRAN cell.

If the UE remains on UTRAN/GERAN after the CS voice call is terminated the UE performs normal mobility management procedures as defined in TS 23.060 [3] and TS 24.008 [21].

[TS 24.301, clause 5.6.2.3]

The network may initiate the paging procedure for CS fallback when the UE is IMSI attached for non-EPS services (see example in figure 5.6.2.3.1).

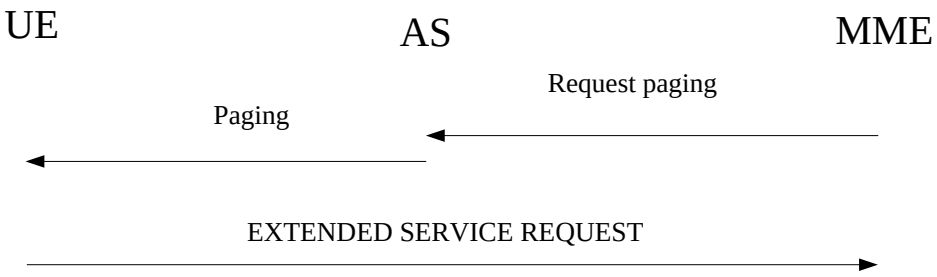

Figure 5.6.2.3.1: Paging procedure for CS fallback to A/Gb or Iu mode

To initiate the procedure when no NAS signalling connection exists, the EMM entity in the network requests the lower layer to start paging (see 3GPP TS 36.300 [20], 3GPP TS 36.413 [23]). The EMM entity may provide the lower layer with a list of CSG IDs, including the CSG IDs of both the expired and the not expired subscriptions. If there is a PDN connection for emergency bearer services established, the EMM entity in the network shall not provide the list of CSG IDs to the lower layer. The paging message includes a CN domain indicator set to "CS" in order to indicate that this is paging for CS fallback.

NOTE: The timer T3413 is not started in the network when the paging procedure is initiated for CS fallback.

To notify the UE about an incoming mobile terminating CS service excluding SMS over SGs when a NAS signalling connection exists, the EMM entity in the network shall send a CS SERVICE NOTIFICATION message. This message may also include CS service related parameters (e.g. Calling Line Identification, SS or LCS related parameters).

Upon reception of a paging indication, a UE that is IMSI attached for non-EPS services shall respond with an EXTENDED SERVICE REQUEST. If the paging is received in EMM-IDLE mode, the UE shall respond immediately. If the paging is received as NAS CS NOTIFICATION message in EMM-CONNECTED mode, the UE may request upper layers input i.e. to accept or reject CS fallback before responding with an EXTENDED SERVICE REQUEST. The response is indicated in the CSFB response information element in the EXTENDED SERVICE REQUEST message in both EMM-IDLE and EMM-CONNECTED modes.

[TS 24.008, clause 4.5.1.3.4]

If the MS determines, before sending the response to paging, that it is in a different location area than the stored location area, the MS shall initiate a normal location updating procedure or a combined routing area update procedure first, depending on Network Mode of Operation. The MM connection establishment is delayed until successful completion of the normal location updating or combined routing area update procedure. In A/Gb mode, if the MS is a non DTM MS, or a DTM MS in a cell not supporting DTM, the MS may perform location area updating procedure instead of combined routing area update procedure in NMO I. After the completion of the normal location updating procedure, the MS shall not send the PAGING RESPONSE message.

13.1.4.3 Test description

13.1.4.3.1 Pre-test conditions

System Simulator:

- Cell 1 serving cell
- Cell 5 suitable neighbour cell
- System information combination 4 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cells.

UE:

None.

Preamble:

- The UE is in state Registered, Idle Mode (state 2) on Cell 1 according to [18].

13.1.4.3.2 Test procedure sequence

Table 13.1.4.3.2-1 shows the cell power levels after the preamble.

Table 13.1.4.3.2-1: Time instances of cell power level and parameter changes

	Parameter name	Unit	Cell 1	Cell 5
T0	RS EPRE	dBm/15kHz	-75	
	CPICH_Ec	dBm/3.84 MHz		-70
	P-CCPCH	dBm/1.28 MHz		-72
T1	RS EPRE	dBm/15kHz	Non-suitable "Off"	
	CPICH_Ec	dBm/3.84 MHz		-70
	P-CCPCH	dBm/1.28 MHz		-72

Table 13.1.4.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS transmits a *Paging* message to the UE on Cell 1 using S-TMSI with CN domain indicator set to “CS”.	<--	*Paging*	-	-
-	EXCEPTION: Step 2a1 describes behaviour that depends on the UE capability; the "lower case letter" identifies a step sequence that takes place if a capability is supported.	-	-	-	-
2a1	IF the UE needs to request upper layer input before accepting the CS fallback, the incoming CS call is accepted at the UE through MMI or AT command.	-	-	-	-
3	The UE transmits an *RRCConnectionRequest* message on Cell1.	-->	*RRCConnectionRequest*	-	-
4	The SS transmits an *RRCConnectionSetup message* on Cell1.	<--	*RRCConnectionSetup*	-	-
5	Check: Does the UE transmit an *RRCConnectionSetupComplete* message containing an EXTENDED SERVICE REQUEST with Service Type IE set to "mobile terminating CS fallback or 1xCS fallback” on Cell 1?	-->	*RRCConnectionSetupComplete* NAS: EXTENDED SERVICE REQUEST	1	P
5A	The SS transmits a *SecurityModeCommand* message on Cell 1.	<--	*SecurityModeCommand*	-	-
5B	The UE transmits a *SecurityModeComplete* message on Cell 1.	-->	*SecurityModeComplete*	-	-
5C	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1.	<--	*RRCConnectionReconfiguration*	-	-
5D	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1.	-->	*RRCConnectionReconfigurationComplete*	-	-
5E	The SS transmits a *UECapabilityEnquiry* message to request UE radio access capability information for E-UTRA and UTRA.	<--	*UECapabilityEnquiry*	-	-
5F	The UE transmit a *UECapabilityInformation* message on Cell 1. NOTE: The start-PS values received, should be used to configure ciphering on cell 5.	-->	*UECapabilityInformation*	-	-
6	The SS transmits a *MobilityFromEUTRACommand* message on Cell 1 with IE *handover*.	<--	*MobilityFromEUTRACommand*	-	-
7-19	Check: Are steps 1 to 11 of the generic test procedure in TS 36.508 subclause 6.4.3.7.5 performed?	-->	HANDOVER TO UTRAN COMPLETE	2	-
20	SS adjusts cell levels according to row T1 of table 13.1.4.3.2-1.				
-	The UE is in end state UTRA CS call (U5).	-	-	-	-

Table 13.1.4.3.2-3: Void

13.1.4.3.3 Specific message contents

Table 13.1.4.3.3-1: Void

Table 13.1.4.3.3-2: *SystemInformationBlockType6* for cell 1 (preamble and all steps, Table 13.1.4.3.2-2)

Derivation Path: 36.508 Table 4.4.3.3-5			
Information Element	**Value/remark**	**Comment**	**Condition**
SystemInformationBlockType6 ::= SEQUENCE {			
carrierFreqListUTRA-FDD SEQUENCE (SIZE (1..maxUTRA-FDD-Carrier)) OF SEQUENCE {			UTRA-FDD
carrierFreq[n]	Same downlink UARFCN as used for cell 5		
cellReselectionPriority[n]	3	Lower priority than E-UTRA	
}			
carrierFreqListUTRA-TDD SEQUENCE (SIZE (1..maxUTRA-TDD-Carrier)) OF SEQUENCE {			UTRA-TDD
carrierFreq[n]	Same downlink UARFCN as used for cell 5		
cellReselectionPriority[n]	3	Lower priority than E-UTRA	
}			
}			

Condition	Explanation
UTRA-FDD	UTRA FDD cell environment
UTRA-TDD	UTRA TDD cell environment

Table 13.1.4.3.3-3: Message *Paging* (step 1, Table 13.1.4.3.2-2)

Derivation Path: 36.508 clause 4.6.1-7			
Information Element	**Value/remark**	**Comment**	**Condition**
Paging ::= SEQUENCE {			
pagingRecordList SEQUENCE (SIZE (1..maxPageRec)) OF SEQUENCE {	1 entry		
ue-Identity[1] CHOICE {			
s-TMSI	Set to the value of the S-TMSI of the UE		
}			
cn-Domain[1]	cs		
}			
}			

Table 13.1.4.3.3-4: *RRCConnectionSetupComplete (step 5*, Table 13.1.4.3.2-2*)*

Derivation Path: 36.508 Table 4.6.1-18			
Information Element	**Value/remark**	**Comment**	**Condition**
RRCConnectionSetupComplete ::= SEQUENCE {			
rrc-TransactionIdentifier	RRC-TransactionIdentifier-UL		
criticalExtensions CHOICE {			
c1 CHOICE {			
rrcConnectionSetupComplete-r8 SEQUENCE {			
selectedPLMN-Identity	Set to the PLMN selected by upper layers		
registeredMME	Not present		
dedicatedInfoNAS	Set according to 36.508 Table 4.7.2-14A	EXTENDED SERVICE REQUEST (Note: Sent as integrity protected NAS message)	
nonCriticalExtension SEQUENCE {}	Not checked		
}			
}			
}			
}			

Table 13.1.4.3.3-5: *RRCConnectionReconfiguration* (step 5C, Table 13.1.4.3.2-2)

Derivation Path: 36.508 Table 4.6.1-8, condition SRB2-DRB(1, 0)

Table 13.1.4.3.3-6: Message *MobilityFromEUTRACommand* (step 6, Table 13.1.4.3.2-2)

Derivation Path: 36.508 clause 4.6.1-6			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityFromEUTRACommand ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
mobilityFromEUTRACommand-r8 SEQUENCE {			
csFallbackIndicator	True		
purpose CHOICE {			
handover SEQUENCE {			
targetRAT-Type	Utra		
targetRAT-MessageContainer	HANDOVER TO UTRAN COMMAND		
nas-SecurityParamFromEUTRA	The 4 least significant bits of the NAS downlink COUNT value		
systemInformation	Not present		
}			
}			
}			
}			
}			
}			

Table 13.1.4.3.3-7: HANDOVER TO UTRAN COMMAND (step 6, Table 13.1.4.3.3-6)

Derivation Path: 36.508 table 4.7B.1-1, condition UTRA PS RB

Table 13.1.4.3.3-8: Void

Table 13.1.4.3.3-9: UECapabilityEnquiry (step 5E, Table 13.1.4.3.2-2)

Derivation path: 36.508 clause 4.6.1 table 4.6.1-22			
Information Element	**Value/Remark**	**Comment**	**Condition**
UECapabilityEnquiry ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
ueCapabilityEnquiry-r8 SEQUENCE {			
ue-CapabilityRequest SEQUENCE (SIZE (1..maxRAT-Capabilities)) OF SEQUENCE {	2 entry		
RAT-Type[1]	Eutra		
RAT-Type[2]	Utra		
}			
}			
}			
}			
}			

Table 13.1.4.3.3-10: ATTACH ACCEPT (Preamble)

Derivation Path: 36.508 Table 4.7.2-1			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS network feature support	Not present		

13.1.5 Call setup from E-UTRAN RRC_CONNECTED / CS fallback to UTRAN with handover / MO call

13.1.5.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_CONNECTED state having requested CS call setup }
ensure that {
  when { UE receives a MobilityFromEUTRACommand message including a cs-FallbackIndicator set to
'true' and a targetRAT-Type set to 'utra' }
    then { UE transmits a HANDOVER TO UTRAN COMPLETE message and continues the PS data service }
          }
```

13.1.5.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.331, clause 5.4.3.3.

[TS 36.331, clause 5.4.3.3]

The UE shall be able to receive a *MobilityFromEUTRACommand* message and perform a cell change order to GERAN, even if no prior UE measurements have been performed on the target cell.

The UE shall:

1> stop timer T310, if running;

1> if the *MobilityFromEUTRACommand* message includes the *purpose* set to '*handover*':

2> if the *targetRAT-Type* is set to '*utra*' or '*geran*':

3> consider inter-RAT mobility as initiated towards the RAT indicated by the *targetRAT-Type* included in the *MobilityFromEUTRACommand* message;

3> forward the *nas-SecurityParamFromEUTRA* to the upper layers;

3> access the target cell indicated in the inter-RAT message in accordance with the specifications of the target RAT;

13.1.5.3 Test description

13.1.5.3.1 Pre-test conditions

System Simulator:

- Cell 1 and Cell 5.
- System information combination 4 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cells.

Table 13.1.5.3.1-1 shows the cell power levels after the preamble.

Table 13.1.5.3.1-1: Time instances of cell power level and parameter changes

	Parameter name	Unit	Cell 1	Cell 5
T0	RS EPRE	dBm/15kHz	-85	
	CPICH_Ec	dBm/3.84 MHz		-70
	P-CCPCH	dBm/1.28 MHz		-72
T1	RS EPRE	dBm/15kHz	Non-suitable "Off"	
	CPICH_Ec	dBm/3.84 MHz		-70
	P-CCPCH	dBm/1.28 MHz		-72

UE:

None.

Preamble:

- The UE is in state Loopback Activated (state 4) with condition UE TEST LOOP MODE B on Cell 1 according to [18].

13.1.5.3.2 Test procedure sequence

Table 13.1.5.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS transmits one IP packet to the UE on the DRB associated with the default EPS bearer context on Cell 1.	<--	IP packet	-	-
2	The UE loops back the IP packet on the DRB associated with the default EPS bearer context on Cell 1.	-->	IP packet	-	-
3	Cause the UE to originate CS call. (see Note 1)	-	-	-	-
4	The UE transmits an *ULInformationTransfer* message on Cell 1. This message includes an EXTENDED SERVICE REQUEST message.	-->	*ULInformationTransfer*	-	-
4A	The SS transmits a *UECapabilityEnquiry* message to request UE radio access capability information for E-UTRA and UTRA.	<--	*UECapabilityEnquiry*	-	-
4B	The UE transmit a *UECapabilityInformation* message on Cell 1. NOTE: The start-PS values received, should be used to configure ciphering on cell 5.	-->	*UECapabilityInformation*	-	-
5	The SS transmits a *MobilityFromEUTRACommand* message on Cell 1.	<--	*MobilityFromEUTRACommand*	-	-
6	Check: Does the result of the “CS fallback to UTRAN with Handover / MO call” generic procedure from 36.508 clause 6.4.3.7.6 indicate that the UE performs CS fallback to UTRAN with Handover / MO Call on Cell 5?	-	-	1	P
6A	SS adjusts cell levels according to row T1 of table 13.1.5.3.1-1.				
-	Void.	-	-	-	-
7-13	Void	-	-	-	-
14	The SS transmits one IP packet to the UE on the PS RAB on Cell 5.	<--	IP packet	-	-
15	Check: Does the UE loop back the IP packet on the PS RAB on Cell 5?	-->	IP packet	1	P
Note 1: The trigger in step 3 is the same as in the generic procedure in 36.508 clause 6.4.3.5.					

13.1.5.3.3 Specific message contents

Table 13.1.5.3.3-1: *MobilityFromEUTRACommand* (step 5, Table 13.1.5.3.2-1)

Derivation Path: 36.508, Table 4.6.1-6			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityFromEUTRACommand ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
mobilityFromEUTRACommand-r8 SEQUENCE {			
cs-FallbackIndicator	true		
purpose CHOICE{			
handover SEQUENCE {			
targetRAT-Type	utra		
targetRAT-MessageContainer	HANDOVER TO UTRAN COMMAND(UTRA RRC message)		
nas-SecurityParamFromEUTRA	The 4 least significant bits of the NAS downlink COUNT value		
systemInformation	Not present		
}			
}			
}			
}			
}			
}			

Table 13.1.5.3.3-2: HANDOVER TO UTRAN COMMAND (Table 13.1.5.3.3-1)

Derivation Path: 36.508, Table 4.7B.1-1, condition UTRA PS RB

Table 13.1.5.3.3-3: EXTENDED SERVICE REQUEST (step 4, table 13.1.5.3.2-1)

Derivation path: 36.508 table 4.7.2-14A			
Information Element	**Value/Remark**	**Comment**	**Condition**
Service type	0000 'mobile originating CS fallback or 1xCS fallback'		
CSFB response	Not present		

Table 13.1.5.3.3-4: UECapabilityEnquiry (step 4A, Table 13.1.5.3.2-1)

Derivation path: 36.508 clause 4.6.1 table 4.6.1-22			
Information Element	**Value/Remark**	**Comment**	**Condition**
UECapabilityEnquiry ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
ueCapabilityEnquiry-r8 SEQUENCE {			
ue-CapabilityRequest SEQUENCE (SIZE (1..maxRAT-Capabilities)) OF SEQUENCE {	2 entry		
RAT-Type[1]	Eutra		
RAT-Type[2]	Utra		
}			
}			
}			
}			
}			

Table 13.1.5.3.3-5: ATTACH ACCEPT (Preamble)

Derivation Path: 36.508 Table 4.7.2-1			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS network feature support	Not present		

13.1.6 Void

13.1.7 Call setup from E-UTRA RRC_IDLE / CS fallback to GSM with redirection / MT call

13.1.7.1 Test Purpose (TP)

(1)

```
with {UE in E-UTRA RRC_IDLE state }
ensure that {
  when { UE receives a Paging message for CS service, and UE has Set up RRCConnection with the E-
UTRA CELL}
    then { UE transmits an ULInformationTransfer message containing an EXTENDED SERVICE REQUEST
message with Service Type IE set to "mobile terminating CS fallback or 1xCS fallback" }
             }
```

(2)

```
with { UE having transmitted an ULInformationTranfer message containing an EXTENDED SERVICE REQUEST
message with Service Type IE set to "mobile terminating CS fallback or 1xCS fallback" }
ensure that {
  when { SS transmits an RRCConnectionRelease message with redirection to a GSM cell in a same
location area and operating in NMO I }
    then { UE tunes to GERAN cell and completes MT circuit switched voice call setup procedure on
GERAN }
            }
```

13.1.7.2 Conformance requirements

References: The conformance requirements covered in the current TC are those listed in TC 8.1.3.8, plus those specified in: TS 23.272, clause 7.4, and TS 24.301, clause 5.6.2.3..

[TS 23.272, clause 7.2]

The procedure for Mobile Terminating Call in idle mode is illustrated in figure 7.2-1, in the normal case. Clause 6.6 describes the procedure when the procedure is rejected by the MME.

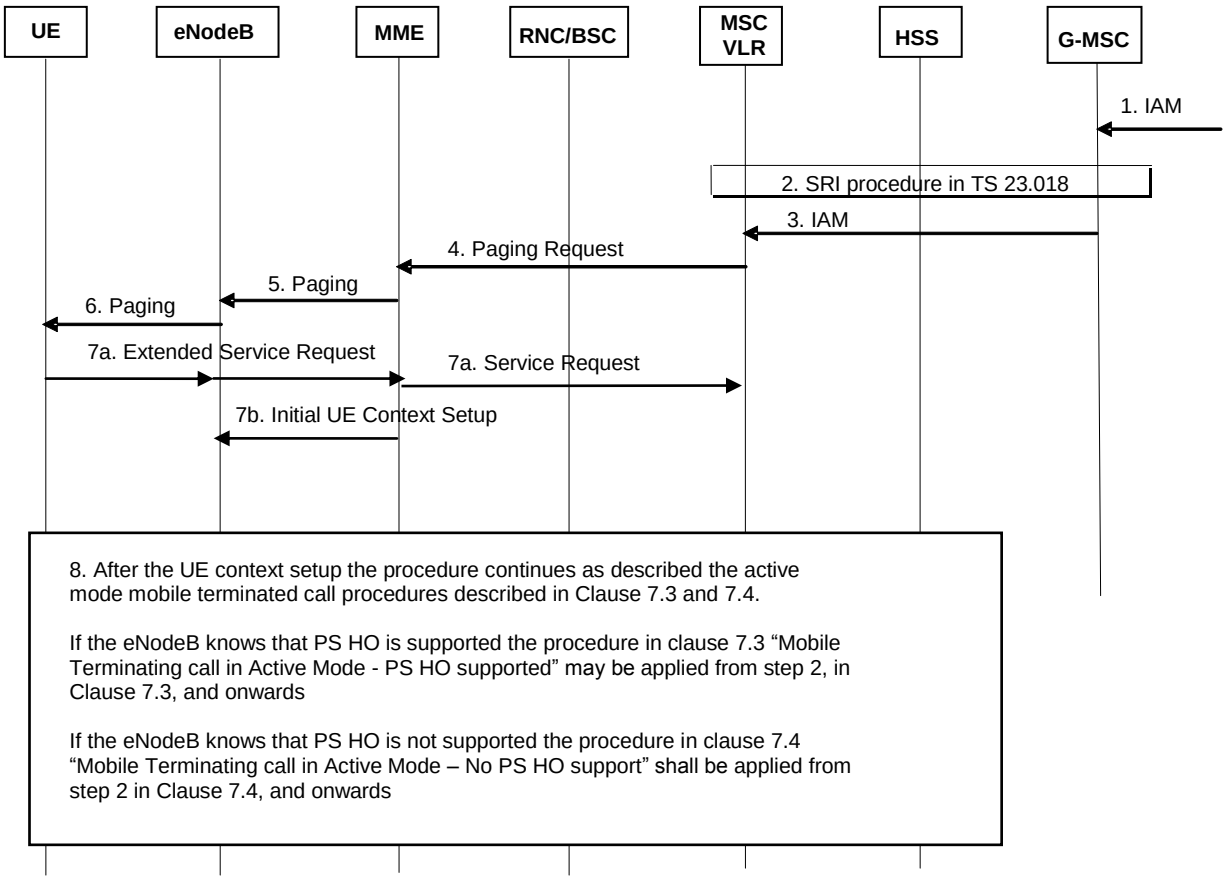

Figure 7.2-1: Mobile Terminating Call in idle mode

1. G-MSC receives IAM.

2. G-MSC retrieves routing information of the terminating UE by Send Routing Info procedures as specified in TS 23.018 [5].

3. G-MSC sends IAM to the MSC on the terminating side as specified in TS 23.018 [5].

4. The MME receives a Paging Request (IMSI, VLR TMSI, Location Information) message from the MSC over a SGs interface. If the TMSI is received from the MSC, it is used by the MME to find the S-TMSI which is used as the paging address on the radio interface. If the IMSI is received from the MSC, the IMSI shall be used as the paging address on the radio interface. If location information is reliably known by MME (i.e. MME stores the list of TAs), the MME shall page the UE in all the TAs. If the MME does not have a stored TA list for the UE, the MME should use the location information received from the MSC to page the UE.

NOTE 1: This procedure takes place before step 3, immediately after MSC receives MAP_PRN from HSS, if pre-paging is deployed.

If the MME receives a Paging Request message for an UE which is considered as detach for EPS services, the MME sends the Paging reject message to the MSC with an appropriate cause value. This rejection triggers the MSC to page the UE over A or Iu-cs interface.

NOTE 2: In case of a CS fallback capable UE in NMO II or III, there is a case where, for example, the MME releases the SGs association due to the UE idle mode mobility while the VLR still maintains the SGs association.

5. If the MME did not return an "SMS-only" indication to the UE during Attach or Combined TA/LA Update procedures, the MME sends a Paging (as specified in TS 23.401 [2]) message to each eNodeB. The Paging message includes a suitable UE Identity (i.e. S-TMSI or IMSI) and a CN Domain Indicator that indicates which domain (CS or PS) initiated the paging message. In this case it shall be set to "CS" by the MME.

If the MME returned the "SMS-only" indication to the UE during Attach or Combined TA/LA Update procedures, the MME shall not send the paging to the eNodeBs and sends Paging Reject towards MSC to stop CS Paging procedure and this CSFB procedure stops.

6. The radio resource part of the paging procedure takes place. The message contains a suitable UE Identity (i.e. S-TMSI or IMSI) and a CN Domain indicator.

7a. The UE establishes an RRC connection and sends an Extended Service Request (CS Fallback Indicator) to MME. The UE indicates its S-TMSI in the RRC signalling. The Extended Service Request message is encapsulated in RRC and S1-AP messages. The CS Fallback Indicator indicates to the MME that CS Fallback for this UE is required. The MME sends the SGs Service Request message to the MSC containing an indication that the UE was in idle mode (and hence, for example, that the UE has not received any Calling Line Identification information). Receipt of the SGs Service Request message stops the MSC retransmitting the SGs interface Paging message.

NOTE 3: In order to avoid the calling party experiencing a potentially long period of silence, the MSC may use the SGs Service Request message containing the idle mode indication as a trigger to inform the calling party that the call is progressing.

7b. MME sends S1-AP: Initial UE Context Setup (UE capabilities, CS Fallback Indicator, LAI and other parameters specified in TS 23.401 [2]) to indicate the eNodeB to move the UE to UTRAN/GERAN. The registered PLMN for CS domain is identified by the PLMN ID included in the LAI, which is allocated by the MME.

7c. The eNodeB shall reply with S1-AP: Initial UE Context Setup Response message.

8a. If the eNodeB knows that both the UE and the network support PS handover: The information flow may continue as described in clause 7.3 "Mobile Terminating call in Active Mode - PS HO supported" from step 2, in clause 7.3, and onwards.

. If the eNodeB knows that either the UE or the network does not support PS handover: The information flow shall continue as described in clause 7.4 "Mobile Terminating call in Active Mode – No PS HO support" from step 2, in clause 7.4, and onwards.

NOTE 4: Even in case both the UE and the network support PS HO, the eNodeB may choose to use a different inter-RAT mobility procedure.

[TS 23.272, clause 7.4]

This procedure is executed when PS HO is not supported, in the normal case. Clause 6.6 describes the procedure when the procedure is rejected by the MME.

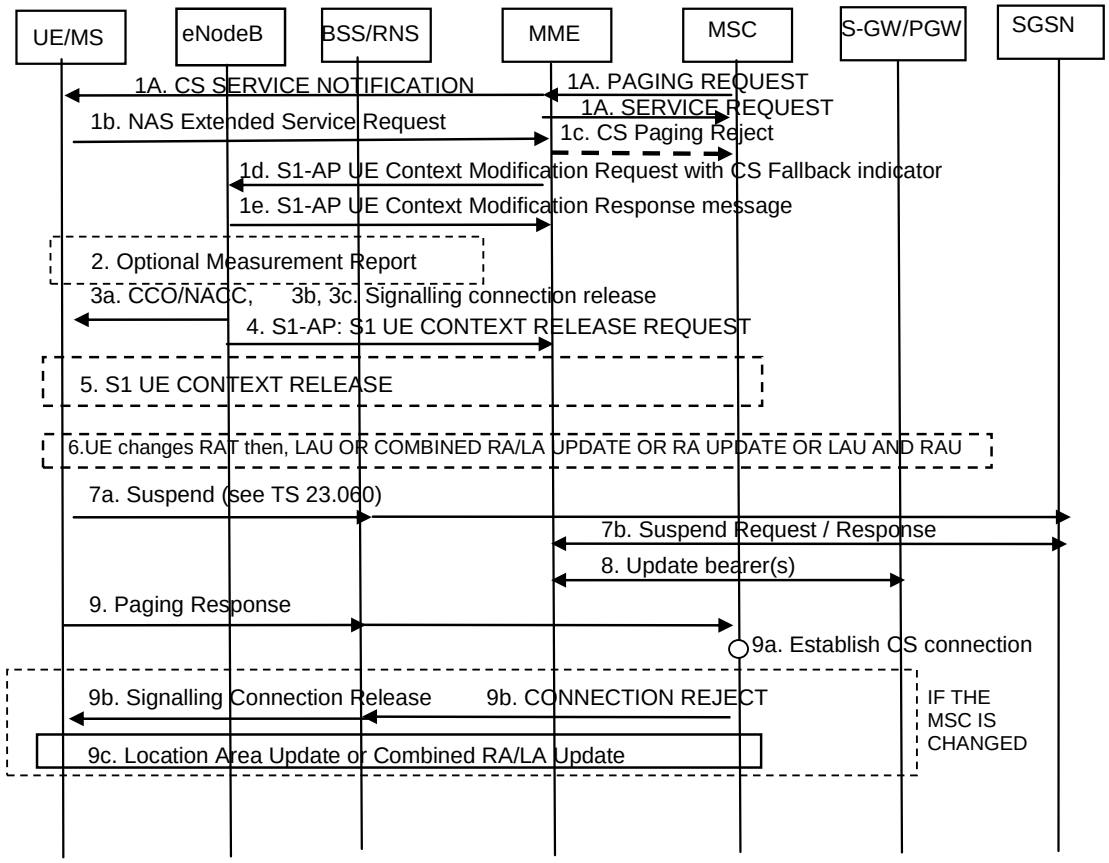

Figure 7.4-1: CS Page in E-UTRAN, Call in GERAN/UTRAN without PS HO

1a. The MSC receives an incoming voice call and responds by sending a Paging Request (IMSI or TMSI, optional Caller Line Identification and Connection Management information) to the MME over a SGs interface. The MSC only sends a CS Page for an UE that provides location update information using the SGs interface. In active mode the MME has an established S1 connection and if the MME did not return the "SMS-only" indication to the UE during Attach or Combined TA/LA Update procedures, the MME reuses the existing connection to relay the CS Service Notification to the UE.

If the MME returned the "SMS-only" indication to the UE during Attach or Combined TA/LA Update procedures, the MME shall not send the CS Page to the UE and sends CS Paging Reject towards MSC to stop CS Paging procedure, and this CSFB procedure stops.

The eNodeB forwards the paging message to the UE. The message contains CN Domain indicator and, if received from the MSC, the Caller Line Identification.

The MME immediately sends the SGs Service Request message to the MSC containing an indication that the UE was in connected mode. The MSC uses this connected mode indication to start the Call Forwarding on No Reply timer for that UE and the MSC should send an indication of user alerting to the calling party. Receipt of the SGs Service Request message stops the MSC retransmitting the SGs interface Paging message.

NOTE 1: The pre-configured policy may be used by UE to avoid being disturbed without Caller Line Identification display and the detailed handling is to be decided by CT WG1 and CT WG6.

NOTE 2: This procedure can also take place immediately after MSC receives MAP_PRN from HSS, if pre-paging is deployed. Caller Line Identification is also provided in the case of pre-paging.

1b. UE sends an Extended Service Request (CS Fallback Indicator, Reject or Accept) message to the MME. Extended Service Request message is encapsulated in RRC and S1-AP messages. CS Fallback Indicator indicates MME to perform CS Fallback. The UE may decide to reject CSFB based on Caller Line Identification.

1c. Upon receiving the Extended Service Request (CSFB, Reject), the MME sends Paging Reject towards MSC to stop CS Paging procedure and this CSFB procedure stops.

1d. The MME sends an S1-AP UE Context Modification Request (CS Fallback Indicator, LAI) message to eNodeB. This message indicates to the eNodeB that the UE should be moved to UTRAN/GERAN. The registered PLMN for CS domain is identified by the PLMN ID included in the LAI, which is allocated by the MME.

1e. The eNodeB shall reply with S1-AP UE Context Modification Response message.

2. The eNodeB may optionally solicit a measurement report from the UE to determine the target GERAN/UTRAN cell to which the redirection procedure will be performed.

The network performs one of steps 3a or 3b or 3c.

3a. If the UE and network support inter-RAT cell change order to GERAN and the target cell is GERAN:

The eNodeB can trigger an inter-RAT cell change order (optionally with NACC) to a GERAN neighbour cell by sending an RRC message to the UE. The inter-RAT cell change order may contain a CS Fallback Indicator which indicates to UE that the cell change order is triggered due to a CS fallback request. If the inter-RAT cell change order contains a CS Fallback Indicator and the UE fails to establish connection to the target RAT, then the UE considers that CS fallback has failed. Service Request procedure is considered to be successfully completed when cell change order procedure is completed successfully.

The eNodeB selects the target cell considering the PLMN ID and possibly the LAC for CS domain provided by the MME in step 1d for CCO/NACC purpose.

3b. If the UE or the network does not support inter-RAT PS handover from E-UTRAN to GERAN/UTRAN nor inter-RAT cell change order to GERAN:

The eNodeB can trigger RRC connection release with redirection to GERAN or UTRAN instead of PS HO or NACC.

NOTE 3: When performing CS Fallback to UTRAN, the RRC connection release with redirection can be optimized if both the UE and UTRAN support the optional "Deferred measurement control reading" feature specified in TS 25.331 [7].

3c. If the UE and network support "RRC connection release with redirection and Multi Cell System Information to GERAN/UTRAN":

The eNodeB can trigger RRC connection release with redirection to GERAN or UTRAN and include one or more physical cell identities and their associated System Information.

In step 3b or step 3c, the eNodeB includes the redirection control information into the RRC Connection Release message based on the PLMN ID for CS domain and the RAT/frequency priority configured in the eNodeB, so that the UE registered PLMN for CS domain can be preferably selected.

NOTE 4: Service Request procedure supervision timer shall be sufficiently long considering the optional measurement reporting at step 2.

4. The eNodeB sends an S1-AP UE Context Release Request message to the MME. If the target cell is GERAN and either the target cell or the UE does not support DTM the message includes an indication that the UE is not available for PS service.

5. The MME releases the UE Context in the eNodeB as well as all eNodeB related information in the S-GW as specified in TS 23.401 [2].

In case the Cause indicates that RRC was released due to abnormal conditions, e.g. radio link failure, the MME suspends the EPS bearers (Step 8).

The UE performs one of steps 6a or 6b or 6c and THEN performs step 6d.

6a. (Step 6a is performed if step 3a, Cell Change Order to GERAN, was performed)

The UE moves to the new cell in GERAN. The UE uses the NACC information and/or receives the broadcast System Information and when it has the necessary information to access the GERAN cell, establishes a radio signalling connection.

6b. (Step 6b is performed if step 3b, RRC release with redirection, was performed).

The UE moves to the target RAT, identifies a suitable cell preferably of the same PLMN as received in LAI IE of combined EPS/IMSI Attach/TAU Accept message,, receives the broadcast System Information and when it has the necessary information to access GERAN/UTRAN, establishes a radio signalling connection.

6c. (Step 6c is performed if step 3c, RRC connection release with redirection and Multi Cell System Information, was performed)

The UE moves to the target RAT and identifies a suitable cell preferably of the same PLMN as received in LAI IE of combined EPS/IMSI Attach/TAU Accept message. The UE uses the NACC information and/or receives the broadcast System Information and when it has the necessary information to access GERAN/UTRAN, the UE establishes the radio signalling connection.

6d. If the LA of the new cell is different from the one stored in the UE, the UE shall initiate a Location Area Update or a Combined RA/LA Update as specified in TS 23.060 [3] for the different Network Modes of Operation (NMO). The UE shall set the "CSMT" flag in the LAU Request. The "CSMT" flag is used to avoid missing MT call in roaming retry case. In NMO I, the UE in GERAN may perform LA update over the RR connection instead of combined RA/LA update over the packet access as defined in TS 24.008 [21], clause 4.7.5.2.5, unless enhanced CS establishment in DTM is supported. Further the UE performs any Routing Area Update procedure as specified in TS 23.060 [3].

In NMO I a CSFB UE should perform LAU (and if it does so, shall set the "CSMT" flag) and RAU procedures instead of a Combined RA/LA Update procedure to speed up the CSFB procedure.

When the MSC receives a LA Update Request, it shall check for pending terminating CS calls and, if the "CSMT" flag is set, maintain the CS signalling connection after the Location Area Update procedure for pending terminating CS calls.

7. If the target RAT is GERAN and DTM is not supported, the UE starts the Suspend procedure specified in TS 23.060 [3]. This triggers the (serving) SGSN to send a Suspend Request (TLLI, RAI) message to the old CN node identified by the RAI and TLLI. If ISR is not active, the RAI and TLLI refer to an MME. The MME returns a Suspend Response to the SGSN even though GUTI cannot be derived from the P-TMSI and RAI pair. If ISR is active, the RAI and TLLI refer to the old S4-SGSN which has ISR association with the MME, In this case, if the serving SGSN is different from the old SGSN, the old SGSN returns a Suspend Response to the serving SGSN.

NOTE 5: For step 7b and 8, the inter-SGSN suspending procedure of ISR active case are not shown in the figure.

8. If the S1-AP UE Context Release Request message, received from the eNodeB in step 4, indicates that the UE is not available for the PS services in the target cell, the MME deactivates GBR bearers towards S-GW and P-GW(s) by initiating MME-initiated Dedicated Bearer Deactivation procedure as specified in TS 23.401 [2], and starts the preservation and suspension of non-GBR bearers by sending Suspend Notification message to the S-GW. If ISR is active, the (old) S4-SGSN sends the Suspend Notification message to the S-GW, triggered by the Suspend procedure in step 7 and hence MME may skip sending the Suspend Notification. The S-GW releases all eNodeB related information (address and TEIDs) for the UE, and sends Suspend Notification message to the P-GW(s) when it receives the Suspend Notification message from MME or S4-SGSN. If the S-GW receives two Suspend Notification messages for the same UE, it ignores the second one except for sending response. The MME stores in the UE context that the UE is in suspended status. All the preserved non-GBR bearers are marked as suspended status in the S-GW and P-GW(s). The P-GW should discard packets if received for the suspended UE.

NOTE 6: Step 8 can not be triggered by the Suspend procedure since the full GUTI can not be derived from the P-TMSI and RAI included in the Suspend Request message.

9. If the UE does not initiate a LAU procedure, the UE responds to the paging by sending a Paging Response message as specified in TS 44.018 [4] or TS 25.331 [7]. When received at the BSS/RNS, the Paging Response is forwarded to the MSC.

NOTE 7: The MSC should be prepared to receive a Paging Response after a relatively long time from when the CS Paging Request was sent (step 1a).

9a. If UE is registered in the MSC serving the 2G/3G cell and the UE is allowed in the LA the MSC shall establish the CS call.

9b. If the UE is not registered in the MSC that receives the Paging Response or the UE is not allowed in the LA, the MSC shall reject the Paging Response by releasing the A/Iu-cs connection. The BSS/RNS in turn releases the signalling connection for CS domain.

9c. The signalling connection release shall trigger the UE to obtain the LAI, which causes the initiation of a Location Area Update or a Combined RA/LA procedure as specified in TS 23.060 [3] for the different Network Modes of Operation (NMO).

The Location Area Update triggers the Roaming Retry for CS Fallback procedure as defined in clause 7.5.

After performing the LAU procedure the MSC shall establish the CS call if the UE is allowed in the LA.

With the exception of steps 1a and 1c, above, Call Forwarding (see TS 23.082 [31]) is performed on the basis of the TS 24.008 [21] signalling received on the GERAN/UTRAN cell.

After the CS voice call is terminated and if the UE is still in GERAN and PS services are suspended, then the UE shall resume PS services as specified in TS 23.060 [3]. A Gn/Gp- SGSN will follow TS 23.060 [3] to resume the PDP Context(s). An S4 SGSN will follow TS 23.060 [3] to resume the bearers, and informs the S-GW and P-GW(s) to resume the suspended bearers. If the UE has returned to E-UTRAN after the CS voice call was terminated, then the UE shall resume PS service by sending TAU to MME. The MME will in addition inform S-GW and P-GW(s) to resume the suspended bearers. Resuming the suspended bearers in the S-GW and in the P-GW should be done by implicit resume using the Modify Bearer request message if it is triggered by the procedure in operation e.g. RAU, TAU or Service Request. The S-GW is aware of the suspend state of the bearers and shall forward the Modify Bearer request to the P-GW. Explicit resume using the Resume Notification message should be used in cases when Modify Bearer Request is not triggered by the procedure in operation.

If the UE remains on UTRAN/GERAN after the CS voice call is terminated the UE performs normal mobility management procedures as defined in TS 23.060 [3] and TS 24.008 [21].

Editor's note: the following text shall probably be deleted.

The procedure for Mobile Terminating Call in idle mode is illustrated in figure 7.2-1.

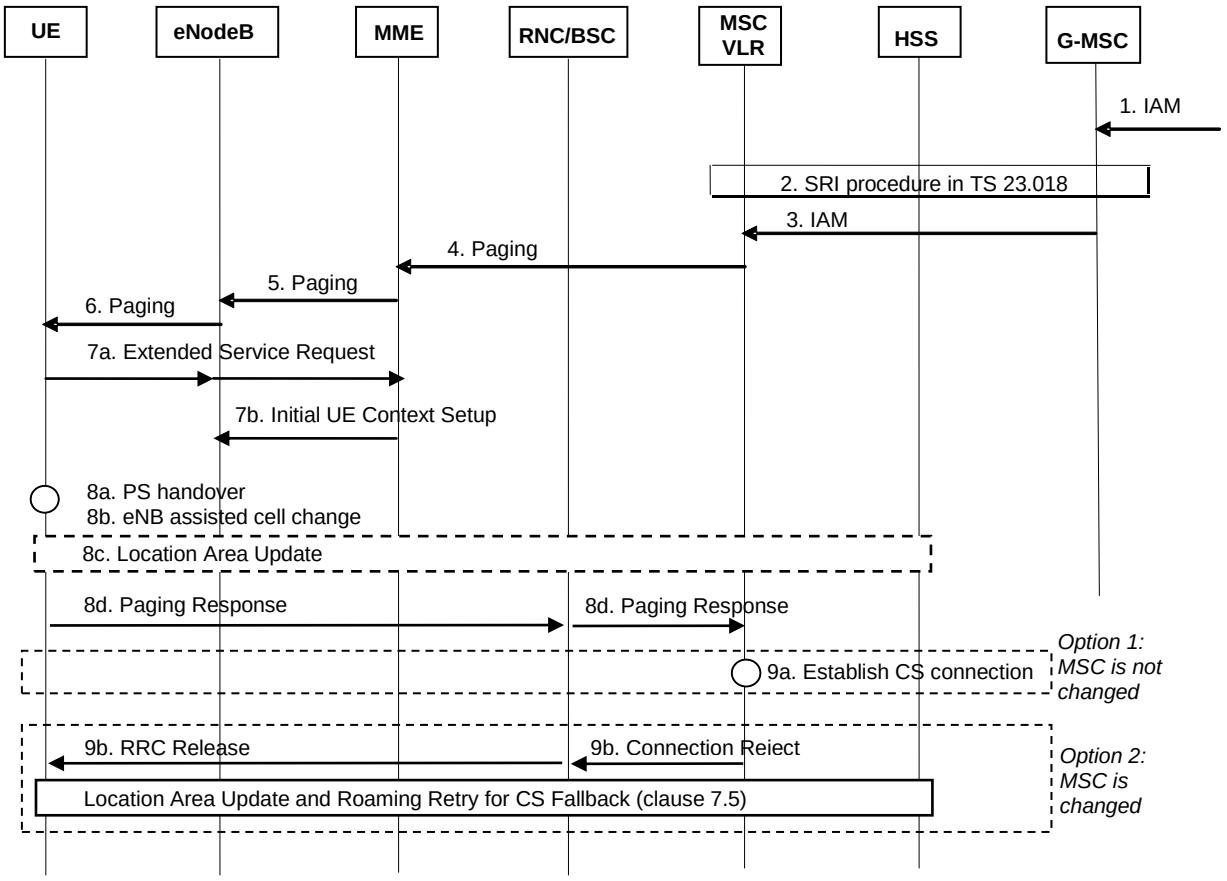

Figure 7.2-1: Mobile Terminating Call in idle mode

1. G-MSC receives IAM.

2. G-MSC retrieves routing information of the terminating UE by Send Routing Info procedures as specified in TS 23.018 [5].

3. G-MSC sends IAM to the MSC on the terminating side as specified in TS 23.018 [5].

4. The MME receives a Paging (IMSI, VLR TMSI, Location Information) message from the MSC over a SGs interface. The TMSI (or IMSI) received from the MSC is used by the MME to find the S-TMSI which is used as the paging address on the radio interface If location information is reliably known by MME (i.e. MME stores the list of TAs), the MME shall page the UE in all the TAs. If the MME does not have a stored TA list for the UE, the MME should use the location information received from the MSC to page the UE.

NOTE 1: This procedure takes place before step 3, immediately after MSC receives MAP_PRN from HSS, if pre-paging is deployed.

5. The MME sends a Paging (as specified in TS 23.401 [2]) message to each eNodeB. The Paging message includes a suitable UE Identity (i.e. S-TMSI or IMSI) and a CN Domain Indicator that indicates which domain (CS or PS) initiated the paging message. In this case it shall be set to "CS" by the MME.

6. The radio resource part of the paging procedure takes place. The message contains a suitable UE Identity (i.e. S-TMSI or IMSI) and a CN Domain indicator.

7a. The UE establishes an RRC connection and sends an Extended Service Request (CS Fallback Indicator) to MME. The UE indicates its S-TMSI in the RRC signalling. The Extended Service Request message is encapsulated in RRC and S1-AP messages. The CS Fallback Indicator indicates to the MME that CS Fallback for this UE is required.

7b. MME sends S1-AP: Initial UE Context Setup (UE capabilities, CS Fallback Indicator and other parameters specified in TS 23.401 [2]) to indicate the eNodeB to move the UE to UTRAN/GERAN.

8a. Target RAT has PS HO capability: Upon receipt of the Initial UE Context Setup message with a CS Fallback Indicator the eNodeB may optionally solicit measurement reports from the UE to determine the target cell to which PS handover will be performed. A PS handover is then performed as specified in TS 23.401 [2]. As part of this PS handover, the UE receives a HO from E-UTRAN Command that may contain a CS Fallback Indicator, which indicates to UE that the handover is triggered due to a CS fallback request. If the HO from E-UTRAN Command contains a CS Fallback Indicator and the UE fails to establish connection to the target RAT, then the UE considers that CS fallback has failed.

8b. Target RAT has no PS HO capability. Upon receipt of the Initial UE Context Setup message with a CS Fallback Indicator the eNodeB may optionally solicit measurement reports from the UE to determine the target cell to redirect the UE to. After that, the eNB releases the RRC Connection with a redirection info to change to CS capable RATs (RAT, frequency, cell info). As an option the inter-RAT system information might be provided by the eNodeB using the NACC procedure for GERAN. In this case the UE receives in inter-RAT cell change order that may contain a CS Fallback Indicator which indicates to UE that the cell change order is triggered due to a CS fallback request. If the inter-RAT cell change order contains a CS Fallback Indicator and the UE fails to establish connection to the target RAT, then the UE considers that CS fallback has failed.

8c. If the UE obtains LA/RA information of the new UTRAN/GERAN cell (e.g. based on the system information or redirection info) and the LA/RA of the new cell is different from the one stored in the UE, it performs a Location Area Update or a Combined RA/LA procedure if the target system operates in Network Mode of Operation (NMO) I, according to TS 23.060 [3].

8d. The UE responds with a page response message to the MSC as follows:

- If Target RAT is UTRAN or GERAN Iu mode, the UE establishes an RRC connection and responds to the paging in an RRC Initial Direct Transfer message as specified in TS 25.331 [7]. The CN Domain Indicator is set to "CS" in the Initial Direct Transfer message. When received at the RNC, the Paging Response message is sent in an RANAP Initial UE message to the MSC.

- If Target RAT is GERAN A/Gb mode: the UE establishes an RR connection by using the procedures specified in TS 44.018 [6] (i.e. UE requests and is assigned a dedicated channel where it sends a SABM containing a layer 3 Service Request message = PAGING RESPONSE to the BSS and the BSS responds by

sending a UA). After the establishment of the main signalling link as described in TS 44.018 [4] the UE enters either Dual Transfer Mode or Dedicated Mode and the CS call establishment procedure completes. When received at the BSC, the Paging Response message is sent in a BSSAP COMPLETE LAYER 3 INFORMATION message to the MSC as specified in TS 48.008 [6].

NOTE 2: The BSS should be prepared to receive a PAGING RESPONSE even when a corresponding PAGING REQUEST has not been sent by this BSS. Also, the MSC should be prepared to receive a paging response after a relatively long time from when the CS Paging was sent (step 4).

9a. In case the MSC serving the 2G/3G cell is the same as the MSC that served the UE while camped on LTE, it shall stop the paging response timer and establish the CS connection.

9b. If the MSC that receives the paging response is different from the MSC that sent the paging request and if the Location Area Update / Combined RA/LA Update was not performed in step 8c, the MSC shall reject the page response by releasing the A/Iu-cs connection. The BSC/RNC in turn releases the RRC/RR connection. The RRC/RR release shall trigger the UE to perform a Location Area Update as follows:

- If the target system operates in Network Mode of Operation (NMO) I the UE shall perform a combined RA/LA update, as defined in TS 23.060 [3].

- If the target system operates in NMO II or III the UE performs a Location Area Update towards the MSC.

The Location Area Update triggers the Roaming Retry for CS Fallback procedure as defined in clause 7.5.

When the target system operates in Network Mode of Operation (NMO) I then, if the UE is still in UTRAN/GERAN after the CS voice call is terminated, and if a combined RA/LA update has not already been performed, the UE performs a combined RA/LA update procedure. This procedure is used to create a Gs association between the MSC/VLR and the SGSN, and to release the SGs association.

When the target system operates in Network Mode of Operation (NMO) II or III then, if the UE is still in UTRAN/GERAN after the CS voice call is terminated, and if a LA update has not already been performed, the UE performs a LA update procedure. This procedure is used to release the SGs association between the MSC/VLR and the MME.

[TS 24.301, clause 5.6.2.3]

The network may initiate the paging procedure for non-EPS services when the UE is IMSI attached for non-EPS services (see example in figure 5.6.2.3.1).

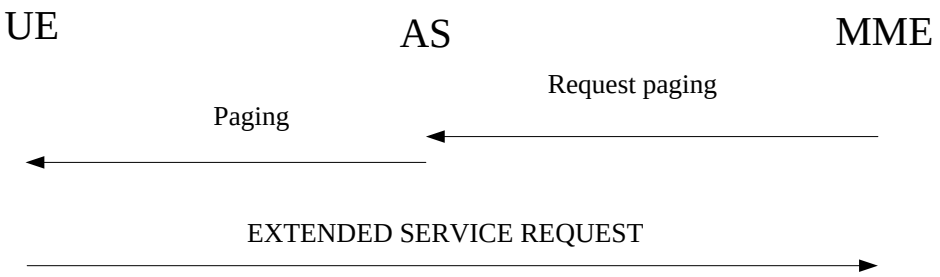

Figure 5.6.2.3.1: Paging procedure for CS fallback to A/Gb or Iu mode

To initiate the procedure when no NAS signalling connection exists, the EMM entity in the network requests the lower layer to start paging (see 3GPP TS 36.300 [20], 3GPP TS 36.413 [23]). The paging message includes a CN domain indicator set to "CS" in order to indicate that this is paging for CS fallback.

NOTE: The timer T3413 is not started in the network when the paging procedure is initiated for CS fallback.

To notify the UE about an incoming mobile terminating CS service when a NAS signalling connection exists, the EMM entity in the network shall send a CS SERVICE NOTIFICATION message. This message may also include CS service related parameters (e.g. Calling Line Identification, SS or LCS related parameters).

Upon reception of a paging indication, the UE shall respond with an EXTENDED SERVICE REQUEST. If the paging is received in EMM-IDLE mode, the UE shall respond immediately. If the paging is received as NAS CS NOTIFICATION message in EMM-CONNECTED mode, the UE may request upper layers input i.e. to accept or reject CS fallback before responding with an EXTENDED SERVICE REQUEST. The response is indicated in the CSFB response information element in the EXTENDED SERVICE REQUEST message in both EMM-IDLE and EMM-CONNECTED modes.

13.1.7.3 Test description

13.1.7.3.1 Pre-test conditions

System Simulator:

- Cell 1 (serving cell) and Cell 24 (suitable neighbour cell) are in the same LA.
- System information combination 5 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cells.
- The parameters settings and power levels for Cell 1 and Cell 24 are selected according to [18], [5] so that camping on Cell 1 is guaranteed and no cell re-selection to Cell 24 can take place (GERAN priority is lower than serving and $S_{Cell\ 1} > Thresh_{Cell\ 1,low}$).
- DTM is not supported on the Cell 24.

UE:

Preamble:

- The UE is in state Registered, Idle Mode (state 2) on Cell 1 according to [18].

13.1.7.3.2 Test procedure sequence

Table 13.1.7.3.2-1: Void

Table 13.1.7.3.2-1A: instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 24	Remark
T1	Cell-specific RS EPRE	dBm/15kHz	-115	-	The power levels are such that reselection back to cell 1 should not occur

Table 13.1.7.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message	-	-
1	The SS transmits a Paging message on Cell1.	<--	*Paging*	-	-
-	EXCEPTION: Step 2a1 describes behaviour that depends on the UE capability; the "lower case letter" identifies a step sequence that takes place if a capability is supported.	-	-	-	-
2a1	IF the UE needs to request upper layer input before accepting the CS fallback (see ICS), the incoming CS call is accepted at the UE through MMI or AT command.	-	-	-	-
2	The UE transmits an *RRCConnectionRequest* message on Cell1.	-->	*RRCConnectionRequest*	-	-
3	The SS transmits an *RRCConnectionSetup message* on Cell1.	<--	*RRCConnectionSetup*	-	-
4	The UE transmits an *RRCConnectionSetupComplete* message on Cell1.	-->	*RRCConnectionSetupComplete*	-	-
5	Check: Does the UE transmit an *ULInformationTransfer* message on Cell1? The message includes an *EXTENDED SERVICE REQUEST* message.	-->	*ULInformationTransfer* EXTENDED SERVICE REQUEST	1	P

6	The SS transmits a *RRCConnectionRelease message on Cell 1* with IE *redirectedCarrierInfo* including geran frequency of Cell 24.	<--	*RRCConnectionRelease*	-	-
6A	Void	-	-	-	-
6B	The UE transmits a CHANNEL REQUEST message on Cell24.	-->	CHANNEL REQUEST	-	-
6C	The SS changes cell 1 power level according to the row “T1”				
7-39	Check: Steps 2 to 34 of the generic test procedure described in TS36.508 subclause 6.4.3.8.1 are performed on Cell24 ?	-	-	2	-
-	At the end of this test procedure sequence, the UE is in end state GERAN idle (G1) according to TS 36.508.	-	-	-	-

13.1.7.3.3 Specific message contents

Table 13.1.7.3.3-1: *Void*

Table 13.1.7.3.3-2: Void

Table 13.1.7.3.3-3: *Paging* (step1, Table 13.1.7.3.2-2)

Derivation Path: 36.508 Table 4.6.1-7			
Information Element	**Value/remark**	**Comment**	**Condition**
Paging ::= SEQUENCE {			
pagingRecordList SEQUENCE (SIZE (1..maxPageRec)) OF SEQUENCE {	1 entry		
ue-Identity[1] CHOICE {			
s-TMSI	Assigned during the preamble		
}			
cn-Domain[1]	cs		
}			
}			

Table 13.1.7.3.3-4: *ULInformationTransfer* (step 5, Table 13.1.7.3.2-2)

Derivation Path: 36.508 Table 4.6.1-25			
Information Element	**Value/remark**	**Comment**	**Condition**
ULInformationTransfer ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
ulInformationTransfer-r8 SEQUENCE {			
dedicatedInfoType CHOICE {			
dedicatedInfoNAS	Set according to 36.508 Table 4.7.2-14A	EXTENDED SERVICE REQUEST	
}			
}			
}			
}			
}			

Table 13.1.7.3.3-5: Void

Table 13.1.7.3.3-6: *RRCConnectionRelease* (step 6, Table 13.1.7.3.2-2)

Derivation Path: 36.508 Table 4.6.1.1-15			
Information Element	**Value/remark**	**Comment**	**Condition**
RRCConnectionRelease ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
rrcConnectionRelease-r8 SEQUENCE {			
redirectedCarrierInfo ::= CHOICE {			
geran	f11		
}			
}			
}			
}			
}			

Table 13.1.7.3.3-7: Void

Table 13.1.7.3.3-8: ATTACH ACCEPT (Preamble)

Derivation Path: 36.508 Table 4.7.2-1			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS network feature support	Not present		

13.1.8 Call setup from E-UTRA RRC_CONNECTED/ CS fallback to GSM with Redirection / MO call

13.1.8.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_CONNECTED state }
ensure that {
  when { UE is triggered by upper layers to perform a circuit switched voice call }
   then { UE transmits an ULInformationTransfer message containing an EXTENDED SERVICE REQUEST
message with Service Type IE set to "mobile originating CS fallback or 1xCS fallback" }
}
```

(2)

```
with { UE having transmitted an ULInformationTranfer message containing an EXTENDED SERVICE REQUEST
message with Service Type IE set to "mobile originating CS fallback or 1xCS fallback" }
ensure that {
  when { SS transmits an RRCConnectionRelease message with redirection to a GERAN cell in a same
location area and operating in NMO I }
    then { UE tunes to GERAN cell and completes MO circuit switched voice call setup procedure on
GERAN }
}
```

13.1.8.2 Conformance requirements

References: The conformance requirements covered in the current TC are those listed in TC 8.1.3.6, plus those specified in: TS 23.272, clause 6.3, and TS 24.301, clause 5.6.1.1.

[TS 23.272, clause 6.3]

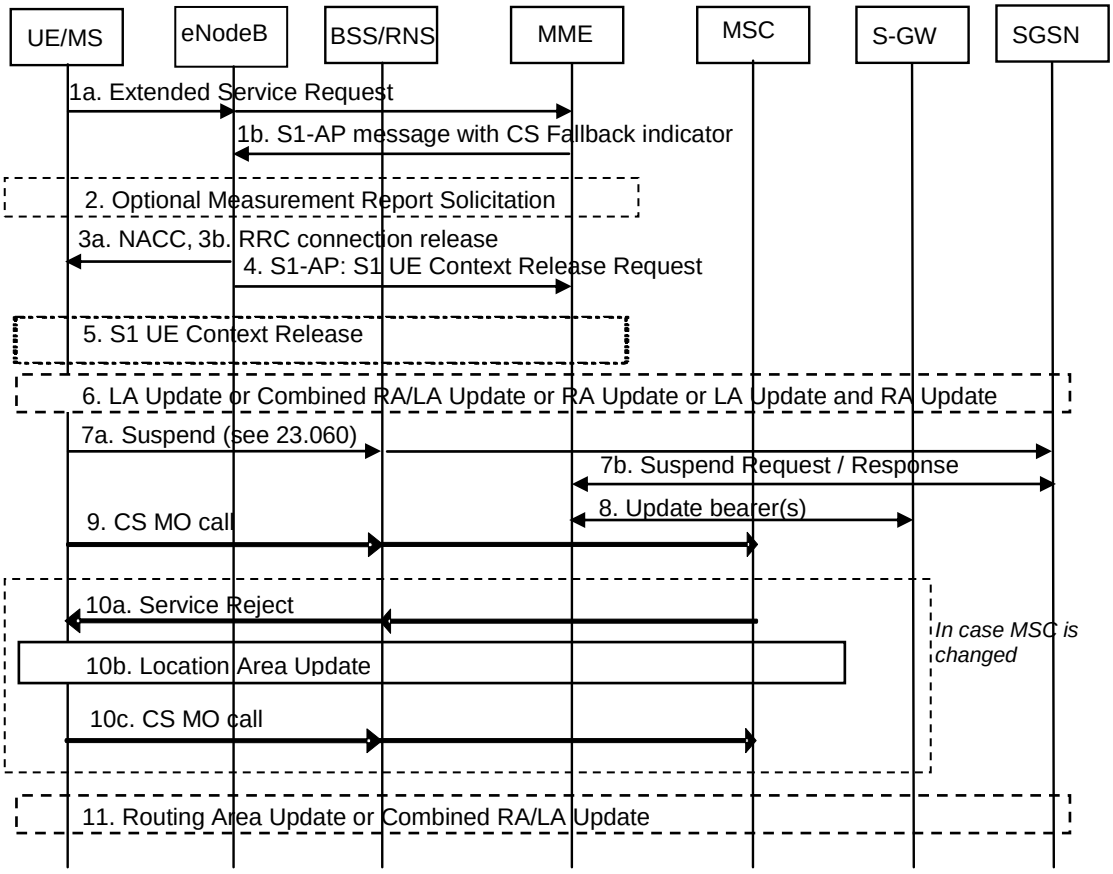

Figure 6.3-1: CS Call Request in E-UTRAN, Call in GERAN/UTRAN without PS HO

1a. The UE sends an Extended Service Request (CS Fallback Indicator) to the MME. Extended Service Request message is encapsulated in RRC and S1-AP messages. CS Fallback Indicator indicates MME to perform CS Fallback. The UE only transmits this request if it is attached to CS domain (with a combined EPS/IMSI Attach) and can not initiate an IMS voice session (because e.g. the UE is not IMS registered or IMS voice services are not supported by the serving IP-CAN, home PLMN or UE).

1b. The MME sends an S1-AP Request message to eNB that includes a CS Fallback Indicator. This message indicates to the eNB that the UE should be moved to UTRAN/GERAN.

2. The eNodeB may optionally solicit a measurement report from the UE to determine the target GERAN cell to which the redirection procedure will be performed.

3a. If the UE and network support inter-RAT cell change order to GERAN and the target cell is GERAN: The eNodeB triggers an inter-RAT cell change order (optionally with NACC) to a GERAN neighbour cell by sending an RRC message to the UE. The inter-RAT cell change order may contain a CS Fallback Indicator which indicates to UE that the cell change order is triggered due to a CS fallback request. If the inter-RAT cell change order contains a CS Fallback Indicator and the UE fails to establish connection to the target RAT, then the UE considers that CS fallback has failed. Service Request procedure is considered to be successfully completed when cell change order procedure is completed successfully.

3b. If the UE or the network does not support inter-RAT handover from E-UTRAN to GERAN/UTRAN nor inter-RAT cell change order to GERAN: The eNodeB triggers RRC connection release with redirection to GERAN/UTRAN instead of PS HO or NACC.

NOTE 2: Service Request procedure supervision timer shall be sufficiently long considering the optional measurement reporting at step 2.

4. The eNodeB sends an S1 UE Context Release Request (Cause) message to the MME. Cause indicates that the UE is not available for the PS service.

5. S1 UE Context in the eNodeB is released as specified in TS 23.401 [2].

6. The UE moves to the new cell in GERAN/UTRAN and establishes a radio signalling connection.

   If the UE obtains LA information of the new cell (e.g. based on the system information) and the LA of the new cell is different from the one stored in the UE, it performs a Location Area Update or a Combined RA/LA Update procedure in case the target system operates in Network Mode of Operation (NMO) I. Alternatively, in NMO I, the UE in GERAN may perform LA update over the RR connection instead of combined RA/LA update over the packet access, as defined in TS 24.008 [21], clause 4.7.5.2.5, unless enhanced CS establishment in DTM is supported.

   If the UE moves to an UTRAN cell and ISR is not active or the RA of the cell is different to the one the UE is registered in, the UE performs a Routing Area Update. This can be performed as part of the combined RA/LA Update procedure when the LA of the new cell is different from the one stored in the UE and the target system operates in NMO I.

7. If the target RAT is GERAN and DTM is not supported, the UE starts the Suspend procedure specified in TS 23.060 [3], clause 16.2.1.1.2. This triggers the SGSN to send a Suspend Request message to the MME. The MME returns a Suspend Response to the SGSN, which contains the MM and PDP contexts of the UE.

8. If PS services are suspended, the MME starts the preservation of non-GBR bearers and the deactivation of GBR bearers.

9. The UE continues with the MO call setup procedure.

10a. In case the MSC serving the 2G/3G cell is different from the MSC that served the UE while camped on E-UTRAN and if the Location Area Update / Combined RA/LA Update was not performed in step 6, the MSC shall reject the call setup service request, if implicit location update is not performed.

10b. A UE detecting that the MSC rejected the service request shall perform the Location Area Update according to existing GERAN or UTRAN procedures.

10c. After completion of the Location Area Update the UE continues with a MO call setup procedure.

11. After the CS voice call is terminated and if the UE is in GERAN and PS services are suspended, then (as specified in TS 23.060 [3]) the UE shall resume PS services by sending a Routing Area Update Request message to the SGSN. The Update Type depends on the mode of operation of the GERAN network, e.g. in mode I a Combined RA/LA Update is used and in mode II or III Routing Area Update is used.

If the UE remains on UTRAN/GERAN after the CS voice call is terminated the UE performs normal mobility management procedures as defined in TS 23.060 [3] and TS 24.008 [21], i.e. if the UE is not registered in the current RA/LA, the UE performs combined RA/LA update procedure when the target system operates in NMO I, or separate LA update and RA update procedures when the target system operates in NMO II/III. Also for NMO I if the UE performed only RA update due to the CS call the UE performs a combined RA/LA update (see TS 23.060 [3], clause 6.3.1) which creates the Gs association.

[TS 24.301, clause 5.6.1.1]

The purpose of the service request procedure is to transfer the EMM mode from EMM-IDLE to EMM-CONNECTED mode and establish the radio and S1 bearers when uplink user data or signalling is to be sent. Another purpose of this procedure is to invoke MO/MT CS fallback procedures.

This procedure is used when:

- the network has downlink signalling pending;
- the UE has uplink signalling pending;
- the UE or the network has user data pending and the UE is in EMM-IDLE mode;
- the UE in EMM-IDLE or EMM-CONNECTED mode has requested to perform mobile originating/terminating CS fallback;
- the network has downlink cdma2000® signalling pending; or
- the UE has uplink cdma2000® signalling pending.

The service request procedure is initiated by the UE, however, for the downlink transfer of signalling, cdma2000® signalling or user data in EMM-IDLE mode, the trigger is given by the network by means of the paging procedure (see subclause 5.6.2).

The UE shall invoke the service request procedure when:

a) the UE in EMM-IDLE mode receives a paging request with CN domain indicator set to "PS" from the network;

b) the UE, in EMM-IDLE mode, has pending user data to be sent;

c) the UE, in EMM-IDLE mode, has uplink signalling pending;

d) the UE in EMM-IDLE or EMM-CONNECTED mode is configured to use CS fallback and has a mobile originating CS fallback request from the upper layer;

e) the UE in EMM-IDLE mode is configured to use CS fallback and receives a paging request with CN domain indicator set to "CS", or the UE in EMM-CONNECTED mode is configured to use CS fallback and receives a CS SERVICE NOTIFICATION message;

f) the UE in EMM-IDLE or EMM-CONNECTED mode is configured to use 1xCS fallback and has a mobile originating 1xCS fallback request from the upper layer;

g) the UE in EMM-CONNECTED mode is configured to use 1xCS fallback and accepts cdma2000® signalling messages containing a 1xCS paging request; or

h) the UE, in EMM-IDLE mode, has uplink cdma2000® signalling pending.

[TS 24.008, clause 4.5.1.1, item d)]

d) When the MS is IMSI attached for CS services via EMM combined procedures, as described in 3GPP TS 24.301 [120], and the MS is camping on an E-UTRAN cell, the MM sublayer requests EMM to initiate a service request procedure for CS fallback. The MM connection establishment is delayed until the MS changes to a GERAN or UTRAN cell.

   If the MS enters a GERAN or UTRAN cell, then the MS shall initiate the MM connection establishment and send a CM SERVICE REQUEST message. If the MS determines that it is in a different location area than the stored location area, the MS shall first initiate a normal location updating procedure or a combined routing area update procedure, depending on Network Mode of Operation. The MM connection establishment is delayed until successful completion of the normal location updating or combined routing area update procedure. In A/Gb mode, if the MS is a non DTM MS, or a DTM MS in a cell not supporting DTM, the MS may perform location area updating procedure instead of combined routing area update procedure in NMO I.

13.1.8.3 Test description

13.1.8.3.1 Pre-test conditions

System Simulator:

- 2 cells, one E-UTRA and one GERAN cell:
  - Cell 1 E-UTRA serving cell
  - Cell 24 suitable neighbour GERAN cell
    - Cell 24 system information indicates that NMO 1 is used
  - The parameters settings and power levels for Cell 1 and Cell 24 are selected according to [18], [5] so that camping on Cell 1 is guaranteed and no cell re-selection to Cell 24 can take place (GERAN priority is lower than serving and $S_{Cell\,1} > Thresh_{Cell\,1,low}$).
  - System information combination 5 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cells.
  - Cell 1 and Cell 24 are in the same LA.

UE:

None.

Preamble:

- The UE is in state Generic RB Established (state 3) according to [18].

13.1.8.3.2 Test procedure sequence

Table 13.1.8.3.2-0: instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 24	Remark
T1	Cell-specific RS EPRE	dBm/15kHz	-115	-	The power levels are such that reselection back to cell 1 should not occur

Table 13.1.8.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Cause the UE to originate CS call. (see Note 1)	-	-	-	-
2	Check: Does the UE transmit an *ULInformationTranfer* message containing an EXTENDED SERVICE REQUEST with Service Type IE set to "mobile originated CS fallback or 1xCS fallback" on Cell 1?	-->	*ULInformationTransfer* NAS: EXTENDED SERVICE REQUEST	1	P
3	The SS transmits an *RRCConnectionRelease* message on Cell 1 with IE *redirectedCarrierInfo* including ARFCN of Cell 24.	<--	*RRCConnectionRelease*	-	-
3A	The UE transmits a CHANNEL REQUEST message on Cell24.	-->	CHANNEL REQUEST	-	-
3B	The SS changes cell 1 power level according to the row "T1"				
4-34	Check: Steps 2 to 32 of the generic test procedure described in TS36.508 subclause 6.4.3.8.2 are performed on Cell24 ?	-	-	2	P
-	At the end of this test procedure sequence, the UE is in end state GERAN idle (G1) according to TS 36.508.	-	-	-	-
Note 1: The trigger in step 1 is the same as in the generic procedure in 36.508 clause 6.4.3.5.					

13.1.8.3.3 Specific message contents

Table 13.1.8.3.3-1: Void

Table 13.1.8.3.3-2: *Void*

Table 13.1.8.3.3-3: Void

Table 13.1.8.3.3-4: *ULInformationTransfer* (step 2, Table 13.1.8.3.2-2)

Derivation Path: 36.508 Table 4.6.1-25			
Information Element	**Value/remark**	**Comment**	**Condition**
ULInformationTransfer ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
ulInformationTransfer-r8 SEQUENCE {			
dedicatedInfoType CHOICE {			
dedicatedInfoNAS	Set according to Table 13.1.8.3.3-5	EXTENDED SERVICE REQUEST	
}			
}			
}			
}			
}			

Table 13.1.8.3.3-5: EXTENDED SERVICE REQUEST (step 2, Table 13.1.8.3.2-2)

Derivation Path: 36.508 Table 4.7.2-14A			
Information Element	**Value/remark**	**Comment**	**Condition**
Service type	0000 'mobile originating CS fallback or 1xCS fallback'		
CSFB response	Not present		

Table 13.1.8.3.3-6: *RRCConnectionRelease* (step 3, Table 13.1.8.3.2-2)

Derivation Path: 36.508 Table 4.6.1.1-15			
Information Element	**Value/remark**	**Comment**	**Condition**
RRCConnectionRelease ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
rrcConnectionRelease-r8 SEQUENCE {			
redirectedCarrierInfo ::= CHOICE {			
Geran	f11		
}			
}			
}			

Table 13.1.8.3.3-7: Void

Table 13.1.8.3.3-8: ATTACH ACCEPT (Preamble)

Derivation Path: 36.508 Table 4.7.2-1			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS network feature support	Not present		

13.1.9 Call setup from E-UTRA RRC_IDLE / CS fallback to GSM with CCO without NACC / MO call

13.1.9.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_CONNECTED state having requested CS call setup }
ensure that {
  when { UE receives a MobilityFromEUTRACommand message including a cs-FallbackIndicator set to
'true', a targetRAT-Type set to 'geran' and purpose set to 'cellChangeOrder' and no
'networkControlOrder' }
    then { UE acquires networkControlOrder and establishes the connection to the target cell
indicated in the CellChangeOrder }
            }
```

13.1.9.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 23.272, clauses 6.4 and 6.3, and, TS 36.331, clause 5.4.3.3, 5.3.9.2, 5.3.12 and B.1.

[TS 23.272, clause 6.4]

Mobile Originating call in Idle Mode procedure is specified by reusing the Mobile Originating Call in Active mode procedure with Extended Service Request (CS Fallback Indicator) to the MME. The UE is transited to ECM-CONNECTED mode by following the applicable procedures specified in TS 23.401 [2].

[TS 23.272, clause 6.3]

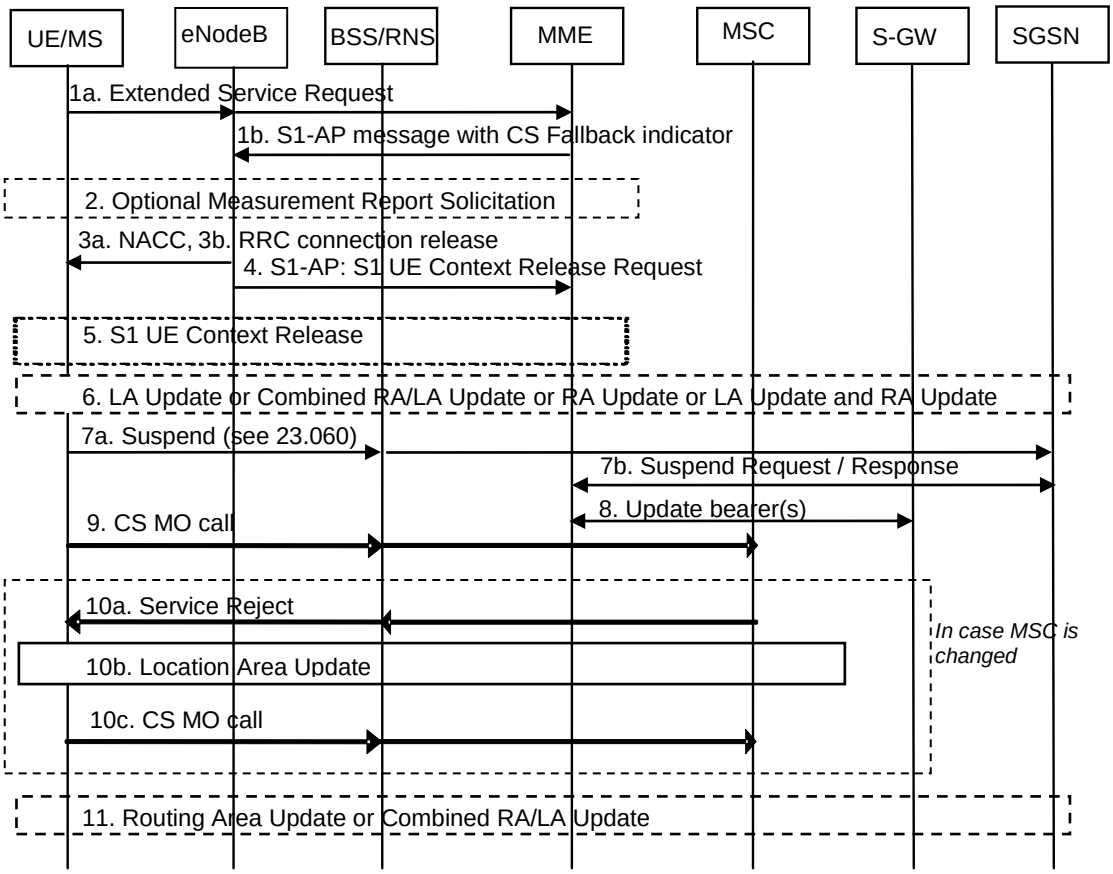

Figure 6.3-1: CS Call Request in E-UTRAN, Call in GERAN/UTRAN without PS HO

1a. The UE sends an Extended Service Request (CS Fallback Indicator) to the MME. Extended Service Request message is encapsulated in RRC and S1-AP messages. CS Fallback Indicator indicates MME to perform CS

Fallback. The UE only transmits this request if it is attached to CS domain (with a combined EPS/IMSI Attach) and can not initiate an IMS voice session (because e.g. the UE is not IMS registered or IMS voice services are not supported by the serving IP-CAN, home PLMN or UE).

...

2. The eNodeB may optionally solicit a measurement report from the UE to determine the target GERAN cell to which the redirection procedure will be performed.

3a. If the UE and network support inter-RAT cell change order to GERAN and the target cell is GERAN: The eNodeB triggers an inter-RAT cell change order (optionally with NACC) to a GERAN neighbour cell by sending an RRC message to the UE. The inter-RAT cell change order may contain a CS Fallback Indicator which indicates to UE that the cell change order is triggered due to a CS fallback request. If the inter-RAT cell change order contains a CS Fallback Indicator and the UE fails to establish connection to the target RAT, then the UE considers that CS fallback has failed. Service Request procedure is considered to be successfully completed when cell change order procedure is completed successfully.

...

NOTE 2: Service Request procedure supervision timer shall be sufficiently long considering the optional measurement reporting at step 2.

...

6. The UE moves to the new cell in GERAN/UTRAN and establishes a radio signalling connection.

...

9. The UE continues with the MO call setup procedure. An ICS UE (as defined in TS 23.292 [25]) shall not use Gm (TS 23.292 [25]) procedures to establish the call.

NOTE 3: For an ICS user, in order to receive a consistent service experience the ICS UE needs to add ICS Service Control Signalling Path once the call is established, as described in TS 23.292 [25].

...

If the UE remains on UTRAN/GERAN after the CS voice call is terminated the UE performs normal mobility management procedures as defined in TS 23.060 [3] and TS 24.008 [21], i.e. if the UE is not registered in the current RA/LA, the UE performs combined RA/LA update procedure when the target system operates in NMO I, or separate LA update and RA update procedures when the target system operates in NMO II/III. Also for NMO I if the UE performed only RA update due to the CS call the UE performs a combined RA/LA update (see TS 23.060 [3], clause 6.3.1) which creates the Gs association.

[TS 36.331, clause 5.4.3.3]

The UE shall be able to receive a *MobilityFromEUTRACommand* message and perform a cell change order to GERAN, even if no prior UE measurements have been performed on the target cell.

The UE shall:

1> stop timer T310, if running;

1> if the *MobilityFromEUTRACommand* message includes the *purpose* set to '*handover*':

...

1> else if the *MobilityFromEUTRACommand* message includes the *purpose* set to '*cellChangeOrder*':

2> start timer T304 with the timer value set to *t304*, as included in the *MobilityFromEUTRACommand* message;

2> if the *targetRAT-Type* is set to '*geran*':

3> if *networkControlOrder* is included in the *MobilityFromEUTRACommand* message:

4> apply the value as specified in TS 44.060 [36];

3> else:

4> acquire *networkControlOrder* and apply the value as specified in TS 44.060 [36];

3> use the contents of *systemInformation*, if provided, as the system information to begin access on the target GERAN cell;

NOTE 2: The *systemInformation* is constructed in the same way as in 2G to 2G NACC, i.e. the PSI messages are encoded as such, whereas the SI messages exclude 2 octets of headers, see TS 44.060[36].

2> establish the connection to the target cell indicated in the *CellChangeOrder*;

NOTE 3: The criteria for success or failure of the cell change order to GERAN are specified in TS 44.060[36].

[TS 36.331, clause 5.3.9.2]

Upon successfully completing the handover or the cell change order, the UE shall:

1> perform the actions upon leaving RRC_CONNECTED as specified in 5.3.12, with release cause 'other';

1> stop timer T304, if running;

[TS 36.331, clause 5.3.12]

Upon leaving RRC_CONNECTED, the UE shall:

1> reset MAC;

1> stop all timers that are running except T320;

1> release all radio resources, including release of the RLC entity, the MAC configuration and the associated PDCP entity for all established RBs;

1> indicate the release of the RRC connection to upper layers together with the release cause;

[TS 36.331, clause B.1]

This annex contains the definitions of the bits in field *featureGroupIndicators*.

In this release of the protocol, the UE shall include the field *featureGroupIndicators* in the IE *UE-EUTRA-Capability*. All the functionalities defined within the field *featureGroupIndicators* defined in Table B.1-1 are mandatory for the UE, if the related capability (frequency band, RAT or SR-VCC) is also supported. For a specific indicator, if all functionalities for a feature group listed in Table B.1-1 have been implemented and tested, the UE shall set the indicator as one (1), else (i.e. if any one of the functionalities in a feature group listed in Table B.1-1, which have not been implemented or tested), the UE shall set the indicator as zero (0).

...

Table B.1-1: Definitions of feature group indicators

Index of indicator (bit number)	**Definition** (description of the supported functionality, if indicator set to one)	**Notes**
...		
10	- EUTRA RRC_CONNECTED to GERAN (Packet_) Idle by Cell Change Order - EUTRA RRC_CONNECTED to GERAN (Packet_) Idle by Cell Change Order with NACC (Network Assisted Cell Change)	
...		

13.1.9.3 Test description

13.1.9.3.1 Pre-test conditions

System Simulator:

- Cell 1 serving cell

- Cell 24 suitable neighbour cell

- The parameters settings and power levels for Cell 1 and Cell 24 are selected according to [18], [5] so that camping on Cell 1 is guaranteed and no cell re-selection to Cell 24 can take place (GERAN priority is lower than serving and $S_{Cell\ 1} > Thresh_{Cell\ 1,low}$).

- System information combination 5 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cells.

UE:

None.

Preamble:

- The UE is in state Registered, Idle Mode (state 2) on Cell 1 according to [18].

13.1.9.3.2 Test procedure sequence

Table 13.1.9.3.2-0: instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 24	Remark
T1	Cell-specific RS EPRE	dBm/15kHz	-115	-	The power levels are such that reselection back to cell 1 should not occur

Table 13.1.9.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Cause the UE to originate CS call. (see Note 1)	-	-	-	-
2	Generic test procedure 'UE triggered CS call' as described in 36.508, clause 6.4.3.5 is performed.	-		-	-
3	The SS transmits a *SecurityModeCommand* message on Cell 1.	<--	*SecurityModeCommand*	-	-
4	The UE transmits a *SecurityModeComplete* message on Cell 1.	-->	*SecurityModeComplete*	-	-
5	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1.	<--	*RRCConnectionReconfiguration*	-	-
6	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1.	-->	*RRCConnectionReconfigurationComplete*	-	-
7	The SS transmits a *MobilityFromEUTRACommand* message on Cell 1 including a *cs-FallbackIndicator* set to '*true*', a *targetRAT-Type* set to '*geran*', *purpose* set to '*cellChangeOrder*' and no *'networkControlOrder'*	<--	*MobilityFromEUTRACommand*	-	-
8	Void	-	-	-	-
8A	The UE transmits a CHANNEL REQUEST message on Cell24.	-->	CHANNEL REQUEST	-	-
8B	The SS changes cell 1 power level according to the row “T1”				
9-39	Check: Does the steps 2 to 32 of the generic test procedure described in TS36.508 subclause 6.4.3.8.2 are performed on Cell24?	-	-	1	-
-	At the end of this test procedure sequence, the UE is in end state GERAN idle (G1) according to TS 36.508.	-	-	-	-
Note 1: See generic procedure in 36.508 clause 6.4.3.5 for the trigger.					

13.1.9.3.3 Specific message contents

Table 13.1.4.3.3-1: *RRCConnectionReconfiguration* (step 5, Table 13.1.9.3.2-1)

Derivation Path: 36.508 Table 4.6.1-8, condition SRB2-DRB(1, 0)

Table 13.1.9.3.3-2: *MobilityFromEUTRACommand* (step 7, Table 13.1.9.3.2-1)

Derivation Path: 36.508, Table 4.6.1-6			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityFromEUTRACommand ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
mobilityFromEUTRACommand-r8 SEQUENCE {			
cs-FallbackIndicator	true		
purpose CHOICE{			
cellChangeOrder SEQUENCE {			
t304	ms4000		
targetRAT-Type CHOICE{			
geran SEQUENCE {			
physCellId	TS 36.508, 6.3.1.4		
carrierFreq	TS 36.508, 6.3.1.4		
networkControlOrder	Not present		
systemInformation	Not present		
}			
}			
}			
}			
}			
}			
}			
}			

Table 13.1.9.3.3-8: Void

Table 13.1.9.3.3-9: ATTACH ACCEPT (Preamble)

Derivation Path: 36.508 Table 4.7.2-1			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS network feature support	Not present		

13.1.10 Call setup from E-UTRA RRC_CONNECTED / CS fallback to GSM with CCO without NACC / MT call

13.1.10.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_CONNECTED state with an established S1 connection and the MME did not return
the "SMS-only" indication to the UE during Attach or Combined TA/LA Update procedures }
ensure that {
  when { UE receives a DLInformationTransfer message containing a CS SERVICE NOTIFICATION message }
    then { UE transmits an ULInformationTransfer message containing an EXTENDED SERVICE REQUEST
message with Service Type IE set to "mobile terminating CS fallback or 1xCS fallback”  }
          }
```

(2)

```
with { UE having transmitted an ULInformationTranfer message containing an EXTENDED SERVICE REQUEST
message with Service Type IE set to "mobile terminating CS fallback or 1xCS fallback” }
ensure that {
  when { UE receives a MobilityFromEUTRACommand message including a cs-FallbackIndicator set to
'true', a targetRAT-Type set to 'geran' and purpose set to 'cellChangeOrder' and no
'networkControlOrder' }
```

```
    then { UE acquires networkControlOrder and establishes the connection to the target RAT and
target cell indicated in the CellChangeOrder }
            }
```

(3)

```
with { UE having establishes the connection to GERAN }
ensure that {
  when { GERAN does not support DTM }
    then { UE requests GPRS Suspension and completes the establishment of the MT CS call }
            }
```

13.1.10.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 23.272, clause 7.4, TS 24.301, clause 5.6.2.3, TS 23.060, clause 16.2.1.1.2 and TS 44.018, clause 3.4.25.3.

[TS 23.272, clause 7.4]

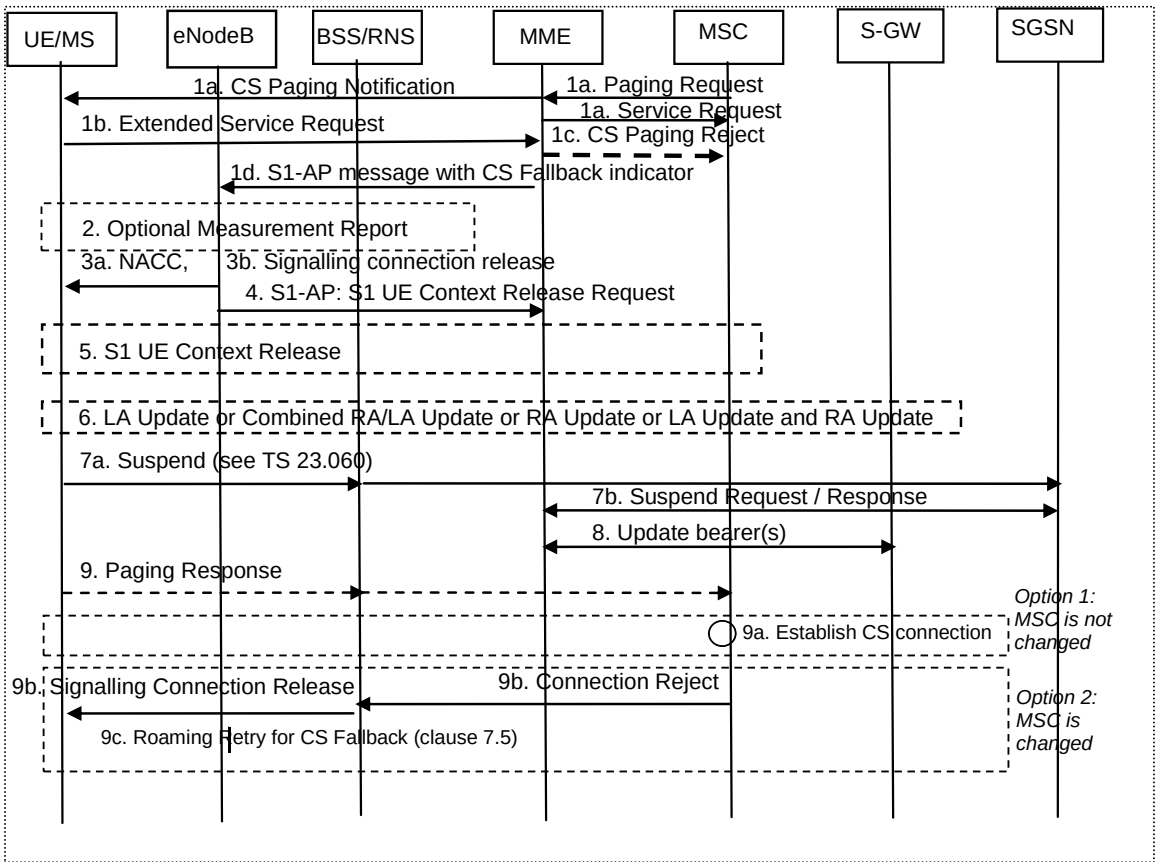

Figure 7.4-1: CS Page in E-UTRAN, Call in GERAN/UTRAN without PS HO

1a. The MSC receives an incoming voice call and responds by sending a Paging Request (IMSI or TMSI, optional Caller Line Identification and Connection Management information) to the MME over a SGs interface. The MSC only sends a CS Page for an UE that provides location update information using the SGs interface. In active mode the MME has an established S1 connection and if the MME did not return the "SMS-only" indication to the UE during Attach or Combined TA/LA Update procedures, the MME reuses the existing connection to relay the CS Service Notification to the UE.

If the MME returned the "SMS-only" indication to the UE during Attach or Combined TA/LA Update procedures, the MME shall not send the CS Service Notification to the UE and sends Paging Reject towards MSC to stop CS Paging procedure, and this CSFB procedure stops.

The eNodeB forwards the paging message to the UE. The message contains CN Domain indicator and, if received from the MSC, the Caller Line Identification if available and needed.

The MME immediately sends the SGs Service Request message to the MSC. Receipt of the SGs Service Request message stops the MSC retransmitting the SGs interface Paging message.

NOTE 1: The pre-configured policy may be used by UE to avoid being disturbed without Caller Line Identification display and the detailed handling is to be decided by CT WG1 and CT WG6.

NOTE 2: This procedure can also take place immediately after MSC receives MAP_PRN from HSS, if pre-paging is deployed. Caller Line Identification is also provided in the case of pre-paging.

NOTE 3: In order to avoid the calling party experiencing a potentially long period of silence, the MSC may use the SGs Service Request message as a trigger to inform the calling party that the call is progressing.

1b. UE sends an Extended Service Request (CS Fallback Indicator, Reject or Accept) message to the MME. Extended Service Request message is encapsulated in RRC and S1-AP messages. CS Fallback Indicator indicates MME to perform CS Fallback. The UE may decide to reject CSFB based on Caller Line Identification.

1c. Upon receiving the Extended Service Request (CSFB, Reject), the MME sends Paging Reject towards MSC to stop CS Paging procedure and this CSFB procedure stops.

1d. The MME sends a Service Accept message encapsulated in an S1-AP message that also includes the UE Radio Capabilities and a CS Fallback Indicator. This message: indicates to the eNodeB that the UE should be moved to UTRAN/GERAN.

2. The eNodeB may optionally solicit a measurement report from the UE to determine the target GERAN cell to which the redirection procedure will be performed.

3a. If the UE and network support inter-RAT cell change order to GERAN and the target cell is GERAN: The eNodeB triggers an inter-RAT cell change order (optionally with NACC) to a GERAN neighbour cell by sending an RRC message to the UE. The inter-RAT cell change order may contain a CS Fallback Indicator which indicates to UE that the cell change order is triggered due to a CS fallback request. If the inter-RAT cell change order contains a CS Fallback Indicator and the UE fails to establish connection to the target RAT, then the UE considers that CS fallback has failed. Service Request procedure is considered to be successfully completed when cell change order procedure is completed successfully.

3b. If the UE or the network does not support inter-RAT handover from E-UTRAN to GERAN/UTRAN nor inter-RAT cell change order to GERAN: The eNodeB triggers RRC connection release with redirection to GERAN/UTRAN instead of PS HO or NACC.

NOTE 4: Service Request procedure supervision timer shall be sufficiently long considering the optional measurement reporting at step 2.

4. The eNodeB sends an S1 UE Context Release Request (Cause) message to the MME. Cause indicates that the UE is not available for PS service.

5. S1 UE Context in the eNodeB is released as specified in TS 23.401 [2].

6. The UE moves to the new cell in GERAN/UTRAN, establishes a radio signalling connection.

If the UE cannot determine the LA information of the new cell (e.g. based on the system information) or the LA of the new cell is different from the one stored in the UE, the UE should initiate a Location Area Update or a Combined RA/LA Update procedure as specified in TS 23.060 [3] for the different Network Modes of Operation (NMO). In NMO I, the UE in GERAN may perform LA update over the RR connection instead of combined RA/LA update over the packet access as defined in TS 24.008 [21], clause 4.7.5.2.5, unless enhanced CS establishment in DTM is supported. Further the UE performs any Routing Area Update procedure as specified in TS 23.060 [3].

NOTE 5: In UTRAN, the UE does not need to wait for the LAI from the RNC, but the RNC also does not delay sending the LAI to the UE as the RAN Mobility Information might be used as a trigger for the UE to initiate NAS procedures.

When the MSC receives an LA Update Request, it shall check for pending terminating CS calls and maintain the CS signalling connection after the Location Area Update procedure for pending terminating CS calls.

7. If the target RAT is GERAN and DTM is not supported, the UE starts the Suspend procedure specified in TS 23.060 [3], clause 16.2.1.1.2. This triggers the SGSN to send a Suspend Request message to the MME. The MME returns a Suspend Response to the SGSN, which contains the MM and PDP contexts of the UE.

8. If PS services are suspended, the MME starts the preservation of non-GBR bearers and the deactivation of GBR bearers.

9. If the UE does not initiate a LAU procedure the UE responds to the paging by sending a Paging Response message as specified in TS 44.018 [4] or TS 25.331 [7]. When received at the BSS/RNS, the Paging Response is forwarded to the MSC.

NOTE 5: The MSC should be prepared to receive a Paging Response after a relatively long time from when the CS Paging Request was sent (step 1a).

9a After performing the LAU procedure or after receiving the Paging Response the MSC shall establish the CS call if the UE is allowed in the LA.

9b. If the UE is not registered in the MSC that receives the Paging Response or the UE is not allowed in the LA, the MSC shall reject the Paging Response by releasing the A/Iu-cs connection. The BSS/RNS in turn releases the signalling connection for CS domain.

9c. The signalling connection release shall trigger the UE to obtain the LAI, which causes the initiation of a Location Area Update procedure as specified in TS 23.060 [3] for the different Network Modes of Operation (NMO).

The Location Area Update triggers the Roaming Retry for CS Fallback procedure as defined in clause 7.5.

With the exception of step 1c, above, Call Forwarding (see TS 23.082 [28]) is performed on the basis of the TS 24.008 [21] signalling received on the GERAN/UTRAN cell.

After the CS voice call is terminated and if the UE is still in GERAN and PS services are suspended, then (as specified in TS 23.060 [3]) the UE shall resume PS services by initiating a Routing Area Update procedure.

If the UE remains on UTRAN/GERAN after the CS voice call is terminated the UE performs normal mobility management procedures as defined in TS 23.060 [3] and TS 24.008 [21].

[TS 24.301, clause 5.6.2.3]

The network may initiate the paging procedure for non-EPS services when the UE is IMSI attached for non-EPS services (see example in figure 5.6.2.3.1).

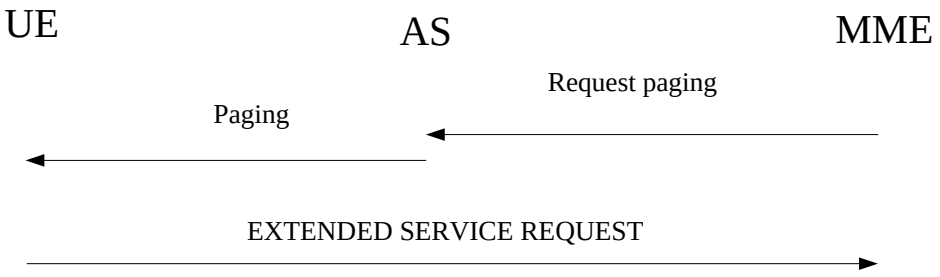

Figure 5.6.2.3.1: Paging procedure for CS fallback to A/Gb or Iu mode

To initiate the procedure when no NAS signalling connection exists, the EMM entity in the network requests the lower layer to start paging (see 3GPP TS 36.300 [20], 3GPP TS 36.413 [23]). The paging message includes a CN domain indicator set to "CS" in order to indicate that this is paging for CS fallback.

NOTE: The timer T3413 is not started in the network when the paging procedure is initiated for CS fallback.

To notify the UE about an incoming mobile terminating CS service when a NAS signalling connection exists, the EMM entity in the network shall send a CS SERVICE NOTIFICATION message. This message may also include CS service related parameters (e.g. Calling Line Identification, SS or LCS related parameters).

Upon reception of a paging indication, the UE shall respond with an EXTENDED SERVICE REQUEST. If the paging is received in EMM-IDLE mode, the UE shall respond immediately. If the paging is received as NAS CS NOTIFICATION message in EMM-CONNECTED mode, the UE may request upper layers input i.e. to accept or reject CS fallback before responding with an EXTENDED SERVICE REQUEST. The response is indicated in the CSFB response information element in the EXTENDED SERVICE REQUEST message in both EMM-IDLE and EMM-CONNECTED modes.

[TS 23.060, clause 16.2.1.1.2]

The Suspend and Resume procedure for inter-SGSN is illustrated in Figure 100.

This describes the scenario where the old cell and the new cell are handled by different SGSN's, i.e. suspend message is received in an SGSN that is different from the SGSN currently handling the packet data transmission.

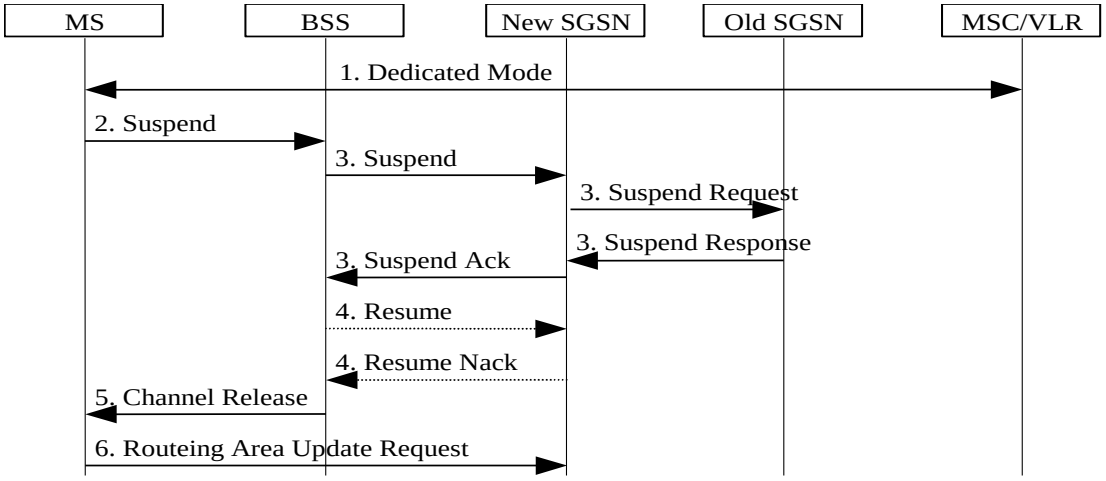

Figure 100: Suspend and Resume Procedure for inter-SGSN

1) During CS connection, a DTM MS performs handover from a cell supporting DTM to a cell not supporting DTM.

2) The MS sends an RR Suspend (TLLI, RAI) message to the BSS.

[TS 44.018, clause 3.4.25.3]

The GPRS suspension procedure shall be used to suspend GPRS services:

...

b) when the GPRS attached mobile station is in a cell that does not support DTM and a circuit switched service is initiated.

...

In case b), the GPRS suspension procedure is initiated by the mobile station by sending a GPRS SUSPENSION REQUEST message with the suspension cause set to "DTM not supported in the cell". This can be done as early as possible after access but shall be done after sending a CLASSMARK CHANGE message.

13.1.10.3 Test description

13.1.10.3.1 Pre-test conditions

System Simulator:

- 2 cells, one E-UTRA and one GERAN cell and same Location areas but different Routing areas; DTM is not supported on the GERAN:
  - Cell 1 serving cell
  - Cell 24 suitable neighbour cell.
  - The parameters settings and power levels for Cell 1 and Cell 24 are selected according to [18], [5] so that camping on Cell 1 is guaranteed and no cell re-selection to Cell 24 can take place (GERAN priority is lower than serving and $S_{Cell\,1} > Thresh_{Cell\,1Low}$).
  - System information combination 5 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cells.

UE:

- None.

Preamble:

- The UE is in state Loopback activated (state 4) on cell 1 according to [18] using UE test loop mode B.

13.1.10.3.2 Test procedure sequence

Table 13.1.10.3.2-0: instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 24	Remark
T1	Cell-specific RS EPRE	dBm/15kHz	-115	-	The power levels are such that reselection back to cell 1 should not occur

Table 13.1.10.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS transmits one IP packet to the UE on the DRB associated with the default EPS bearer context on Cell 1.	<--	IP packet	-	-
-	EXCEPTION: In parallel to the events described in steps 2 to 4 the steps specified in Table 13.1.10.3.2-2 may take place	-	-	-	-
2	The SS transmits a *DLInformationTransfer* message on Cell 1 containing a CS SERVICE NOTIFICATION message.	<--	*DLInformationTransfer* NAS: CS SERVICE NOTIFICATION	-	-
-	EXCEPTION: Step 3a1 describes behaviour that depends on the UE capability; the "lower case letter" identifies a step sequence that takes place if a capability is supported.	-	-	-	-
3a1	IF the UE needs to request upper layer input before accepting the CS fallback, the incoming CS call is accepted at the UE through MMI or AT command.	-	-	-	-
4	Check: Does the UE transmit an *ULInformationTranfer* message containing an EXTENDED SERVICE REQUEST with Service Type IE set to "mobile terminating CS fallback or 1xCS fallback" on Cell 1?	-->	*ULInformationTransfer* NAS: EXTENDED SERVICE REQUEST	1	P
5	The SS transmits a *MobilityFromEUTRACommand* message on Cell 1.	<--	*MobilityFromEUTRACommand*	-	-
-	The following messages are to be observed on Cell 24 unless explicitly stated otherwise.	-	-	-	-
5A-6A	Void	-	-	-	-
6B	The UE transmits a CHANNEL REQUEST message on Cell24.	-->	CHANNEL REQUEST	-	-
6C	The SS changes cell 1 power level according to the row "T1"				
7-39	Check: Steps 2 to 34 of the generic test procedure described in TS36.508 subclause 6.4.3.8.1 are performed on Cell24?	-	-	3	-
-	At the end of this test procedure sequence, the UE is in end state GERAN idle (G1) according to TS 36.508.	-	-	-	-

Table 13.1.10.3.2-2: Parallel behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The UE loops back the IP packet received in Step 1 on the RAB associated with the PDP context active on Cell 1.	-->	IP packet	-	-

13.1.10.3.3 Specific message contents

Table 13.1.10.3.3-1: *ATTACH ACCEPT* for cell 1 (preamble)

Derivation Path: 36.508 table 4.7.2-1			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS attach result	'0010'B	combined EPS/IMSI attach	
Additional update result	Not present		

Table 13.1.10.3.3-2: Void

Table 13.1.10.3.3-3: *DLInformationTransfer* (step 2, Table 13.1.10.3.2-1)

Derivation Path: 36.508 Table 4.6.1-3			
Information Element	**Value/remark**	**Comment**	**Condition**
DLInformationTransfer ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
dlInformationTransfer-r8 SEQUENCE {			
dedicatedInfoType CHOICE {			
dedicatedInfoNAS	Set according to 36.508 Table 4.7.2-8A	CS SERVICE NOTIFICATION	
}			
}			
}			
}			
}			

Table 13.1.10.3.3-3A: Void

Table 13.1.10.3.3-4: Void

Table 13.1.10.3.3-5: *MobilityFromEUTRACommand* (step 5, Table 13.1.10.3.2-1)

Derivation Path: 36.508, Table 4.6.1-6			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityFromEUTRACommand ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
mobilityFromEUTRACommand-r8 SEQUENCE {			
cs-FallbackIndicator	true		
purpose CHOICE{			
cellChangeOrder SEQUENCE {			
t304	ms4000		
targetRAT-Type CHOICE{			
geran SEQUENCE {			
physCellId	TS 36.508, 6.3.1.4		
carrierFreq	TS 36.508, 6.3.1.4		
networkControlOrder	Not present		
systemInformation	Not present		
}			
}			
}			
}			
}			
}			
}			
}			

Table 13.1.10.3.3-6: ATTACH ACCEPT (Preamble)

Derivation Path: 36.508 Table 4.7.2-1			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS network feature support	Not present		

13.1.11 Call setup from E-UTRA RRC_IDLE / CS fallback to GSM with PSHO / EDTM not supported / MT call

13.1.11.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_IDLE state }
ensure that {
  when { UE receives a Paging message with CN domain indicator set to "CS" }
   then { UE transmits an ULInformationTransfer message containing an EXTENDED SERVICE REQUEST
message with Service Type IE set to "mobile terminating CS fallback or 1xCS fallback" }
            }
```

(2)

```
with { UE having transmitted an ULInformationTranfer message containing an EXTENDED SERVICE REQUEST
message with Service Type IE set to "mobile terminating CS fallback or 1xCS fallback" }
ensure that {
  when { SS transmits a MobilityFromEUTRACommand message with handover to a GERAN cell in a
different location area and operating in NMO I }
    then { UE handovers to GERAN cell }
            }
```

(3)

```
with { UE having transmitted an ULInformationTranfer message containing an EXTENDED SERVICE REQUEST
message with Service Type IE set to "mobile terminating CS fallback or 1xCS fallback" and handovered
to GERAN cell and initiated a RA Update procedure }
ensure that {

  when { UE has handovered to GERAN cell }
    then { UE sets up MT CS call on GSM cell }
            }
```

13.1.11.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 23.272, clauses 6.4 and 6.3, and, TS 36.331, clause 5.4.3.3.

[TS 23.272, clause 7.2]

The procedure for Mobile Terminating Call in idle mode is illustrated in figure 7.2-1, in the normal case. Clause 6.6 describes the procedure when the procedure is rejected by the MME.

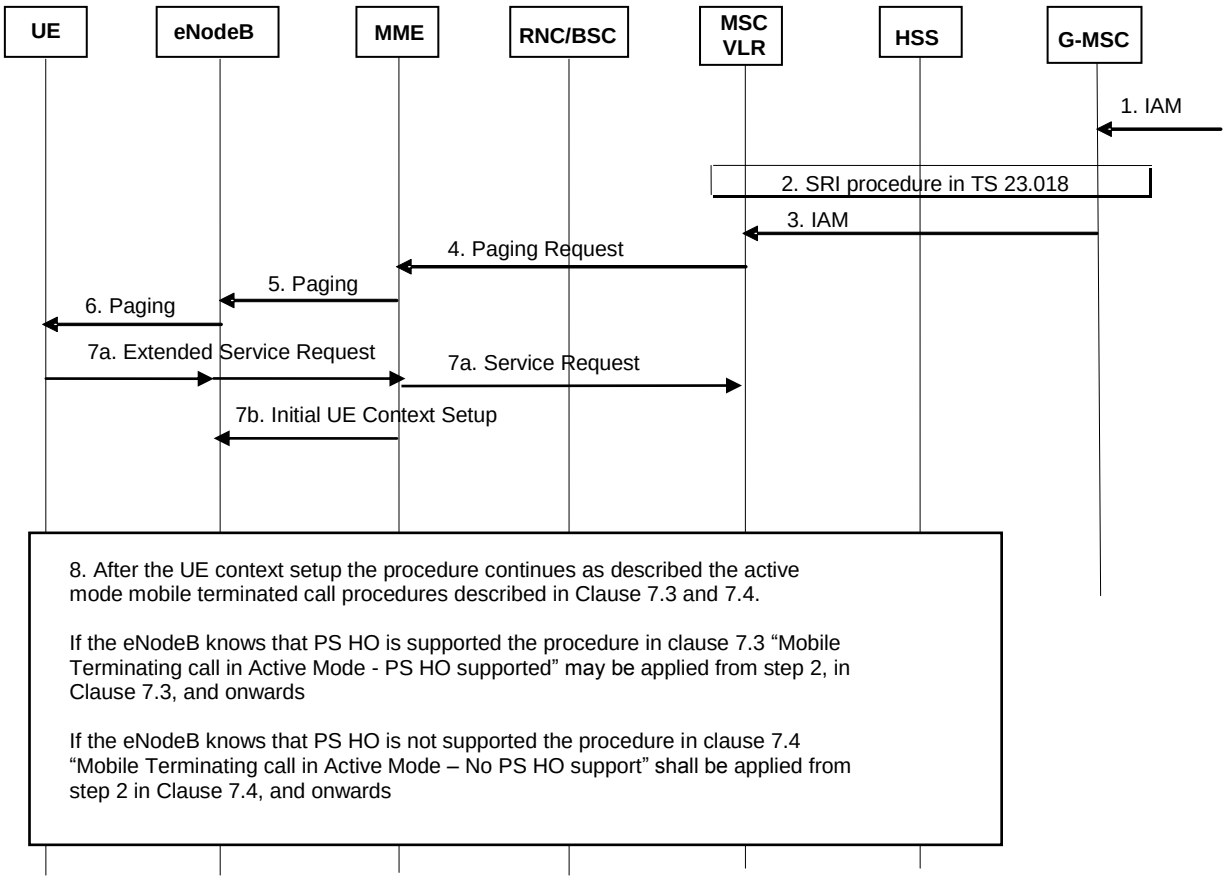

Figure 7.2-1: Mobile Terminating Call in idle mode

1. G-MSC receives IAM.

2. G-MSC retrieves routing information of the terminating UE by Send Routing Info procedures as specified in TS 23.018 [5].

3. G-MSC sends IAM to the MSC on the terminating side as specified in TS 23.018 [5].

4. The MME receives a Paging Request (IMSI, VLR TMSI, Location Information) message from the MSC over a SGs interface. If the TMSI is received from the MSC, it is used by the MME to find the S-TMSI which is used as the paging address on the radio interface. If the IMSI is received from the MSC, the IMSI shall be used as the paging address on the radio interface. If location information is reliably known by MME (i.e. MME stores the list of TAs), the MME shall page the UE in all the TAs. If the MME does not have a stored TA list for the UE, the MME should use the location information received from the MSC to page the UE.

NOTE 1: This procedure takes place before step 3, immediately after MSC receives MAP_PRN from HSS, if pre-paging is deployed.

If the MME receives a Paging Request message for an UE which is considered as detach for EPS services, the MME sends the Paging reject message to the MSC with an appropriate cause value. This rejection triggers the MSC to page the UE over A or Iu-cs interface.

NOTE 2: In case of a CS fallback capable UE in NMO II or III, there is a case where, for example, the MME releases the SGs association due to the UE idle mode mobility while the VLR still maintains the SGs association.

5. If the MME did not return an "SMS-only" indication to the UE during Attach or Combined TA/LA Update procedures, the MME sends a Paging (as specified in TS 23.401 [2]) message to each eNodeB. The Paging message includes a suitable UE Identity (i.e. S-TMSI or IMSI) and a CN Domain Indicator that indicates which domain (CS or PS) initiated the paging message. In this case it shall be set to "CS" by the MME.

If the MME returned the "SMS-only" indication to the UE during Attach or Combined TA/LA Update procedures, the MME shall not send the paging to the eNodeBs and sends Paging Reject towards MSC to stop CS Paging procedure and this CSFB procedure stops.

6. The radio resource part of the paging procedure takes place. The message contains a suitable UE Identity (i.e. S-TMSI or IMSI) and a CN Domain indicator.

7a. The UE establishes an RRC connection and sends an Extended Service Request (CS Fallback Indicator) to MME. The UE indicates its S-TMSI in the RRC signalling. The Extended Service Request message is encapsulated in RRC and S1-AP messages. The CS Fallback Indicator indicates to the MME that CS Fallback for this UE is required. The MME sends the SGs Service Request message to the MSC containing an indication that the UE was in idle mode (and hence, for example, that the UE has not received any Calling Line Identification information). Receipt of the SGs Service Request message stops the MSC retransmitting the SGs interface Paging message.

NOTE 3: In order to avoid the calling party experiencing a potentially long period of silence, the MSC may use the SGs Service Request message containing the idle mode indication as a trigger to inform the calling party that the call is progressing.

7b. MME sends S1-AP: Initial UE Context Setup (UE capabilities, CS Fallback Indicator, LAI and other parameters specified in TS 23.401 [2]) to indicate the eNodeB to move the UE to UTRAN/GERAN. The registered PLMN for CS domain is identified by the PLMN ID included in the LAI, which is allocated by the MME.

7c. The eNodeB shall reply with S1-AP: Initial UE Context Setup Response message.

8a. If the eNodeB knows that both the UE and the network support PS handover: The information flow may continue as described in clause 7.3 "Mobile Terminating call in Active Mode - PS HO supported" from step 2, in clause 7.3, and onwards.

. If the eNodeB knows that either the UE or the network does not support PS handover: The information flow shall continue as described in clause 7.4 "Mobile Terminating call in Active Mode – No PS HO support" from step 2, in clause 7.4, and onwards.

NOTE 4: Even in case both the UE and the network support PS HO, the eNodeB may choose to use a different inter-RAT mobility procedure.

[TS 23.272, clause 7.3]

This flow may be executed when the eNodeB knows that both the UE and the network support PS HO in the normal case. Clause 6.6 describes the procedure when the procedure is rejected by the MME.

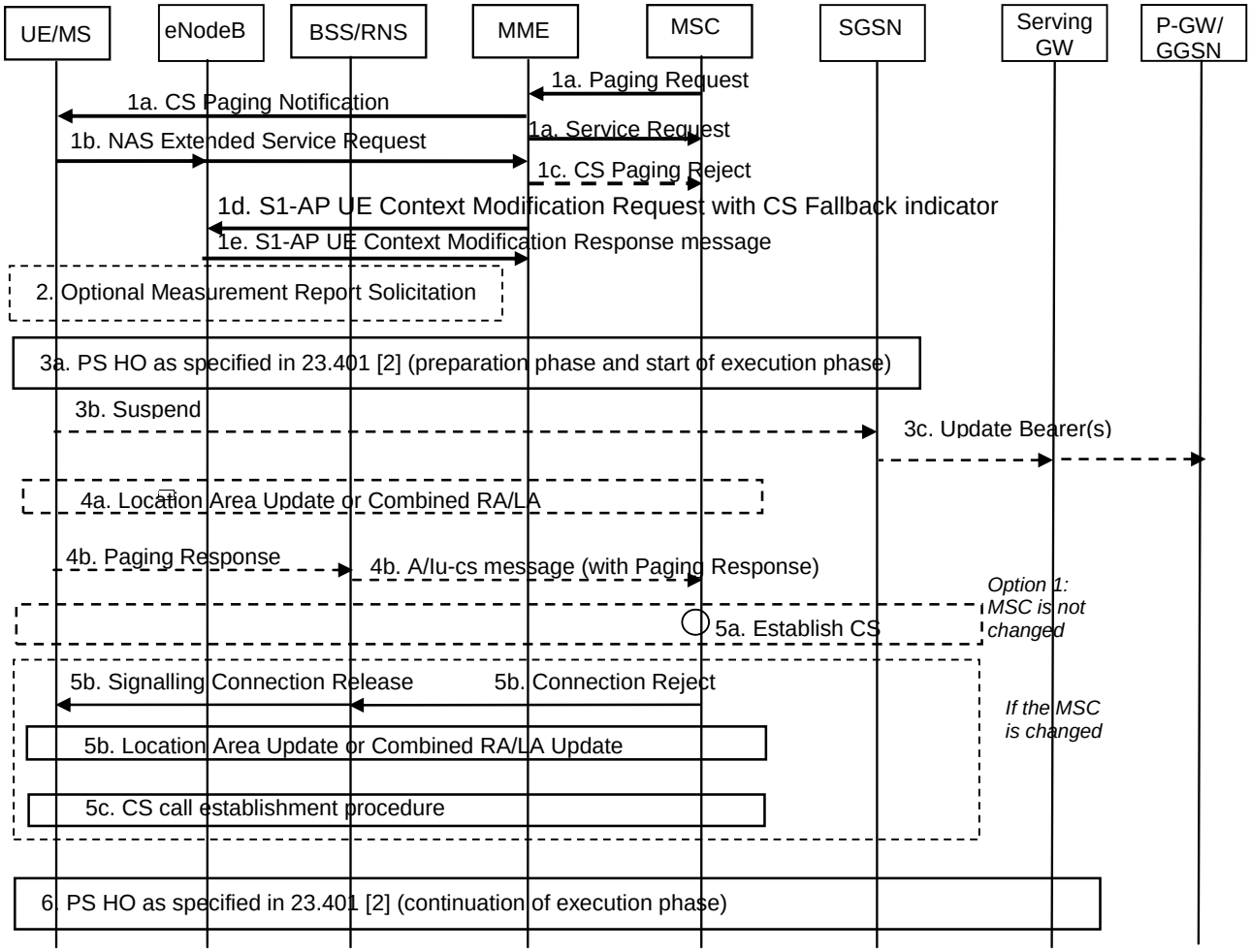

Figure 7.3-1: CS Page in E-UTRAN, Call in GERAN/UTRAN

1a. The MSC receives an incoming voice call and responds by sending a Paging Request (IMSI or TMSI, optional Caller Line Identification and Connection Management information, CS call indicator) to the MME over a SGs interface. The MSC only sends a CS Page for an UE that provides location update information using the SGs interface. In active mode the MME has an established S1 connection and if the MME did not return the "SMS-only" indication to the UE during Attach or Combined TA/LA Update procedures, the MME reuses the existing connection to relay the CS Page to the UE.

If the MME returned the "SMS-only" indication to the UE during Attach or Combined TA/LA Update procedures, the MME shall not send the CS Service Notification to the UE and shall send Paging Reject towards MSC to stop CS Paging procedure, and this CSFB procedure stops.

The eNodeB forwards the paging message to the UE. The message contains CN Domain indicator and, if received from the MSC, the Caller Line Identification.

The MME immediately sends the SGs Service Request message to the MSC containing an indication that the UE was in connected mode. The MSC uses this connected mode indication to start the Call Forwarding on No Reply timer for that UE and the MSC should send an indication of user alerting to the calling party. Receipt of the SGs Service Request message stops the MSC retransmitting the SGs interface Paging message.

NOTE 1: The pre-configured policy may be used by UE to avoid being disturbed without Caller Line Identification display and the detailed handling is to be decided by CT1 and CT6.

NOTE 2: This procedure can also take place immediately after MSC receives MAP_PRN from HSS, if pre-paging is deployed. Caller Line Identification and CS call indicator are also provided in the case of pre-paging.

NOTE 3: In order to avoid the calling party experiencing a potentially long period of silence, the MSC may use the SGs Service Request message as a trigger to inform the calling party that the call is progressing.

1b. UE sends an Extended Service Request (CS Fallback Indicator, Reject or Accept) message to the MME. The Extended Service Request message is encapsulated in RRC and S1-AP messages. CS Fallback Indicator indicates to the MME to perform CS Fallback. The UE may decide to reject CSFB based on Caller Line Identification.

1c. Upon receiving the Extended Service Request (CSFB, Reject), the MME sends Paging Reject towards MSC to stop CS Paging procedure and this CSFB procedure stops.

1d. MME sends an S1-AP UE Context Modification Request (CS Fallback Indicator, LAI) message to eNodeB. This message: indicates to the eNodeB that the UE should be moved to UTRAN/GERAN. The registered PLMN for CS domain is identified by the PLMN ID included in the LAI, which is allocated by the MME.

1e. The eNodeB shall reply with S1-AP UE Context Modification Response message.

2. The eNodeB may optionally solicit a measurement report from the UE to determine the target GERAN/UTRAN cell to which PS handover will be performed.

3a. The eNodeB triggers PS handover to a GERAN/UTRAN neighbour cell by sending a Handover Required message to MME. The eNodeB selects the target PS handover cell considering the PLMN ID and possibly the LAC for CS domain provided by the MME in step 1d. In the following an inter-RAT handover from E-UTRAN to UTRAN or GERAN as specified in TS 23.401 [2] begins. The eNodeB indicates in the Source RNC to Target RNC Transparent container that PS handover was triggered due to CSFB. The eNodeB also indicates whether CSFB was triggered for emergency purpose. As part of this handover, the UE receives a HO from E-UTRAN Command and tries to connect to a cell in the target RAT. The HO from E-UTRAN Command may contain a CS Fallback Indicator which indicates to UE that the handover was triggered due to a CS fallback request. If the HO from E-UTRAN Command contains a CS Fallback Indicator and the UE fails to establish connection to the target RAT, then the UE considers that CS fallback has failed.

The UE establishes the signalling connection as described in step 4b.

NOTE 4: During the PS HO the SGSN does not create a Gs association with the MSC/VLR.

3b. If the target RAT is GERAN and the UE has entered Dedicated Mode, the UE starts the Suspend procedure (see TS 44.018 [4]) unless both the UE and the Target cell support DTM in which case TBF re-establishment may be performed.

3c. A Gn/Gp-SGSN that receives the Suspend message from the UE follows the Suspend procedure specified in TS 23.060 [3], clause 16.2.1.1.1.

An S4-SGSN that receives the Suspend message from the UE follows the Suspend procedure specified in TS 23.060 [3]. The S4-SGSN deactivates GBR bearers towards S-GW and P-GW(s) by initiating MS-and SGSN Initiated Bearer Deactivation procedure as specified in TS 23.060 [3], and starts the preservation and suspension of non-GBR bearers by sending Suspend Notification message to the S-GW. The S-GW releases all RNC related information (address and TEIDs) for the UE if Direct Tunnel is established, and sends Suspend Notification message to the P-GW(s). The SGSN stores in the UE context that UE is in suspended status. All the preserved non-GBR bearers are marked as suspended status in the S-GW and P-GW(s). The P-GW should discard packets if received for the suspended UE.

4a. If the LA of the new cell is different from the one stored in the UE, the UE shall initiate a Location Area Update or a Combined RA/LA Update procedure as follows:

- If the network is operating in NMO-I (Network Modes of Operation), the UE should initiate a separate Location Area Update before initiating the RAU procedure instead of a Combined RA/LA Update procedure (to speed up the CSFB procedure); or

- if the network is operating in NMO-II or NMO-III the UE shall initiate a Location Area Update procedure before initiating the RAU procedure required for PS handover.

The UE shall set the "CSMT" flag in the LAU Request. The "CSMT" flag is used to avoid missing MT call in roaming retry case. Further the UE performs any Routing Area Update procedure as specified in TS 23.060 [3].

The UE may initiate a Location Area Update procedure immediately when the UE is handed over to the target cell i.e. before the UE receives e.g. LAI or NMO information as part of the RAN Mobility Information.

When the MSC receives a LA Update Request, it shall check for pending terminating CS calls and, if the "CSMT" flag is set, maintain the CS signalling connection after the Location Area Update procedure for pending terminating CS calls.

4b. If the UE does not initiate a LAU procedure, it shall respond with a Paging Response message to the MSC as follows:

- If the Target RAT is UTRAN or GERAN Iu mode: The UE establishes a radio signalling connection and responds to the paging by sending an RRC Paging Response as specified in TS 25.331 [7]. The CN Domain Indicator is set to "CS" in the Initial Direct Transfer message.

- If the Target RAT is GERAN A/Gb mode: The UE establishes a radio signalling connection and responds to paging by using the procedures specified in TS 44.018 [4] (i.e. UE requests and is assigned a dedicated channel where it sends a SABM containing a Paging Response to the BSS and the BSS responds by sending a UA). Upon receiving the SABM (containing a Paging Response message) the BSS sends a COMPLETE LAYER 3 INFORMATION message (containing a Paging Response message) to the MSC which indicates CS resources have been allocated in the GERAN cell. If both the UE and the target cell support enhanced CS establishment in DTM (indicated by GERAN system information included within the HO from E-UTRAN Command) an RR connection may be established while in packet transfer mode without release of the packet resources, see TS 43.055 [24]. After the establishment of the main signalling link as described in TS 44.018 [4] the UE enters either Dual Transfer Mode or Dedicated Mode and the CS call establishment procedure completes.

NOTE 5: The BSS should be prepared to receive a Paging Response even when the corresponding Paging Request has not been sent by this BSS.

5a. After performing the LAU procedure or after receiving the Paging Response the MSC shall establish the CS call if the UE is allowed in the LA.

5b. If the UE is not registered in the MSC that receives the Paging Response or the UE is not allowed in the LA, the MSC shall reject the Paging Response message by releasing the A/Iu-CS. The BSC/RNC in turn releases the signalling connection for UTRAN or GERAN CS domain. The signalling connection release shall trigger the UE to obtain the LAI, which causes the initiation of a Location Area Update or a Combined RA/LA procedure as specified in TS 23.060 [3] for the different Network Modes of Operation (NMO).

The Location Area Update triggers the Roaming Retry for CS Fallback procedure as defined in clause 7.5.

5c. After performing the LAU procedure the MSC shall establish the CS call if the UE is allowed in the LA.

6. The UE performs any remaining steps of the inter-RAT handover from E-UTRAN to UTRAN or GERAN as specified in TS 23.401 [2]

With the exception of steps 1a and 1c, above, Call Forwarding (see TS 23.082 [31]) is performed on the basis of the TS 24.008 [21] signalling received on the GERAN/UTRAN cell.

If the UE remains on UTRAN/GERAN after the CS voice call is terminated the UE performs normal mobility management procedures as defined in TS 23.060 [3] and TS 24.008 [21].

[TS 36.331, clause 5.4.3.3]

The UE shall be able to receive a *MobilityFromEUTRACommand* message and perform a cell change order to GERAN, even if no prior UE measurements have been performed on the target cell.

The UE shall:

1> stop timer T310, if running;

1> if the *MobilityFromEUTRACommand* message includes the *purpose* set to '*handover*':

2> if the *targetRAT-Type* is set to '*utra*' or '*geran*':

3> consider inter-RAT mobility as initiated towards the RAT indicated by the *targetRAT-Type* included in the *MobilityFromEUTRACommand* message;

3> forward the *nas-SecurityParamFromEUTRA* to the upper layers;

3> access the target cell indicated in the inter-RAT message in accordance with the specifications of the target RAT;

3> if the *targetRAT-Type* is set to '*geran*':

4> use the contents of *systemInformation*, if provided for PS Handover, as the system information to begin access on the target GERAN cell;

...

13.1.11.3 Test description

13.1.11.3.1 Pre-test conditions

System Simulator:

- Cell 1 serving cell
- Cell 24 suitable neighbour cell
- Cell 1and Cell 24 are in the differentLA
- The parameters settings and power levels for Cell 1 and Cell 24 are selected according to [18], [5] so that camping on Cell 1 is guaranteed and no cell re-selection to Cell 24 can take place (GERAN priority is lower than serving and $S_{Cell\ 1} > Thresh_{Cell\ 1,low}$).
- System information combination 5 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cells.
  - Cell 24 system information indicates that NMO 1 is used
  - DTM is not supported on the Cell 24

UE:

None.

Preamble:

- The UE is in state Registered, Idle Mode (state 2) on Cell 1 according to [18].

13.1.11.3.2 Test procedure sequence

Table 13.1.11.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS transmits a *Paging* message to the UE on Cell 1 using S-TMSI with CN domain indicator set to “CS”.	<--	*Paging*	-	-
-	EXCEPTION: Step 2a1 describes behaviour that depends on the UE capability; the "lower case letter" identifies a step sequence that takes place if a capability is supported.	-	-	-	-
2a1	IF the UE needs to request upper layer input before accepting the CS fallback, the incoming CS call is accepted at the UE through MMI or AT command.	-	-	-	-
3	The UE transmits an *RRCConnectionRequest* message on Cell1.	-->	*RRCConnectionRequest*	-	-
4	The SS transmits an *RRCConnectionSetup message* on Cell1.	<--	*RRCConnectionSetup*	-	-
5	Check: Does the UE transmit an *RRCConnectionSetupComplete* message containing an EXTENDED SERVICE REQUEST with Service Type IE set to "mobile terminating CS fallback or 1xCS fallback” on Cell 1?	-->	*RRCConnectionSetupComplete* NAS: EXTENDED SERVICE REQUEST	1	P
6	The SS transmits a *SecurityModeCommand* message on Cell 1.	<--	*SecurityModeCommand*	-	-
7	The UE transmits a *SecurityModeComplete* message on Cell 1.	-->	*SecurityModeComplete*	-	-
8	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1.	<--	*RRCConnectionReconfiguration*	-	-
9	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1.	-->	*RRCConnectionReconfigurationComplete*	-	-
10	The SS transmits a *MobilityFromEUTRACommand* message on Cell 1 with IE *handover*.	<--	*MobilityFromEUTRACommand*	-	-
11	The UE transmits a PS HANDOVER ACCESS message on Cell 24.	-->	PS HANDOVER ACCESS	2	P
12	The SS transmits a PS PHYSICAL INFORMATION message on Cell 24.	<--	PS PHYSICAL INFORMATION	-	-
-	EXCEPTION: Steps 13a1 to 13b2 describe behaviour that depends on the UE implementation; the "lower case letter" identifies a step sequence that takes place if the UE exercises a particular behaviour	-	-	-	-
13a1	IF the UE performs LA update THEN check: Does the UE transmit LOCATION UPDATING REQUEST?	-->	LOCATION UPDATING REQUEST	2	P
-	EXCEPTION: The messages in the next two steps are sent only on Cell 24	-	-	-	-
13a1Aa1	The UE transmits a *Classmark Change* message	-->	CLASSMARK CHANGE		
-	EXCEPTION: The next step describes behaviour that depends on UE capability.	-	-	-	-
13a1Aa2	IF pc_UTRA THEN the UE transmits a *Utran Classmark Change* message.	-->	UTRAN CLASSMARK CHANGE.		
13a2	UE transmits GPRS SUSPENSION REQUEST message with suspension cause set to “LOCATION AREA UPDATE”	-->	GPRS SUSPENSION REQUEST	-	-
13a3	The SS transmits MM LOCATION UPDATING ACCEPT	<--	LOCATION UPDATING ACCEPT	-	-

13b 1	IF the UE does not perform LA update THEN UE transmits GPRS SUSPENSION REQUEST message with suspension cause set to “Mobile terminating CS connection”	-->	GPRS SUSPENSION REQUEST		
13b 2	Check: Does the UE transmit a PAGING RESPONSE on Cell 24?	-->	*PAGING RESPONSE*	2	P
14-43	Steps 5 to 34 of the generic test procedure described in TS 36.508 subclause 6.4.3.8.1 is performed on Cell 24.	-	-	3	P
-	At the end of this test procedure sequence, the UE is in end state GERAN idle (G1) according to TS 36.508.	-	-	-	-

13.1.11.3.3 Specific message contents

Table 13.1.11.3.3-1: *SystemInformationBlockTyp7* for cell 1 (preamble and all steps, Table 13.1.11.3.2-2)

Derivation Path: 36.331 clause 6.3.1			
Information Element	**Value/remark**	**Comment**	**Condition**
SystemInformationBlockType7 ::= SEQUENCE {			
carrierFreqsInfoListcarrierFreqsInfoListSEQUENCE (SIZE (1..maxGNFG)) OF SEQUENCE {			
carrierFreqs carrierFreqs[*n*] SEQUENCE {			
startingARFCN[*n*]	Same starting ARFCN used for cell 24		
bandIndicator[*n*]	same band used for GERAN cell24		
followingARFCNs[*n*] CHOICE {			
explicitListOfARFCNs[*n*]	Same ARFCN used for cell24		
}			
}			
commonInfo[*n*] SEQUENCE {			
cellReselectionPriority[*n*]	3	Lower priority than E-UTRA	
}			
}			
}			

Table 13.1.11.3.3-2: Message *Paging* (step 1, Table 13.1.11.3.2-2)

Derivation Path: 36.508 clause 4.6.1-7			
Information Element	**Value/remark**	**Comment**	**Condition**
Paging ::= SEQUENCE {			
pagingRecordList SEQUENCE (SIZE (1..maxPageRec)) OF SEQUENCE {	1 entry		
ue-Identity[1] CHOICE {			
s-TMSI	Set to the value of the S-TMSI of the UE		
}			
cn-Domain[1]	Cs		
}			
}			

Table 13.1.11.3.3-3: *RRCConnectionSetupComplete (step 5*, Table 13.1.11.3.2-2*)*

Derivation Path: 36.508 Table 4.6.1-18			
Information Element	**Value/remark**	**Comment**	**Condition**
RRCConnectionSetupComplete ::= SEQUENCE {			
rrc-TransactionIdentifier	RRC-TransactionIdentifier-UL		
criticalExtensions CHOICE {			
c1 CHOICE {			
rrcConnectionSetupComplete-r8 SEQUENCE {			
selectedPLMN-Identity	Set to the PLMN selected by upper layers		
registeredMME	Not present		
dedicatedInfoNAS	Set according to 36.508 Table 4.7.2-14A	EXTENDED SERVICE REQUEST	
nonCriticalExtension SEQUENCE {}	Not checked		
}			
}			
}			
}			

Table 13.1.11.3.3-4: *RRCConnectionReconfiguration* (step 8, Table 13.1.11.3.2-2)

Derivation Path: 36.508 Table 4.6.1-8, condition SRB2-DRB(1, 0)

Table 13.1.11.3.3-5: Message *MobilityFromEUTRACommand* (step 10, Table 13.1.11.3.2-2)

Derivation Path: 36.508 clause 4.6.1-6			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityFromEUTRACommand ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
mobilityFromEUTRACommand-r8 SEQUENCE {			
csFallbackIndicator	True		
purpose CHOICE {			
handover SEQUENCE {			
targetRAT-Type	Geran		
targetRAT-MessageContainer	PS HANDOVER COMMAND		
nas-SecurityParamFromEUTRA	Not Present		
systemInformation	Not present		
}			
}			
}			
}			
}			
}			

Table 13.1.11.3.3-6: PS HANDOVER COMMAND (step 10, Table 13.1.11.3.2-2)

Derivation Path: TS 36.508 Table 4.7D.1-1

Table 13.1.11.3.3-7: LOCATION UPDATING ACCEPT (step 13a7, Table 13.1.11.3.2-2)

Derivation Path: TS 36.508 Table 4.7B.2-5			
Information Element	**Value/remark**	**Comment**	**Condition**
Mobile identity	Not present		

Table 13.1.11.3.3-8: ATTACH ACCEPT (Preamble)

Derivation Path: 36.508 Table 4.7.2-1			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS network feature support	Not present		

13.1.12 Call setup from E-UTRA RRC_CONNECTED / CS fallback to GSM with PSHO / EDTM not supported / MO call

13.1.12.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_CONNECTED state }
ensure that {
  when { UE is triggered by upper layers to perform a circuit switched voice call }
   then { UE transmits an ULInformationTransfer message containing an EXTENDED SERVICE REQUEST
message with Service Type IE set to "mobile originating CS fallback or 1xCS fallback" }
}
```

(2)

```
with { UE having transmitted an ULInformationTranfer message containing an EXTENDED SERVICE REQUEST
message with Service Type IE set to "mobile terminating CS fallback or 1xCS fallback" }
ensure that {
  when { SS transmits a MobilityFromEUTRACommand message with handover to a GERAN cell and operating
in NMO I }
    then { UE handovers to GERAN cell }
}
```

(3)

```
with { UE having transmitted an ULInformationTranfer message containing an EXTENDED SERVICE REQUEST
message with Service Type IE set to "mobile originating CS fallback or 1xCS fallback" and handovered
to GERAN cell }
ensure that {
  when { UE has handovered to GERAN cell }
    then { UE establishes a MO circuit switched voice call on GERAN }
}
```

13.1.12.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 23.272, clauses 6.2, TS 36.331, clause 5.4.3.3.

[TS 23.272, clause 6.2]

This flow may be executed when the eNodeB knows that both the UE and the network support PS HO, in the normal case. Clause 6.6 describes the procedure when the procedure is rejected by the MME.

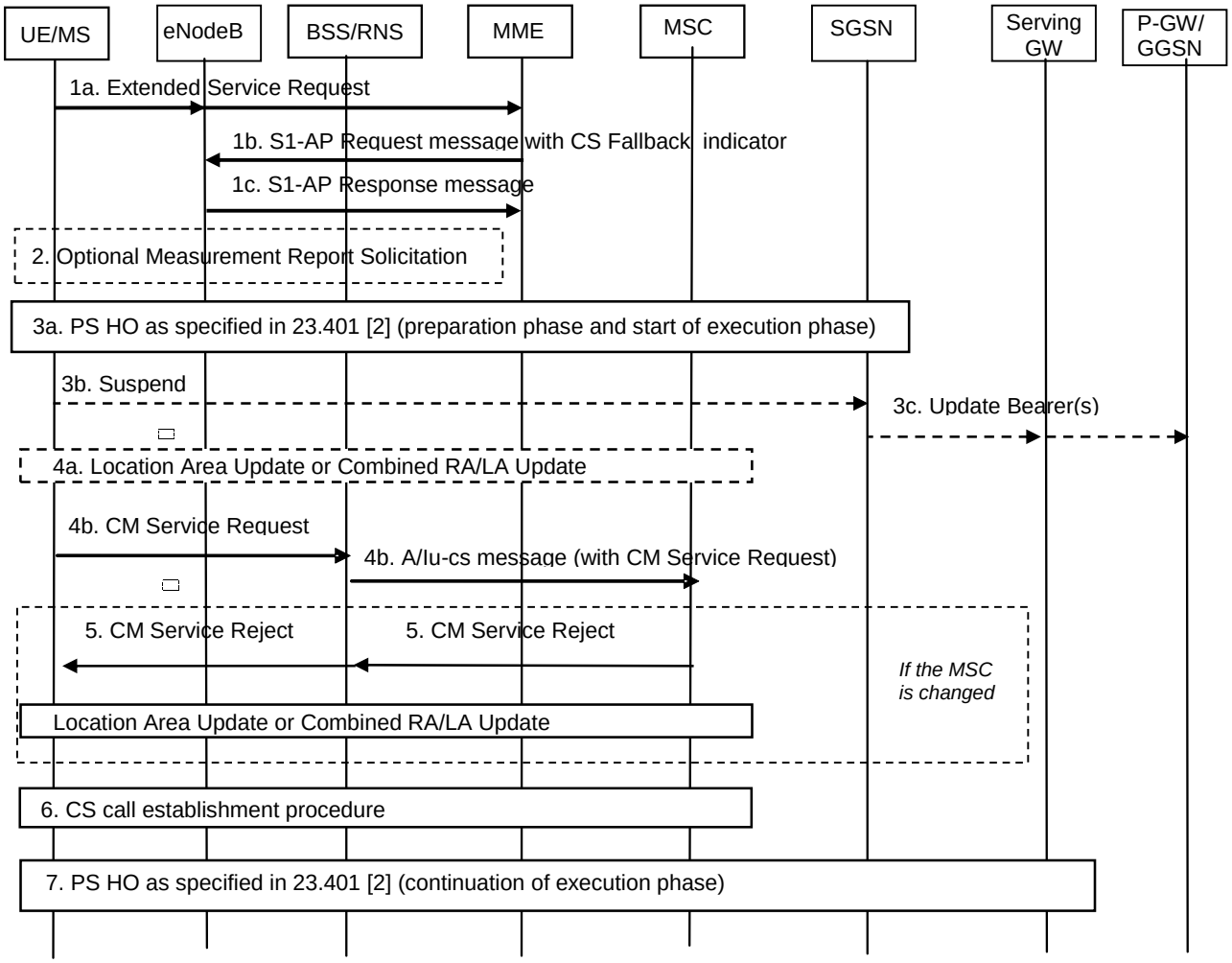

Figure 6.2-1: CS Call Request in E-UTRAN, Call in GERAN/UTRAN

NOTE 1: DTM is not mandatory for CS Fallback to work and is not linked to PS HO.

1a. The UE sends an Extended Service Request (CS Fallback Indicator) to MME. Extended Service Request message is encapsulated in RRC and S1-AP messages. CS Fallback Indicator indicates MME to perform CS Fallback. The UE only transmits this request if it is attached to CS domain (with a combined EPS/IMSI Attach) and can not initiate an IMS voice session (because e.g. the UE is not IMS registered or IMS voice services are not supported by the serving IP-CAN, home PLMN or UE).

1b. The MME sends an S1-AP UE Context Modification Request (CS Fallback Indicator, LAI) message to eNodeB. This message indicates to the eNodeB that the UE should be moved to UTRAN/GERAN. The registered PLMN for CS domain is identified by the PLMN ID included in the LAI, which is allocated by the MME.

1c. The eNodeB shall reply with S1-AP UE Context Modification Response message.

2. The eNodeB may optionally solicit a measurement report from the UE to determine the target GERAN/UTRAN cell to which PS handover will be performed.

3a. The eNodeB triggers PS handover to a GERAN/UTRAN neighbour cell by sending a Handover Required message to the MME. The eNodeB selects the target PS handover cell considering the PLMN ID and possibly the LAC for CS domain provided by the MME in step 1b. In the following an inter-RAT handover from E-UTRAN to UTRAN or GERAN as specified in TS 23.401 [2] begins. The eNodeB indicates in the Source RNC to Target RNC Transparent container that PS handover was triggered due to CSFB. The eNodeB also indicates whether CSFB was triggered for emergency purpose. As part of this handover, the UE receives a HO from

E-UTRAN Command and tries to connect to a cell in the target RAT. The HO from E-UTRAN Command may contain a CS Fallback Indicator which indicates to UE that the handover is triggered due to a CS fallback request. If the HO from E-UTRAN Command contains a CS Fallback Indicator and the UE fails to establish connection to the target RAT, then the UE considers that CS fallback has failed. Service Request procedure is considered to be successfully completed when PS Handover procedure is completed successfully.

NOTE 2: During the PS HO the SGSN does not create a Gs association with the MSC/VLR.

NOTE 3: Service Request procedure supervision timer shall be sufficiently long considering the optional measurement reporting at step 2.

When the UE arrives at the target cell, if the target RAT is UTRAN, the UE establishes the radio signalling connection by sending an RRC Initial Direct Transfer message as specified in TS 25.331 [7] that contains a NAS message. The CN Domain Indicator is set to "CS" in the Initial Direct Transfer message.

If the target RAT is GERAN A/Gb mode: The UE establishes a radio signalling connection by using the procedures specified in TS 44.018 [4] (i.e. UE requests and is assigned a dedicated channel where it sends a SABM containing a NAS message to the BSS and the BSS responds by sending a UA). Upon receiving the SABM (containing the NAS message) the BSS sends a COMPLETE LAYER 3 INFORMATION message (containing the NAS message) to the MSC which indicates CS resources have been allocated in the GERAN cell. If both the UE and the target cell support enhanced CS establishment in DTM (indicated by GERAN system information included within the HO from E-UTRAN Command) a RR connection may be established while in packet transfer mode without release of the packet resources, see TS 43.055 [24]. After the establishment of the main signalling link as described in TS 44.018 [4] the UE enters either Dual Transfer Mode or Dedicated Mode.

3b. If the target RAT is GERAN and the UE has entered Dedicated Mode, the UE starts the Suspend procedure (see TS 44.018 [4]) unless both the UE and the Target cell support DTM in which case TBF re-establishment may be performed.

3c. A Gn/Gp-SGSN that receives the Suspend message from the UE follows the Suspend procedure specified in TS 23.060 [3], clause 16.2.1.1.1

An S4-SGSN that receives the Suspend message from the UE follows the Suspend procedure specified in TS 23.060 [3]. The S4-SGSN deactivates GBR bearers towards S-GW and P-GW(s) by initiating MS-and SGSN Initiated Bearer Deactivation procedure as specified in TS 23.060 [3], and starts the preservation and suspension of non-GBR bearers by sending Suspend Notification message to the S-GW. The S-GW releases all RNC related information (address and TEIDs) for the UE if Direct Tunnel is established, and sends Suspend Notification message to the P-GW(s). The SGSN stores in the UE context that UE is in suspended status. All the preserved non-GBR bearers are marked as suspended status in the S-GW and P-GW(s). The P-GW should discard packets if received for the suspended UE.

4a. If the LA of the new cell is different from the one stored in the UE, the UE shall initiate a Location Area Update or a Combined RA/LA Update procedure as follows:

- if the network is operating in NMO-I (Network Modes of Operation), the UE may initiate a separate Location Area Update before initiating the RAU procedure instead of a Combined RA/LA Update procedure (to speed up the CSFB procedure); or

- if the network is operating in NMO-II or NMO-III, the UE shall initiate a Location Area Update before initiating the RAU procedure required for PS handover.

When the UE initiates a Location Area Update the UE shall set the "follow-on request" flag in the LAU Request in order to indicate to the MSC not to release the Iu/A connection after the LAU procedure completion. Further the UE performs any Routing Area Update procedure as specified by TS 23.060 [3].

The UE may initiate a Location Area Update procedure immediately when the UE is handed over to the target cell i.e. before the UE receives e.g. LAI or NMO information as part of the RAN Mobility Information.

4b. The UE sends a CM Service Request to the MSC.

5. If the UE is not registered in the MSC serving the 2G/3G target cell or the UE is not allowed in the LA, the MSC shall reject the CM service request, if implicit location update is not performed. The CM Service Reject shall trigger the UE to perform a Location Area Update or a Combined RA/LA Update procedure as specified in TS 23.060 [3] for the different Network Modes of Operation (NMO).

6. The UE initiates the CS call establishment procedure.

7. The UE performs any remaining steps of the inter-RAT handover from E-UTRAN to UTRAN or GERAN as specified in TS 23.401 [2].

If the UE remains on UTRAN/GERAN after the CS voice call is terminated the UE performs normal mobility management procedures as defined in TS 23.060 [3] and TS 24.008 [21].

[TS 36.331, clause 5.4.3.3]

The UE shall be able to receive a *MobilityFromEUTRACommand* message and perform a cell change order to GERAN, even if no prior UE measurements have been performed on the target cell.

The UE shall:

1> stop timer T310, if running;

1> if the *MobilityFromEUTRACommand* message includes the *purpose* set to '*handover*':

2> if the *targetRAT-Type* is set to '*utra*' or '*geran*':

3> consider inter-RAT mobility as initiated towards the RAT indicated by the *targetRAT-Type* included in the *MobilityFromEUTRACommand* message;

3> forward the *nas-SecurityParamFromEUTRA* to the upper layers;

3> access the target cell indicated in the inter-RAT message in accordance with the specifications of the target RAT;

3> if the *targetRAT-Type* is set to '*geran*':

4> use the contents of *systemInformation*, if provided for PS Handover, as the system information to begin access on the target GERAN cell;

...

13.1.12.3 Test description

13.1.12.3.1 Pre-test conditions

System Simulator:

- 2 cells, one E-UTRA and one GERAN cell:
  - Cell 1 E-UTRA serving cell
  - Cell 24 suitable neighbour GERAN cell
    - Cell 24 system information indicates that NMO 1 is used
    - DTM is not supported on Cell 24.
  - The parameters settings and power levels for Cell 1 and Cell 24 are selected according to [18], [5] so that camping on Cell 1 is guaranteed and no cell re-selection to Cell 24 can take place (GERAN priority is lower than serving and $S_{Cell\,1} > Thresh_{Cell\,1,low}$).
  - System information combination 5 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cells.
  - Cell 1 and Cell 24 are in the same LA

UE:

None

Preamble:

- The UE is in state Generic RB Established (state 3) according to [18].

13.1.12.3.2 Test procedure sequence

Table 13.1.12.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Cause the UE to originate CS call. (see Note 1)	-	-	-	-
2	Check: Does the UE transmit an *ULInformationTranfer* message containing an EXTENDED SERVICE REQUEST with Service Type IE set to "mobile originated CS fallback or 1xCS fallback" on Cell 1?	-->	*ULInformationTransfer* NAS: EXTENDED SERVICE REQUEST	1	P
3	The SS transmits a *MobilityFromEUTRACommand* message on Cell 1 with IE *handover*.	<--	*MobilityFromEUTRACommand*	-	-
4	The UE transmits a PS HANDOVER ACCESS message on Cell 24.	-->	PS HANDOVER ACCESS	2	P
5	The SS transmits a PS PHYSICAL INFORMATION message on Cell 24.	<--	PS PHYSICAL INFORMATION	-	-
6-35	Steps 3 to 32 of the generic test procedure described in TS36.508 subclause 6.4.3.8.2 are performed on Cell24.	-	-	3	P
-	At the end of this test procedure sequence, the UE is in end state GERAN idle (G1) according to TS 36.508.	-	-	-	-
Note 1: The trigger in step 1 is the same as in the generic procedure in 36.508 clause 6.4.3.5.					

13.1.12.3.3 Specific message contents

Table 13.1.12.3.3-1: *SystemInformationBlockType7* for cell 1 (preamble and all steps, Table 13.1.12.3.2-2 and Table 13.1.12.3.2-3)

Derivation Path: 36.508 Table 4.4.3.3-5			
Information Element	**Value/remark**	**Comment**	**Condition**
SystemInformationBlockType7 ::= SEQUENCE {			
carrierFreqsInfoList SEQUENCE (SIZE (1.. maxGNFG)) OF SEQUENCE {			
CarrierFreqsGERAN SEQUENCE [n] {			
startingARFCN	Same as cell 24		
bandIndicator	Same as cell 24		
followingARFCNs CHOICE {			
equallySpacedARFCNs SEQUENCE {			
arfcn-Spacing	Same as cell 24		
numberOfFollowingARFCNs	Same as cell 24		
}			
}			
}			
commonInfo SEQUENCE {			
cellReselectionPriority	3	Lower priority than E-UTRA	
}			
}			

Table 13.1.12.3.3-2: *ULInformationTransfer* (step 2, Table 13.1.12.3.2-2)

Derivation Path: 36.508 Table 4.6.1-25			
Information Element	**Value/remark**	**Comment**	**Condition**
ULInformationTransfer ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
ulInformationTransfer-r8 SEQUENCE {			
dedicatedInfoType CHOICE {			
dedicatedInfoNAS	Set according to Table 13.1.12.3.3-4	EXTENDED SERVICE REQUEST	
}			
}			
}			
}			
}			

Table 13.1.12.3.3-3: EXTENDED SERVICE REQUEST (step 2, Table 13.1.12.3.2-2)

Derivation Path: 36.508 Table 4.7.2-14A			
Information Element	**Value/remark**	**Comment**	**Condition**
Service type	'0000'B	mobile originating CS fallback or 1xCS fallback	

Table 13.1.12.3.3-4: Message *MobilityFromEUTRACommand* (step 3, Table 13.1.13.3.2-2)

Derivation Path: 36.508 clause 4.6.1-6			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityFromEUTRACommand ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
mobilityFromEUTRACommand-r8 SEQUENCE {			
csFallbackIndicator	True		
purpose CHOICE {			
handover SEQUENCE {			
targetRAT-Type	Geran		
targetRAT-MessageContainer	PS HANDOVER COMMAND		
nas-SecurityParamFromEUTRA	Not Present		
systemInformation	Not present		
}			
}			
}			
}			
}			
}			

Table 13.1.12.3.3-5: PS HANDOVER COMMAND (step 3, Table 13.1.13.3.2-2)

Derivation Path: TS 36.508 Table 4.7D.1-1

Table 13.1.12.3.3-7: GPRS SUSPENSION REQUEST (step 6, Table 13.1.12.3.2-2)

Derivation Path: 36.508 Table 4.7.2-14A			
Information Element	**Value/remark**	**Comment**	**Condition**
Protocol discriminator	RR		
Service type	'00110100'B	GPRS SUSPENSION REQUEST	
Suspension cause	'00000110'B	DTM not supported in the cell	

Table 13.1.12.3.3-8: LOCATION UPDATING ACCEPT (step 6a7, Table 13.1.12.3.2-2)

Derivation Path: TS 36.508 Table 4.7B.2-5			
Information Element	**Value/remark**	**Comment**	**Condition**
Mobile identity	Not present		

Table 13.1.12.3.3-9: ATTACH ACCEPT (Preamble)

Derivation Path: 36.508 Table 4.7.2-1			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS network feature support	Not present		

13.1.13 Call setup from E-UTRA RRC_IDLE / CS fallback to GSM with PSHO / EDTM supported / MT call

13.1.13.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_IDLE state }
ensure that {
  when { UE receives a Paging message with CN domain indicator set to "CS" }
   then { UE transmits an ULInformationTransfer message containing an EXTENDED SERVICE REQUEST
message with Service Type IE set to "mobile terminating CS fallback or 1xCS fallback" }
            }
```

(2)

```
with { UE having transmitted an ULInformationTranfer message containing an EXTENDED SERVICE REQUEST
message with Service Type IE set to "mobile terminating CS fallback or 1xCS fallback" }
ensure that {
  when { SS transmits a MobilityFromEUTRACommand message with handover to a GERAN cell in a
different location area and operating in NMO I }
    then { UE handovers to GERAN cell and performs a Combined LA/RA update procedure or a LA Update
procedure }
            }
```

(3)

```
with { UE having transmitted an ULInformationTranfer message containing an EXTENDED SERVICE REQUEST
message with Service Type IE set to "mobile terminating CS fallback or 1xCS fallback" and handovered
to GERAN cell and initiated a RA Update procedure }
ensure that {

  when { UE completes the RA Update procedure }
    then { UE transmits a PAGING RESPONSE on GSM cell to set up MT CS call }
            }
```

(4)

```
with { UE having transmitted an ULInformationTranfer message containing an EXTENDED SERVICE REQUEST
message with Service Type IE set to "mobile terminating CS fallback or 1xCS fallback" and handovered
to GERAN cell and initiated a RA Update procedure }
ensure that {
```

```
when { UE completes a Combined LA/RA update procedure or an LA Update procedure }
  then { UE sets up MT CS call on GSM cell }
          }
```

13.1.13.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 23.272, clauses 6.4 and 6.3, and, TS 36.331, clause 5.4.3.3 and 5.3.12, and, TS44.060, clause 8.9.1.1.1.

[TS 23.272, clause 7.2]

The procedure for Mobile Terminating Call in idle mode is illustrated in figure 7.2-1, in the normal case. Clause 6.6 describes the procedure when the procedure is rejected by the MME.

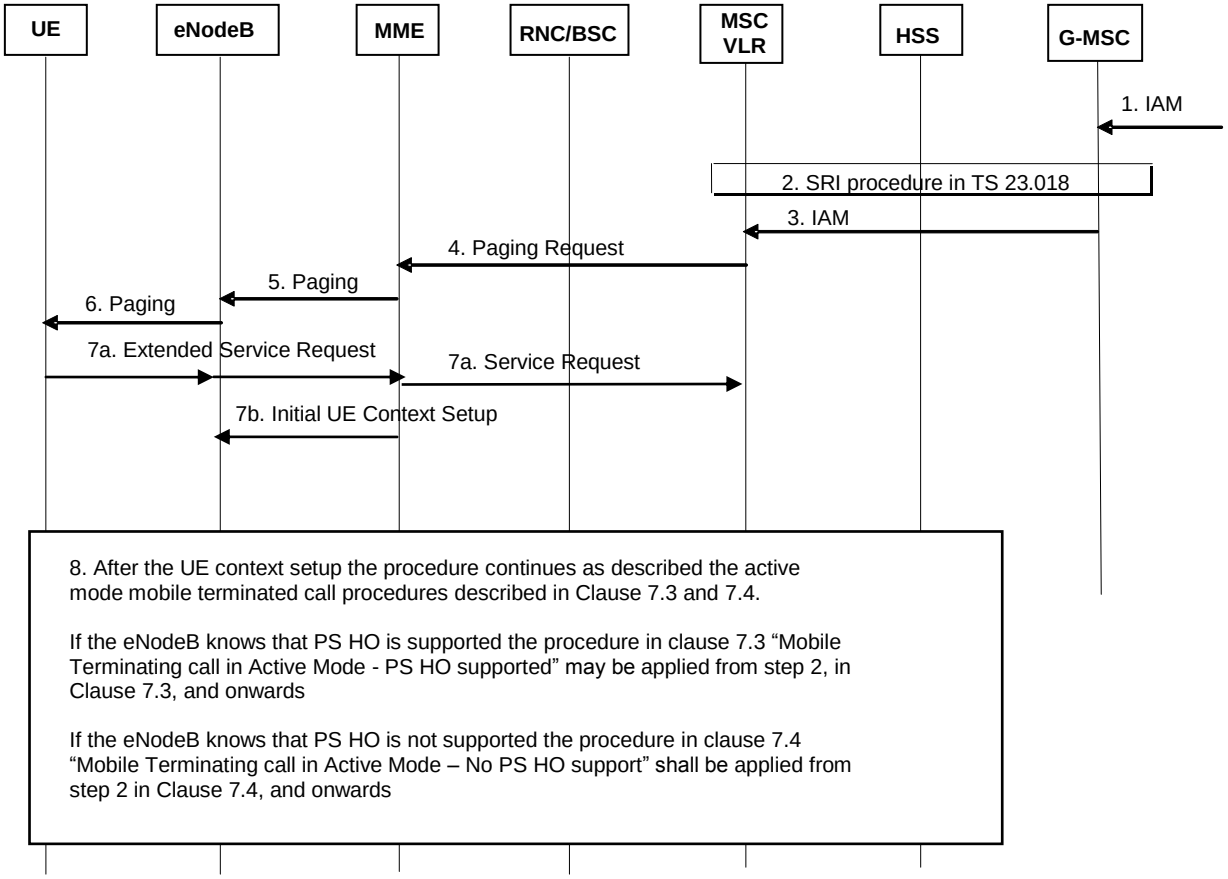

Figure 7.2-1: Mobile Terminating Call in idle mode

1. G-MSC receives IAM.

2. G-MSC retrieves routing information of the terminating UE by Send Routing Info procedures as specified in TS 23.018 [5].

…

7a. The UE establishes an RRC connection and sends an Extended Service Request for mobile terminating CS fallback to MME. The UE indicates its S-TMSI in the RRC signalling. The Extended Service Request message is encapsulated in RRC and S1-AP messages. The MME sends the SGs Service Request message to the MSC containing an indication that the UE was in idle mode (and hence, for example, that the UE has not received any Calling Line Identification information). Receipt of the SGs Service Request message stops the MSC retransmitting the SGs interface Paging message.

NOTE 3: In order to avoid the calling party experiencing a potentially long period of silence, the MSC may use the SGs Service Request message containing the idle mode indication as a trigger to inform the calling party that the call is progressing.

If the MME had received paging request with Priority Indication in step4 and receives subsequent Extended Service Request in Step 7a, it detects this message is the response to the priority CS Fallback procedure initiated in step5. In this case, the MME processes this message with priority and set the priority indication, i.e. "CSFB High Priority", in step7b as specified in TS 36.413 [35].

7b. MME sends S1-AP: Initial UE Context Setup (UE capabilities, CS Fallback Indicator, LAI and other parameters specified in TS 23.401 [2]) to indicate the eNodeB to move the UE to UTRAN/GERAN. The registered PLMN for CS domain is identified by the PLMN ID included in the LAI, which is allocated by the MME.

7c. The eNodeB shall reply with S1-AP: Initial UE Context Setup Response message.

8a. If the eNodeB knows that both the UE and the network support PS handover: The information flow may continue as described in clause 7.3 "Mobile Terminating call in Active Mode - PS HO supported" from step 2, in clause 7.3, and onwards.

. If the eNodeB knows that either the UE or the network does not support PS handover: The information flow shall continue as described in clause 7.4 "Mobile Terminating call in Active Mode – No PS HO support" from step 2, in clause 7.4, and onwards.

NOTE 4: Even in case both the UE and the network support PS HO, the eNodeB may choose to use a different inter-RAT mobility procedure.

[TS 23.272, clause 7.3]

This flow may be executed when the eNodeB knows that both the UE and the network support PS HO in the normal case. Clause 6.6 describes the procedure when the procedure is rejected by the MME.

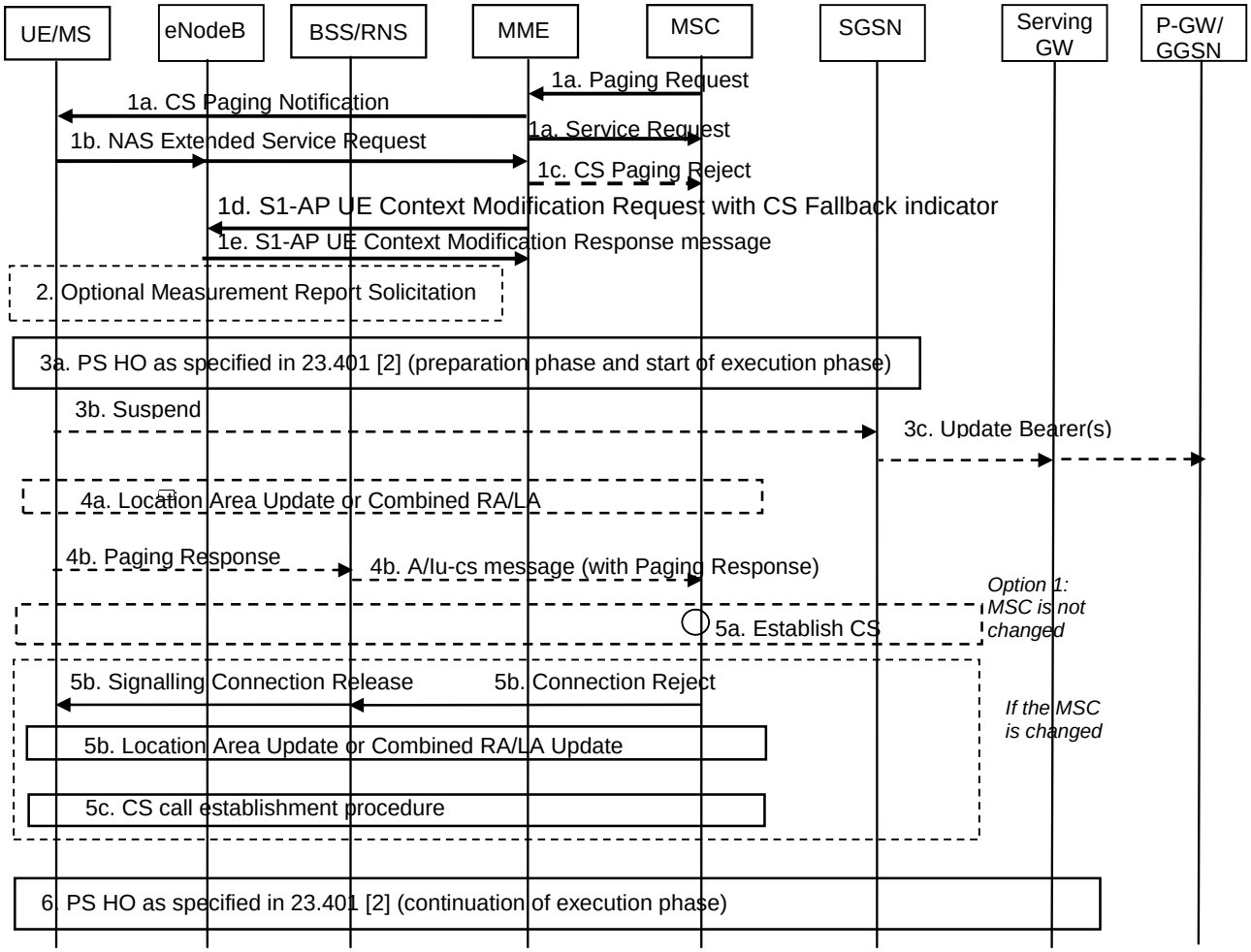

Figure 7.3-1: CS Page in E-UTRAN, Call in GERAN/UTRAN

…

2. The eNodeB may optionally solicit a measurement report from the UE to determine the target GERAN/UTRAN cell to which PS handover will be performed.

NOTE 4: Based on operator policy, the priority indicator received in step1b may be used by eNodeB to decide whether to continue CS Fallback procedures with PS HO, i.e. step3a, or to initiate radio release procedure to redirect the UE to 2G/3G Circuit Switch.

3a. The eNodeB triggers PS handover to a GERAN/UTRAN neighbour cell by sending a Handover Required message to MME. The eNodeB selects the target PS handover cell considering the PLMN ID and possibly the LAC for CS domain provided by the MME in step 1d. In the following an inter-RAT handover from E-UTRAN to UTRAN or GERAN as specified in TS 23.401 [2] begins. The eNodeB indicates in the Source RNC to Target RNC Transparent container that PS handover was triggered due to CSFB. The eNodeB also indicates whether CSFB was triggered for emergency or priority call handling purpose. If the network supports a priority call handling, the eNodeB may forward the priority indication to the target GERAN/UTRAN in the Source to Target Transparent Container, and the target GERAN/UTRAN allocates radio bearer resources taking received priority indication take into account. As part of this handover, the UE receives a HO from E-UTRAN Command and tries to connect to a cell in the target RAT. The HO from E-UTRAN Command may contain a CS Fallback Indicator which indicates to UE that the handover was triggered due to a CS fallback request. If the HO from E-UTRAN Command contains a CS Fallback Indicator and the UE fails to establish connection to the target RAT, then the UE considers that CS fallback has failed.

The UE establishes the signalling connection as described in step 4b.

NOTE 5: During the PS HO the SGSN does not create a Gs association with the MSC/VLR.

3b. If the target RAT is GERAN and the UE has entered Dedicated Mode, the UE starts the Suspend procedure (see TS 44.018 [4]) unless both the UE and the Target cell support DTM in which case TBF re-establishment may be performed.

3c. A Gn/Gp-SGSN that receives the Suspend message from the UE follows the Suspend procedure specified in TS 23.060 [3], clause 16.2.1.1.1.

An S4-SGSN that receives the Suspend message from the UE follows the Suspend procedure specified in TS 23.060 [3]. The S4-SGSN deactivates GBR bearers towards S-GW and P-GW(s) by initiating MS-and SGSN Initiated Bearer Deactivation procedure as specified in TS 23.060 [3], and starts the preservation and suspension of non-GBR bearers by sending Suspend Notification message to the S-GW. The S-GW releases all RNC related information (address and TEIDs) for the UE if Direct Tunnel is established, and sends Suspend Notification message to the P-GW(s). The SGSN stores in the UE context that UE is in suspended status. All the preserved non-GBR bearers are marked as suspended status in the S-GW and P-GW(s). The P-GW should discard packets if received for the suspended UE.

4a. If the LA of the new cell is different from the one stored in the UE, the UE shall initiate a Location Area Update or a Combined RA/LA Update procedure as follows:

- If the network is operating in NMO-I (Network Modes of Operation), the UE should initiate a separate Location Area Update before initiating the RAU procedure instead of a Combined RA/LA Update procedure (to speed up the CSFB procedure); or

- if the network is operating in NMO-II or NMO-III the UE shall initiate a Location Area Update procedure before initiating the RAU procedure required for PS handover.

The UE shall set the "CSMT" flag in the LAU Request. The "CSMT" flag is used to avoid missing MT call in roaming retry case. Further the UE performs any Routing Area Update procedure as specified in TS 23.060 [3].

The UE may initiate a Location Area Update procedure immediately when the UE is handed over to the target cell i.e. before the UE receives e.g. LAI or NMO information as part of the RAN Mobility Information.

When the MSC receives a LA Update Request, it shall check for pending terminating CS calls and, if the "CSMT" flag is set, maintain the CS signalling connection after the Location Area Update procedure for pending terminating CS calls.

4b. If the UE does not initiate a LAU procedure, it shall respond with a Paging Response message to the MSC as follows:

- If the Target RAT is UTRAN or GERAN Iu mode: The UE establishes a radio signalling connection and responds to the paging by sending an RRC Paging Response as specified in TS 25.331 [7]. The CN Domain Indicator is set to "CS" in the Initial Direct Transfer message.

- If the Target RAT is GERAN A/Gb mode: The UE establishes a radio signalling connection and responds to paging by using the procedures specified in TS 44.018 [4] (i.e. UE requests and is assigned a dedicated channel where it sends a SABM containing a Paging Response to the BSS and the BSS responds by sending a UA). Upon receiving the SABM (containing a Paging Response message) the BSS sends a COMPLETE LAYER 3 INFORMATION message (containing a Paging Response message) to the MSC which indicates CS resources have been allocated in the GERAN cell. If both the UE and the target cell support enhanced CS establishment in DTM (indicated by GERAN system information included within the HO from E-UTRAN Command) an RR connection may be established while in packet transfer mode without release of the packet resources, see TS 43.055 [24]. After the establishment of the main signalling link as described in TS 44.018 [4] the UE enters either Dual Transfer Mode or Dedicated Mode and the CS call establishment procedure completes.

NOTE 6: The BSS should be prepared to receive a Paging Response even when the corresponding Paging Request has not been sent by this BSS.

5a. After performing the LAU procedure or after receiving the Paging Response the MSC shall establish the CS call if the UE is allowed in the LA.

5b. If the UE is not registered in the MSC that receives the Paging Response or the UE is not allowed in the LA, the MSC shall reject the Paging Response message by releasing the A/Iu-CS. The BSC/RNC in turn releases the

signalling connection for UTRAN or GERAN CS domain. The signalling connection release shall trigger the UE to obtain the LAI, which causes the initiation of a Location Area Update or a Combined RA/LA procedure as specified in TS 23.060 [3] for the different Network Modes of Operation (NMO).

The Location Area Update triggers the Roaming Retry for CS Fallback procedure as defined in clause 7.5.

5c. After performing the LAU procedure the MSC shall establish the CS call if the UE is allowed in the LA.

6. The UE performs any remaining steps of the inter-RAT handover from E-UTRAN to UTRAN or GERAN as specified in TS 23.401 [2]

With the exception of steps 1a and 1c, above, Call Forwarding (see TS 23.082 [31]) is performed on the basis of the TS 24.008 [21] signalling received on the GERAN/UTRAN cell.

If the UE remains on UTRAN/GERAN after the CS voice call is terminated the UE performs normal mobility management procedures as defined in TS 23.060 [3] and TS 24.008 [21].

[TS 36.331, clause 5.4.3.3]

The UE shall be able to receive a *MobilityFromEUTRACommand* message and perform a cell change order to GERAN, even if no prior UE measurements have been performed on the target cell.

The UE shall:

1> stop timer T310, if running;

1> if the *MobilityFromEUTRACommand* message includes the *purpose* set to '*handover*':

2> if the *targetRAT-Type* is set to '*utra*' or '*geran*':

3> consider inter-RAT mobility as initiated towards the RAT indicated by the *targetRAT-Type* included in the *MobilityFromEUTRACommand* message;

3> forward the *nas-SecurityParamFromEUTRA* to the upper layers;

3> access the target cell indicated in the inter-RAT message in accordance with the specifications of the target RAT;

3> if the *targetRAT-Type* is set to '*geran*':

4> use the contents of *systemInformation*, if provided for PS Handover, as the system information to begin access on the target GERAN cell;

...

[TS 44.060, clause 8.9.1.1.1]

The RR connection establishment procedure is initiated by the RR entity of the mobile station. Initiation is triggered by request from the MM sublayer to enter dual transfer mode. The request from the MM sublayer to establish the RR connection specifies an establishment cause.

The RR entity in the mobile station shall not request the establishment of an RR connection while in packet transfer mode from the point where it receives a PS HANDOVER COMMAND message until the PS handover procedure has been completed (see sub-clause 8.10).

On receipt of the RR connection establishment request from upper layer the mobile station shall start timer T3196. At expiry of timer T3196, the mobile station shall release all ongoing TBFs and start RR connection establishment as specified in 3GPP TS 44.018. If a mobile station that supports PS handover receives a PS HANDOVER COMMAND message while T3196 is running it shall stop T3196, abort its current attempt to establish an RR connection and not make another attempt to establish an RR connection until completion of the PS handover procedure.

If the contention resolution is not solved, the mobile station shall delay the transmission of the PACKET CS REQUEST message until contention resolution is solved.

If the countdown procedure has been started on all the ongoing uplink TBFs, none of those TBFs is operating in extended uplink TBF mode and there is no downlink TBF in progress, the mobile station may either send the PACKET

CS REQUEST message, or may immediately release the ongoing TBF(s) and start an RR connection establishment as specified in 3GPP TS 44.018.

The mobile station shall initiate the RR connection establishment by sending PACKET CS REQUEST messages on the PACCH. The mobile station is allowed to retransmit the PACKET CS REQUEST message once while timer T3196 is running. The second sending occurrence of this message shall take place at the first suitable opportunity at least 0.75 s after the first transmission of that message.

13.1.13.3 Test description

13.1.13.3.1 Pre-test conditions

System Simulator:

- 2 cells, one E-UTRA and one GERAN cell
  - Cell 1 serving E-UTRA cell
  - Cell 24 suitable neighbour GERAN cell
    - Cell 24 system information indicates that NMO 1 is used
    - EDTM is supported on Cell 24.
  - The parameters settings and power levels for Cell 1 and Cell 24 are selected according to [18], [5] so that camping on Cell 1 is guaranteed and no cell re-selection to Cell 24 can take place (GERAN priority is lower than serving and $S_{Cell\ 1} > Thresh_{Cell\ 1,low}$).
  - System information combination 5 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cells.

UE:

None.

Preamble:

- The UE is in state Registered, Idle Mode (state 2) on Cell 1 according to [18].

13.1.13.3.2 Test procedure sequence

Table 13.1.13.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS transmits a *Paging* message to the UE on Cell 1 using S-TMSI with CN domain indicator set to “CS”.	<--	*Paging*	-	-
-	EXCEPTION: Step 2a1 describes behaviour that depends on the UE capability; the "lower case letter" identifies a step sequence that takes place if a capability is supported.	-	-	-	-
2a1	IF the UE needs to request upper layer input before accepting the CS fallback, the incoming CS call is accepted at the UE through MMI or AT command.	-	-	-	-
3	The UE transmits an *RRCConnectionRequest* message on Cell1.	-->	*RRCConnectionRequest*	-	-
4	The SS transmits an *RRCConnectionSetup message* on Cell1.	<--	*RRCConnectionSetup*	-	-
5	Check: Does the UE transmit an *RRCConnectionSetupComplete* message containing an EXTENDED SERVICE REQUEST with Service Type IE set to "mobile terminating CS fallback or 1xCS fallback” on Cell 1?	-->	*RRCConnectionSetupComplete* NAS: EXTENDED SERVICE REQUEST	1	P
5A	The SS transmits a *SecurityModeCommand* message on Cell 1.	<--	*SecurityModeCommand*	-	-
5B	The UE transmits a *SecurityModeComplete* message on Cell 1.	-->	*SecurityModeComplete*	-	-
5C	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1.	<--	*RRCConnectionReconfiguration*	-	-
5D	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1.	-->	*RRCConnectionReconfigurationComplete*	-	-
6	The SS transmits a *MobilityFromEUTRACommand* message on Cell 1 with IE *handover*.	<--	*MobilityFromEUTRACommand*	-	-
7	UE transmits a PS HANDOVER ACCESS message on Cell 24?	-->	PS HANDOVER ACCESS	-	-
8	The SS transmits a PS PHYSICAL INFORMATION message on Cell 24.	<--	PS PHYSICAL INFORMATION	-	-
	EXCEPTION: In case the UE does not choose to perform combined RA/LA procedure, the UE will perform LA update. In this case steps 9a1-9a8 are executed.				
9a1	Check: Doest he UE transmit *PACKET CS REQUEST* message to initiate a CS connection?	-->	PACKET CS REQUEST	2	P
9a2	A CS connection is established	<--	PACKET CS COMMAND	-	-
9a3	Check: Does the UE transmit LOCATION UPDATING REQUEST?	-->	LOCATION UPDATING REQUEST	2	P
-	EXCEPTION: The messages in the next two steps are sent only on Cell 24	-	-	-	-
9a3Aa1	The UE transmits a *Classmark Change* message	-->	CLASSMARK CHANGE		
-	EXCEPTION: The next step describes behaviour that depends on UE capability.	-	-	-	-
9a3Aa2	IF pc_UTRA THEN the UE transmits a *Utran Classmark Change* message.	-->	UTRAN CLASSMARK CHANGE.		
9a4	The SS transmits AUTHENTICATION REQUEST	<--	AUTHENTICATION REQUEST	-	-
9a5	The UE transmits AUTHENTICATION	-->	AUTHENTICATION RESPONSE	-	-

	RESPONSE				
9a6	The SS transmits CIPHERING MODE COMMAND	<--	CIPHERING MODE COMMAND	-	-
9a7	The UE transmits CIPHERING MODE COMPLETE	-->	CIPHERING MODE COMPLETE	-	-
9a8	The SS transmits MM LOCATION UPDATING ACCEPT	<--	LOCATION UPDATING ACCEPT	-	-
	EXCEPTION: In case UE chooses to perform combined RA/LA procedure, steps 9b1-9b7 are executed.				
9b1	The UE transmits ROUTING AREA UPDATING REQUEST message on Cell 24.	-->	ROUTING AREA UPDATING REQUEST	-	-
9b2	The SS transmits an AUTHENTICATION AND CIPHERING REQUEST message.	<--	AUTHENTICATION AND CIPHERING REQUEST	-	-
9b3	The UE transmits a AUTHENTICATION AND CIPHERING RESPONSE message.	-->	AUTHENTICATION AND CIPHERING RESPONSE	-	-
9b4	The SS transmits ROUTING AREA UPDATING ACCEPT to UE.	<--	ROUTING AREA UPDATING ACCEPT		
9b5	Check: Does the UE transmit a ROUTING AREA UPDATING COMPLETE message.	-->	ROUTING AREA UPDATING COMPLETE	2	P
9b6	A CS connection is established	<--	PACKET CS COMMAND	-	-
9b7	Check: Does the UE transmit a PAGING RESPONSE on Cell 24?	-->	*PAGING RESPONSE*	3	P
10	The SS transmits SETUP	<--	SETUP	-	-
11	Check: Does the UE transmits CALL CONFIRMED?	-->	CALL CONFIRMED	4	P
12-19	Steps 12 to 19 of the generic test procedure in TS 51.010-1 subclause 10.1.3 are performed on Cell 24. NOTE: Mobile terminating CS call is set up.	-	-	-	-

13.1.13.3.3 Specific message contents

Table 13.1.13.3.3-1: *SystemInformationBlockTyp7* for cell 1 (preamble and all steps, Table 13.1.13.3.2-2)

Derivation Path: 36.331 clause 6.3.1			
Information Element	**Value/remark**	**Comment**	**Condition**
SystemInformationBlockType7 ::= SEQUENCE {			
t-ReselectionGERAN	0		
t-ReselectionGERAN-SFt-ReselectionGERAN-SF			
carrierFreqsInfoListcarrierFreqsInfoListSEQUENCE (SIZE (1..maxGNFG)) OF SEQUENCE {			
carrierFreqs carrierFreqs[*n*] SEQUENCE {			
startingARFCN[*n*]	Same starting ARFCN used for cell 24		
bandIndicator[*n*]	same band used for GERAN cell24		
followingARFCNs[*n*] CHOICE {			
explicitListOfARFCNs[*n*]	Same ARFCN used for cell24		
}			
}			
commonInfo[*n*] SEQUENCE {			
cellReselectionPriority[*n*]	3	Lower priority than E-UTRA	
}			
}			
}			

Table 13.1.13.3.3-2: Message *Paging* (step 1, Table 13.1.13.3.2-2)

Derivation Path: 36.508 clause 4.6.1-7			
Information Element	**Value/remark**	**Comment**	**Condition**
Paging ::= SEQUENCE {			
pagingRecordList SEQUENCE (SIZE (1..maxPageRec)) OF SEQUENCE {	1 entry		
ue-Identity[1] CHOICE {			
s-TMSI	Set to the value of the S-TMSI of the UE		
}			
cn-Domain[1]	cs		
}			
}			

Table 13.1.13.3.3-3: *RRCConnectionSetupComplete (step 5*, Table 13.1.13.3.2-2*)*

Derivation Path: 36.508 Table 4.6.1-18			
Information Element	**Value/remark**	**Comment**	**Condition**
RRCConnectionSetupComplete ::= SEQUENCE {			
rrc-TransactionIdentifier	RRC-TransactionIdentifier-UL		
criticalExtensions CHOICE {			
c1 CHOICE {			
rrcConnectionSetupComplete-r8 SEQUENCE {			
selectedPLMN-Identity	Set to the PLMN selected by upper layers		
registeredMME	Not present		
dedicatedInfoNAS	Set according to 36.508 Table 4.7.2-14A	EXTENDED SERVICE REQUEST	
nonCriticalExtension SEQUENCE {}	Not checked		
}			
}			
}			
}			

Table 13.1.13.3.3-4: *RRCConnectionReconfiguration* (step 5C, Table 13.1.13.3.2-2)

Derivation Path: 36.508 Table 4.6.1-8, condition SRB2-DRB(1, 0)

Table 13.1.13.3.3-5: Message *MobilityFromEUTRACommand* (step 6, Table 13.1.13.3.2-2)

Derivation Path: 36.508 clause 4.6.1-6			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityFromEUTRACommand ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
mobilityFromEUTRACommand-r8 SEQUENCE {			
csFallbackIndicator	True		
purpose CHOICE {			
handover SEQUENCE {			
targetRAT-Type	Geran		
targetRAT-MessageContainer	PS HANDOVER COMMAND		
nas-SecurityParamFromEUTRA	Not Present		
systemInformation	Not present		
}			
}			
}			
}			
}			
}			

Table 13.1.13.3.3-6: PS HANDOVER COMMAND (step 6, Table 13.1.13.3.2-2)

Derivation Path: TS 36.508 Table 4.7D.1-1

Table 13.1.13.3.3-7: PACKET CS REQUEST (step 9a1, Table 13.1.13.3.2-2)

Derivation Path: 44.060 clause 11.4.35			
Information Element	**Value/remark**	**Comment**	**Condition**
GLOBAL TFI	0 <5 bit Uplink TFI>		
ESTABLISHMENT CAUSE	00000000	Location updating	

Table 13.1.13.3.3-8: PACKET CS COMMAND (step 9a2 and 9b6, Table 13.1.13.3.2-2)

Derivation Path: 44.060 clause 11.4.35			
Information Element	**Value/remark**	**Comment**	**Condition**
PAGE_MODE	00		
GLOBAL_TFI {	0 <5 bit Uplink TFI>		
Spare	00		
CONTAINER_LENGTH	The length of message DTM ASSIGNMENT COMMAND		
DTM ASSIGNMENT COMMAND	Specified in Table 13.1.13.3.3-9		
}			

Table 13.1.13.3.3-9: DTM ASSIGNMENT COMMAND (Table 13.1.13.3.3-8)

Derivation Path: 51.010 clause 40.2.4.28			
Information Element	**Value/remark**	**Comment**	**Condition**
Channel Description IE			
TN	N+1 mod 8		
Channel Type	TCH/F		
Channel Mode IE	Full Rate Version 1		
RR Packet Uplink Assignment IE	Not included		
RR Packet Downlink Assignment IE	Not included		

Table 13.1.13.3.3-10: LOCATION UPDATING ACCEPT (step 9a8, Table 13.1.13.3.2-2)

Derivation Path: TS 36.508 Table 4.7B.2-5			
Information Element	**Value/remark**	**Comment**	**Condition**
Mobile identity	Not present		

Table 13.1.13.3.3-11: ATTACH ACCEPT (Preamble)

Derivation Path: 36.508 Table 4.7.2-1			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS network feature support	Not present		

13.1.14

13.1.15 Call setup from E-UTRAN RRC_IDLE / CS fallback to UTRAN with redirection / MT call / UTRAN cell is barred

13.1.15.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_CONNECTED state having transmitted EXTENDED SERVICE REQUEST message for
mobile terminating CS call and a UTRA cell which broadcasts SystemInformationBlockType3 indicating
access barred for mobile originating CS call is available }
ensure that {
  when { UE receives an RRCConnectionRelease message with redirection to a UTRA carrier }
    then { UE transmits a PAGING RESPONSE message in the UTRA cell }
          }
```

13.1.15.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 25.331, clause 8.1.1.6.3.

[TS 25.331, clause 8.1.1.6.3]

The UE shall apply the following handling with respect to any Access Class Barring information:

1> if in idle mode:

2> if the IE "Paging Permission with Access Control Parameters For PLMN Of MIB", the IE "Paging Permission with Access Control Parameters For OperatorN" or the IE "Paging Permission with Access Control Parameters For All" to be applied according to the requirements above is included in System Information Block Type 3, the UE shall:

3> if Paging Response Restriction Indication is set to "None":

4> when sending a response to any PAGING TYPE 1 message, *Paging* message specified in [67] or CS SERVICE NOTIFICATION message specified in [79], act as if no Access Class is barred in the IE "Access Class Barred List" as specified in [4].

3> if Paging Response Restriction Indication is set to "PS":

4> when sending a response to any PAGING TYPE 1 message, *Paging* message specified in [67] or CS SERVICE NOTIFICATION message specified in [79] from CS domain, act as if no Access Class is barred in the IE "Access Class Barred List" as specified in [4];

4> when sending a response to any PAGING TYPE 1 message, *Paging* message specified in [67] or CS SERVICE NOTIFICATION message specified in [79] from PS domain, act on the IE "Domain Specific Access Class Barred List" if indicated in the IE "PS Domain Specific Access Restriction" (or IE "Access Class Barred list" if IE "Domain Specific Access Class Barred List" is not present) as specified in [4].

3> if Paging Response Restriction Indication is set to "CS":

4> when sending a response to any PAGING TYPE 1 message, *Paging* message specified in [67] or CS SERVICE NOTIFICATION message specified in [79] from PS domain, act as if no Access Class is barred in the IE "Access Class Barred List" as specified in [4];

4> when sending a response to any PAGING TYPE 1 message, *Paging* message specified in [67] or CS SERVICE NOTIFICATION message specified in [79] from CS domain, act on the IE "Domain Specific Access Class Barred List" if indicated in the IE "CS Domain Specific Access Restriction" (or IE "Access Class Barred list" if IE "Domain Specific Access Class Barred List" is not present) as specified in [4].

3> else (if Paging Response Restriction Indication is set to "All"):

4> when sending a response to any PAGING TYPE 1 message, *Paging* message specified in [67] or CS SERVICE NOTIFICATION message specified in [79] from CS domain, act on the IE "Domain Specific Access Class Barred List" if indicated in the IE "CS Domain Specific Access Restriction" as specified in [4];

4> when sending a response to any PAGING TYPE 1 message, *Paging* message specified in [67] or CS SERVICE NOTIFICATION message specified in [79] from PS domain, act on the IE "Domain Specific Access Class Barred List" if indicated in the IE "PS Domain Specific Access Restriction" as specified in [4];

4> when sending a response to any PAGING TYPE 1 message, *Paging* message specified in [67] or CS SERVICE NOTIFICATION message specified in [79] from PS or CS domain, act on the IE "Access Class Barred list" if the IE "Domain Specific Access Class Barred List" is not present.

3> when initiating a Location/Registration procedure to CS domain, act on the IE "Location/Registration Access Class Barred List" if the IE "Location/Registration Restriction Indicator" is set to "All" or "CS", as specified in [4];

3> when initiating an access to CS domain for any other reason, act on the IE "Domain Specific Access Class Barred List" if indicated in the IE "CS Domain Specific Access Restriction" (or IE "Access Class Barred list" if IE "Domain Specific Access Class Barred List" is not present) as specified in [4];

3> when initiating a Location/Registration procedure to PS domain, act on the IE "Location/Registration Access Class Barred List" if the IE "Location/Registration Restriction Indicator" is set to "All" or "PS", as specified in [4];

3> when initiating an access to PS domain for any other reason, act on the IE "Domain Specific Access Class Barred List" if indicated in the IE "PS Domain Specific Access Restriction" (or IE "Access Class Barred list" if IE "Domain Specific Access Class Barred List" is not present) as specified in [4].

13.1.15.3 Test description

13.1.15.3.1 Pre-test conditions

System Simulator:

- Cell 1 and Cell 5.
- power levels are constant and as defined in table 13.1.15.3.1-1;
- System information combination 4 as defined in TS 36.508 section 4.4.3.1 is used in E-UTRA cells.

Table 13.1.15.3.1-1: Cell power levels

	Parameter name	Unit	Cell 1	Cell 5
T0	RS EPRE	dBm/15kHz	-75	
	CPICH_Ec	dBm/3.84 MHz		-70
	P-CCPCH	dBm/1.28 MHz		-72
T1	RS EPRE	dBm/15kHz	Non-suitable “Off”	
	CPICH_Ec	dBm/3.84 MHz		-70
	P-CCPCH	dBm/1.28 MHz		-72

UE:

None.

Preamble:

- The UE is in state Registered, Idle mode (state 2) on Cell 1 according to [18].

13.1.15.3.2 Test procedure sequence

Table 13.1.15.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS transmits a *Paging* message on Cell 1.	<--	*Paging*	-	-
2	The UE transmits an *RRCConnectionRequest* message on Cell 1.	-->	*RRCConnectionRequest*	-	-
3	The SS transmits an *RRCConnectionSetup* message on Cell 1.	<--	*RRCConnectionSetup*	-	-
4	The UE transmits an *RRCConnectionSetupComplete* message on Cell 1. This message includes an EXTENDED SERVICE REQUEST message.	-->	*RRCConnectionSetupComplete*	-	-
5-8	Void	-	-	-	-
9	The SS transmits an *RRCConnectionRelease* message on Cell 1 with IE *redirectedCarrierInfo* including *an utra-FDD or an utra-TDD* of Cell 5.	<--	*RRCConnectionRelease*	-	-
10	Check: Does the test result of CALL generic procedure in TS 36.508 [18] clause 6.4.3.7.1 indicate that the UE performs CS fallback to UTRAN with redirection / MT call (PS bearers not established) on Cell 5?	-	-	1	-
10A	SS adjusts cell levels according to row T1 of table 13.1.15.3.1-1.				
11-28	Void	-	-	-	-

Table 13.1.15.3.2-2: Void

13.1.15.3.3 Specific message contents

Table 13.1.15.3.3-1: System Information Block type3 for Cell 5 (preamble and all steps, Table 13.1.15.3.2-1)

Information Element	Value/remark
Access Class Barred List	
- Access Class Barred0	barred
- Access Class Barred1	barred
- Access Class Barred2	barred
- Access Class Barred3	barred
- Access Class Barred4	barred
- Access Class Barred5	barred
- Access Class Barred6	barred
- Access Class Barred7	barred
- Access Class Barred8	barred
- Access Class Barred9	barred
- Access Class Barred10	barred
- Access Class Barred11	barred
- Access Class Barred12	barred
- Access Class Barred13	barred
- Access Class Barred14	barred
- Access Class Barred15	barred

Domain Specific Access Restriction Parameters For PLMN Of MIB	
-CS Domain Specific Access Restriction	restriction
-Domain Specific Access Class Barred List	
-Access Class Barred List	
- Access Class Barred0	barred
- Access Class Barred1	barred
- Access Class Barred2	barred
- Access Class Barred3	barred
- Access Class Barred4	barred
- Access Class Barred5	barred
- Access Class Barred6	barred
- Access Class Barred7	barred
- Access Class Barred8	barred
- Access Class Barred9	barred
- Access Class Barred10	barred
- Access Class Barred11	barred
- Access Class Barred12	barred
- Access Class Barred13	barred
- Access Class Barred14	barred
- Access Class Barred15	barred
-PS Domain Specific Access Restriction	no restriction
Paging Permission with Access Control Parameters For PLMN Of MIB	
- Paging Response Restriction Indication	none
- Location/Registration Restriction Indicator	All
- Location/Registration	
- Location/Registration Access Restriction	no restriction

Table 13.1.15.3.3-2: *Paging* (step 1, Table 13.1.15.3.2-1)

Derivation Path: 36.508, Table 4.6.1-7			
Information Element	**Value/remark**	**Comment**	**Condition**
Paging ::= SEQUENCE {			
pagingRecordList SEQUENCE (SIZE (1..maxPageRec)) OF SEQUENCE {	1 entry		
cn-Domain	cs		
}			
}			

Table13.1.15.3.3-3: Void

Table 13.1.15.3.3-4: *RRCConnectionRelease* (step 9, Table 13.1.15.3.2-1)

Derivation Path: 36.508 Table 4.6.1-15			
Information Element	**Value/remark**	**Comment**	**Condition**
RRCConnectionRelease ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
rrcConnectionRelease-r8 SEQUENCE {			
redirectedCarrierInfo ::= CHOICE {			
utra-FDD	Downlink UARFCN of cell 5		UTRA-FDD
utra-TDD	Downlink UARFCN of cell 5		UTRA-TDD
}			
}			
}			
}			
}			

Condition	Explanation
UTRA-FDD	UTRA FDD cell environment
UTRA-TDD	UTRA TDD cell environment

Table 13.1.15.3.3-5: ATTACH ACCEPT (Preamble)

Derivation Path: 36.508 Table 4.7.2-1			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS network feature support	Not present		

13.1.16 Emergency call setup from E-UTRAN RRC_IDLE / CS fallback to UTRAN with handover

13.1.16.1 Test Purpose (TP)

(1)

```
with { UE is in E-UTRA RRC_IDLE state }
ensure that {
  when { the user initiates an emergency call }
    then { UE transmits an RRCConnectionRequest message with establishmentCause set to "emergency"
and an EXTENDED SERVICE REQUEST message with Service type IE set to "mobile originating CS fallback
emergency call or 1xCS fallback emergency call" }
            }
```

(2)

```
with { UE in E-UTRA RRC_CONNECTED state having requested an emergency call }
ensure that {
  when { UE receives a MobilityFromEUTRACommand message including a cs-FallbackIndicator set to
'true' and a targetRAT-Type set to 'utra' }
    then { UE transmits a HANDOVER TO UTRAN COMPLETE message and establishes the emergency call }
            }
```

13.1.16.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 23.272, clause 4.6 and TS 36.331, clause 5.4.3.3.

[TS 23.272, clause 4.6]

When UE is performing CS fallback procedure for Mobile Originating Call for the purpose of emergency call, it shall indicate to the MME that this CS fallback request is for emergency purpose. MME also indicates to the E-UTRAN via the appropriate S1-AP message that this CS fallback procedure is for emergency purpose.

NOTE: E-UTRAN may use the emergency indication for selecting a particular radio access network (2G or 3G) for CS emergency handling.

[TS 36.331, clause 5.4.3.3]

The UE shall be able to receive a *MobilityFromEUTRACommand* message and perform a cell change order to GERAN, even if no prior UE measurements have been performed on the target cell.

The UE shall:

1> stop timer T310, if running;

1> if the *MobilityFromEUTRACommand* message includes the *purpose* set to '*handover*':

2> if the *targetRAT-Type* is set to '*utra*' or '*geran*':

3> consider inter-RAT mobility as initiated towards the RAT indicated by the *targetRAT-Type* included in the *MobilityFromEUTRACommand* message;

3> forward the *nas-SecurityParamFromEUTRA* to the upper layers;

3> access the target cell indicated in the inter-RAT message in accordance with the specifications of the target RAT;

3> if the *targetRAT-Type* is set to '*geran*':

4> use the contents of *systemInformation*, if provided for PS Handover, as the system information to begin access on the target GERAN cell;

NOTE 1: If there are DRBs for which no radio bearers are established in the target RAT as indicated in the *targetRAT-MessageContainer* in the message, the E-UTRA RRC part of the UE does not indicate the release of the concerned DRBs to the upper layers. Upper layers may derive which bearers are not established from information received from the AS of the target RAT.

13.1.16.3 Test description

13.1.16.3.1 Pre-test conditions

System Simulator:

- Cell 1 and Cell 5.
- System information combination 4 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cell.

Table 13.1.16.3.1-1 shows the cell power levels after the preamble.

Table 13.1.16.3.1-1: Time instances of cell power level and parameter changes

	Parameter name	Unit	Cell 1	Cell 5
T0	RS EPRE	dBm/15kHz	-85	
	CPICH_Ec	dBm/3.84 MHz		-70
	P-CCPCH	dBm/1.28 MHz		-72
T1	RS EPRE	dBm/15kHz	Non-suitable "Off"	
	CPICH_Ec	dBm/3.84 MHz		-70
	P-CCPCH	dBm/1.28 MHz		-72

UE:

None.

Preamble:

- The UE is in state Registered, Idle mode (state 2) on Cell 1 according to [18].
- The UE has a valid TMSI (TMSI-1) and is registered in LAI-1.

13.1.16.3.2 Test procedure sequence

Table 13.1.16.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Cause the UE to originate emergency call. (see Note 1)	-	-	-	-
2	Check: Does the UE transmit an *RRCConnectionRequest* message on Cell 1?	-->	*RRCConnectionRequest*	1	P
3	The SS transmits an *RRCConnectionSetup* message on Cell 1.	<--	*RRCConnectionSetup*	-	-
4	Check: Does the UE transmits an *RRCConnectionSetupComplete* message on Cell 1 including an EXTENDED SERVICE REQUEST message with Service type IE set to "mobile originating CS fallback emergency call or 1xCS fallback emergency call"?	-->	*RRCConnectionSetupComplete*	1	P
5	The SS transmits a *SecurityModeCommand* message on Cell 1.	<--	*SecurityModeCommand*	-	-
6	The UE transmits a *SecurityModeComplete* message on Cell 1.	-->	*SecurityModeComplete*	-	-
7	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1.	<--	*RRCConnectionReconfiguration*	-	-
8	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1.	-->	*RRCConnectionReconfigurationComplete*	-	-
8A	The SS transmits a *UECapabilityEnquiry* message to request UE radio access capability information for E-UTRA and UTRA.	<--	*UECapabilityEnquiry*	-	-
8B	The UE transmit a *UECapabilityInformation* message on Cell 1. NOTE: The start-PS values received, should be used to configure ciphering on cell 5.	-->	*UECapabilityInformation*	-	-
9	The SS transmits a *MobilityFromEUTRACommand* message on Cell 1.	<--	*MobilityFromEUTRACommand*	-	-
10	Check: Does the test result of CALL generic procedure [18] clause 6.4.3.7.7 indicate that the UE performs CS fallback to UTRAN with Handover / emergency call on Cell 5?	-	-	2	-
11	SS adjusts cell levels according to row T1 of table 13.1.16.3.1-1.				
Note 1: The trigger in step 1 is the same as in the generic procedure in 36.508 clause 6.4.3.5.					

13.1.16.3.3 Specific message contents

Table 13.1.16.3.3-1: *RRCConnectionRequest* (step 2, Table 13.1.16.3.2-1)

Derivation Path: 36.508, Table 4.6.1-16			
Information Element	**Value/remark**	**Comment**	**Condition**
RRCConnectionRequest ::= SEQUENCE {			
criticalExtensions CHOICE {			
rrcConnectionRequest-r8 SEQUENCE {			
establishmentCause	emergency		
}			
}			
}			

Table 13.1.16.3.3-2: EXTENDED SERVICE REQUEST (step 4, Table 13.1.16.3.2-1)

Derivation Path: TS 36.508, Table 4.7.2-14A			
Information Element	**Value/remark**	**Comment**	**Condition**
Service type	'0010'B	mobile originating	

		CS fallback emergency call or 1xCS fallback emergency call	
CSFB response	Not present		

Table13.1.16.3.3-3: *RRCConnectionReconfiguration* (step 7, Table 13.1.16.3.2-1)

Derivation Path: 36.508 Table 4.6.1-8, condition SRB2-DRB(1, 0)

Table 13.1.16.3.3-4: *MobilityFromEUTRACommand* (step 9, Table 13.1.16.3.2-1)

Derivation Path: 36.508, Table 4.6.1-6			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityFromEUTRACommand ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
mobilityFromEUTRACommand-r8 SEQUENCE {			
cs-FallbackIndicator	true		
purpose CHOICE{			
handover SEQUENCE {			
targetRAT-Type	utra		
targetRAT-MessageContainer	HANDOVER TO UTRAN COMMAND(UTRA RRC message)		
nas-SecurityParamFromEUTRA	The 4 least significant bits of the NAS downlink COUNT value		
systemInformation	Not present		
}			
}			
}			
}			
}			
}			

Table 13.1.16.3.3-5: HANDOVER TO UTRAN COMMAND (Table 13.1.16.3.3-4)

Derivation Path: 36.508, Table 4.7B.1-1, condition UTRA PS RB

Table 13.1.16.3.3-6: UECapabilityEnquiry (step 8A, Table 13.1.16.3.2-1)

Derivation path: 36.508 clause 4.6.1 table 4.6.1-22			
Information Element	**Value/Remark**	**Comment**	**Condition**
UECapabilityEnquiry ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
ueCapabilityEnquiry-r8 SEQUENCE {			
ue-CapabilityRequest SEQUENCE (SIZE (1..maxRAT-Capabilities)) OF SEQUENCE {	2 entry		
RAT-Type[1]	eutra		
RAT-Type[2]	utra		
}			
}			
}			
}			
}			

Table 13.1.16.3.3-7: ATTACH ACCEPT (Preamble)

Derivation Path: 36.508 Table 4.7.2-1			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS network feature support	Not present		

13.1.17 Call setup from E-UTRAN RRC_IDLE / mobile originating 1xCS fallback emergency call to 1xRTT

13.1.17.1 Test Purpose (TP)

(1)

```
with { UE in state EMM-REGISTERED and EMM-IDLE }
ensure that {
  when { UE initiates a mobile originating 1xCS fallback emergency call }
    then { UE establishes the RRC connection with the RRC establishmentCause set to 'emergency' and
transmits an EXTENDED SERVICE REQUEST message with Service Type IE set to "mobile originating CS
fallback emergency call or 1xCS fallback emergency call" }
            }
```

(2)

```
with { UE having transmitted an EXTENDED SERVICE REQUEST message with Service Type IE set to "mobile
originating CS fallback emergency call or 1xCS fallback emergency call" }
ensure that {
  when { SS transmits a RRCConnectionRelease message with redirection to 1xRTT }
    then { UE tunes to 1xRTT cell, transmits a 1xRTT Origination message on 1xRTT cell and
establishes the emergency call }
           }
```

13.1.17.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: 3GPP TS 24.301 clauses 5.3.1.1, 5.6.1.1, 5.6.1.2, 5.6.1.4 and D.1.

[TS 24.301 clause 5.3.1.1]

When the UE is in EMM-IDLE mode and needs to transmit an initial NAS message, the UE shall request the lower layer to establish a NAS signalling connection. In this request to the lower layer the NAS shall provide to the lower layer the RRC establishment cause and the call type as specified in annex D of this specification.

[TS 24.301 clause 5.6.1.1]

The purpose of the service request procedure is to transfer the EMM mode from EMM-IDLE to EMM-CONNECTED mode and establish the radio and S1 bearers when uplink user data or signalling is to be sent. Another purpose of this procedure is to invoke MO/MT CS fallback procedures.

This procedure is used when:

…

- the UE in EMM-IDLE or EMM-CONNECTED mode has requested to perform mobile originating/terminating CS fallback; or

…

The service request procedure is initiated by the UE, however, for the downlink transfer of signalling, cdma2000® signalling or user data in EMM-IDLE mode, the trigger is given by the network by means of the paging procedure (see subclause 5.6.2).

The UE shall invoke the service request procedure when:

…

f) the UE in EMM-IDLE or EMM-CONNECTED mode is configured to use 1xCS fallback and has a mobile originating 1xCS fallback request from the upper layer;

…

[TS 24.301 clause 5.6.1.2]

For cases f and g in subclause 5.6.1.1, the UE shall send an EXTENDED SERVICE REQUEST message, start T3417 and enter the state EMM-SERVICE-REQUEST-INITIATED.

[TS 24.301 clause 5.6.1.4]

If the service type information element in the EXTENDED SERVICE REQUEST message indicates "mobile terminating CS fallback or 1xCS fallback" and the CSFB response IE indicates "CS fallback accepted by the UE", or if the service type information element in the EXTENDED SERVICE REQUEST message indicates "mobile originating CS fallback or 1xCS fallback" or "mobile originating CS fallback emergency call or 1xCS fallback emergency call", the network initiates CS fallback procedures. If the EPS bearer context status IE is included in the EXTENDED SERVICE REQUEST message, the network shall deactivate all those EPS bearer contexts locally (without peer-to-peer signalling between the network and the UE) which are active on the network side but are indicated by the UE as being inactive.

….

For cases f and g in subclause 5.6.1.1, the UE shall treat the indication from the lower layers that the signalling connection is released with the redirection indication to cdma2000® 1x access network or the indication from the lower layers that a change to cdma2000® 1x access network for 1xCS fallback has started (see 3GPP TS 36.331 [22]) as successful completion of the procedure. The UE shall stop the timer T3417 and enter the state EMM-REGISTERED.NO-CELL-AVAILABLE.

[TS 24.301 clause D.1]

When EMM requests the establishment of a NAS-signalling connection, the RRC establishment cause used by the UE shall be selected according to the NAS procedure as specified in table D.1.1. The EMM shall also indicate to the lower layer for the purpose of access control, the call type associated with the RRC establishment cause as specified in table D.1.1.

Table D.1.1: Mapping of NAS procedure to establishment cause and call type

NAS procedure	RRC establishment cause (according 3GPP TS 36.331 [22])	Call type
...		
Service Request	If an EXTENDED SERVICE REQUEST has service type set to "mobile originating CS fallback emergency call or 1xCS fallback emergency call", the RRC establishment cause shall be set to Emergency call. (See Note1).	"emergency calls"
...		
Note 1: For these NAS procedures initiated by UEs of access class 12, 13 or 14 in their home country, the RRC establishment cause will be set to "High priority access AC 11 – 15". For this purpose the home country is defined as the country of the MCC part of the IMSI, see 3GPP TS 22.011 [1A]. For these NAS procedures initiated by UE of access class 11 or 15 in their HPLMN or EHPLMN, the RRC establishment cause will be set to "High priority access AC 11 – 15".		

13.1.17.3 Test description

13.1.17.3.1 Pre-test conditions

System Simulator:

- cell 1 and cell 19.
- cell 1 is “Serving cell” and cell 19 is “Suitable cell”.
- System information combination 6 as defined in TS 36.508[18] clause 4.4.3.1 is used in E-UTRA cells.

UE:

- The UE is equipped with a USIM containing default values (as per TS 36.508) except for those shown in Table 13.1.17.3.1-1.

Table 13.1.17.3.1–1: USIM Configuration

USIM field	Value
EF_{ACC}	Type "A" as defined in TS34.108 clause 8.3.2.15

Preamble:

- the UE is in state Registered, Idle Mode (State 2C) on cell 1 according to TS 36.508 [18];
- the UE has completed the 1xRTT CS pre-registration procedure on cell 19.

13.1.17.3.2 Test procedure sequence

Table 13.1.17.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Cause the UE to originate an emergency CS call. (Note1)	-	-	-	-
2	Check: Does the UE transmit an *RRCConnectionRequest* message with *establishmentCause* set to 'emergency'	-->	RRC: RRC CONNECTION REQUEST	1	P
3	The SS transmits an RRC CONNECTION SETUP message.	<--	RRC: RRC CONNECTION SETUP	-	-
4	Check: Does the UE transmit an RRC CONNECTION SETUP COMPLETE message?	-->	RRC: RRC CONNECTION SETUP COMPLETE	1	P
5	Check: Does the UE transmit an EXTENDED SERVICE REQUEST message with Service Type IE set to "mobile originating CS fallback emergency call or 1xCS fallback emergency call"?	-->	EXTENDED SERVICE REQUEST	1	P
6	The SS releases the RRC Connection on cell 1 redirecting the UE to Cell 19.	<--	*RRCConnectionRelease*	-	-
7	Check: Does the UE transmit an *Origination* message on Cell 19?	-->	*Origination*	2	P
8	The SS transmits an *Extended Channel Assignment* message on Cell 19.	<--	*Extended Channel Assignment*	-	-
9	After the SS detects that Traffic Channel Initialization is successful, it transmits an *Acknowledgement Order* message on Cell 19.	<--	*Acknowledgement Order*	-	-
10	The SS transmits a *Service Connect* message on Cell 19.	<--	*Service Connect*	-	-
11	The UE transmits a *Service Connect Completion* message on Cell 19.	-->	*Service Connect Completion*	2	P
12	Mobile originating 1xRTT emergency call is set up.	-	-	-	-
Note 1: This could be done by e.g. MMI or AT command.					

13.1.17.3.3 Specific message contents

Table 13.1.17.3.3-1: *SystemInformationBlockType8* for Cell 1 (all steps, Table 13.1.17.3.2-1)

Derivation Path: 36.508 Table 4.4.3.3-7, condition 1XRTT			
Information Element	**Value/remark**	**Comment**	**Condition**
SystemInformationBlockType8 ::= SEQUENCE {			
parameters1XRTT SEQUENCE {			
csfb-RegistrationParam1XRTT SEQUENCE {			
Sid	Set by SS	Sid of Cell 19	
Nid	Set by SS	Nid of Cell 19	
}			
longCodeState1XRTT	Set by SS	BIT STRING (SIZE (42)) OPTIONAL	
cellReselectionParameters1XRTT SEQUENCE {			
bandClassList SEQUENCE (SIZE (1..maxCDMA -BandClass)) OF SEQUENCE {	1 entry		
cellReselectionPriority	3		
}			
}			
}			
}			

Table 13.1.17.3.3-2: Message *RRCConnectionRequest* (step 2, Table 13.1.17.3.2-1)

Derivation path: 36.508 table 4.6.1-16			
Information Element	**Value/Remark**	**Comment**	**Condition**

RRCConnectionRequest ::= SEQUENCE {
criticalExtensions CHOICE {
rrcConnectionRequest-r8 SEQUENCE {
establishmentCause
}
}
}
	emergency		

Table 13.1.17.3.3-3: Message EXTENDED SERVICE REQUEST (step 5, Table 13.1.17.3.2-1)

Derivation Path: 36.508 clause 4.7.2-14A			
Information Element	**Value/remark**	**Comment**	**Condition**
Service type	'0010'B	"mobile originating CS fallback emergency call or 1xCS fallback emergency call"	
CSFB response	Not present		

Table 13.1.17.3.3-4: *RRCConnectionRelease* (step 6, Table 13.1.17.3.2-1)

Derivation Path: 36.508 table 4.6.1-15			
Information Element	**Value/remark**	**Comment**	**Condition**
RRCConnectionRelease ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
rrcConnectionRelease-r8 SEQUENCE {			
redirectionInformation ::= CHOICE {			
interRAT-target CHOICE {			
cdma2000-1xRTT	cdma2000-CarrierInfo for Cell 19		
}			
}			
}			
}			
}			
}			

Table 13.1.17.3.3-5: *Origination* (step 7, Table 13.1.17.3.2-1)

Field	Value/remark	Comment	Condition
MSG_ID	'000100'B	Origination Message	this value shall be verified by TTCN
SPECIAL_SERVICE	'1'B		
SERVICE_OPTION	Any value mapping to a voice service option		

Table 13.1.17.3.3-6: *Extended Channel Assignment* (step 8, Table 13.1.17.3.2-1)

Field	Value/remark	Comment	Condition
MSG_ID	'010101'B	Extended Channel Assignment Message	
ASSIGN_MODE	'000'B	Traffic Channel Assignment	

Table 13.1.17.3.3-7: *Acknowledgment Order* (step 9, Table 13.1.17.3.2-1)

Field	Value/remark	Comment	Condition
MSG_ID	'00000001'B	Order Message	
ORDER	'010000'B	Base Station Acknowledgment Order	
ORDQ	'00000000'B		

Table 13.1.17.3.3-8: *Service Connect* (step 8, Table 13.1.17.3.2-1)

Field	Value/remark	Comment	Condition
MSG_ID	'00010100'B	Service Connect Message	
SERV_CON_SEQ	Set by SS		

Table 13.1.17.3.3-9: *Service Connect Completion* (step 9, Table 13.1.17.3.2-1)

Information Element	Value/remark	Comment	Condition
MSG_ID	'00001110'B	Service Connect Completion Message	this value shall be verified by TTCN
SERV_CON_SEQ	Same value as SERV_CON_SEQ received in Service Connect Message (Table 13.1.17.3.3-8		

13.1.18 Call setup from E-UTRAN RRC_IDLE / mobile originating enhanced 1xCS fallback emergency call to 1xRTT

13.1.18.1 Test Purpose (TP)

(1)

```
with { UE in state EMM-REGISTERED and EMM-IDLE }
ensure that {
  when { UE initiates a mobile originating 1xCS fallback emergency call }
    then { UE establishes the RRC connection with the RRC establishmentCause set to 'emergency' and
transmits an EXTENDED SERVICE REQUEST message with Service Type IE set to "mobile originating CS
fallback emergency call or 1xCS fallback emergency call" }
            }
```

(2)

```
with { UE having transmitted an EXTENDED SERVICE REQUEST message with Service Type IE set to "mobile
originating CS fallback emergency call or 1xCS fallback emergency call" }
ensure that {
  when { SS transmits HandoverFromEUTRAPreparationRequest message with cdma2000-type set to
'type1XRTT' }
    then { UE transmits an ULHandoverPreparationTransfer message containing a tunnelled 1xRTT GCSNA
Encapsulated Origination message}
```

(3)

```
with { UE in E-UTRA RRC_CONNECTED state }
ensure that {
  when { UE receives a MobilityFromEUTRACommand message containing a tunnelled 1xRTT GCSNA
Encapsulated Handoff Direction message }
    then { UE transmits a 1xRTT Handoff Completion message on the target 1xRTT cell }
            }
```

13.1.18.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 23.272, clause B.2.3a.2.

[TS 23.272, clause B.2.3a.2]

The following figure describes the mobile originating call procedures for the enhanced CS Fallback to 1xRTT with concurrent non-optimised PS handover or optimised idle-mode PS handover, or without concurrent PS handover, in the normal case. Clause B.2.3b describes the procedure when the procedure is rejected by the MME.

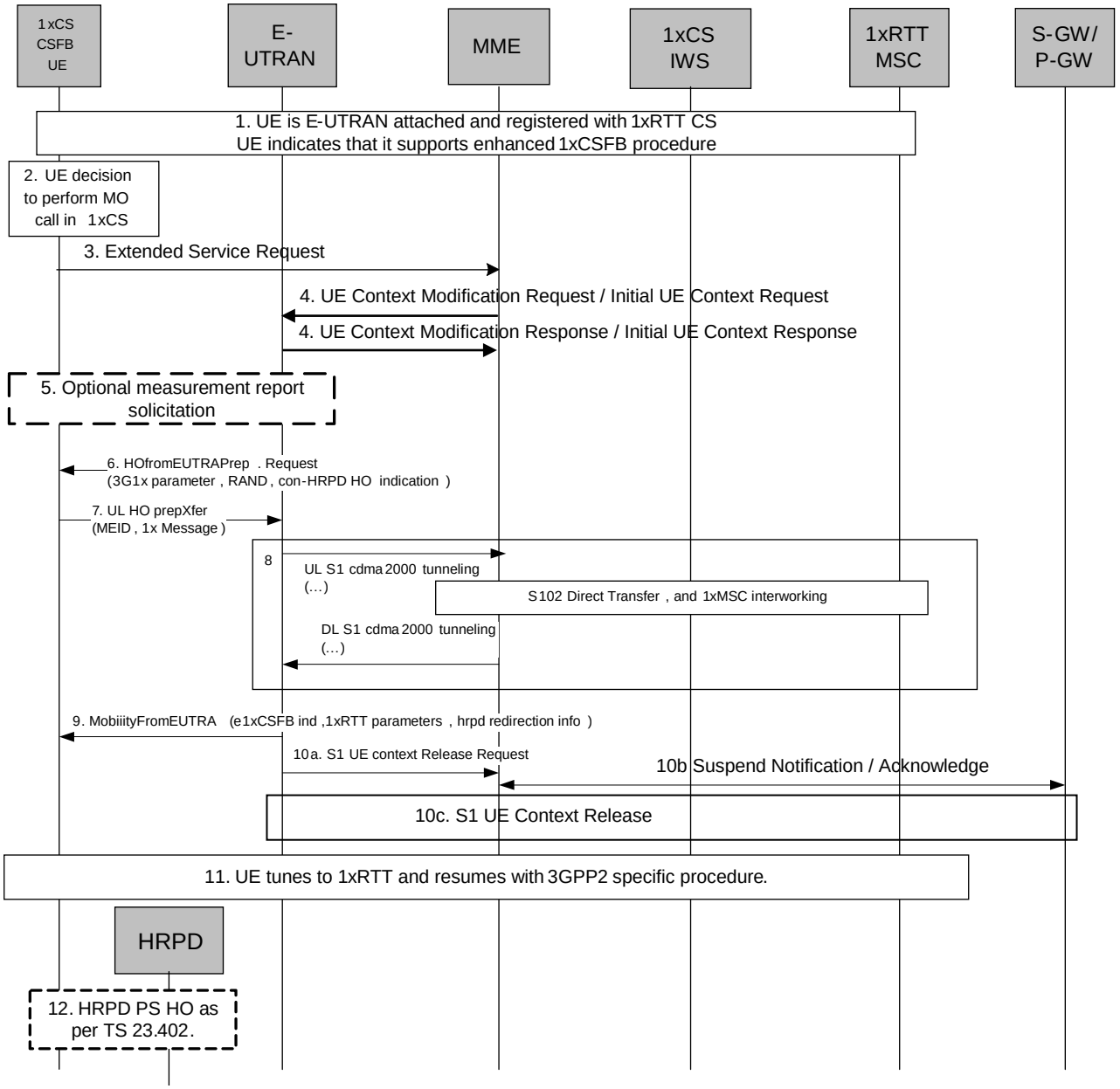

Figure B.2.3a.2-1: Enhanced CS fallback to 1xRTT MO Call with no PS handover, or with concurrent non-optimised PS handover or optimised idle-mode PS handover

1. UE is E UTRAN attached and registered with 1xRTT CS as defined in clause B.2.1.1 with enhanced CS fallback to 1xRTT capability indication to the network. The UE may also indicate that it supports concurrent 1xRTT and HRPD capability. The UE may also be pre-registered with HRPD access using procedures defined in TS 23.402 [27], clause 9.3.1.

2. UE makes a decision to perform a mobile originated CS call.

3. UE sends an Extended Service Request (CS Fallback Indicator) to the MME.

4. For a UE in active mode, MME sends UE Context Modification Request (CS Fallback Indicator) to E-UTRAN. CS Fallback Indicator indicates to the E UTRAN to move the UE to 1xRTT.
E-UTRAN responds with UE Context Modification Response.

   For a UE in idle mode, MME sends Initial UE Context Request (CS Fallback Indicator) to E-UTRAN. CS Fallback Indicator indicates to the E-UTRAN to move the UE to 1xRTT. E-UTRAN responds with Initial UE Context Response.

5. E-UTRAN may optionally solicit a 1xRTT measurement report from the UE to determine the target 1xRTT cell to which the CS Fallback will be performed.

   If the network supports PS handover procedure to HRPD then E-UTRAN may optionally solicit an HRPD measurement report from the UE to determine whether the target HRPD candidates exist or not. If the network does not support PS handover procedure to HRPD or if no target HRPD candidates exist then E-UTRAN shall release the S1 UE context (see step 10a/b) after executing the enhanced CS fallback to 1xRTT procedure.

6. E-UTRAN sends a HandoverFromE-UTRAPreparation Request message to the UE to start the enhanced 1xCS fallback procedure. It includes 3G1x Overhead Parameters and RAND value. This message also includes an indication that concurrent HRPD handover preparation is not required.

7. The UE initiates signalling for establishment of the CS access leg by sending UL HandoverPreparation Transfer message which contains the 1xRTT Origination message with called party number.

8. Messages between MME and 1xIWS are tunnelled using the S102 interface. The 1xRTT MSC initiates the call with the called party number carried in the 1xRTT Origination message.

9. The E UTRAN sends Mobility from EUTRA Command to the UE with indication that this is for enhanced 1x CS Fallback operation, 1xRTT related information, and optionally the HRPD redirection information. The 1xRTT information contains 1xRTT messages related to 1x channel assignment and cause the UE to tune to and acquire this 1x channel. This is perceived by the UE as a Handover Command message to 1xRTT. If 1xRTT CS network cannot support this CSFB request (for example due to resource availability), the DL information transfer message is sent instead, with an embedded 1x message that indicates failure to the UE.

   - For either concurrent non-optimised PS handover procedure or optimised idle-mode PS handover procedure along with enhanced CS fallback to 1xRTT, E-UTRAN may also redirect the UE to HRPD as part of this procedure. This is indicated by the HRPD redirection information in the Mobility from EUTRA Command.

10a/b/c. If PS handover procedure is not performed then E-UTRAN sends an S1 UE Context Release Request (Cause) message to the MME. Cause indicates that the S1 UE Context Release was caused by CS fallback to 1xRTT. The S1-U bearers are released and the MME starts the preservation and suspension of non-GBR bearers and the deactivation of GBR bearers towards S-GW and P-GW(s). The MME sets the UE context to suspended status.

11. UE retunes to the 1xRTT radio access network and performs 1xchannel acquisition with the 1xRTT CS access (e.g. 1xRTT BSS).

12. UE and Network follow the appropriate procedure for handling non-optimised PS handover procedure or optimised idle-mode PS handover as defined in TS 23.402 [27] if performed. S1 UE Context release procedure is as specified in TS 23.402 [27] for non-optimised PS handover (clause 8.2.2) or optimised idle-mode PS handover (clause 9.4). This step occurs in parallel with step 11.

[TS 24.301 clause D.1]

When EMM requests the establishment of a NAS-signalling connection, the RRC establishment cause used by the UE shall be selected according to the NAS procedure as specified in table D.1.1. The EMM shall also indicate to the lower layer for the purpose of access control, the call type associated with the RRC establishment cause as specified in table D.1.1.

Table D.1.1: Mapping of NAS procedure to establishment cause and call type

NAS procedure	RRC establishment cause (according 3GPP TS 36.331 [22])	Call type
...		
Service Request	If an EXTENDED SERVICE REQUEST has service type set to "mobile originating CS fallback emergency call or 1xCS fallback emergency call", the RRC establishment cause shall be set to Emergency call. (See Note1).	"emergency calls"
...		
Note 1: For these NAS procedures initiated by UEs of access class 12, 13 or 14 in their home country, the RRC establishment cause will be set to "High priority access AC 11 – 15". For this purpose the home country is defined as the country of the MCC part of the IMSI, see 3GPP TS 22.011 [1A]. For these NAS procedures initiated by UE of access class 11 or 15 in their HPLMN or EHPLMN, the RRC establishment cause will be set to "High priority access AC 11 – 15".		

13.1.18.3 Test description

13.1.18.3.1 Pre-test conditions

System Simulator:

- cell 1 and cell 19.
- cell 1 is “Serving cell” and cell 19 is “Suitable cell”.
- System information combination 6 as defined in TS 36.508[18] clause 4.4.3.1 is used in E-UTRA cells.

UE:

- The UE is equipped with a USIM containing default values (as per TS 36.508) except for those shown in Table 13.1.18.3.1-1.

Table 13.1.18.3.1–1: USIM Configuration

USIM field	Value
EF_{ACC}	Type “A” as defined in TS34.108 clause 8.3.2.15

Preamble:

- The UE is in state pre-registered on 1xRTT (state 2C) on Cell 1 according to [18].

13.1.18.3.2 Test procedure sequence

Table 13.1.18.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions, while row marked "T1" is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 13.1.18.3.2-1: Cell configuration changes over time

	Parameter	Unit	Cell 1	Cell 19	Remark
T0	Cell-specific RS EPRE	dBm/15kHz	-60	-	$Srxlev_{Cell\ 1} > 0$ and Cell 19 is off such that camping on Cell 1 is guaranteed.
	Îor/Ioc	dB	-	-	
	Pilot Ec/Ior	dB	-	-	
	Ioc	dBm/1.23 MHz	-	-	
	Pilot Ec/Io (Note 1)	dB	-	-	
T1	Cell-specific RS EPRE	dBm/15kHz	-60	-	Cell 19 in on, with $S_{ServingCell} > Thresh_{serving,\ low}$ and $S_{nonServingCell,\ x} < Thresh_{x,\ low}$.
	Îor/Ioc	dB	-	0	
	Pilot Ec/Ior	dB	-	-7	
	Ioc	dBm/1.23 MHz	-	-75	
	Pilot Ec/Io (Note 1)	dB	-	-10	
Note 1: This parameter is not directly settable, but is derived by calculation from the other parameters set by the SS.					

Table13.1.18.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Cause the UE to originate an emergency CS call.(Note 1)	-	-	-	-
2	Check: Does the UE transmit an *RRCConnectionRequest* message with *establishmentCause* set to 'emergency'	-->	RRC: RRC CONNECTION REQUEST	1	P
3	The SS transmits an RRC CONNECTION SETUP message.	<--	RRC: RRC CONNECTION SETUP	-	-
4	Check: Does the UE transmit an RRC CONNECTION SETUP COMPLETE message?	-->	RRC: RRC CONNECTION SETUP COMPLETE	1	P
5	Check: Does the UE transmit an EXTENDED SERVICE REQUEST message with Service Type IE set to "mobile originating CS fallback emergency call or 1xCS fallback emergency call"?	-->	EXTENDED SERVICE REQUEST	1	P
6	The SS changes the cell power levels according to "T1" in Table 13.1.18.3.2-1.	-	-	-	-
7	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1 to setup inter RAT measurement on Cell 19.	<--	*RRCConnectionReconfiguration*	-	-
8	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1 to confirm the setup of inter RAT measurement.	-->	*RRCConnectionReconfigurationComplete*	-	-
9	The UE transmits a *MeasurementReport* message on Cell 1 to report event B2 for Cell 19,	-->	*MeasurementReport*	-	-
10	The SS transmits a *HandoverFromEUTRAPreparationRequest* on Cell 1.	<--	*HandoverFromEUTRAPreparationRequest*	-	-
11	Check: Does the UE transmit a tunnelled *1xRTT GCSNA Encapsulated Origination* message contained in an *ULHandoverPreparationTransfer* message on Cell 1?	-->	*ULHandoverPreparationTransfer*	2	P
12	The SS transmits a tunnelled *1xRTT GCSNA Encapsulated Handoff Direction* message contained in a *MobilityFromEUTRACommand* on Cell1 to order the UE to perform inter RAT handover to Cell 19.	<--	*MobilityFromEUTRACommand*	-	-
13	The UE tunes to 1xRTT radio.	-	-	-	-
14	Check: Does the UE transmit a *1xRTT Handoff Completion* message on Cell 19?	-->	*Handoff Completion*	3	P
15	Mobile originating 1xRTT emergency call is set up.	-	-	-	-
Note 1: This could be done by e.g. MMI or AT command.					

13.1.18.3.3 Specific message contents

Table 13.1.18.3.3-1: Message *RRCConnectionRequest* (step 2, Table 13.1.18.3.2-2)

Derivation path: 36.508 table 4.6.1-16			
Information Element	**Value/Remark**	**Comment**	**Condition**

RRCConnectionRequest ::= SEQUENCE {
criticalExtensions CHOICE {
rrcConnectionRequest-r8 SEQUENCE {
establishmentCause
}
}
}
	emergency		

Table 13.1.18.3.3-2: *EXTENDED SERVICE REQUEST* (Step 5, Table 13.1.18.3.2-2)

Derivation Path: 36.508 Table 4.7.2-14A			
Information Element	**Value/remark**	**Comment**	**Condition**
Protocol discriminator	EMM		
Service type	'0010'B	"mobile originating CS fallback emergency call or 1xCS fallback emergency call"	
CSFB response	Not present		

Table 13.1.18.3.3-3: *RRCConnectionReconfiguration* (Step 7, Table 13.1.18.3.2-2)

Derivation Path: 36.508, Table 4.6.1-8, condition MEAS

Table 13.1.18.3.3-4: *MeasConfig* (Step 7, Table 13.1.18.3.2-2)

Derivation Path: 36.508, Table 4.6.6-1			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig ::= SEQUENCE {			
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entries		
measObjectId[1]	IdMeasObject-f17		
measObject[1]	MeasObjectCDMA2000-GENERIC		
measObjectId[2]	IdMeasObject-f1		
measObject[2]	MeasObjectEUTRA-GENERIC(f1)		
}			
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	1 entry		
reportConfigId[1]	IdReportConfig-B2-CDMA2000		
reportConfig[1]	ReportConfigInterRAT-B2-CDMA2000(-69, -18)		
}			
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	1 entry		
measId[1]	1		
measObjectId[1]	IdMeasObject-f17		
reportConfigId[1]	IdReportConfig-B2-CDMA2000		
}			
quantityConfig SEQUENCE {			
quantityConfigEUTRA	Not present		
quantityConfigUTRA	Not present		
quantityConfigGERAN	Not present		
quantityConfigCDMA2000 SEQUENCE {			
measQuantityCDMA2000	pilotPnPhaseAndPilotStrength		
}			
}			
measGapConfig SEQUENCE {			
gapActivation CHOICE {			
activate SEQUENCE {			
gapPattern CHOICE {			
gp1 SEQUENCE {			
gapOffset	0		
}			
}			
}			
}			
}			
}			

Table 13.1.18.3.3-5: *MeasObjectCDMA2000-GENERIC* (Step 7, Table 13.1.18.3.2-2)

Derivation Path: 36.508, Table 4.6.6-1C			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasObjectCDMA2000-GENERIC ::= SEQUENCE {			
cdma2000-Type	Type1XRTT		
CarrierFreqCDMA2000 SEQUENCE {			
bandClass	Band Class of frequency under test		
arfcn	f17		
}			
SearchWindowSize	15		
offsetFreq	db0		
cellsToRemoveList	Not present		
cellsToAddModList CHOICE {}	Cell 19		
cellForWhichToReportCGI	Not present		
}			

Table 13.1.18.3.3-6: *MeasurementReport* (Step 9, Table 13.1.18.3.2-2)

Derivation Path: 36.508, Table 4.6.1-5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
measurementReport-r8 SEQUENCE {			
measResults SEQUENCE {			
measId	1		
measResultServCell SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE {			
measResultsCDMA2000 :=SEQUENCE {			
preRegistrationStatusHRPD	FALSE		
measResultListCDMA2000 ::=SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {	1 entry		
physCellId[1]	PhysicalCellIdentity of Cell 19		
cgi-Info[1]	Not present		
measResult[1] SEQUENCE {			
pilotPnPhase	(0..32767)		
pilotStrength	(0..63)		
}			
}			
}			
}			
}			
}			
}			
}			
}			

Table 13.1.18.3.3-7: *HandoverFromEUTRAPreparationRequest* (Step 10, Table 13.1.18.3.2-2)

Derivation Path: 36.508 Table 4.6.1-4			
Information Element	**Value/remark**	**Comment**	**Condition**
HandoverFromEUTRAPreparationRequest ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
handoverFromEUTRAPreparationRequest-r8 SEQUENCE {			
cdma2000-Type	Type1XRTT		
Rand	Set by SS	Random Challenge Data as broadcast on Cell 19	
mobilityParameters	Set according to 36.508 Table 4.5.2C.4-6	CDMA2000Parameters	
}			
}			
}			
}			

Table 13.1.18.3.3-8: *ULHandoverPreparationTransfer* (Step 11, Table 13.1.18.3.2-2)

Derivation Path: 36.508 Table 4.6.1-24			
Information Element	**Value/remark**	**Comment**	**Condition**
ULHandoverPreparationTransfer ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
ulHandoverPreparationTransfer-r8 SEQUENCE {			
cdma2000-Type	Type1XRTT		
Meid	UE's meid		
dedicatedInfo	Set according to Table 8.4.7.1.3.3-9	1xRTT GCSNA Encapsulated Origination message	
}			
}			
}			
}			

Table 13.1.18.3.3-9: *1xRTT GCSNA Encapsulated Origination* (Step 11, Table 13.1.18.3.2-2)

Information Element	Value/remark	Comment	Condition
MessageID	'00000001'B	GCSNA1xCircuitService message	
GCSNAOption	'00000001'B		
AlternativeGCSNAOption_INCL	'0'B		
IWSIDIncl	'0'B		
AckRequired	'0'B		
StopDupDetect	'0'B		
MessageSequence	Set by UE		
NumTLACEncapsulated1xL3PDU	'00'B		
Reserved	'0000'B		
1xLogicalChannel	'0'B		
1xProtocolRevision	'00000110'B		
MsgType	'00000100'B	Origination message	this value shall be verified by TTCN
NumTLACHeaderRecords	'0001'B		
TLACHeaderRecordType	'0000'B		
TLACHeaderRecordLength	4 bits, Set by UE		
MSID_TYPE	3 bits, Set by UE	Should be matched with PREF_MSID_TYPE	
MSID_LEN	4 bits, Set by UE		
MSID	Variable, Set by UE		
Reserved	'0000000'B		
1xL3PDULength	16 bits, Set by UE		
MOB_TERM	'1'B		
SLOT_CYCLE_INDEX	'010'B		
MOB_P_REV	8 bits, Set by UE		
SCM	8 bits, Set by UE		
REQUEST_MODE	'001'B		
SPECIAL_SERVICE	'1'B		
SERVICE_OPTION	16 bits, any value mapping to a voice service option		
PM	'0'B		
DIGIT_MODE	'0'B		
NUMBER_TYPE	3 bits, Set by UE		
NUMBER_PLAN	4 bits, Set by UE		
MORE_FIELDS	'0'B		
NUM_FIELDS	8 bits, Set by UE		
CHARi	Variable, Set by UE		
NAR_AN_CAP	'0'B		
PACA_REORIG	'0'B		
RETURN_CAUSE	'0000'B		
MORE_RECORDS	'0'B		
ENCRYPTION_SUPPORTED	'0000'B		
PACA_SUPPORTED	'0'B		
NUM_ALT_SO	'000'B		
DRS	'1'B		
UZID_INCL	'0'B		
CH_IND	'01'B		
SR_ID	3 bits, Set by UE		
OTD_SUPPORTED	'1'B		
QPCH_SUPPORTED	'1'B		
ENHANCED_RC	'1'B		
FOR_RC_PREF	'00011'B		
REV_RC_PREF	'00011'B		
FCH_SUPPORTED	'1'B		
FCH Capability Type-specific fields	Variable		
DCCH_SUPPORTED	'1'B		

RESERVED	‘0’B		
REV_FCH_GATING_REQ	’0’B		

Table 13.1.18.3.3-10: *MobilityFromEUTRACommand* (Step 12, Table 13.1.18.3.2-2)

Derivation Path: 36.508, Table 4.6.1-6			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityFromEUTRACommand ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
mobilityFromEUTRACommand-r9 SEQUENCE {			
csFallbackIndicator	False		
purpose CHOICE{			
e-CSFB-r9 SEQUENCE {			
messageContCDMA2000-1XRTT-r9	Set according to Table 8.4.7.6.3.3-11	1xRTT GCSNA Encapsulated Handoff Direction message	
}			
}			
}			
}			
}			
}			

Table 13.1.18.3.3-11: *1xRTT GCSNA Encapsulated Handoff Direction* (Step 12, Table 13.1.18.3.2-2)

Information Element	Value/remark	Comment	Condition
MessageID	'00000001'B		
GCSNAOption	'00000001'B		
AlternativeGCSNAOption_INCL	'0'B		
IWSIDIncl	'0'B		
AckRequired	'0'B		
StopDupDetect	'0'B		
MessageSequence	Set by SS		
NumTLACEncapsulated1xL3PDU	'00'B		
Reserved	'0000'B		
1xLogicalChannel	'1'B		
1xProtocolRevision	'00000110'B		
MsgType	'00100010'B	Universal Handoff Direction message	
NumTLACHeaderRecords	'0000'B		
Reserved	'000'B		
1xL3PDULength	16 bits, Set by SS		
USE_TIME	'0'B		
ACTION_TIME	'000000'B		
HDM_SEQ	2 bits, Set by SS		
PARMS_INCL	'1'B		
P_REV	'00000110'B		
SERV_NEG_TYPE	'1'B		
SEARCH_INCLUDED	'1'B		
SRCH_WIN_A	'1000'B		
SRCH_WIN_N	'1001'B		
SRCH_WIN_R	'1011'B		
T_ADD	'010100'B		
T_DROP	'011110'B		
T_COMP	'1010'B		
T_TDROP	'0100'B		
SOFT_SLOPE	'000000'B		
ADD_INTERCEPT	'000000'B		
DROP_INTERCEPT	'000000'B		
EXTRA_PARMS	'1'B		
PACKET_ZONE_ID	'00000000'B		
FRAME_OFFSET	4 bits, Set by SS		
PRIVATE_LCM	'0'B		
RESET_L2	'1'B		
RESET_FPC	'1'B		
ENCRYPT_MODE	'00'B		
NOM_PWR_EXT	'0'B		
NOM_PWR	'0000'B		
RLGAIN_TRAFFIC_PILOT	'000000'B		
DEFAULT_RLAG	'1'B		
NUM_PREAMBLE	'000'B		
BAND_CLASS	5 bits, Set by SS		
CDMA_FREQ	11 bits, Set by SS		
RETURN_IF_HANDOFF_FAIL	'0'B		
PERIODIC_SEARCH	'0'B		
SCR_INCLUDED	'1'B		
NNSCR_INCLUDED	'1'B		
USE_PWR_CNTL_STEP	'0'B		
CLEAR_RETRY_DELAY	'0'B		
SCH_INCL	'1'B		
FPC_SUBCHAN_GAIN	'01010'B		
USE_PC_TIME	'0'B		
CH_IND	'101'B		
ACTIVE_SET_REC_LEN	8 bits, Set by SS		
NUM_PILOTS	'001'B		
SRCH_OFFSET_INCL	'1'B		
PILOT_PN	'000000000'B		
SRCH_OFFSET	'010'B		

ADD_PILOT_REC_INCL	'0'B		
PWR_COMB_IND	'0'B		
CODE_CHAN_FCH	11 bits, Set by SS		
QOF_MASK_ID_FCH	'00'B		
RESERVED	0-7 bits		
REV_FCH_GATING_MODE	'0'B		

Table 13.1.18.3.3-12: *1xRTT Handoff Completion* (Step 14, Table 13.1.18.3.2-2)

Information Element	Value/remark	Comment	Condition
MSG_ID	'00001010'		this value shall be verified by TTCN
ACK_SEQ	3 bits, Set by SS		
MSG_SEQ	3 bits, Set by SS		
ACK_REQ	'1'B		
ENCRYPTION	'00'B		
RESERVED	'0'B		
LAST_HDM_SEQ	Same value as HDM_SEQ in 1xRTT Handoff Direction message at Step 9		
PILOT_PN	Same value as PILOT_PN included in 1xRTT Handoff Direction message at Step 9		

13.2 RRC connection reconfiguration

13.2.1 RRC connection reconfiguration / E-UTRA to E-UTRA

13.2.1.1 Test Purpose (TP)

(1)

```
with { UE has a default EPS bearer context }
ensure that {
  when { UE receives downlink data on the radio bearer associated with the default EPS bearer
context }
    then { UE delivers the downlink data to upper layers }
           }
```

(2)

```
with { UE has a default EPS bearer context }
ensure that {
  when { uplink data are submitted for transmission }
    then { UE transmits the uplink data on the radio bearer associated with the default EPS bearer
context }
           }
```

(3)

```
with { UE has a default EPS bearer context and successful completion of the intra-frequency handover
}
ensure that {
  when { UE receives downlink data on the radio bearer associated with the default EPS bearer
context }
    then { UE delivers the downlink data to upper layers }
           }
```

(4)

```
with { UE has a default EPS bearer context and successful completion of the intra-frequency handover
}
ensure that {
  when { uplink data are submitted for transmission }
```

```
    then { UE transmits the uplink data on the radio bearer associated with the default EPS bearer
context }
             }
```

13.2.1.2 Conformance requirements

Same Conformance requirements as in clause 8.2.4.2.

References: The conformance requirements covered in the present TC are specified in: TS23.401, clause 5.5.1.1.1.

[TS 23.401, clause 5.5.1.1.1]

These procedures are used to hand over a UE from a source eNodeB to a target eNodeB using the X2 reference point. In these procedures the MME is unchanged. Two procedures are defined depending on whether the Serving GW is unchanged or is relocated. In addition to the X2 reference point between the source and target eNodeB, the procedures rely on the presence of S1-MME reference point between the MME and the source eNodeB as well as between the MME and the target eNodeB.

The handover preparation and execution phases are performed as specified in TS 36.300 [5].

If the serving PLMN changes during handover, the source eNB shall initiate an S1-based handover instead of an X2-based handover.

When the UE receives the handover command it will remove any EPS bearers for which it did not receive the corresponding EPS radio bearers in the target cell. As part of handover execution, downlink packets are forwarded from the source eNodeB to the target eNodeB. When the UE has arrived to the target eNodeB, downlink data forwarded from the source eNodeB can be sent to it. Uplink data from the UE can be delivered via the (source) Serving GW to the PDN GW. Only the handover completion phase is affected by a potential change of the Serving GW, the handover preparation and execution phases are identical.

If the MME receives a rejection to a NAS procedure (e.g. dedicated bearer establishment/modification/release; location reporting control; NAS message transfer; etc.) from the eNodeB with an indication that an X2 handover is in progress (see TS 36.300 [5]), the MME shall reattempt the same NAS procedure either when the handover is complete or the handover is deemed to have failed. The failure is known by expiry of the timer guarding the NAS procedure.

13.2.1.3 Test description

13.2.1.3.1 Pre-test conditions

System Simulator:

- Cell 1 and Cell 2

UE:

None.

Preamble:

- The UE is in state Loopback Activated (state 4) on Cell 1 according to [18] using the UE TEST LOOP MODE B.

13.2.1.3.2 Test procedure sequence

Table 13.2.1.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after Preamble, while columns marked "T1" is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 13.2.1.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 2	Remark
T0	Cell-specific RS EPRE	dBm/15k Hz	-85	-91	The power level value shall be such that measurement results for Cell 1 (M1) and Cell 2 (M2) satisfy exit condition for event A3 (M2 + Hys < M1).
T1	Cell-specific RS EPRE	dBm/15k Hz	-91	-85	The power level value shall be such that measurement results for Cell 1 (M1) and Cell 2 (M2) satisfy entry condition for event A3 (M2 - Hys > M1).

Table 13.2.1.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message	-	-
1	The SS transmits one IP packet to the UE on the DRB associated with the default EPS bearer context on Cell 1.	<--	IP packet	-	-
2	Check: Does the UE loop back the IP packet on the DRB associated with the default EPS bearer context on Cell 1?	-	-	1,2	P
3	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1 to setup intra frequency measurement.	<--	*RRCConnectionReconfiguration*	-	-
4	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1.	-->	*RRCConnectionReconfigurationComplete*	-	-
5	The SS changes Cell 1 and Cell 2 parameters according to the row "T1" in table 13.2.1.3.2-1	-	-	-	-
6	The UE transmits a *MeasurementReport* message on Cell 1 to report event A3 with the measured RSRP and RSRQ value for Cell 2.	-->	*MeasurementReport*	-	-
7	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1 to order the UE to perform intra frequency handover to Cell 2.	<--	*RRCConnectionReconfiguration*	-	-
8	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 2 to confirm the successful completion of the intra frequency handover.	-->	*RRCConnectionReconfigurationComplete*	-	-
9	The SS transmits one IP packet to the UE on the DRB associated with the default EPS bearer context on Cell 2.	<--	IP packet	-	-
10	Check: Does the UE loop back the IP packet on the DRB associated with the default EPS bearer context on Cell 2?	-	-	3,4	P

13.2.1.3.3 Specific message contents

Table 13.2.1.3.3-1: ACTIVATE TEST MODE (preamble)

Derivation Path: 36.508, Table 4.7A-1, condition UE TEST LOOP MODE B

Table 13.2.1.3.3-2: *RRCConnectionReconfiguration* (Step 3, Table 13.2.1.3.2-2)

Derivation Path: 36.508 clause 4.6.1 table 4.6.1-8 with condition MEAS

Table 13.2.1.3.3-3: MeasurementConfiguration (Step 3, Table 13.2.1.3.2-2)

Derivation path: 36.508 clause 4.6.6 table 4.6.6-1			
Information Element	**Value/Remark**	**Comment**	**Condition**
measurementConfiguration ::= SEQUENCE {			
measObjectToAddModifyList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	1 entry		
measObjectId[1]	IdMeasObject-f1		
measObject[1]	MeasObjectEUTRA-GENERIC(f1)		
}			
reportConfigToAddModifyList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	1 entry		
reportConfigId[1]	IdReportConfig-A3		
reportConfig[1]	ReportConfig-A3		
}			
measIdToAddModifyList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	1 entry		
measId[1]	1		
measObjectId[1]	IdMeasObject-f1		
reportConfigId[1]	IdReportConfig-A3		
}			

Table 13.2.1.3.3-4: *MeasurementReport* (Step 6, Table 13.2.1.3.2-2)

Derivation Path: 36.508, Table 4.6.1-5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
measurementReport-r8 SEQUENCE {			
measResults SEQUENCE {			
measId	1		
measResultServCell SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListEUTRA SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {	1 entry		
physCellId[1]	PhysicalCellIdentity of Cell 2		
cgi-Info[1]	Not present		
measResult[1] SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
}			
}			
}			
}			
}			
}			

Table 13.2.1.3.3-5: *RRCConnectionReconfiguration* (Step 7, Table 13.2.1.3.2-2)

Derivation Path: 36.508, Table 4.6.1-8, condition HO

Table 13.2.1.3.3-6: *MobilityControlInfo* (step 7, Table 13.2.1.3.2-2)

Derivation Path: 36.508 clause 4.6.5-1			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityControlInfo ::= SEQUENCE {			
targetPhysCellId	PhysicalCellIdentity of Cell 2		
carrierFreq	Not present		
}			
}			

13.3 Connection re-establishment

13.3.1 Intra-system connection re-establishment

13.3.1.1 Intra-system connection re-establishment / Radio link recovery while T310 is running

13.3.1.1.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_CONNECTED state and has data to transmit}
ensure that {
  when { UE detects radio link recovery while T310 is running}
   then { UE resumes the RRC connection without explicit signalling and continues data transfer}
          }
```

13.3.1.1.2 Conformance requirements

Refer to TS 36.523-1 clause 8.5.1.5.2.

13.3.1.1.3 Test description

13.3.1.1.3.1 Pre-test conditions

System Simulator:

- Cell 1

UE:

None.

Preamble:

- The condition SRB2-DRB(1,0) is used for step 8 in 4.5.3A.3 according to [18].
- The UE is in state Loopback Activated (state 4) on Cell 1 according to [18] using the UE TEST LOOP MODE B.

13.3.1.1.3.2 Test procedure sequence

Table 13.3.1.1.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions, while columns marked "T1" is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 13.3.1.1.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Remark
T0	RS EPRE	dBm/15kHz	$P_{default}$	Power level from 36.508 clause 6.2.2.1. $P_{default}$ as serving cell.
T1	RS EPRE	dBm/15kHz	P_{off}	P_{off} as non-suitable "Off" cell.
T2	RS EPRE	dBm/15kHz	$P_{default}$	$P_{default}$ as serving cell.

Table 13.3.1.1.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message	-	-
1	The SS transmits one IP packet to the UE on the DRB associated with the default EPS bearer context on Cell 1.	<--	IP packet	-	-
2	100 ms after step 1 the SS reduce DL RS TX power level of Cell 1 from "T0" to "T1" in table 13.3.1.1.3.2-1. Note: 100 ms delay after step 1 is to ensure that UE has time to transmit STATUS PDU for data received in step 1	-	-	-	-
3	The SS waits for 1.5s. T310 is 2s.	-	-	-	-
4	The SS recovers DL RS TX power level of Cell 1 from "T1" to "T2" in table 13.3.1.1.3.2-1.	-	-	-	-
5	Check: Does the UE loop back the IP packet on the DRB associated with the default EPS bearer context on Cell 1?(Note 1)	-->	IP packet	1	P
Note 1: Triggered when timer T_delay_modeB (IP PDU delay time) expires and pending uplink data exist in buffered PDCP SDUs according to [25] clause 5.4.4.3.					

13.3.1.1.3.3 Specific message contents

Table 13.3.1.1.3.3-1: ACTIVATE TEST MODE (preamble, Table 13.3.1.1.3.2-2)

Derivation Path: 36.508, Table 4.7A-1, condition UE TEST LOOP MODE B

Table 13.3.1.1.3.3-2: CLOSE UE TEST LOOP (preamble, Table 13.3.1.1.3.2-2)

Derivation Path: 36.508, Table 4.7A-3, condition UE TEST LOOP MODE B			
Information Element	**Value/remark**	**Comment**	**Condition**
UE test loop mode B LB setup			
IP PDU delay	0 0 0 0 0 1 0 1	5 seconds	

Table 13.3.1.1.3.3-3: SystemInformationBlockType2 (preamble and all steps, Table 13.3.1.1.3.2-2)

Derivation path: 36.508 table 4.4.3.3-1			
Information Element	**Value/Remark**	**Comment**	**Condition**
SystemInformationBlockType2 ::= SEQUENCE {			
ue-TimersAndConstants {			
t310	ms2000		
}			
}			

Table 13.3.1.1.3.3-4: *RRCConnectionReconfiguration* (preamble: Table 4.5.3.3-1 [18], step 8)

Derivation path: 36.508 table 4.8.2.1.5-1			
Information Element	**Value/Remark**	**Comment**	**Condition**
RRCConnectionReconfiguration ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
rrcConnectionReconfiguration-r8 SEQUENCE {			
RadioResourceConfigDedicated SEQUENCE {			
mac-MainConfig CHOICE {			
timeAlignmentTimerDedicated	Infinity		
}			
}			
}			
}			
}			
}			

13.3.1.2 Intra-system connection re-establishment / Re-establishment of a new connection when further data is to be transferred

13.3.1.2.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_CONNECTED state }
ensure that {
  when { UE detects radio link failure on expiry of timer T310 }
   then { UE starts timer T311 and UE initiates the RRC Connection re-establishment procedure }
            }
```

(2)

```
with { UE in E-UTRA RRC_CONNECTED state }
ensure that {
  when { UE detects radio link failure and successfully completes the RRC Connection re-
establishment procedure and has data available for transmission }
   then { UE use the DRB configured by network side and resume the data transfer }
            }
```

13.3.1.2.2 Conformance requirements

Refer to TS 36.523-1 clause 8.5.1.1.2.

13.3.1.2.3 Test description

13.3.1.2.3.1 Pre-test conditions

System Simulator:

- 2 cells on same E-UTRA frequency:
  - Cell 1 (default parameters) serving cell
  - Cell 2 intra-frequency cell

UE:

None.

Preamble:

- The condition SRB2-DRB(1,0) is used for step 8 in 4.5.3A.3 according to [18].
- The UE is in state Loopback Activated (state 4) on Cell 1 according to [18] using the UE TEST LOOP MODE B.

13.3.1.2.3.2 Test procedure sequence

Table 13.3.1.2.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message	-	-
0	Void	-	-	-	-
1	The SS transmits one IP packet to the UE on the DRB associated with the default EPS bearer context on Cell 1.	<--	IP packet	-	-
2	100 ms after step 1 the SS changes the power level of cell 1 to non-suitable "Off" and changes the power level of cell 2 to suitable according to TS 36.508 subclause 6.2.2.1 in order that the radio link quality of Cell 1 is degraded. Note: 100 ms delay after step 1 is to ensure that UE has time to transmit STATUS PDU for data received in step 1	-	-	-	-
3	Check: Does the UE initiate an RRC connection re-establishment procedure and transmit an *RRCConnectionReestablishmentRequest* message on Cell 2?	-->	*RRCConnectionReestablishment Request*	1	P
4	The SS transmits *RRCConnectionReestablishment* message	<--	*RRCConnectionReestablishment*	-	-
5	UE transmits an *RRCConnectionReestablishmentComplete* message	-->	*RRCConnectionReestablishment Complete*	-	-
6	The SS transmits *RRCConnectionReconfiguration* message	<--	*RRCConnectionReconfiguration*	-	-
-	EXCEPTION : the steps 7 and 8 can happen in any order	-	-	-	-
7	UE transmits an *RRCConnectionConfigurationComplete* message	-->	*RRCConnectionReconfigurationComplete*	-	-
8	Check: Does the UE loop back the IP packet on the DRB associated with the default EPS bearer context on Cell 2?	-->	IP packet	2	P

13.3.1.2.3.3 Specific message contents

Table 13.3.1.2.3.3-0: ACTIVATE TEST MODE (preamble, Table 13.3.1.2.3.2-2)

Derivation Path: 36.508, Table 4.7A-1, condition UE TEST LOOP MODE B

Table 13.3.1.2.3.3-0A: CLOSE UE TEST LOOP (preamble, Table 13.3.1.2.3.2-2)

Derivation Path: 36.508, Table 4.7A-3, condition UE TEST LOOP MODE B			
Information Element	**Value/remark**	**Comment**	**Condition**
UE test loop mode B LB setup			
IP PDU delay	00000101	5 seconds	

Table 13.3.1.2.3.3-1: SchedulingRequest-Configuration (RRCConnectionReconfiguration, preamble : Table 4.5.3.3-1 [18], step 8)

Derivation Path: 36.508 clause 4.6.3-20			
Information Element	**Value/remark**	**Comment**	**Condition**
SchedulingRequest-Configuration ::= CHOICE {			
setup SEQUENCE {			
dsr-TransMax	n64	Max value allowed	
}			
}			

Table 13.3.1.2.3.3-2: *RRCConnectionReestablishmentRequest* (step 3, Table 13.3.1.2.3.2-2)

Derivation Path: 36.508, Table 4.6.1-13			
Information Element	**Value/remark**	**Comment**	**Condition**
RRCConnectionReestablishmentRequest ::= SEQUENCE {			
criticalExtensions CHOICE {			
rrcConnectionReestablishmentRequest-r8 SEQUENCE {			
ue-Identity SEQUENCE {			
c-RNTI	the value of the C-RNTI of the UE		
physCellId	PhysicalCellIdentity of Cell 1		
shortMAC-I	The same value as the 16 least significant bits of the XMAC-I value calculated by SS		
}			
reestablishmentCause	otherFailure		
}			
}			
}			

Table 13.3.1.2.3.3-3: *RRCConnectionReconfiguration* (step 6, Table 13.3.1.2.3.2-2)

Derivation Path: 36.508, Table 4.6.1-8			
Information Element	**Value/remark**	**Comment**	**Condition**
RRCConnectionReconfiguration ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
rrcConnectionReconfiguration-r8 SEQUENCE {			
radioResourceConfigDedicated	RadioResourceConfigDedicated-HO		
}			
}			
}			
}			

13.3.1.3 RRC connection reconfiguration / Full configuration / DRB establishment

13.3.1.3.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_CONNECTED state and has data to transmit }
ensure that {
  when { UE detects radio link failure and successfully completed the RRC Connection re-
establishment procedure and receives an RRCConnectionReconfiguration message including fullConfig-r9
}
    then { UE release and re-setup DRB and resume data transfer }
           }
```

13.3.1.3.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.331, clauses 5.3.5.3 and 5.3.5.8.

[TS 36.331, clause 5.3.5.3]

If the *RRCConnectionReconfiguration* message does not include the *mobilityControlInfo* and the UE is able to comply with the configuration included in this message, the UE shall:

1> if this is the first *RRCConnectionReconfiguration* message after successful completion of the RRC Connection Re-establishment procedure:

2> re-establish PDCP for SRB2 and for all DRBs that are established, if any;

2> re-establish RLC for SRB2 and for all DRBs that are established, if any;

2> if the *RRCConnectionReconfiguration* message includes the *fullConfig*:

3> perform the radio configuration procedure as specified in section 5.3.5.8;

2> if the *RRCConnectionReconfiguration* message includes the *radioResourceConfigDedicated*:

3> perform the radio resource configuration procedure as specified in 5.3.10;

2> resume SRB2 and all DRBs that are suspended, if any;

NOTE 1: The handling of the radio bearers after the successful completion of the PDCP re-establishment, e.g. the re-transmission of unacknowledged PDCP SDUs (as well as the associated status reporting), the handling of the SN and the HFN, is specified in TS 36.323 [8].

1> else:

…

1> submit the *RRCConnectionReconfigurationComplete* message to lower layers for transmission using the new configuration, upon which the procedure ends;

[TS 36.331, clause 5.3.5.8]

The UE shall:

1> release/ clear all current dedicated radio configurations except the C-RNTI, the security configuration and the PDCP, RLC and logical channel configurations for the RBs;

NOTE 2: Radio configuration is not just the resource configuration but includes other configurations like *MeasConfig* and *OtherConfig*.

1> if the *RRCConnectionReconfiguration* message includes the *mobilityControlInfo*:

2> release/ clear all current common radio configurations;

2> use the default values specified in 9.2.5 for timer T310, T311 and constant N310, N311;

1> else:

2> use values for timers T301, T310, T311 and constants N310, N311, as included in *ue-TimersAndConstants* received in *SystemInformationBlockType2*;

1> apply the default physical channel configuration as specified in 9.2.4;

1> apply the default semi-persistent scheduling configuration as specified in 9.2.3;

1> apply the default MAC main configuration as specified in 9.2.2;

1> for each *srb-Identity* value included in the *srb-ToAddModList* (SRB reconfiguration):

2> apply the specified configuration defined in 9.1.2 for the corresponding SRB;

2> apply the corresponding default RLC configuration for the SRB specified in 9.2.1.1 for SRB1 or in 9.2.1.2 for SRB2;

2> apply the corresponding default logical channel configuration for the SRB as specified in 9.2.1.1 for SRB1 or in 9.2.1.2 for SRB2;

NOTE 3: This is to get the SRBs (SRB1 and SRB2 for handover and SRB2 for reconfiguration after reestablishment) to a known state from which the reconfiguration message can do further configuration.

1> for each *eps-BearerIdentity* value included in the *drb-ToAddModList* that is part of the current UE configuration:

2> release the PDCP entity;

2> release the RLC entity or entities;

2> release the DTCH logical channel;

2> release the *drb-identity*;

NOTE 4: This will retain the *eps-bearerIdentity* but remove the DRBs including *drb-identity* of these bearers from the current UE configuration and trigger the setup of the DRBs within the AS in Section 5.3.10.3 using the new configuration. The *eps-bearerIdentity* acts as the anchor for associating the released and re-setup DRB.

1> for each *eps-BearerIdentity* value that is part of the current UE configuration but not part of the *drb-ToAddModList:*

2> perform DRB release as specified in 5.3.10.2;

13.3.1.3.3 Test description

13.3.1.3.3.1 Pre-test conditions

System Simulator:

- Cell 1 and Cell 2.

UE:

None.

Preamble:

- The UE is in state Generic RB Established (state 3) on Cell 1 according to [18].
- The condition SRB2-DRB(1, 0) is used for step 8 in 4.5.3A.3 on Cell 1 according to [18].
- The UE is in state Loopback Activated (state 4) on Cell 1 according to [18] using the UE TEST LOOP MODE B.

13.3.1.3.3.2 Test procedure sequence

Table 13.3.1.3.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 2
T1	Cell-specific RS EPRE	dBm/15k Hz	"Off"	-85
Power level "Off" is defined in TS36.508 Table 6.2.2.1-1.				

Table 13.3.1.3.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS transmits one IP packet to the UE on the DRB associated with the default EPS bearer context on Cell 1.	<--	IP packet	-	-
2	The SS changes Cell 1 and Cell 2 parameters according to the row "T1" in table 13.3.1.3.3.2-1 in order that the radio link quality of Cell 1 is degraded and Cell 2 is suitable for camping.	-	-	-	-
3	The UE send *RRCConnectionReestablishmentRequest* message on Cell 2.	-->	*RRCConnectionReestablishment Request*	-	-
4	The SS transmits *RRCConnectionReestablishment* message.	<--	*RRCConnectionReestablishment*	-	-
5	The UE transmits *RRCConnectionReestablishmentComplete* message.	-->	*RRCConnectionReestablishment Complete*	-	-
6	The SS transmits an *RRCConnectionReconfiguration* message to perform full configuration option to Cell 2.	<--	*RRCConnectionReconfiguration*	-	-
7	The UE transmit an *RRCConnectionReconfigurationComplete* message on Cell 2?	-->	*RRCConnectionReconfigurationComplete*	-	-
8	Check: Does the UE loop back the IP packet on the DRB associated with the default EPS bearer context on Cell 2?	-->	IP packet	1	P

13.3.1.3.3.3 Specific message contents

Table 13.3.1.3.3.3-1: ACTIVATE TEST MODE (preamble, Table 13.3.1.3.3.2-2)

Derivation Path: 36.508, Table 4.7A-1, condition UE TEST LOOP MODE B

Table 13.3.1.3.3.3-2: CLOSE UE TEST LOOP (preamble, Table 13.3.1.3.3.2-2)

Derivation Path: 36.508, Table 4.7A-3, condition UE TEST LOOP MODE B			
Information Element	**Value/remark**	**Comment**	**Condition**
UE test loop mode B LB setup			
IP PDU delay	00000101	5 seconds	

Table 13.3.1.3.3.3-3: *RRCConnectionReestablishmentRequest* (step 3, Table 13.3.1.3.3.2-2)

Derivation Path: 36.508, Table 4.6.1-13			
Information Element	**Value/remark**	**Comment**	**Condition**
RRCConnectionReestablishmentRequest ::= SEQUENCE {			
criticalExtensions CHOICE {			
rrcConnectionReestablishmentRequest-r8 SEQUENCE {			
ue-Identity SEQUENCE {			
c-RNTI	the value of the C-RNTI of the UE		
physCellId	PhysicalCellIdentity of Cell 1		
shortMAC-I	The same value as the 16 least significant bits of the XMAC-I value calculated by SS		
}			
reestablishmentCause	otherFailure		
}			
}			
}			

Table 13.3.1.3.3.3-4: *RRCConnectionReconfiguration* (step 6, Table 13.3.1.3.3.2-2)

Derivation Path: 36.508, Table 4.6.1-8			
Information Element	**Value/remark**	**Comment**	**Condition**
RRCConnectionReconfiguration ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
rrcConnectionReconfiguration-r8 SEQUENCE {			
radioResourceConfigDedicated	RadioResourceConfigDedicated-RECONFIG		
nonCriticalExtension SEQUENCE {			
lateNonCriticalExtension	Not present		
nonCriticalExtension SEQUENCE {			
otherConfig-r9	Not present		
fullConfig-r9	true		
nonCriticalExtension SEQUENCE {}	Not present		
}			
}			
}			
}			
}			
}			

Table 13.3.1.3.3.3-5: *RadioResourceConfigDedicated-RECONFIG* (Table 13.3.1.3.3.3-4)

Derivation Path: 36.331 clause 6.3.2			
Information Element	**Value/remark**	**Comment**	**Condition**
RadioResourceConfigDedicated ::= SEQUENCE {			
srb-ToAddModList	SRB-ToAddModList-DEFAULT	TS 36.508 Table 4.8.2.1.1-1	
drb-ToAddModList	DRB-ToAddModList-DEFAULT (1) using condition AM	TS 36.508 Table 4.8.2.1.7-1	
drb-ToReleaseList	Not present		
mac-MainConfig CHOICE {			
explicitValue	MAC-MainConfig-DEFAULT		
}			
sps-Config	Not present		
physicalConfigDedicated	PhysicalConfigDedicated-DEFAULT		SRB1
}			

Table 13.3.1.3.3.3-6: *MAC-MainConfig-DEFAULT* (Table 13.3.1.3.3.3-5)

Derivation Path: 36.508 table 4.8.2.1.5-1			
Information Element	**Value/remark**	**Comment**	**Condition**
MAC-MainConfig ::= SEQUENCE {			
ul-SCH-Config SEQUENCE {			
periodicBSR-Timer	infinity		
retxBSR-Timer	sf2560		
}			
drx-Config	Not present		
phr-Config CHOICE {			
release	NULL		
}			
sr-ProhibitTimer-r9	0		
}			

13.3.2 Inter-system connection re-establishment

13.3.2.1 Inter-system connection re-establishment / E-UTRAN to UTRAN / Further data are to be transferred

13.3.2.1.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_CONNECTED state }
ensure that {
  when { UE detects radio link failure }
   then { UE successfully selects the available strongest UTRAN cell and further data is transfered
in the target cell}
            }
```

13.3.2.1.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 36.331 clause 5.3.7.2, TS 36.304, clause 4.1.

[TS 36.331 clause 5.3.7.2]

The UE shall only initiate the procedure when AS security has been activated. The UE initiates the procedure when one of the following conditions is met:

1> upon detecting radio link failure, in accordance with 5.3.11; or

1> upon handover failure, in accordance with 5.3.5.6; or

1> upon mobility from E-UTRA failure, in accordance with 5.4.3.5; or

1> upon integrity check failure indication from lower layers; or

1> upon an RRC connection reconfiguration failure, in accordance with 5.3.5.5;

Upon initiation of the procedure, the UE shall:

1> stop timer T310, if running;

1> start timer T311;

1> suspend all RBs except SRB0;

1> reset MAC;

1> apply the default physical channel configuration as specified in 9.2.4;

1> apply the default semi-persistent scheduling configuration as specified in 9.2.3;

1> apply the default MAC main configuration as specified in 9.2.2;

1> perform cell selection in accordance with the cell selection process as specified in TS 36.304 [4];

[TS 36.331, clause 5.3.7.3]

Upon selecting an inter-RAT cell, the UE shall:

1> perform the actions upon leaving RRC_CONNECTED as specified in 5.3.12, with release cause 'RRC connection failure';

[TS 36.331, clause 5.3.12]

Upon leaving RRC_CONNECTED, the UE shall:

1> reset MAC;

1> stop all timers that are running except T320 and T330;

1> release all radio resources, including release of the RLC entity, the MAC configuration and the associated PDCP entity for all established RBs;

1> indicate the release of the RRC connection to upper layers together with the release cause;

1> if leaving RRC_CONNECTED was not triggered by reception of the *MobilityFromEUTRACommand* message:

2> enter RRC_IDLE and perform procedures as specified in TS 36.304 [4, 5.2.7];

[TS 36.304, clause 4.1]

With the cell selection, the UE searches for a suitable cell of the selected PLMN and chooses that cell to provide available services, further the UE shall tune to its control channel. This choosing is known as "camping on the cell".

13.3.2.1.3 Test description

13.3.2.1.3.1 Pre-test conditions

System Simulator:

- 2 cells :
  - Cell 1 (default parameters) E-UTRAN serving cell
  - Cell 5 UTRAN cell
- System information combination 4 as defined in TS 36.508[18] clause 4.4.3.1 is used in E-UTRA cells;

UE:

None.

Preamble:

- The UE is in state Loopback Activated (state 4) on Cell 1 according to [18] using the UE TEST LOOP MODE B with T_delay_modeB timer set according to PIXIT parameter px_TestLoopModeB_Delay.

13.3.2.1.3.2 Test procedure sequence

Table 13.3.2.1.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS transmits one IP packet to the UE on the DRB associated with the default EPS bearer context on Cell 1.	<--	IP packet	-	-
2	The SS changes the power level of cell 1 to non-suitable "Off" and changes the power level of cell 5 to suitable according to TS 36.508 subclause 6.2.2.1 in order that the radio link quality of Cell 1 is degraded.	-	-	-	-
3	Check: does the test result in generic test procedure in TS 36.508 subclause 6.4.2.8 indicate that the UE is camped on UTRAN Cell 5? NOTE: The UE performs a RAU procedure and the RRC connection is released.			1	P
4	The UE transmits a RRC CONNECTION REQUEST on Cell 5.	-->	RRC CONNECTION REQUEST	-	-
5	The SS transmits a RRC CONNECTION SETUP on Cell 5.	<--	RRC CONNECTION SETUP	-	-
6	The UE transmits a RRC CONNECTION SETUP COMPLETE message on Cell 5.	-->	RRC CONNECTION SETUP COMPLETE	-	-
7	The UE transmits a SERVICE REQUEST message on Cell 5.	-->	SERVICE REQUEST	-	-
8	void				
9	void				
10	The SS transmits a SECURITY MODE COMMAND message on Cell 5.	<--	SECURITY MODE COMMAND	-	-
11	The UE transmits a SECURITY MODE COMPLETE message on Cell 5.	-->	SECURITY MODE COMPLETE	-	-
12	void				
13	The SS transmits a RADIO BEARER SETUP message on Cell 5.	<--	RADIO BEARER SETUP	-	-
14	The UE transmits a RADIO BEARER SETUP COMPLETE message on Cell 5.	-->	RADIO BEARER SETUP COMPLETE	-	-
15	Void				
16	Void				
17	Check: UE loops back the IP packet on Cell 5?	-->	IP packet	1	P

13.3.2.1.3.3 Specific message contents

Table 13.3.2.1.3.3-1: ACTIVATE TEST MODE -->preamble)

Derivation Path: 36.508, Table 4.7A-3, condition UE TEST LOOP MODE B			
Information Element	**Value/remark**	**Comment**	**Condition**
UE test loop mode B LB setup			
IP PDU delay	Set according to PIXIT parameter px_TestLoopModeB_Delay		

13.3.2.2 Inter-system connection re-establishment / E-UTRAN to GPRS / Further data are to be transferred

13.3.2.2.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_CONNECTED state }
ensure that {
  when { UE detects radio link failure }
   then { UE successfully selects the available strongest GERAN cell and further data is transfered
in the target cell}
            }
```

13.3.2.2.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 36.331 clause 5.3.7.2, TS 36.304, clause 4.1.

[TS 36.331 clause 5.3.7.2]

The UE shall only initiate the procedure when AS security has been activated. The UE initiates the procedure when one of the following conditions is met:

1> upon detecting radio link failure, in accordance with 5.3.11; or

1> upon handover failure, in accordance with 5.3.5.6; or

1> upon mobility from E-UTRA failure, in accordance with 5.4.3.5; or

1> upon integrity check failure indication from lower layers; or

1> upon an RRC connection reconfiguration failure, in accordance with 5.3.5.5;

Upon initiation of the procedure, the UE shall:

1> stop timer T310, if running;

1> start timer T311;

1> suspend all RBs except SRB0;

1> reset MAC;

1> apply the default physical channel configuration as specified in 9.2.4;

1> apply the default semi-persistent scheduling configuration as specified in 9.2.3;

1> apply the default MAC main configuration as specified in 9.2.2;

2> perform cell selection in accordance with the cell selection process as specified in TS 36.304 [4];

[TS 36.331, clause 5.3.7.3]

Upon selecting an inter-RAT cell, the UE shall:

1> perform the actions upon leaving RRC_CONNECTED as specified in 5.3.12, with release cause 'RRC connection failure';

[TS 36.331, clause 5.3.12]

Upon leaving RRC_CONNECTED, the UE shall:

1> reset MAC;

1> stop all timers that are running except T320 and T330;

1> release all radio resources, including release of the RLC entity, the MAC configuration and the associated PDCP entity for all established RBs;

1> indicate the release of the RRC connection to upper layers together with the release cause;

1> if leaving RRC_CONNECTED was not triggered by reception of the *MobilityFromEUTRACommand* message:

2> enter RRC_IDLE and perform procedures as specified in TS 36.304 [4, 5.2.7];

[TS 36.304, clause 4.1]

With the cell selection, the UE searches for a suitable cell of the selected PLMN and chooses that cell to provide available services, further the UE shall tune to its control channel. This choosing is known as "camping on the cell".

13.3.2.2.3 Test description

13.3.2.2.3.1 Pre-test conditions

System Simulator:

- 2 cells:
  - Cell 1 (default parameters) E-UTRAN serving cell
  - Cell 24 GERAN cell
- System information combination 5 as defined in TS 36.508[18] clause 4.4.3.1 is used in E-UTRA cells;

UE:

None.

Preamble:

- The UE is in state Loopback Activated (state 4) on Cell 1 according to [18] using the UE TEST LOOP MODE B with T_delay_modeB timer set according to PIXIT parameter px_TestLoopModeB_Delay.

13.3.2.2.3.2 Test procedure sequence

Table 13.3.2.2.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS transmits one IP packet to the UE on the DRB associated with the default EPS bearer context on Cell 1.	<--	IP packet	-	-
2	The SS changes the power level of cell 1 to non-suitable “Off” and changes the power level of cell 24 to suitable according to TS 36.508 subclause 6.2.2.1	-	-	-	-
3	Check: does the test result in generic test procedure in TS 36.508 subclause 6.4.2.9 indicate that the UE is camped on GERAN Cell 24?	-	-	1	P
4-14	The UE performs RAU steps 1-11 according to TS36.508 subclause 6.4.2.9				
15	Check: Does the UE loop back the IP packet on Cell 24?	-->	IP packet	1	P

13.3.2.2.3.3 Specific message contents

Table 13.3.2.2.3.3-1: ACTIVATE TEST MODE (preamble)

Derivation Path: 36.508, Table 4.7A-3, condition UE TEST LOOP MODE B			
Information Element	**Value/remark**	**Comment**	**Condition**
UE test loop mode B LB setup			
IP PDU delay	Set according to PIXIT parameter px_TestLoopModeB_Delay		

Table 13.3.2.2.3.3-2: ROUTING AREA UPDATE REQUEST (step 6, Table 13.3.2.2.3.2-1)

Derivation Path: Derivation path: 36.508 table 4.7B.2-1			
Information Element	**Value/remark**	**Comment**	**Condition**
PDP context status	The SM state of the PDP context established on the NSAPI used in the E-UTRA data transfer shall be indicated as not PDP-INACTIVE	The UE indicates that the default bearer context is still active.	

Table 13.3.2.2.3.3-3: ROUTING AREA UPDATE ACCEPT (step 12, Table 13.3.2.2.3.2-1)

Derivation Path: Derivation path: 36.508 table 4.7B.2-2			
Information Element	**Value/remark**	**Comment**	**Condition**
PDP context status	The SM state of the PDP context established on the NSAPI used in the E-UTRA data transfer shall be indicated as not PDP-INACTIVE	The network confirms that the default bearer context is still active.	

13.4 Mobility

13.4.1 Intra-system mobility

13.4.1.1

13.4.1.2 Inter-frequency mobility / E-UTRA to E-UTRA packet

13.4.1.2.1 Test Purpose (TP)

(1)

```
with { UE has a default EPS bearer context }
ensure that {
  when { UE receives downlink data on the radio bearer associated with the default EPS bearer
context }
    then { UE delivers the downlink data to upper layers }
           }
```

(2)

```
with { UE has a default EPS bearer context }
ensure that {
  when { uplink data are submitted for transmission }
    then { UE transmits the uplink data on the radio bearer associated with the default EPS bearer
context }
           }
```

(3)

```
with { UE has a default EPS bearer context and successful completion of the inter-frequency handover
}
ensure that {
  when { UE receives downlink data on the radio bearer associated with the default EPS bearer
context }
    then { UE delivers the downlink data to upper layers }
            }
```

(4)

```
with { UE has a default EPS bearer context and successful completion of the inter-frequency handover
}
ensure that {
  when { uplink data are submitted for transmission }
    then { UE transmits the uplink data on the radio bearer associated with the default EPS bearer
context }
            }
```

13.4.1.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 23.401, clauses 5.5.1.1.1.

[TS 23.401, clause 5.5.1.1.1]

These procedures are used to hand over a UE from a source eNodeB to a target eNodeB using the X2 reference point. In these procedures the MME is unchanged. Two procedures are defined depending on whether the Serving GW is unchanged or is relocated. In addition to the X2 reference point between the source and target eNodeB, the procedures rely on the presence of S1-MME reference point between the MME and the source eNodeB as well as between the MME and the target eNodeB.

The handover preparation and execution phases are performed as specified in TS 36.300 [5].

If the serving PLMN changes during handover, the source eNB shall initiate an S1-based handover instead of an X2-based handover.

When the UE receives the handover command it will remove any EPS bearers for which it did not receive the corresponding EPS radio bearers in the target cell. As part of handover execution, downlink packets are forwarded from the source eNodeB to the target eNodeB. When the UE has arrived to the target eNodeB, downlink data forwarded from the source eNodeB can be sent to it. Uplink data from the UE can be delivered via the (source) Serving GW to the PDN GW. Only the handover completion phase is affected by a potential change of the Serving GW, the handover preparation and execution phases are identical.

If the MME receives a rejection to a NAS procedure (e.g. dedicated bearer establishment/modification/release; location reporting control; NAS message transfer; etc.) from the eNodeB with an indication that an X2 handover is in progress (see TS 36.300 [5]), the MME shall reattempt the same NAS procedure either when the handover is complete or the handover is deemed to have failed. The failure is known by expiry of the timer guarding the NAS procedure.

13.4.1.2.3 Test description

13.4.1.2.3.1 Pre-test conditions

System Simulator:

- Cell 1 and Cell 3
- System information combination 3 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cells.

UE:

None.

Preamble:

- The UE is in state Loopback Activated (state 4) on Cell 1 according to [18] using the UE TEST LOOP MODE B.

13.4.1.2.3.2 Test procedure sequence

Table 13.4.1.2.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while columns marked "T1" is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 13.4.1.2.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 3	Remark
T0	Cell-specific RS EPRE	dBm/15k Hz	-85	-97	The power level values are such that measurement results for Cell 1 (M1) and Cell 3 (M3) satisfy exit condition for event A3 (M3 < M1).
T1	Cell-specific RS EPRE	dBm/15k Hz	-85	-73	The power level values are such that measurement results for Cell 1 (M1) and Cell 3 (M3) satisfy entry condition for event A3 (M3 > M1).

Table 13.4.1.2.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message	-	-
1	The SS transmits one IP packet to the UE on the DRB associated with the default EPS bearer context on Cell 1.	<--	IP packet	-	-
2	Check: Does the UE loop back the IP packet on the DRB associated with the default EPS bearer context on Cell 1?	-->	IP packet	1,2	P
3	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1 to setup inter frequency measurement and reporting for event A3.	<--	*RRCConnectionReconfiguration*	-	-
4	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1.	-->	*RRCConnectionReconfigurationComplete*	-	-
5	The SS changes Cell 3 parameters according to the row "T1" in table 13.4.1.2.3.2-1	-	-	-	-
6	The UE transmits a *MeasurementReport* message on Cell 1 to report event A3 with the measured RSRP and RSRQ value for Cell 3.	-->	*MeasurementReport*	-	-
7	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1 to order the UE to perform inter frequency handover to Cell 3.	<--	*RRCConnectionReconfiguration*	-	-
8	The UE transmit an *RRCConnectionReconfigurationComplete* message on Cell 3 to confirm the successful completion of the inter frequency handover.	-->	*RRCConnectionReconfigurationComplete*	-	-
9	The SS transmits one IP packet to the UE on the DRB associated with the default EPS bearer context on Cell 3.	<--	IP packet	-	-
10	Check: Does the UE loop back the IP packet on the DRB associated with the default EPS bearer context on Cell 3?	-->	IP packet	3,4	P

13.4.1.2.3.3 Specific message contents

Table 13.4.1.2.3.3-1: ACTIVATE TEST MODE (preamble)

Derivation Path: 36.508, Table 4.7A-1, condition UE TEST LOOP MODE B

Table 13.4.1.2.3.3-2: *RRCConnectionReconfiguration* (step 3, Table 13.4.1.2.3.2-2)

Derivation Path: 36.508 clause 4.6.1 table 4.6.1-8 with condition MEAS

Table 13.4.1.2.3.3-3: *MeasConfig* (step 3, Table 13.4.1.2.3.2-2)

Derivation path: 36.508 clause 4.6.6 table 4.6.6-1 with condition INTER-FREQ			
Information Element	**Value/Remark**	**Comment**	**Condition**
MeasConfig ::= SEQUENCE {			
measObjectToAddModifyList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entries		
measObjectId[1]	IdMeasObject-f1		
measObject[1]	MeasObjectEUTRA-GENERIC(f1)		
measObjectId[2]	IdMeasObject-f2		
measObject[2]	MeasObjectEUTRA-GENERIC(f2)		
}			
reportConfigToAddModifyList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	1 entry		
reportConfigId[1]	IdReportConfigEUTRA-A3		
reportConfig[1]	ReportConfigEUTRA-A3		
}			
measIdToAddModifyList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	1 entry		
measId[1]	1		
measObjectId[1]	IdMeasObject-f2		
reportConfigId[1]	IdReportConfigEUTRA-A3		
}			
}			

Table 13.4.1.2.3.3-4: *MeasurementReport* (step 6, Table 13.4.1.2.3.2-2)

Derivation Path: 36.508, Table 4.6.1-5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
measurementReport-r8 SEQUENCE {			
measResults SEQUENCE {			
measId	1		
measResultServCell SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListEUTRA SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {	1 entry		
physCellId[1]	PhysicalCellIdentity of Cell 3		
cgi-Info[1]	Not present		
measResult[1] SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
}			
}			
}			
}			
}			
}			
}			

Table 13.4.1.2.3.3-5: *RRCConnectionReconfiguration* (step 7, Table 13.4.1.2.3.2-2)

Derivation Path: 36.508, Table 4.6.1-8, condition HO

Table 13.4.1.2.3.3-6: *MobilityControlInfo* (step 7, Table 13.4.1.2.3.2-2)

Derivation Path: 36.508 clause 4.6.5-1			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityControlInfo ::= SEQUENCE {			
targetPhysCellId	PhysicalCellIdentity of Cell 3		
carrierFreq SEQUENCE {			
dl-CarrierFreq	Same downlink EARFCN as used for Cell 3		
ul-CarrierFreq	Not present		
}			
}			

13.4.1.3 Intra-system mobility / E-UTRA FDD to E-UTRA TDD to E-UTRA FDD packet

13.4.1.3.1 Test Purpose (TP)

(1)

```
with { UE has a default EPS bearer context }
ensure that {
when { UE receives downlink data on the radio bearer associated with the default EPS bearer context
}
  then { UE delivers the downlink data to upper layers }
          }
```

(2)

```
with { UE has a default EPS bearer context }
ensure that {
when { uplink data are submitted for transmission }
  then { UE transmits the uplink data on the radio bearer associated with the default EPS bearer
context }
           }
```

(3)

```
with { UE has a default EPS bearer context and successful completion of the inter-frequency handover
from E-UTRA FDD to E-UTRA TDD}
ensure that {
when { UE receives downlink data on the radio bearer associated with the default EPS bearer context
}
  then { UE delivers the downlink data to upper layers }
           }
```

(4)

```
with { UE has a default EPS bearer context and successful completion of the inter-frequency handover
from E-UTRA FDD to E-UTRA TDD }
ensure that {
when { uplink data are submitted for transmission }
  then { UE transmits the uplink data on the radio bearer associated with the default EPS bearer
context }
           }
```

(5)

```
with { UE has a default EPS bearer context and successful completion of the inter-frequency handover
from E-UTRA TDD to E-UTRA FDD}
ensure that {
when { UE receives downlink data on the radio bearer associated with the default EPS bearer context
}
  then { UE delivers the downlink data to upper layers }
           }
```

(6)

```
with { UE has a default EPS bearer context and successful completion of the inter-frequency handover
from E-UTRA TDD to E-UTRA FDD }
ensure that {
when { uplink data are submitted for transmission }
  then { UE transmits the uplink data on the radio bearer associated with the default EPS bearer
context }
           }
```

13.4.1.3.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 23.401, clauses 5.5.1.1.1.

[TS 23.401, clause 5.5.1.1.1]

These procedures are used to hand over a UE from a source eNodeB to a target eNodeB using the X2 reference point. In these procedures the MME is unchanged. Two procedures are defined depending on whether the Serving GW is unchanged or is relocated. In addition to the X2 reference point between the source and target eNodeB, the procedures rely on the presence of S1-MME reference point between the MME and the source eNodeB as well as between the MME and the target eNodeB.

The handover preparation and execution phases are performed as specified in TS 36.300 [5].

If the serving PLMN changes during handover, the source eNB shall initiate an S1-based handover instead of an X2-based handover.

When the UE receives the handover command it will remove any EPS bearers for which it did not receive the corresponding EPS radio bearers in the target cell. As part of handover execution, downlink packets are forwarded from the source eNodeB to the target eNodeB. When the UE has arrived to the target eNodeB, downlink data forwarded from the source eNodeB can be sent to it. Uplink data from the UE can be delivered via the (source) Serving GW to the PDN

GW. Only the handover completion phase is affected by a potential change of the Serving GW, the handover preparation and execution phases are identical.

If the MME receives a rejection to a NAS procedure (e.g. dedicated bearer establishment/modification/release; location reporting control; NAS message transfer; etc.) from the eNodeB with an indication that an X2 handover is in progress (see TS 36.300 [5]), the MME shall reattempt the same NAS procedure either when the handover is complete or the handover is deemed to have failed. The failure is known by expiry of the timer guarding the NAS procedure.

13.4.1.3.3 Test description

13.4.1.3.3.1 Pre-test conditions

System Simulator:

- Cell 1 (E-UTRA FDD Cell)
- Cell 10 (E-UTRA TDD Cell)
- System information combination 3 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cells.

UE:

None.

Preamble:

- The UE is in state Loopback Activated (state 4) on Cell 1 according to [18] using the UE TEST LOOP MODE B.

13.4.1.3.3.2 Test procedure sequence

Table 13.4.1.3.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while columns marked "T1" and "T2" are to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 13.4.1.3.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 10	Remark
T0	Cell-specific RS EPRE	dBm/15kHz	-85	-97	The power level values are such that measurement results for Cell 1 (M1) and Cell 10 (M10) satisfy exit condition for event A3 (M10 < M1).
T1	Cell-specific RS EPRE	dBm/15kHz	-85	-73	The power level values are such that measurement results for Cell 1 (M1) and Cell 10 (M10) satisfy entry condition for event A3 (M10 > M1).
T2	Cell-specific RS EPRE	dBm/15kHz	-73	-85	The power level values are such that measurement results for Cell 1 (M1) and Cell 10 (M10) satisfy entry condition for event A3 (M1 > M10).

Table 13.4.1.3.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message	-	-
1	The SS transmits one IP packet to the UE on the DRB associated with the default EPS bearer context on Cell 1.	<--	IP packet	-	-
2	Check: Does the UE loop back the IP packet on the DRB associated with the default EPS bearer context on Cell 1?	-->	IP packet	1,2	P
3	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1 to setup inter frequency measurement and reporting for event A3.	<--	*RRCConnectionReconfiguration*	-	-
4	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1.	-->	*RRCConnectionReconfigurationComplete*	-	-
5	The SS changes Cell 10 parameters according to the row "T1" in table 13.4.1.3.3.2-1	-	-	-	-
6	The UE transmits a *MeasurementReport* message on Cell 1 to report event A3 with the measured RSRP and RSRQ value for Cell 10.	-->	*MeasurementReport*	-	-
7	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1 to order the UE to perform inter frequency handover to Cell 10 and to activate the measurement gaps..	<--	*RRCConnectionReconfiguration*	-	-
8	The UE transmit an *RRCConnectionReconfigurationComplete* message on Cell 10 to confirm the successful completion of the inter frequency handover.	-->	*RRCConnectionReconfigurationComplete*	-	-
9	The SS transmits one IP packet to the UE on the DRB associated with the default EPS bearer context on Cell 10.	<--	IP packet	-	-
10	Check: Does the UE loop back the IP packet on the DRB associated with the default EPS bearer context on Cell 10?	-->	IP packet	3,4	P
11	The SS changes Cell 10 parameters according to the row "T2" in table 13.4.1.3.3.2-1	-	-	-	-
12	The UE transmits a *MeasurementReport* message on Cell 10 to report event A3 with the measured RSRP and RSRQ value for Cell 1.	-->	*MeasurementReport*	-	-
13	The SS transmits an *RRCConnectionReconfiguration* message on Cell 10 to order the UE to perform inter frequency handover to Cell 1.	<--	*RRCConnectionReconfiguration*	-	-
14	The UE transmit an *RRCConnectionReconfigurationComplete* message on Cell 1 to confirm the successful completion of the inter frequency handover.	-->	*RRCConnectionReconfigurationComplete*	-	-
15	The SS transmits one IP packet to the UE on the DRB associated with the default EPS bearer context on Cell 1.	<--	IP packet	-	-
16	Check: Does the UE loop back the IP packet on the DRB associated with the default EPS bearer context on Cell 1?	-->	IP packet	5,6	P

13.4.1.3.3.3 Specific message contents

Table 13.4.1.3.3.3-1: ACTIVATE TEST MODE (preamble)

Derivation Path: 36.508, Table 4.7A-1, condition UE TEST LOOP MODE B

Table 13.4.1.3.3.3-2: *RRCConnectionReconfiguration* (step 3, Table 13.4.1.3.3.2-2)

Derivation Path: 36.508 clause 4.6.1 table 4.6.1-8 with condition MEAS

Table 13.4.1.3.3.3-3: *MeasConfig* (step 3, Table 13.4.1.3.3.2-2)

Derivation path: 36.508 clause 4.6.6 table 4.6.6-1 with condition INTER-FREQ			
Information Element	**Value/Remark**	**Comment**	**Condition**
MeasConfig ::= SEQUENCE {			
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entries		
measObjectId[1]	IdMeasObject-f5		
measObject[1]	MeasObjectEUTRA-GENERIC(f5)		
measObjectId[2]	IdMeasObject-f1		
measObject[2]	MeasObjectEUTRA-GENERIC(f1)		
}			
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	1 entry		
reportConfigId[1]	IdReportConfigEUTRA-A3		
reportConfig[1]	ReportConfigEUTRA-A3		
}			
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	1 entry		
measId[1]	1		
measObjectId[1]	IdMeasObject-f5		
reportConfigId[1]	IdReportConfigEUTRA-A3		
}			
}			

Table 13.4.1.3.3.3-4: *MeasurementReport* (step 6, Table 13.4.1.3.3.2-2)

Derivation Path: 36.508, Table 4.6.1-5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
measurementReport-r8 SEQUENCE {			
measResults SEQUENCE {			
measId	1		
measResultServCell SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListEUTRA SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {	1 entry		
physCellId[1]	PhysicalCellIdentity of Cell 10		
cgi-Info[1]	Not present		
measResult[1] SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
}			
}			
}			
}			
}			
}			

Table 13.4.1.3.3.3-5: *RRCConnectionReconfiguration* (step 7, Table 13.4.1.3.3.2-2)

Derivation Path: 36.508 clause 4.6.1-8			
Information Element	**Value/remark**	**Comment**	**Condition**
RRCConnectionReconfiguration ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
rrcConnectionReconfiguration-r8 SEQUENCE {			
measConfig	MeasConfig		
mobilityControlInfo	MobilityControlInfo		
}			
}			
}			
}			

Table 13.4.1.3.3.3-6: *MeasConfig* (step 7, Table 13.4.1.3.3.2-2)

Derivation path: 36.508 clause 4.6.6 table 4.6.6-1, condition INTER-FREQ

Table 13.4.1.3.3.3-7: *MobilityControlInfo* (step 7, Table 13.4.1.3.3.2-2)

Derivation Path: 36.508 clause 4.6.5-1			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityControlInfo ::= SEQUENCE {			
targetPhysCellId	PhysicalCellIdentity of Cell 10		
carrierFreq SEQUENCE {			
dl-CarrierFreq	Same downlink EARFCN as used for Cell 10		
ul-CarrierFreq	Not present		
}			
}			

Table 13.4.1.3.3.3-8: *MeasurementReport* (step 12, Table 13.4.1.3.3.2-2)

Derivation Path: 36.508, Table 4.6.1-5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
measurementReport-r8 SEQUENCE {			
measResults SEQUENCE {			
measId	1		
measResultServCell SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListEUTRA SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {	1 entry		
physCellId[1]	PhysicalCellIdentity of Cell 1		
cgi-Info[1]	Not present		
measResult[1] SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
}			
}			
}			
}			
}			
}			
}			

Table 13.4.1.3.3.3-9: *RRCConnectionReconfiguration* (step 13, Table 13.4.1.3.3.2-2)

Derivation Path: 36.508, Table 4.6.1-8, condition HO

Table 13.4.1.3.3.3-10: *MobilityControlInfo* (step 13, Table 13.4.1.3.3.2-2)

Derivation Path: 36.508 clause 4.6.5-1			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityControlInfo ::= SEQUENCE {			
targetPhysCellId	PhysicalCellIdentity of Cell 1		
carrierFreq SEQUENCE {			
dl-CarrierFreq	Same downlink EARFCN as used for Cell 1		
ul-CarrierFreq	Same uplink EARFCN as used for Cell 1		
}			
}			

13.4.1.4 Inter-band mobility / E-UTRA to E-UTRA packet

13.4.1.4.1 Test Purpose (TP)

(1)

```
with { UE has a default EPS bearer context }
ensure that {
  when { UE receives downlink data on the radio bearer associated with the default EPS bearer
context }
    then { UE delivers the downlink data to upper layers }
            }
```

(2)

```
with { UE has a default EPS bearer context }
ensure that {
  when { uplink data are submitted for transmission }
    then { UE transmits the uplink data on the radio bearer associated with the default EPS bearer
context }
            }
```

(3)

```
with { UE has a default EPS bearer context and successful completion of the inter-band handover }
ensure that {
  when { UE receives downlink data on the radio bearer associated with the default EPS bearer
context }
    then { UE delivers the downlink data to upper layers }
            }
```

(4)

```
with { UE has a default EPS bearer context and successful completion of the inter-band handover }
ensure that {
  when { uplink data are submitted for transmission }
    then { UE transmits the uplink data on the radio bearer associated with the default EPS bearer
context }
            }
```

13.4.1.4.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 23.401, clause 5.5.1.1.1.

[TS 23.401, clause 5.5.1.1.1]

These procedures are used to hand over a UE from a source eNodeB to a target eNodeB using the X2 reference point. In these procedures the MME is unchanged. Two procedures are defined depending on whether the Serving GW is unchanged or is relocated. In addition to the X2 reference point between the source and target eNodeB, the procedures rely on the presence of S1-MME reference point between the MME and the source eNodeB as well as between the MME and the target eNodeB.

The handover preparation and execution phases are performed as specified in TS 36.300 [5]. If emergency bearer services are ongoing for the UE handover to the target eNodeB is performed independent of the Handover Restriction List. The MME checks, as part of the Tracking Area Update in the execution phase, if the handover is to a restricted area and if so MME releases the non-emergency bearers as specified in clause 5.10.3.

If the serving PLMN changes during X2-based handover, the source eNodeB shall indicate to the target eNodeB (in the Handover Restriction List) the PLMN selected to be the new Serving PLMN.

When the UE receives the handover command it will remove any EPS bearers for which it did not receive the corresponding EPS radio bearers in the target cell. As part of handover execution, downlink and optionally also uplink packets are forwarded from the source eNodeB to the target eNodeB. When the UE has arrived to the target eNodeB, downlink data forwarded from the source eNodeB can be sent to it. Uplink data from the UE can be delivered via the (source) Serving GW to the PDN GW or optionally forwarded from the source eNodeB to the target eNodeB. Only the handover completion phase is affected by a potential change of the Serving GW, the handover preparation and execution phases are identical.

If the MME receives a rejection to a NAS procedure (e.g. dedicated bearer establishment/modification/release; location reporting control; NAS message transfer; etc.) from the eNodeB with an indication that an X2 handover is in progress (see TS 36.300 [5]), the MME shall reattempt the same NAS procedure either when the handover is complete or the handover is deemed to have failed, except in the case of Serving GW relocation. The failure is known by expiry of the timer guarding the NAS procedure.

13.4.1.4.3 Test description

13.4.1.4.3.1 Pre-test conditions

System Simulator:

- Cell 1 and Cell 10.
- System information combination 3 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cells.

UE:

None.

Preamble:

- The UE is in state Loopback Activated (state 4) on Cell 1 according to [18] using the UE TEST LOOP MODE B.

13.4.1.4.3.2 Test procedure sequence

Table 13.4.1.4.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while columns marked "T1" is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 13.4.1.4.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 10	Remark
T0	Cell-specific RS EPRE	dBm/15 kHz	-85	-97	The power level values are such that measurement results for Cell 1 (M1) and Cell 10 (M10) satisfy exit condition for event A3 (M10 < M1).
T1	Cell-specific RS EPRE	dBm/15 kHz	-85	-73	The power level values are such that measurement results for Cell 1 (M1) and Cell 10 (M10) satisfy entry condition for event A3 (M10 > M1).

Table 13.4.1.4.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS transmits one IP packet to the UE on the DRB associated with the default EPS bearer context on Cell 1.	<--	IP packet	-	-
2	Check: Does the UE loop back the IP packet on the DRB associated with the default EPS bearer context on Cell 1?	-->	IP packet	1,2	P
3	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1 to setup inter-band measurement and reporting for event A3.	<--	*RRCConnectionReconfiguration*	-	-
4	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1.	-->	*RRCConnectionReconfigurationComplete*	-	-
5	The SS changes Cell 10 parameter according to the row "T1" in table 13.4.1.4.3.2-1	-	-	-	-
6	The UE transmits a *MeasurementReport* message on Cell 1 to report event A3 with the measured RSRP and RSRQ value for Cell 10.	-->	*MeasurementReport*	-	-
7	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1 to order the UE to perform inter-band handover to Cell 10.	<--	*RRCConnectionReconfiguration*	-	-
8	The UE transmit an *RRCConnectionReconfigurationComplete* message on Cell 10 to confirm the successful completion of the inter-band handover.	-->	*RRCConnectionReconfigurationComplete*	-	-
9	The SS transmits one IP packet to the UE on the DRB associated with the default EPS bearer context on Cell 10.	<--	IP packet	-	-
10	Check: Does the UE loop back the IP packet on the DRB associated with the default EPS bearer context on Cell 10?	-->	IP packet	3,4	P

13.4.1.4.3.3 Specific message contents

Table 13.4.1.4.3.3-1: *RRCConnectionReconfiguration* (step 3, Table 13.4.1.4.3.2-2)

Derivation Path: 36.508, Table 4.6.1-8, condition MEAS

Table 13.4.1.4.3.3-2: *MeasConfig* (Table 13.4.1.4.3.3-1)

Derivation Path: 36.508, Table 4.6.6-1, condition INTER-FREQ			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig ::= SEQUENCE {			
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entries		
measObjectId[1]	IdMeasObject-f1		
measObject[1]	MeasObjectEUTRA-GENERIC(f1)		
measObjectId[2]	IdMeasObject-f5		
measObject[2]	MeasObjectEUTRA-GENERIC(f5)		
}			
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	1 entry		
reportConfigId[1]	IdReportConfig-A3		
reportConfig[1]	ReportConfigEUTRA-A3		
}			
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	1 entry		
measId[1]	1		
measObjectId[1]	IdMeasObject-f5		
reportConfigId[1]	IdReportConfig-A3		
}			
}			

Table 13.4.1.4.3.3-3: *MeasurementReport* (step 6, Table 13.4.1.4.3.2-2)

Derivation Path: 36.508, Table 4.6.1-5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
measurementReport-r8 SEQUENCE {			
measResults SEQUENCE {			
measId	1		
measResultServCell SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListEUTRA SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {	1 entry		
physCellId	PhysicalCellIdentity of Cell 10		
cgi-Info	Not present		
measResult SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
additionalSI-Info-r9	Not present		
}			
}			
}			
measResultForECID-r9	Not present		
}			
}			
}			
}			
}			

Table 13.4.1.4.3.3-4: *RRCConnectionReconfiguration* (step 7, Table 13.4.1.4.3.2-2)

Derivation Path: 36.508, Table 4.6.1-8, condition HO

Table 13.4.1.4.3.3-5: *MobilityControlInfo* (Table 13.4.1.4.3.3-4)

Derivation Path: 36.508, Table 4.6.5-1			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityControlInfo ::= SEQUENCE {			
targetPhysCellId	PhysicalCellIdentity of Cell 10		
carrierFreq SEQUENCE {			
dl-CarrierFreq	Same downlink EARFCN as used for Cell 10		
ul-CarrierFreq	Not present		
}			
}			

13.4.1.5 RRC connection reconfiguration / Handover/ Full configuration / DRB establishment

13.4.1.5.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_CONNECTED state and has data transmit }
ensure that {
  when { UE receives an RRCConnectionReconfiguration message including mobilityControlInfo and
fullConfig-r9 }
    then { UE release and re-setup DRB and resume data transfer }
           }
```

13.4.1.5.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.331, clauses 5.3.5.4 and 5.3.5.8.

[TS 36.331, clause 5.3.5.4]

If the *RRCConnectionReconfiguration* message includes the *mobilityControlInfo* and the UE is able to comply with the configuration included in this message, the UE shall:

1> stop timer T310, if running;

1> start timer T304 with the timer value set to *t304*, as included in the *mobilityControlInfo*;

…

1> else:

2> consider the target cell to be one on the current frequency with a physical cell identity indicated by the *targetPhysCellId*;

1> start synchronising to the DL of the target cell;

NOTE 1: The UE should perform the handover as soon as possible following the reception of the RRC message triggering the handover, which could be before confirming successful reception (HARQ and ARQ) of this message.

1> reset MAC;

1> re-establish PDCP for all RBs that are established;

NOTE 2: The handling of the radio bearers after the successful completion of the PDCP re-establishment, e.g. the re-transmission of unacknowledged PDCP SDUs (as well as the associated status reporting), the handling of the SN and the HFN, is specified in TS 36.323 [8].

1> re-establish RLC for all RBs that are established;

1> apply the value of the *newUE-Identity* as the C-RNTI;

1> if the *RRCConnectionReconfiguration* message includes the *fullConfig*:

2> perform the radio configuration procedure as specified in section 5.3.5.8;

1> configure lower layers in accordance with the received *radioResourceConfigCommon*;

1> configure lower layers in accordance with any additional fields, not covered in the previous, if included in the received *mobilityControlInfo*;

1> if the *RRCConnectionReconfiguration* message includes the *radioResourceConfigDedicated*:

2> perform the radio resource configuration procedure as specified in 5.3.10;

…

1> else:

2> update the K_{eNB} key based on the current K_{eNB} or the NH, using the *nextHopChainingCount* value indicated in the *securityConfigHO*, as specified in TS 33.401 [32];

1> store the *nextHopChainingCount* value;

1> if the *securityAlgorithmConfig* is included in the *securityConfigHO*:

2> derive the K_{RRCint} key associated with the *integrityProtAlgorithm*, as specified in TS 33.401 [32];

2> derive the K_{RRCenc} key and the K_{UPenc} key associated with the *cipheringAlgorithm*, as specified in TS 33.401 [32];

…

1> configure lower layers to apply the integrity protection algorithm and the K_{RRCint} key, i.e. the integrity protection configuration shall be applied to all subsequent messages received and sent by the UE, including the message used to indicate the successful completion of the procedure;

1> configure lower layers to apply the ciphering algorithm, the K_{RRCenc} key and the K_{UPenc} key, i.e. the ciphering configuration shall be applied to all subsequent messages received and sent by the UE, including the message used to indicate the successful completion of the procedure;

1> perform the measurement related actions as specified in 5.5.6.1;

…

1> submit the *RRCConnectionReconfigurationComplete* message to lower layers for transmission;

1> if MAC successfully completes the random access procedure:

2> stop timer T304;

2> apply the parts of the CQI reporting configuration, the scheduling request configuration and the sounding RS configuration that do not require the UE to know the SFN of the target cell, if any;

2> apply the parts of the measurement and the radio resource configuration that require the UE to know the SFN of the target cell (e.g. measurement gaps, periodic CQI reporting, scheduling request configuration, sounding RS configuration), if any, upon acquiring the SFN of the target cell;

NOTE 3: Whenever the UE shall setup or reconfigure a configuration in accordance with a field that is received it applies the new configuration, except for the cases addressed by the above statements.

2> the procedure ends;

NOTE 4: The UE is not required to determine the SFN of the target cell by acquiring system information from that cell before performing RACH access in the target cell.

[TS 36.331, clause 5.3.5.8]

The UE shall:

1> release/ clear all current dedicated radio configurations except the C-RNTI, the security configuration and the PDCP, RLC and logical channel configurations for the RBs;

NOTE 1: Radio configuration is not just the resource configuration but includes other configurations like *MeasConfig* and *OtherConfig*.

1> if the *RRCConnectionReconfiguration* message includes the *mobilityControlInfo*:

2> release/ clear all current common radio configurations;

2> use the default values specified in 9.2.5 for timer T310, T311 and constant N310, N311;

1> else:

2> use values for timers T301, T310, T311 and constants N310, N311, as included in *ue-TimersAndConstants* received in *SystemInformationBlockType2*;

1> apply the default physical channel configuration as specified in 9.2.4;

1> apply the default semi-persistent scheduling configuration as specified in 9.2.3;

1> apply the default MAC main configuration as specified in 9.2.2;

1> for each *srb-Identity* value included in the *srb-ToAddModList* (SRB reconfiguration):

2> apply the specified configuration defined in 9.1.2 for the corresponding SRB;

2> apply the corresponding default RLC configuration for the SRB specified in 9.2.1.1 for SRB1 or in 9.2.1.2 for SRB2;

2> apply the corresponding default logical channel configuration for the SRB as specified in 9.2.1.1 for SRB1 or in 9.2.1.2 for SRB2;

NOTE 2: This is to get the SRBs (SRB1 and SRB2 for handover and SRB2 for reconfiguration after reestablishment) to a known state from which the reconfiguration message can do further configuration.

1> for each *eps-BearerIdentity* value included in the *drb-ToAddModList* that is part of the current UE configuration:

2> release the PDCP entity;

2> release the RLC entity or entities;

2> release the DTCH logical channel;

2> release the *drb-identity*;

NOTE 3: This will retain the *eps-bearerIdentity* but remove the DRBs including *drb-identity* of these bearers from the current UE configuration and trigger the setup of the DRBs within the AS in Section 5.3.10.3 using the new configuration. The *eps-bearerIdentity* acts as the anchor for associating the released and re-setup DRB.

1> for each *eps-BearerIdentity* value that is part of the current UE configuration but not part of the *drb-ToAddModList:*

2> perform DRB release as specified in 5.3.10.2;

13.4.1.5.3 Test description

13.4.1.5.3.1 Pre-test conditions

System Simulator:

- Cell 1 and Cell 2.

UE:

None.

Preamble:

- The UE is in state Generic RB Established (state 3) on Cell 1 according to [18].
- The condition SRB2-DRB(1, 0) is used for step 8 in 4.5.3A.3 on Cell 1 according to [18].
- The UE is in state Loopback Activated (state 4) on Cell 1 according to [18] using the UE TEST LOOP MODE B.

13.4.1.5.3.2 Test procedure sequence

Table 13.4.1.5.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS transmits one IP packet to the UE on the DRB associated with the default EPS bearer context on Cell 1.	<--	IP packet	-	-
2	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1 to order the UE to perform handover with full configuration option to Cell 2.	<--	*RRCConnectionReconfiguration*	-	-
3	The UE transmit an *RRCConnectionReconfigurationComplete* message on Cell 2.	-->	*RRCConnectionReconfigurationComplete*	-	-
4	Check: Does the UE loop back the IP packet on the DRB associated with the default EPS bearer context on Cell 2?	-->	IP packet	1	P

13.4.1.5.3.3 Specific message contents

Table 13.4.1.5.3.3-1: ACTIVATE TEST MODE (preamble, Table 13.4.1.5.3.2-1)

Derivation Path: 36.508, Table 4.7A-1, condition UE TEST LOOP MODE B

Table 13.4.1.5.3.3-2: CLOSE UE TEST LOOP (preamble, Table 13.4.1.5.3.2-1)

Derivation Path: 36.508, Table 4.7A-3, condition UE TEST LOOP MODE B			
Information Element	**Value/remark**	**Comment**	**Condition**
UE test loop mode B LB setup			
IP PDU delay	00000101	5 seconds	

Table 13.4.1.5.3.3-3: *RRCConnectionReconfiguration* (step 2, Table 13.4.1.5.3.2-1)

Derivation Path: 36.508, Table 4.6.1-8, condition HO			
Information Element	**Value/remark**	**Comment**	**Condition**
RRCConnectionReconfiguration ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
rrcConnectionReconfiguration-r8 SEQUENCE {			
radioResourceConfigDedicated	RadioResourceConfigDedicated-RECONFIG		
nonCriticalExtension SEQUENCE {			
lateNonCriticalExtension	Not present		
nonCriticalExtension SEQUENCE {			
otherConfig-r9	Not present		
fullConfig-r9	true		
nonCriticalExtension SEQUENCE {}	Not present		
}			
}			
}			
}			
}			
}			

Table 13.4.1.5.3.3-4: *MobilityControlInfo* (Table 13.4.1.5.3.3-3)

Derivation Path: 36.508, Table 4.6.5-1			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityControlInfo ::= SEQUENCE {			
targetPhysCellId	PhysicalCellIdentity of Cell 2		
carrierFreq SEQUENCE {			
dl-CarrierFreq	Same downlink EARFCN as used for Cell 2		
ul-CarrierFreq	Not present		
}			
radioResourceConfigCommon	RadioResourceConfigCommon-DEFAULT		
}			

Table 13.4.1.5.3.3-5: *RadioResourceConfigCommon-DEFAULT* (Table 13.4.1.5.3.3-4)

Derivation Path: 36.508 table 4.6.3-13 with condition FullConfig

Table 13.4.1.5.3.3-6: *SecurityConfigHO* (Table 13.4.1.5.3.3-3)

Derivation Path: 36.508, Table 4.6.4-1			
Information Element	**Value/remark**	**Comment**	**Condition**
SecurityConfigHO ::= SEQUENCE {			
handoverType CHOICE {			
intraLTE SEQUENCE {			
securityAlgorithmConfig	SecurityConfigSMC-DEFAULT	TS 36.508, Table 4.6.4-2	
}			
}			
}			

Table 13.4.1.5.3.3-7: *RadioResourceConfigDedicated-RECONFIG* (Table 13.4.1.5.3.3-3)

Derivation Path: 36.331 clause 6.3.2			
Information Element	**Value/remark**	**Comment**	**Condition**
RadioResourceConfigDedicated ::= SEQUENCE {			
srb-ToAddModList	SRB-ToAddModList-DEFAULT	TS 36.508 Table 4.8.2.1.1-1	
drb-ToAddModList	DRB-ToAddModList-DEFAULT (1) using condition AM	TS 36.508 Table 4.8.2.1.7-1	
drb-ToReleaseList	Not present		
mac-MainConfig CHOICE {			
explicitValue	MAC-MainConfig-DEFAULT		
}			
sps-Config	Not present		
physicalConfigDedicated	Not present		
}			

Table 13.4.1.5.3.3-8: *MAC-MainConfig-DEFAULT* (Table 13.4.1.5.3.3-6)

Derivation Path: 36.508 table 4.8.2.1.5-1			
Information Element	**Value/remark**	**Comment**	**Condition**
MAC-MainConfig ::= SEQUENCE {			
ul-SCH-Config SEQUENCE {			
periodicBSR-Timer	infinity		
retxBSR-Timer	sf2560		
}			
drx-Config	Not present		
phr-Config CHOICE {			
release	NULL		
}			
sr-ProhibitTimer-r9	0		
}			

13.4.2 Inter-system mobility packet

13.4.2.1 Inter-system mobility / E-UTRA to UTRA packet

13.4.2.1.1 Test Purpose (TP)

(1)

```
with { UE has a default EPS bearer context }
ensure that {
  when { UE receives downlink data on the radio bearer associated with the default EPS bearer
context }
    then { UE delivers the downlink data to upper layers }
           }
```

(2)

```
with { UE has a default EPS bearer context }
ensure that {
  when { uplink data are submitted for transmission }
    then { UE transmits the uplink data on the radio bearer associated with the default EPS bearer
context }
           }
```

(3)

```
with { UE has a radio access bearer context and successful completion of the inter-system handover }
ensure that {
  when { UE receives downlink data on the radio bearer associated with the radio access bearer
context }
    then { UE delivers the downlink data to upper layers }
           }
```

(4)

```
with { UE has a radio access bearer context and successful completion of the inter-system handover }
ensure that {
  when { uplink data are submitted for transmission }
    then { UE transmits the uplink data on the radio bearer associated with the radio access bearer
context }
            }
```

13.4.2.1.2 Conformance requirements

References: The conformance requirements covered in the current TC are those listed in TC 8.4.1.2, plus those specified in: TS 23.401, clauses 5.5.2.1.2, 5.5.2.1.3.

[TS 23.401, clause 5.5.2.1.2]

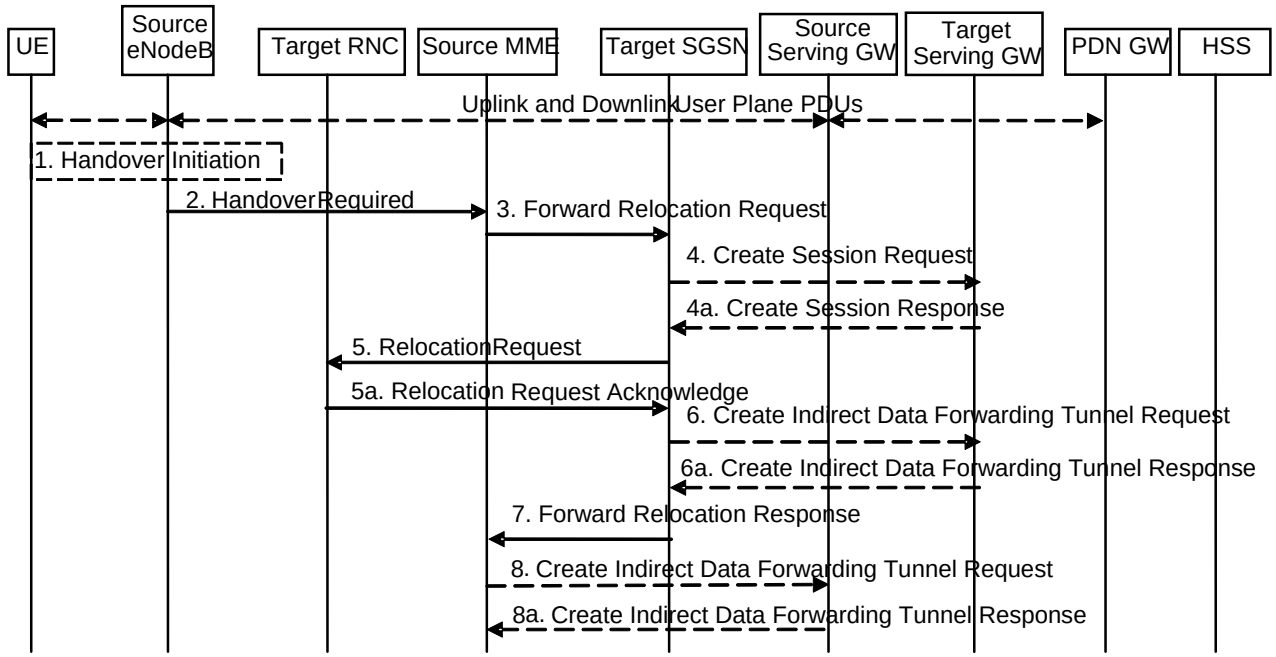

Figure 5.5.2.1.2-1: E-UTRAN to UTRAN Iu mode Inter RAT HO, preparation phase

1. The source eNodeB decides to initiate an Inter-RAT handover to the target access network, UTRAN Iu mode. At this point both uplink and downlink user data is transmitted via the following: Bearer(s) between UE and source eNodeB, GTP tunnel(s) between source eNodeB, Serving GW and PDN GW.

NOTE 1: The process leading to the handover decision is outside of the scope of this specification.

2. The source eNodeB sends a Handover Required (S1AP Cause, Target RNC Identifier, Source eNodeB Identifier, Source to Target Transparent Container) message to the source MME to request the CN to establish resources in the target RNC, target SGSN and the Serving GW. The bearers that will be subject to data forwarding (if any) are identified by the target SGSN in a later step (see step 7 below).

3. The source MME determines from the 'Target RNC Identifier' IE that the type of handover is IRAT Handover to UTRAN Iu mode. The Source MME initiates the Handover resource allocation procedure by sending a Forward Relocation Request (IMSI, Target Identification, MM Context, PDN Connections, MME Tunnel Endpoint Identifier for Control Plane, MME Address for Control plane, Source to Target Transparent Container, RAN Cause, MS Info Change Reporting Action (if available), ISR Supported, TI(s)) message to the target SGSN. The information ISR Supported is indicated if the source MME is capable to activate ISR for the UE. When ISR is activated the message should be sent to the SGSN that maintains ISR for the UE when this SGSN is serving the target identified by the Target Identification. This message includes all PDN Connections active in the source system and for each PDN Connection includes the associated APN, the address and the uplink Tunnel endpoint parameters of the Serving GW for control plane, and a list of EPS Bearer Contexts. RAN Cause indicates the S1AP Cause as received from source eNodeB.

The target SGSN maps the EPS bearers to PDP contexts 1-to-1 and maps the EPS Bearer QoS parameter values of an EPS bearer to the pre-Rel-8 QoS parameter values of a bearer context as defined in Annex E

Prioritization of PDP Contexts is performed by the target core network node, i.e. target SGSN.

The MM context contains security related information, e.g. supported ciphering algorithms as described in TS 29.274 [43]. Handling of security keys is described in TS 33.401 [41].

The target SGSN shall determine the Maximum APN restriction based on the APN Restriction of each bearer context in the Forward Relocation Request, and shall subsequently store the new Maximum APN restriction value.

4. The target SGSN determines if the Serving GW is to be relocated, e.g., due to PLMN change. If the Serving GW is to be relocated, the target SGSN selects the target Serving GW as described under clause 4.3.8.2 on "Serving GW selection function", and sends a Create Session Request message (IMSI, SGSN Tunnel Endpoint Identifier for Control Plane, SGSN Address for Control plane, PDN GW address(es) for user plane, PDN GW UL TEID(s) for user plane, PDN GW address(es) for control plane, and PDN GW TEID(s) for control plane, the Protocol Type over S5/S8) per PDN connection to the target Serving GW. The Protocol Type over S5/S8 is provided to Serving GW which protocol should be used over S5/S8 interface.

   The target SGSN establishes the EPS Bearer context(s) in the indicated order. The SGSN deactivates the EPS Bearer contexts which cannot be established.

4a. The target Serving GW allocates its local resources and returns a Create Session Response (Serving GW address(es) for user plane, Serving GW UL TEID(s) for user plane, Serving GW Address for control plane, Serving GW TEID for control plane) message to the target SGSN.

5. The target SGSN requests the target RNC to establish the radio network resources (RABs) by sending the message Relocation Request (UE Identifier, Cause, CN Domain Indicator, Integrity protection information (i.e. IK and allowed Integrity Protection algorithms), Encryption information (i.e. CK and allowed Ciphering algorithms), RAB to be setup list, Source RNC to Target RNC Transparent Container, Service Handover related information). If the Access Restriction is present in the MM context, the Service Handover related information shall be included by the target SGSN for the Relocation Request message in order for RNC to restrict the UE in connected mode to handover to the RAT prohibited by the Access Restriction.

   For each RAB requested to be established, RABs To Be Setup shall contain information such as RAB ID, RAB parameters, Transport Layer Address, and Iu Transport Association. The RAB ID information element contains the NSAPI value, and the RAB parameters information element gives the QoS profile. The Transport Layer Address is the Serving GW Address for user plane (if Direct Tunnel is used) or the SGSN Address for user plane (if Direct Tunnel is not used), and the Iu Transport Association corresponds to the uplink Tunnel Endpoint Identifier Data in Serving GW or SGSN respectively.

   Ciphering and integrity protection keys are sent to the target RNC to allow data transfer to continue in the new RAT/mode target cell without requiring a new AKA (Authentication and Key Agreement) procedure. Information that is required to be sent to the UE (either in the Relocation Command message or after the handover completion message) from RRC in the target RNC shall be included in the RRC message sent from the target RNC to the UE via the transparent container. More details are described in TS 33.401 [41].

   In the target RNC radio and Iu user plane resources are reserved for the accepted RABs. Cause indicates the RAN Cause as received from source MME. The Source RNC to Target RNC Transparent Container includes the value from the Source to Target Transparent Container received from the source eNodeB.

5a. The target RNC allocates the resources and returns the applicable parameters to the target SGSN in the message Relocation Request Acknowledge (Target RNC to Source RNC Transparent Container, RABs setup list, RABs failed to setup list).

   Upon sending the Relocation Request Acknowledge message the target RNC shall be prepared to receive downlink GTP PDUs from the Serving GW, or Target SGSN if Direct Tunnel is not used, for the accepted RABs.

   Each RAB in the RABs setup list is defined by a Transport Layer Address, which is the target RNC Address for user data, and the Iu Transport Association, which corresponds to the downlink Tunnel Endpoint Identifier for user data.

Any EPS Bearer contexts for which a RAB was not established are maintained in the target SGSN and the UE. These EPS Bearer contexts shall be deactivated by the target SGSN via explicit SM procedures upon the completion of the routing area update (RAU) procedure.

6. If 'Indirect Forwarding' and relocation of Serving GW apply and Direct Tunnel is used, the target SGSN sends a Create Indirect Data Forwarding Tunnel Request message (Target RNC Address and TEID(s) for data forwarding) to the Serving GW. If 'Indirect Forwarding' and relocation of Serving GW apply and Direct Tunnel is not used, then the target SGSN sends a Create Indirect Data Forwarding Tunnel Request message (SGSN Address and TEID(s) for data forwarding) to the Serving GW.

   Indirect forwarding may be performed via a Serving GW which is different from the Serving GW used as the anchor point for the UE.

6a. The Serving GW returns a Create Indirect Data Forwarding Tunnel Response (Cause, Serving GW Address(es) and TEID(s) for data forwarding) message to the target SGSN.

7. The target SGSN sends the message Forward Relocation Response (Cause, SGSN Tunnel Endpoint Identifier for Control Plane, SGSN Address for Control Plane, Target to Source Transparent Container, Cause, RAB Setup Information, Additional RAB Setup Information, Address(es) and TEID(s) for User Traffic Data Forwarding, Serving GW change indication) to the source MME. Serving GW change indication indicates a new Serving GW has been selected. The Target to Source Transparent Container contains the value from the Target RNC to Source RNC Transparent Container received from the target RNC.

   The IE 'Address(es) and TEID(s) for User Traffic Data Forwarding' defines the destination tunnelling endpoint for data forwarding in target system, and it is set as follows:

   - If 'Direct Forwarding' applies, or if 'Indirect Forwarding' and no relocation of Serving GW apply and Direct Tunnel is used, then the IE 'Address(es) and TEID(s) for User Traffic Data Forwarding' contains the addresses and GTP-U tunnel endpoint parameters to the Target RNC received in step 5a.

   - If 'Indirect Forwarding' and relocation of Serving GW apply, then the IE 'Address(es) and TEID(s) for User Traffic Data Forwarding' contains the addresses and GTP-U tunnel endpoint parameters to the Serving GW received in step 6a. This is independent from using Direct Tunnel or not.

   - If 'Indirect Forwarding' applies and Direct Tunnel is not used and relocation of Serving GW does not apply, then the IE 'Address(es) and TEID(s) for User Traffic Data Forwarding' contains the addresses and GTP-U tunnel endpoint parameters to the Target SGSN.

8. If "Indirect Forwarding" applies, the Source MME sends the message Create Indirect Data Forwarding Tunnel Request (Address(es) and TEID(s) for Data Forwarding (received in step 7)), EPS Bearer ID(s)) to the Serving GW used for indirect forwarding.

   Indirect forwarding may be performed via a Serving GW which is different from the Serving GW used as the anchor point for the UE.

8a. The Serving GW returns the forwarding parameters by sending the message Create Indirect Data Forwarding Tunnel Response (Cause, Serving GW Address(es) and TEID(s) for Data Forwarding). If the Serving GW doesn't support data forwarding, an appropriate cause value shall be returned and the Serving GW Address(es) and TEID(s) will not be included in the message.

[TS 23.401, clause 5.5.2.1.3]

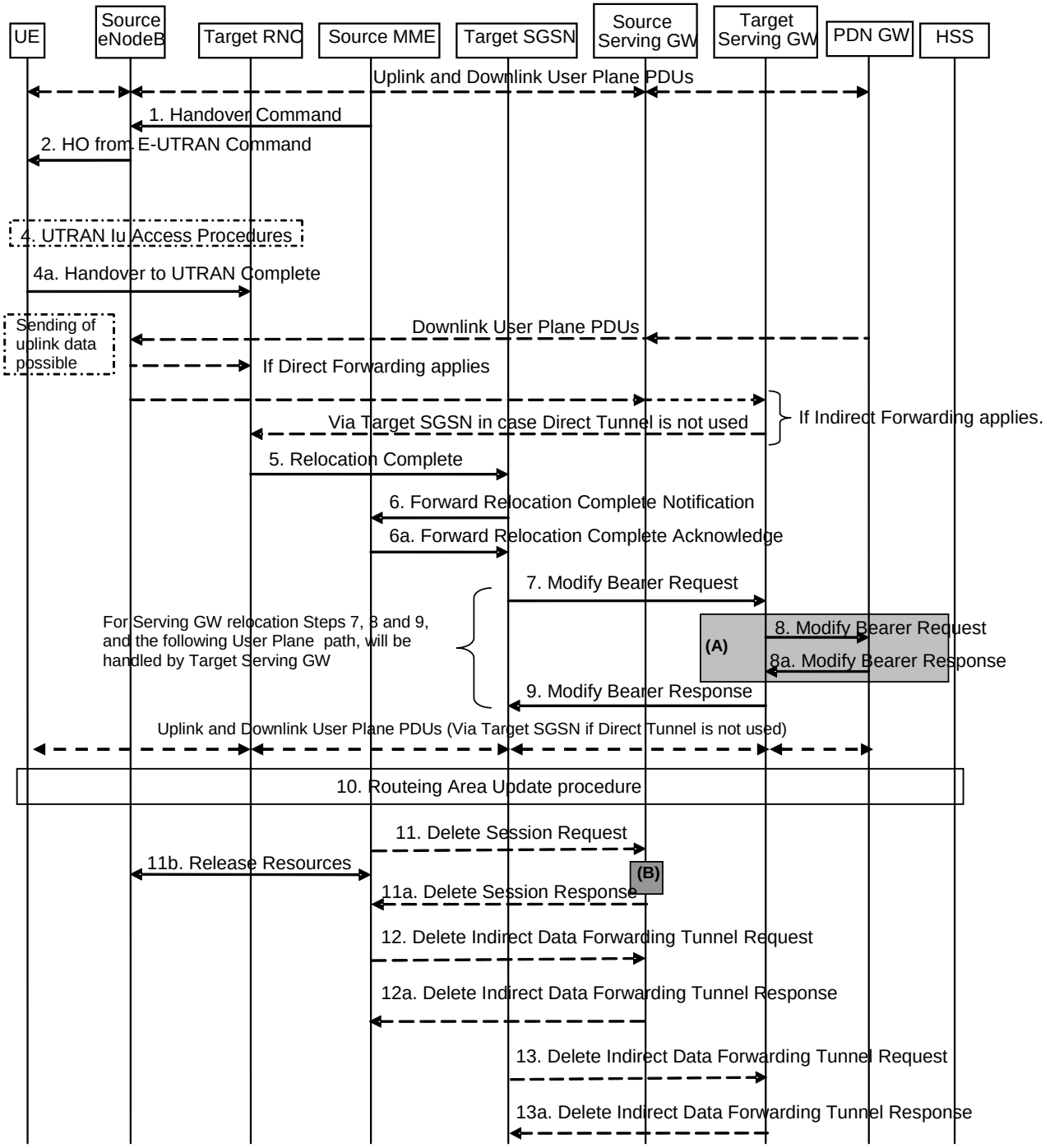

Figure 5.5.2.1.3-1: E-UTRAN to UTRAN Iu mode Inter RAT HO, execution phase

NOTE: For a PMIP-based S5/S8, procedure steps (A) and (B) are defined in TS 23.402 [2]. Step (B) shows PCRF interaction in the case of PMIP-based S5/S8. Steps 8 and 8a concern GTP based S5/S8

The source eNodeB continues to receive downlink and uplink user plane PDUs.

1. The source MME completes the preparation phase towards source eNodeB by sending the message Handover Command (Target to Source Transparent Container, E-RABs to Release List, Bearers Subject to Data Forwarding List). The "Bearers Subject to Data forwarding list" IE may be included in the message and it shall be a list of 'Address(es) and TEID(s) for user traffic data forwarding' received from target side in the preparation phase (Step 7 of the preparation phase) when 'Direct Forwarding' applies, or the parameters received in Step 8a of the preparation phase when 'Indirect Forwarding' applies.

The source eNodeB initiates data forwarding for bearers specified in the "Bearers Subject to Data Forwarding List". The data forwarding may go directly to target RNC or alternatively go via the Serving GW if so decided by source MME and or/ target SGSN in the preparation phase.

2. The source eNodeB will give a command to the UE to handover to the target access network via the message HO from E-UTRAN Command. This message includes a transparent container including radio aspect parameters that the target RNC has set-up in the preparation phase. The details of this E-UTRAN specific signalling are described in TS 36.300 [5].

   Upon the reception of the HO from E-UTRAN Command message containing the Handover Command message, the UE shall associate its bearer IDs to the respective RABs based on the relation with the NSAPI and shall suspend the uplink transmission of the user plane data.

3. Void.

4. The UE moves to the target UTRAN Iu (3G) system and executes the handover according to the parameters provided in the message delivered in step 2. The procedure is the same as in step 6 and 8 in clause 5.2.2.2 in TS 43.129 [8] with the additional function of association of the received RABs and existing Bearer Id related to the particular NSAPI.

   The UE may resume the user data transfer only for those NSAPIs for which there are radio resources allocated in the target RNC.

   The UE locally deactivates ISR by setting its TIN from "RAT-related TMSI" to "GUTI", if any EPS bearer context activated after the ISR was activated in the UE exists.

13.4.2.1.3 Test description

13.4.2.1.3.1 Pre-test conditions

System Simulator:

- Cell 1 and Cell 5
- System information combination 4 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cells.

UE:

None.

Preamble:

- The UE is in state Generic RB Established (state 4) on Cell 1 according to [18] using the UE TEST LOOP MODE B.

13.4.2.1.3.2 Test procedure sequence

Table 13.4.2.1.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while columns marked "T1" is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 13.4.2.1.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 5	Remark
T0	Cell-specific RS EPRE	dBm/15kHz	-85	-	The power level values are such that entering conditions for event B2 are not satisfied.
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-82	
	PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-82	
T1	Cell-specific RS EPRE	dBm/15kHz	-100	-	The power level values are such that entering conditions for event B2 are satisfied.
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-72	
	PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-72	

Table 13.4.2.1.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message	-	-
1	The SS transmits one IP packet to the UE on the DRB associated with the default EPS bearer context on Cell 1.	<--	IP packet	-	-
2	Check: Does the UE loop back the IP packet on the DRB associated with the default EPS bearer context on Cell 1?	-->	IP packet	1,2	P
3	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1 to setup inter RAT measurement and reporting for event B2.	<--	*RRCConnectionReconfiguration*	-	-
4	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1.	-->	*RRCConnectionReconfigurationComplete*	-	-
5	The SS changes the power level for Cell 1 and Cell 5 according to the row "T1" in table 13.4.2.1.3.2-1	-	-	-	-
6	The UE transmits a *MeasurementReport* message on Cell 1 to report event B2 for Cell 5.	-->	*MeasurementReport*	-	-
6A	The SS transmits a *UECapabilityEnquiry* message to request UE radio access capability information for E-UTRA and UTRA.	<--	*UECapabilityEnquiry*	-	-
6B	The UE transmit a *UECapabilityInformation* message on Cell 1. NOTE: The start-PS values received, should be used to configure ciphering on cell 5.	-->	*UECapabilityInformation*	-	-
7	The SS transmits an *MobilityFromEUTRACommand* message on Cell 1 to order the UE to perform inter system handover to Cell 5.	<--	*MobilityFromEUTRACommand*	-	-
8	The UE transmit a HANDOVER TO UTRAN COMPLETE message on Cell 5 to confirm the successful completion of the inter system handover.	-->	HANDOVER TO UTRAN COMPLETE	-	-
-	EXCEPTION: The behaviour in table 13.4.2.1.3.2-3 may occur in parallel with steps 8A-8D.	-	-	-	-
8A	The SS transmits a SECURITY MODE COMMAND message on Cell 5 in order to activate integrity protection. Note: Ciphering has already been activated in steps 7/8	<--	SECURITY MODE COMMAND	-	-
8B	The UE transmits a SECURITY MODE COMPLETE message on Cell 5.	-->	SECURITY MODE COMPLETE	-	-
8C	The SS transmits a UTRAN MOBILITY INFORMATION message to notify CN information on Cell 5.	<--	UTRAN MOBILITY INFORMATION	-	-
8D	The UE transmits an UTRAN MOBILITY INFORMATION CONFIRM message on Cell 5.	-->	UTRAN MOBILITY INFORMATION CONFIRM	-	-
9-11	Void	-	-	-	-
12	The SS transmits a ROUTING AREA UPDATE ACCEPT message.	<--	ROUTING AREA UPDATE ACCEPT	-	-
13	The UE transmits a ROUTING AREA UPDATE COMPLETE message.	-->	ROUTING AREA UPDATE COMPLETE	-	-
14	The SS transmits one IP packet to the UE on the DRB associated with the RAB context on Cell 5.	<--	IP packet	-	-
15	Check: Does the UE loop back the IP packet on the DRB associated with the RAB context on Cell 5?	-->	IP packet	3,4	P

Table: 13.4.2.1.3.2-3: Parallel behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	UE transmits a ROUTING AREA UPDATE REQUEST message.	-->	ROUTING AREA UPDATE REQUEST	-	-

13.4.2.1.3.3 Specific message contents

Table 13.4.2.1.3.3-1: ACTIVATE TEST MODE (preamble)

Derivation Path: 36.508, Table 4.7A-1, condition UE TEST LOOP MODE B

Table 13.4.2.1.3.3-2: *RRCConnectionReconfiguration* (step 3, Table 13.4.2.1.3.2-2)

Derivation Path: 36.508 clause 4.6.1 table 4.6.1-8 with condition MEAS

Table 13.4.2.1.3.3-3: *MeasConfig* (step 3, Table 13.4.2.1.3.2-2)

Derivation path: 36.508 clause 4.6.6 table 4.6.6-1 with condition UTRAN			
Information Element	**Value/Remark**	**Comment**	**Condition**
measurementConfiguration ::= SEQUENCE {			
measObjectToAddModifyList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entries		
measObjectId[1]	IdMeasObject-f1	Serving frequency	
measObject[1]	MeasObjectEUTRA-GENERIC(f1)		
measObjectId[2]	IdMeasObject-f8		
measObject[2]	MeasObjectUTRA-GENERIC(f8)		
}			
reportConfigToAddModifyList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	1 entry		
reportConfigId[1]	IdReportConfigInterRAT-B2-UTRA		
reportConfig[1]	ReportConfigInterRAT-B2-UTRA (-90, -78)		
}			
measIdToAddModifyList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	1 entry		
measId[1]	1		
measObjectId[1]	IdMeasObject-f8		
reportConfigId[1]	IdReportConfigInterRAT-B2-UTRA		
}			
quantityConfig SEQUENCE {			
quantityConfigUTRA SEQUENCE {			
measQuantityUTRA-FDD	cpich-RSCP		UTRA-FDD
measQuantityUTRA-TDD	pccpch-RSCP		UTRA-TDD
}			
}			
}			

Table 13.4.2.1.3.3-4: *MeasurementReport* (step 6, Table 13.4.2.1.3.2-2)

Derivation Path: 36.508, table 4.6.1-5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
measurementReport-r8 SEQUENCE {			
measResults SEQUENCE {			
measId	1		
measResultServCell SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListUTRA SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {	1 entry		
physCellId[1]	PhysicalCellIdentity of Cell 5		
cgi-Info[1]	Not present		
measResult[1] SEQUENCE {			
utra-RSCP	(-5..91)		
}			
}			
}			
}			
}			
}			
}			

Table 13.4.2.1.3.3-5: *MobilityFromEUTRACommand* (step 7, Table 13.4.2.1.3.2-2)

Derivation Path: 36.508 table 4.6.1-6			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityFromEUTRACommand ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
mobilityFromEUTRACommand-r8 SEQUENCE {			
purpose CHOICE {			
handover SEQUENCE {			
targetRAT-Type	utra		
targetRAT-MessageContainer	HANDOVER TO UTRAN COMMAND		
Nas-SecurityParamFromEUTRA	The 4 least significant bits of the NAS downlink COUNT value		
systemInformation	Not present		
}			
}			
}			
}			
}			

Table 13.4.2.1.3.3-6: HANDOVER TO UTRAN COMMAND (Table 13.4.2.1.3.3-5)

Derivation Path: 36.508 table 4.7B.1-1, condition UTRA PS RB

Table 13.4.2.1.3.3-7: UECapabilityEnquiry (step 6A, Table 13.4.2.1.3.2-2)

Derivation path: 36.508 clause 4.6.1 table 4.6.1-22			
Information Element	**Value/Remark**	**Comment**	**Condition**
UECapabilityEnquiry ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
ueCapabilityEnquiry-r8 SEQUENCE {			
ue-CapabilityRequest SEQUENCE (SIZE (1..maxRAT-Capabilities)) OF SEQUENCE {	2 entry		
RAT-Type[1]	Eutra		
RAT-Type[2]	Utra		
}			
}			
}			
}			
}			

Table 13.4.2.1.3.3-8: MeasObjectUTRA-GENERIC(f8) (Table 13.4.2.1.3.3-3)

Derivation path: 36.508 table 4.6.6-3 MeasObjectUTRA-GENERIC(f8)			
Information Element	**Value/remark**	**Comment**	**Condition**
cellsToAddModList CHOICE {			
cellsToAddModListUTRA-FDD ::= SEQUENCE (SIZE (1.. maxCellMeas)) OF SEQUENCE {			UTRA-FDD
cellIndex [1]	1		
physCellId [1]	physicalCellIdentity – Cell 5		
}			
cellsToAddModListUTRA-TDD ::= SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {			UTRA-TDD
cellIndex [1]	1		
physCellId [1]	physicalCellIdentity – Cell 5		
}			
}			

Table 13.4.2.1.3.3-9: UTRAN MOBILITY INFORMATION (step 8C, Table 13.4.2.1.3.2-2)

Derivation Path: 34.108 clause 9.1.1 (UTRAN MOBILITY INFORMATION message)	
Information Element	**Value/remark**
CN information info	
- PLMN identity	
- MCC	001
- MNC	01
- CN common GSM-MAP NAS system information	00 01H
- CN domain information list full	
- CN domain identity	PS
- CN domain specific NAS system information	01 00H
- DRX cycle length coefficient	7
- CN domain identity	CS
- CN domain specific NAS system information	1E 01H
- DRX cycle length coefficient	7

13.4.2.2 Inter-system mobility / E-UTRAN to GPRS packet

13.4.2.2.1 Test Purpose(TP)

(1)

```
with { UE has a default EPS bearer context}
ensure that {
 when   { UE receives downlink data on the radio bearer associated with the default EPS bearer
context }
```

```
    then { UE delivers the downlink data to upper layers }
  }
```

(2)

```
with { UE has a default EPS bearer context }
ensure that {
  when { uplink data are submitted for transmission }
        then { UE transmits the uplink data on the radio bearer associated with the default EPS
bearer context }
  }
```

(3)

```
with { UE has a radio access bearer context and successful completion of the inter-system handover }
ensure that {
  when { UE receives downlink data on the radio bearer associated with the radio access bearer
context }
        then { UE delivers the downlink data to upper layers }
  }
```

(4)

```
with { UE has a radio access bearer context and successful completion of the inter-system handover }
ensure that {
  when { uplink data are submitted for transmission }
        then { UE transmits the uplink data on the radio bearer associated with the radio access
bearer context }
}
```

13.4.2.2.2 Conformance requirements

References: The conformance requirements covered in the current TC are those listed in TC 8.4.1.2,plus those specified in TS 23.401, clauses 5.5.2.3.2,5.5.2.3.3.

[TS 23.401, clause 5.5.2.3.2]

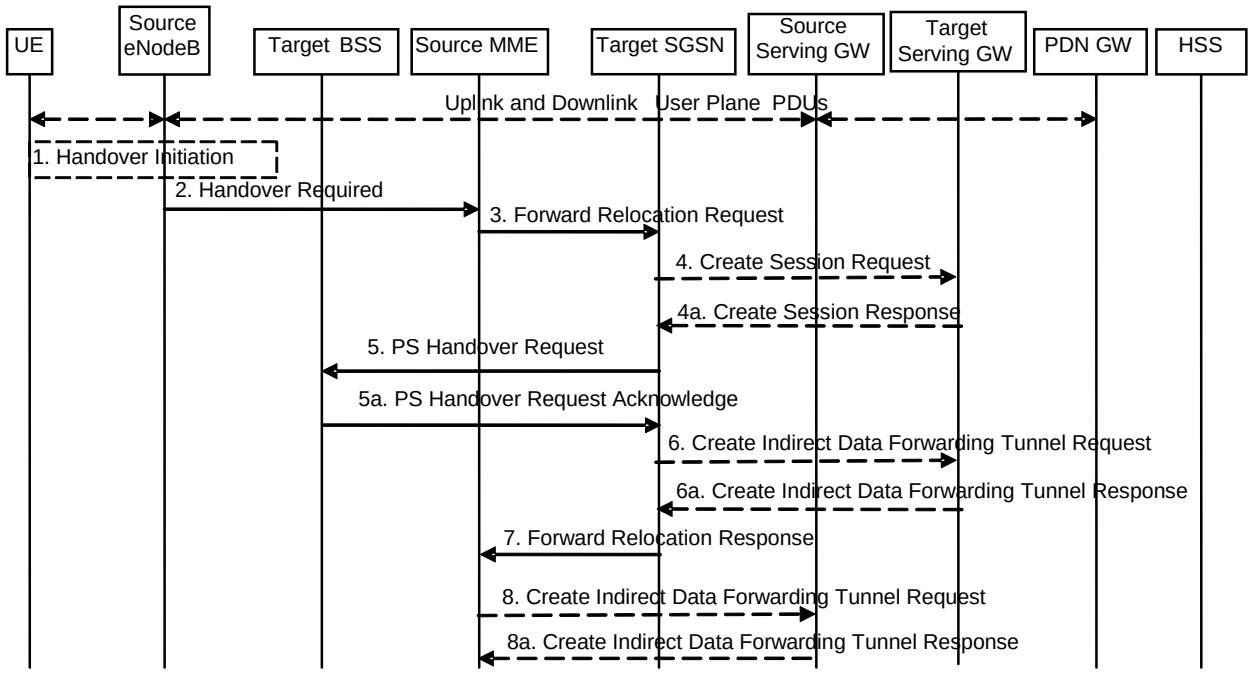

Figure 5.5.2.3.2-1: E-UTRAN to GERAN A/Gb Inter RAT HO, preparation phase

1. The source eNodeB decides to initiate an Inter RAT Handover to the target GERAN A/Gb mode (2G) system. At this point both uplink and downlink user data is transmitted via the following: Bearer(s) between UE and Source eNodeB, GTP tunnel(s) between Source eNodeB, Serving GW and PDN GW.

   If the UE has an ongoing emergency bearer service the source eNodeB shall not initiate PS handover to GERAN.

NOTE 1: The process leading to the handover decision is outside of the scope of this specification

2. The source eNodeB sends a Handover Required (S1AP Cause, Target System Identifier, Source eNodeB Identifier, Source to Target Transparent Container) message to the Source MME to request the CN to establish resources in the Target BSS, Target SGSN and the Serving GW. The bearers that will be subject to data forwarding (if any) are identified by the target SGSN in a later step (see step 7 below).

   The 'Target System Identifier' IE contains the identity of the target global cell Id.

3. The Source MME determines from the 'Target System Identifier' IE that the type of handover is IRAT Handover to GERAN A/Gb mode. The Source MME initiates the Handover resource allocation procedure by sending a Forward Relocation Request (IMSI, Target Identification (shall be set to "empty"), MM Context, PDN Connections, MME Tunnel Endpoint Identifier for Control Plane, MME Address for Control plane, Source to Target Transparent Container, Packet Flow ID, XID parameters (if available), Target Cell Identification, MS Info Change Reporting Action (if available), CSG Information Reporting Action (if available), UE Time Zone, ISR Supported, RAN Cause) message to the target SGSN. If the information ISR Supported is indicated, this indicates that the source MME and associated Serving GW are capable to activate ISR for the UE. When ISR is activated the message should be sent to the SGSN that maintains ISR for the UE when this SGSN is serving the target identified by the Target Identification. This message includes all PDN Connections active in the source system and for each PDN Connection includes the associated APN, the address and the uplink Tunnel endpoint parameters of the Serving GW for control plane, and a list of EPS Bearer Contexts.

   The target SGSN maps the EPS bearers to PDP contexts 1-to-1 and maps the EPS Bearer QoS parameter values of an EPS bearer to the Release 99 QoS parameter values of a bearer context as defined in Annex E.

   Prioritization of PDP Contexts is performed by the target core network node, i.e. target SGSN.

   If the Source MME supports IRAT Handover to GERAN A/Gb procedure it has to allocate a valid PFI during the bearer activation procedure. RAN Cause indicates the S1AP Cause as received from the source eNodeB. The Source to Target Transparent Container includes the value from the Source to Target Transparent Container received from the source eNodeB.

   The MM context contains security related information, e.g. supported ciphering algorithms, as described in TS 29.274 [43]. Handling of security keys is described in TS 33.401 [41].

   The target SGSN selects the ciphering algorithm to use. This algorithm will be sent transparently from the target SGSN to the UE in the NAS container for Handover (part of the Target to Source Transparent Container). The IOV-UI parameter, generated in the target SGSN, is used as input to the ciphering procedure and it will also be transferred transparently from the target SGSN to the UE in the NAS container for Handover. More details are described in TS 33.401 [41].

   When the target SGSN receives the Forward Relocation Request message the required EPS Bearer, MM, SNDCP and LLC contexts are established and a new P-TMSI is allocated for the UE. When this message is received by the target SGSN, it begins the process of establishing PFCs for all EPS Bearer contexts.

   When the target SGSN receives the Forward Relocation Request message it extracts from the EPS Bearer Contexts the NSAPIs and SAPIs and PFIs to be used in the target SGSN. If for a given EPS Bearer Context the target SGSN does not receive a PFI from the source MME, it shall not request the target BSS to allocate TBF resources corresponding to that EPS Bearer Context. If none of the EPS Bearer Contexts forwarded from the source MME has a valid PFI allocated the target SGSN shall consider this as a failure case and the request for Handover shall be rejected.

   If when an SAPI and PFI was available at the source MME but the target SGSN does not support the same SAPI and PFI for a certain NSAPI as the source MME, the target SGSN shall continue the Handover procedure only for those NSAPIs for which it can support the same PFI and SAPI as the source MME. All EPS Bearer contexts for which no resources are allocated by the target SGSN or for which it cannot support the same SAPI and PFI (i.e. the corresponding NSAPIs are not addressed in the response message of the target SGSN), are maintained

and the related SAPIs and PFIs are kept. These EPS Bearer contexts may be modified or deactivated by the target SGSN via explicit SM procedures upon RAU procedure.

The source MME shall indicate the current XID parameter settings if available (i.e. those XID parameters received during a previous IRAT Handover procedure) to the target SGSN. If the target SGSN can accept all XID parameters as indicated by the source MME, the target SGSN shall create a NAS container for Handover indicating 'Reset to the old XID parameters'. Otherwise, if the target SGSN cannot accept all XID parameters indicated by the source MME or if no XID parameters were indicated by the source MME, the target SGSN shall create a NAS container for Handover indicating Reset (i.e. reset to default parameters).

The target SGSN shall determine the Maximum APN restriction based on the APN Restriction of each bearer context received in the Forward Relocation Request, and shall subsequently store the new Maximum APN restriction value.

4. The target SGSN determines if the Serving GW is to be relocated, e.g., due to PLMN change. If the Serving GW is to be relocated, the target SGSN selects the target Serving GW as described under clause 4.3.8.2 on "Serving GW selection function", and sends a Create Session Request message (IMSI, SGSN Tunnel Endpoint Identifier for Control Plane, SGSN Address for Control plane, PDN GW address(es) for user plane, PDN GW UL TEID(s) for user plane, PDN GW address(es) for control plane, and PDN GW TEID(s) for control plane, the Protocol Type over S5/S8, Serving Network) per PDN connection to the target Serving GW. The Protocol Type over S5/S8 is provided to Serving GW which protocol should be used over S5/S8 interface.

4a. The target Serving GW allocates its local resources and returns a Create Session Response (Serving GW address(es) for user plane, Serving GW UL TEID(s) for user plane, Serving GW Address for control plane, Serving GW TEID for control plane) message to the target SGSN.

5. The target SGSN establishes the EPS Bearer context(s) in the indicated order. The SGSN deactivates, as provided in step 9 of the execution phase, the EPS Bearer contexts which cannot be established.

The Target SGSN requests the Target BSS to establish the necessary resources (PFCs) by sending the message PS Handover Request (Local TLLI, IMSI, Cause, Target Cell Identifier, PFCs to be set-up list, Source RNC to Target BSS Transparent Container and NAS container for handover). The target SGSN shall not request resources for which the Activity Status Indicator within a EPS Bearer Context indicates that no active bearer exists on the source side for that PDP context. The Cause indicates the RAN Cause as received from the source MME. The Source RNC to Target BSS Transparent Container contains the value from the Source to Target Transparent Container received from the source MME. All EPS Bearer Contexts indicate active status because E-UTRAN does not support selective RAB handling.

Based upon the ABQP for each PFC the target BSS makes a decision about which PFCs to assign radio resources. The algorithm by which the BSS decides which PFCs that need resources is implementation specific. Due to resource limitations not all downloaded PFCs will necessarily receive resource allocation. The target BSS allocates TBFs for each PFC that it can accommodate.

The target BSS shall prepare the 'Target to Source Transparent Container' which contains a PS Handover Command including the EPC part (NAS container for Handover) and the RN part (Handover Radio Resources).

5a. The Target BSS allocates the requested resources and returns the applicable parameters to the Target SGSN in the message PS Handover Request Acknowledge (Local TLLI, List of set-up PFCs, Target BSS to Source RNC Transparent Container, Cause). Upon sending the PS Handover Request Acknowledge message the target BSS shall be prepared to receive downlink LLC PDUs from the target SGSN for the accepted PFCs.

Any EPS Bearer contexts for which a PFC was not established are maintained in the target SGSN and the related SAPIs and PFIs are kept. These EPS Bearer contexts shall be deactivated by the target SGSN via explicit SM procedures upon the completion of the routing area update (RAU) procedure.

6. If indirect forwarding and relocation of Serving GW applies the target SGSN sends a Create Indirect Data Forwarding Tunnel Request message (Target SGSN Address(es) and TEID(s) for DL data forwarding) to the Serving GW used for indirect packet forwarding.

Indirect forwarding may be performed via a Serving GW which is different from the Serving GW used as the anchor point for the UE.

6a. The Serving GW returns a Create Indirect Data Forwarding Tunnel Response (Cause, Serving GW DL Address(es) and TEID(s) for data forwarding) message to the target SGSN.

7. The Target SGSN sends the message Forward Relocation Response (Cause, SGSN Tunnel Endpoint Identifier for Control Plane, SGSN Address for Control Plane, Target to Source Transparent Container, RAN Cause, List of set-up PFIs, Address(es) and TEID(s) for User Traffic Data Forwarding, Serving GW change indication) to the Source MME. Serving GW change indication indicates a new Serving GW has been selected. RAN Cause indicates the Cause as received from the target BSS. The Target to Source Transparent Container includes the value from the Target BSS to Source RNC Transparent Container received from the target BSS.

   If 'Indirect Forwarding' and relocation of Serving GW applies, then the IEs 'Address(es) and TEID(s) for User Traffic Data Forwarding' contain the DL GTP-U tunnel endpoint parameters received in step 6a. Otherwise the IEs 'Address(es) and TEID(s) for User Traffic Data Forwarding' contains the DL GTP-U tunnel endpoint parameters to the Target SGSN.

   The target SGSN activates the allocated LLC/SNDCP engines as specified in TS 44.064 [23] for an SGSN originated Reset or 'Reset to the old XID parameters'.

8. If "Indirect Forwarding" applies, the Source MME sends the message Create Indirect Data Forwarding Tunnel Request (Address(es) and TEID(s) for Data Forwarding (received in step 7)) to the Serving GW used for indirect packet forwarding.

   Indirect forwarding may be performed via a Serving GW which is different from the Serving GW used as the anchor point for the UE.

8a. The Serving GW returns the forwarding user plane parameters by sending the message Create Indirect Data Forwarding Tunnel Response (Cause, Serving GW Address(es) and TEID(s) for Data Forwarding). If the Serving GW doesn't support data forwarding, an appropriate cause value shall be returned and the Serving GW Address(es) and TEID(s) will not be included in the message.

[TS 23.401, clause 5.5.2.3.3]

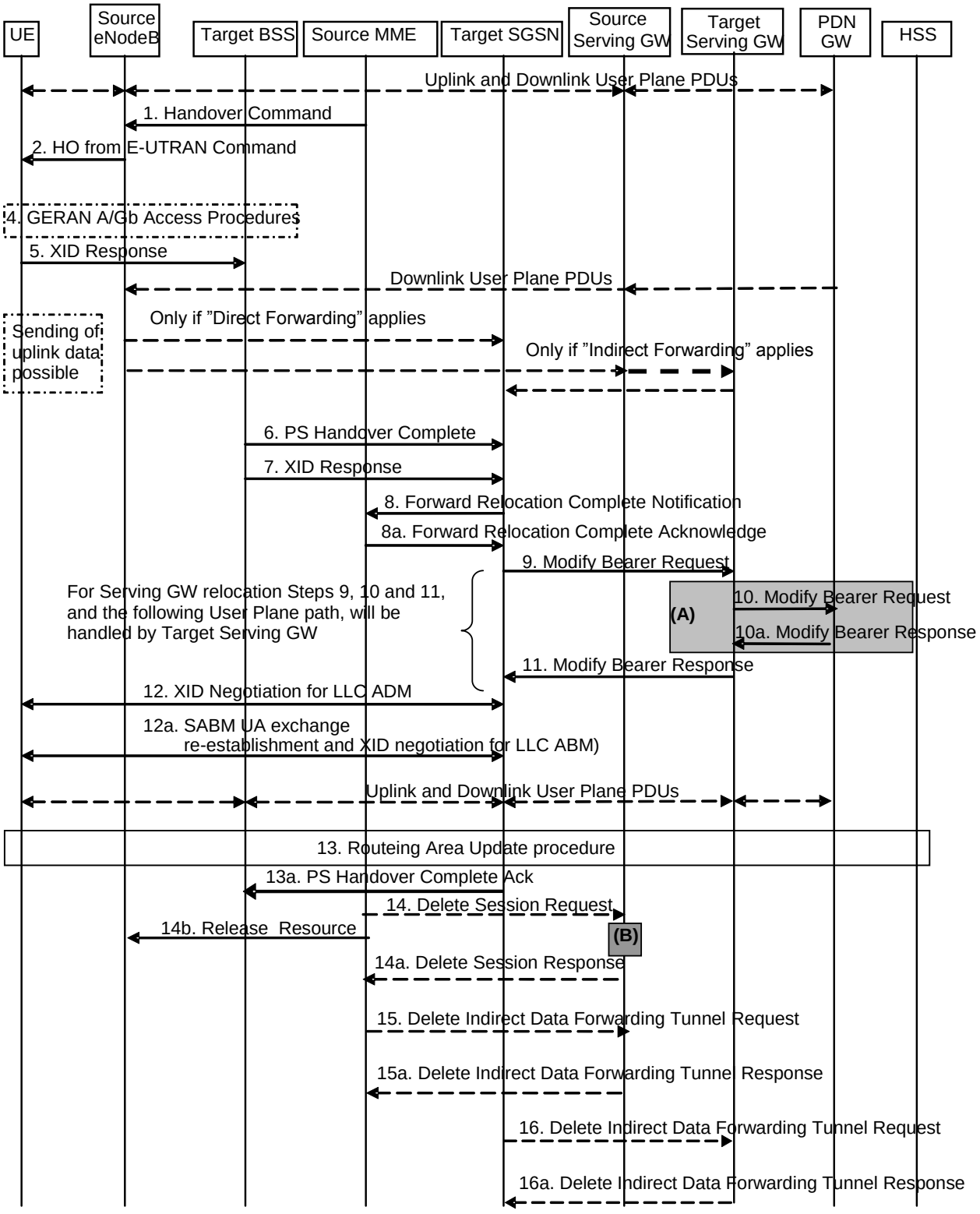

Figure 5.5.2.3.3-1: E-UTRAN to GERAN A/Gb mode Inter RAT HO, execution phase

NOTE 1: For a PMIP-based S5/S8, procedure steps (A) and (B) are defined in TS 23.402 [2]. Step (B) shows PCRF interaction in the case of PMIP-based S5/S8. Steps 10 and 10a concern GTP based S5/S8

The source eNodeB continues to receive downlink and uplink user plane PDUs.

1. The Source MME completes the preparation phase towards Source eNodeB by sending the message Handover Command (Target to Source Transparent Container (PS Handover Command with RN part and EPC part),

E-RABs to Release List, Bearers Subject to Data Forwarding List), S1AP Cause. The "Bearers Subject to Data forwarding list" may be included in the message and it shall be a list of 'Address(es) and TEID(s) for user traffic data forwarding' received from target side in the preparation phase (Step 7 of the preparation phase for Direct Forwarding, else parameters received in Step 8a of the preparation phase). S1AP Cause indicates the RAN Cause as received from the target SGSN.

Source eNodeB initiate data forwarding for the bearers specified in the "Bearers Subject to Data Forwarding List". The data forwarding may go directly i.e. to target SGSN or alternatively go via the Serving GW if so decided by source MME and/or target SGSN in the preparation phase.

2. The Source eNodeB will give a command to the UE to handover to the Target Access System via the message HO from E-UTRAN Command. This message includes a transparent container including radio aspect parameters that the Target BSS has set-up in the preparation phase (RN part). This message also includes the XID and IOV-UI parameters received from the Target SGSN (EPC part).

   Upon the reception of the HO from E-UTRAN Command message containing the Handover Command message, the UE shall associate its bearer IDs to the respective PFIs based on the relation with the NSAPI and shall suspend the uplink transmission of the user plane data.

3. Void.

4. The UE moves to the Target GERAN A/Gb (2G) system and performs executes the handover according to the parameters provided in the message delivered in step 2. The procedure is the same as in step 6 in clause 5.3.2.2 in TS 43.129 [8] with the additional function of association of the received PFI and existing Bearer Id related to the particular NSAPI.

   The UE locally deactivates ISR by setting its TIN from "RAT-related TMSI" to "GUTI", if any EPS bearer context activated after the ISR was activated in the UE exists.

5. After accessing the cell using access bursts and receiving timing advance information from the BSS in step 4, the UE processes the NAS container and then sends one XID response message to the target SGSN via target BSS. The UE sends this message immediately after receiving the Packet Physical Information message containing the timing advance or, in the synchronised network case, immediately if the PS Handover Access message is not required to be sent.

   Upon sending the XID Response message, the UE shall resume the user data transfer only for those NSAPIs for which there are radio resources allocated in the target cell. For NSAPIs using LLC ADM, for which radio resources were not allocated in the target cell, the MS may request for radio resources using the legacy procedures.

   If the Target SGSN indicated XID Reset (i.e. reset to default XID parameters) in the NAS container included in the HO from E-UTRAN Command message, and to avoid collision cases the mobile station may avoid triggering XID negotiation for any LLC SAPI used in LLC ADM, but wait for the SGSN to do so (see step 12). In any case the mobile station may avoid triggering XID negotiation for any LLC SAPI used in LLC ABM, but wait for the SGSN to do so (see step 12a).

   This step is the same as specified in clause 5.3.2.2 in TS 43.129 [8].

6. Upon reception of the first correct RLC/MAC block (sent in normal burst format) from the UE to the Target BSS, the Target BSS informs the Target SGSN by sending the message PS Handover Complete (IMSI, and Local TLLI, Request for Inter RAT Handover Info). The target BSS that supports inter-RAT PS handover to UTRAN shall, when the INTER RAT HANDOVER INFO was not included in the Source BSS to Target BSS transparent container received in the PS HANDOVER REQUEST message as specified in TS 48.018 [42], request the INTER RAT HANDOVER INFO from the target SGSN by setting the 'Request for Inter RAT Handover Info' to '1'.

7. The Target BSS also relays the message XID Response to the Target SGSN. Note, the message in step 6 and 7 may arrive in any order in the Target SGSN.

8. Then the Target SGSN knows that the UE has arrived to the target side and Target SGSN informs the Source MME by sending the Forward Relocation Complete Notification (ISR Activated, Serving GW change) message. If ISR Activated is indicated, the source MME shall maintain the UE's contexts and activate ISR, which is only possible when the S-GW is not changed. The Source MME will also acknowledge that information. A timer in

source MME is started to supervise when resources in Source eNodeB and Source Serving GW (for Serving GW relocation) shall be released.

Upon receipt of the Forward Relocation Complete Acknowledge message the target SGSN starts a timer if the target SGSN allocated S-GW resources for indirect forwarding.

9. The Target SGSN will now complete the Handover procedure by informing the Serving GW (for Serving GW relocation this will be the Target Serving GW) that the Target SGSN is now responsible for all the EPS Bearer Context(s) the UE has established. This is performed in the message Modify Bearer Request (SGSN Tunnel Endpoint Identifier for Control Plane, NSAPI(s), SGSN Address for Control Plane, SGSN Address(es) and TEID(s) for User Traffic for the accepted EPS bearers and RAT type, ISR Activated) per PDN connection. If the PDN GW requested UE's location and/or User CSG information (determined from the UE context), the SGSN also includes the User Location Information IE and/or User CSG Information IE in this message. If the UE Time Zone has changed, the SGSN includes the UE Time Zone IE in this message. If indicated, ISR Activated indicates that ISR is activated, which is only possible when the S-GW was not changed. When the Modify Bearer Request does not indicate ISR Activated and S-GW is not changed, the S-GW deletes any ISR resources by sending a Delete Bearer Request to the other CN node that has bearer resources on the S-GW reserved.

   The SGSN releases the non-accepted EPS Bearer contexts by triggering the EPS Bearer context deactivation procedure. If the Serving GW receives a DL packet for a non-accepted bearer, the Serving GW drops the DL packet and does not send a Downlink Data Notification to the SGSN.

10. The Serving GW (for Serving GW relocation this will be the Target Serving GW) may inform the PDN GW the change of, for example, for Serving GW relocation or the RAT type, that e.g. can be used for charging, by sending the message Modify Bearer Request per PDN connection. The S-GW also includes User Location Information IE and/or UE Time Zone IE and/or User CSG Information IE if they are present in step 9. Serving Network should be included if it is received in step 4. For Serving GW relocation, the Serving GW allocates DL TEIDs on S5/S8 even for non-accepted bearers. The PDN GW must acknowledge the request with the message Modify Bearer Response. In the case of Serving GW relocation, the PDN GW updates its context field and returns a Modify Bearer Response (Charging Id, MSISDN, etc.) message to the Serving GW. The MSISDN is included if the PDN GW has it stored in its UE context.

    If PCC infrastructure is used, the PDN GW informs the PCRF about the change of, for example, the RAT type.

11. The Serving GW (for Serving GW relocation this will be the Target Serving GW) acknowledges the user plane switch to the Target SGSN via the message Modify Bearer Response (Cause, Serving GW Tunnel Endpoint Identifier for Control Plane, Serving GW Address for Control Plane, Protocol Configuration Options). At this stage the user plane path is established for all EPS Bearer contexts between the UE, Target BSS, Target SGSN, Serving GW (for Serving GW relocation this will be the Target Serving GW) and PDN GW.

    If the Serving GW does not change, the Serving GW shall send one or more "end marker" packets on the old path immediately after switching the path.

12. If the Target SGSN indicated XID Reset (i.e. reset to default XID parameters) in the NAS container included in the HO from E-UTRAN Command message, then on receipt of the PS Handover Complete the Target SGSN initiates an LLC/SNDCP XID negotiation for each LLC SAPI used in LLC ADM. In this case if the Target SGSN wants to use the default XID parameters, it shall send an empty XID Command. If the Target SGSN indicated 'Reset to the old XID parameters' in the NAS container, no further XID negotiation is required for LLC SAPIs used in LLC ADM only.

12a. The Target SGSN (re-)establishes LLC ABM for the EPS Bearer contexts which use acknowledged information transfer. During the exchange of SABM and UA the SGSN shall perform LLC/SNDCP XID negotiation.

    These steps (12 and 12a) are the same as specified in clause 5.3.2.2 in TS 43.129 [8].

13. After the UE has finished the reconfiguration procedure the UE shall initiate the Routing Area Update procedure.

NOTE 1: The RAU procedure is performed regardless if the UE has this routing area registered or not, as specified by TS 43.129 [8]. This is needed e.g. to update the START-PS value stored in the 2G-SGSN. The START_PS is delivered to SGSN in INTER RAT HANDOVER INFO parameter of RAU Complete message when requested by SGSN in RAU Accepted.

The target SGSN knows that an IRAT Handover has been performed for this UE as it received the bearer context(s) by handover messages and therefore the target SGSN performs only a subset of the RAU procedure, specifically it excludes the context transfer procedures between source MME and target SGSN.

13a. Upon reception of the PS Handover Complete message with the 'Request for Inter RAT Handover Info' set to '1', the SGSN should send then PS Handover Complete Acknowledge (TLLI, INTER RAT HANDOVER INFO) to the target BSS.

NOTE 2: An SGSN that does not recognize the "Request for Inter RAT Handover Info" in the PS Handover Complete message will not send the PS Handover Complete Acknowledge message back to the BSS.

The target BSS receiving the PS Handover Complete Acknowledge message shall set the 'Reliable INTER RAT HANDOVER' to '1' in the PS Handover Required message in any subsequent PS handover to GERAN A/Gb mode. The target BSS failing to receive the PS Handover Complete Acknowledge message shall set the 'Reliable INTER RAT HANDOVER' to '0' in the PS Handover Required message in any subsequent PS handover to GERAN A/Gb mode. The Target BSS shall, upon receipt of the INTER RAT HANDOVER INFO in the PS Handover Complete Acknowledge message, overwrite its current INTER RAT HANDOVER INFO with this new one.

14. When the timer started at step 8 expires, the source MME sends a Release Resources message to the source eNodeB. The Source eNodeB releases its resources related to the UE.

When the timer started in step 8 expires and if the source MME received the Serving GW change indication in the Forward Relocation Response message, it deletes the EPS bearer resources by sending Delete Session Request (Cause) messages to the Source Serving GW. Cause indicates to the Source Serving GW that the Serving GW changes and the Source Serving GW shall not initiate a delete procedure towards the PDN GW. The Source Serving GW acknowledges with Delete Session Response (Cause) messages. If ISR has been activated before this procedure, the cause also indicates to the Source S-GW that the Source S-GW shall delete the bearer resources on the other old CN node by sending Delete Bearer Request message(s) to that CN node.

15. If indirect forwarding was used then the expiry of the timer at source MME started at step 8 triggers the source MME to send a Delete Indirect Data Forwarding Tunnel Request message to the S-GW to release the temporary resources used for indirect forwarding.

16. If indirect forwarding was used and the Serving GW is relocated, then the expiry of the timer at target SGSN started at step 8 triggers the target SGSN to send a Delete Indirect Data Forwarding Tunnel Request message to the target S-GW to release temporary resources used for indirect forwarding.

13.4.2.2.3.1 Pre-test conditions

System Simulator:

- Cell 1 and Cell 24
- System information combination 5 as defined in TS 36.508[18] clause 4.4.3.1 is used in E-UTRA cell;

UE:

None.

Preamble:

- The UE is in state Loopback Activated (state 4) on Cell 1 according to [18] using the UE TEST LOOP MODE B.

13.4.2.2.3.2 Test procedure sequence

Table 13.4.2.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked “T0” DENOTES THE INITIAL CONDITIONS AFTER PREAMBLE WHILE COLUMNS MARKED “T1” is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 13.4.2.2.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 24	Remark
T0	Cell-specific RS EPRE	dBm/15kHz	-60	-	The power level values are such that entering conditions for event B2 are not satisfied.
	RSSI	dBm	-	-85	
T1	Cell-specific RS EPRE	dBm/15kHz	-80	-	The power level values are such that entering conditions for event B2 are satisfied.
	RSSI	dBm	-	-65	

Table 13.4.2.2.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message	-	-
1	The SS transmits one IP packet to the UE on the DRB associated with the default EPS bearer context on Cell 1.	<--	IP packet	-	-
2	Check: Does the UE loop back the IP packet on the DRB associated with the default EPS bearer context on Cell 1?	-->	IP packet	1,2	P
3	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1 to setup inter RAT measurement and reporting for event B2.	<--	*RRCConnectionReconfiguration*	-	-
4	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1.	-->	*RRCConnectionReconfigurationComplete*	-	-
5	The SS changes the power level for Cell 1 and Cell 24 according to the row "T1" in table 13.4.2.2.3.2-1	-	-	-	-
6	The UE transmits a *MeasurementReport* message on Cell 1 to report event B2 for Cell 24.	-->	*MeasurementReport*	-	-
7	The SS transmits a *MobilityFromEUTRACommand* message on Cell 1 to order the UE to perform inter system handover to Cell 24.	<--	*MobilityFromEUTRACommand*	-	-
8	The UE transmits a HANDOVER ACCESS message on Cell 24 to switch to GSM cell.	-->	HANDOVER ACCESS	-	-
9	The SS transmits a PHYSICAL INFORMATION message on Cell 24 to indicate parameters	<--	PHYSICAL INFORMATION	-	-
10-18	Steps 3 to 11 of the Routing Area Update procedure described in TS 36.508 subclause 6.4.2.9 are performed on Cell 24. NOTE: The UE performs RAU procedure.	-	-	-	-
19	The SS transmits one IP packet to the UE on the DRB associated with the RAB context on Cell 24.	<--	IP packet	-	-
20	Check: Does the UE loop back the IP packet on the DRB associated with the RAB context on Cell 24?	-->	IP packet	3,4	P

13.4.2.2.3.3 Specific message contents

Table 13.4.2.2.3.3-1: ACTIVATE TEST MODE (preamble)

Derivation Path: 36.508, Table 4.7A-1, condition UE TEST LOOP MODE B

Table 13.4.2.2.3.3-2: *RRCConnectionReconfiguration* (step 3, Table 13.4.2.2.3.2-2)

Derivation Path: 36.508 clause 4.6.1 table 4.6.1-8 with condition MEAS

Table 13.4.2.2.3.3-3: *MeasConfig* (step 3, Table 13.4.2.2.3.2-2)

Derivation Path: 36.508, Table 4.6.6-1, condition GERAN			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig ::= SEQUENCE {			
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2entry		
measObjectId[1]	IdMeasObject-EUTRA		
measObject[1]	MeasObjectEUTRA-GENERIC(f1)		
measObjectId[2]	IdMeasObject-f11		
measObject[2]	MeasObjectGERAN-GENERIC(f11)		
}			
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	2entry		
reportConfigId[1]	IdReportConfig-A2		
reportConfig[1]	ReportConfigEUTRA-A2(-95)		
reportConfigId[2]	IdReportConfig-B2-GERAN		
reportConfig[2]	ReportConfigInterRAT-B2-GERAN(-69, -79)		
}			
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	2 entry		
measId[1]	1		
measObjectId[1]	IdMeasObject-EUTRA		
reportConfigId[1]	IdReportConfig-A2		
measId[2]	2		
measObjectId[2]	IdMeasObject-f11		
reportConfigId[2]	IdReportConfig-B2-GERAN		
}			
quantityConfig SEQUENCE {			
quantityConfigGERAN SEQUENCE {			
measQuantityGERAN	rssi		
filterCoefficient	fc0		
}			
}			
}			

Table 13.4.2.2.3.3-4: *MeasurementReport* (step 6, Table 13.4.2.2.3.2-2)

Derivation Path: 36.508, table 4.6.1-5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
measurementReport-r8 SEQUENCE {			
measResults SEQUENCE {			
measId	1		
measResultServCell SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListGERAN SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {	1 entry		
physCellId[1]	PhysicalCellIdentity of Cell 24		
cgi-Info[1]	Not present		
measResult[1] SEQUENCE {			
rssi	(0..63)		
}			
}			
}			
}			
}			
}			
}			

Table 13.4.2.2.3.3-5: *MobilityFromEUTRACommand* (step 7, Table 13.4.2.2.3.2-2)

Derivation Path: 36.508 table 4.6.1-6			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityFromEUTRACommand ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
mobilityFromEUTRACommand-r8 SEQUENCE {			
csFallbackIndicator	false		
purpose CHOICE {			
handover SEQUENCE {			
targetRAT-Type	geran		
targetRAT-MessageContainer	PS HANDOVER COMMAND		
nas-SecurityParamFromEUTRA	Not present		
systemInformation	Not present		
}			
}			
}			
}			
}			
}			

Table 13.4.2.2.3.3-6: PS HANDOVER COMMAND (step 7, Table 13.4.2.2.3.2-2)

Derivation Path from TS 36.508, Table 4.7D.1-1.

13.4.2.3

13.4.2.4 Inter-system mobility / Service based redirection from UTRA to E-UTRA

13.4.2.4.1 Test Purpose (TP)

(1)

```
with { UE in UTRA RRC idle state and pdp-active state }
ensure that {
  when { UE is requested to initiate uplink data traffic. }
   then { UE includes in the RRC CONNECTION REQUEST the IE Pre-Redirection info and the IE Domain
indicator is set to PS Domain }
            }
```

(2)

```
with { UE has a default EPS bearer context upon redirection }
ensure that {
  when { UE receives downlink data on the radio bearer associated with the default EPS bearer
context }
    then { UE delivers the downlink data to upper layers }
             }
```

(3)

```
with { UE has a default EPS bearer context upon redirection }
ensure that {
  when { uplink data are submitted for transmission }
    then { UE transmits the uplink data on the radio bearer associated with the default EPS bearer
context }
             }
```

13.4.2.4.2 Conformance requirements

References: The conformance requirements covered in the current TC are those listed in TC 8.1.3.7, plus those specified in: TS 24.008, clause 4.7.13.5.

[TS 24.008, clause 4.7.13.5]

The following abnormal cases can be identified:

a) Access barred because of access class control

The Service request procedure shall not be started. The MS stays in the current serving cell and applies normal cell reselection process. The Service request procedure may be started by CM layer if it is still necessary, i.e. when access is granted or because of a cell change.

b) Lower layer failure before the security mode control procedure is completed, SERVICE ACCEPT or SERVICE REJECT message is received

The procedure shall be aborted except in the following implementation option cases b.1, b.2 and b.3.

b.1) Release of PS signalling connection in Iu mode (i.e. RRC connection release) before the completion of the service request procedure

The service request procedure shall be initiated again, if the following conditions apply:

i) The original service request procedure was initiated over an existing PS signalling connection; and

ii) No SECURITY MODE COMMAND message and no Non-Access Stratum (NAS) messages relating to the PS signalling connection were received after the SERVICE REQUEST message was transmitted.

b.2) RR release in Iu mode (i.e. RRC connection release) with cause different than "Directed signalling connection re-establishment", for example, "Normal", or "User inactivity" (see 3GPP TS 25.331 [32c] and 3GPP TS 44.118 [111])

The service request procedure shall be initiated again, if the following conditions apply:

i) The original service request procedure was initiated over an existing RRC connection and,

ii) No SECURITY MODE COMMAND message and no Non-Access Stratum (NAS) messages relating to the PS signalling connection were received after the SERVICE REQUEST message was transmitted.

NOTE: The RRC connection release cause different than "Directed signalling connection re-establishment" that triggers the re-initiation of the service request procedure is implementation specific.

b.3) RR release in Iu mode (i.e. RRC connection release) with cause "Directed signalling connection re-establishment" (see 3GPP TS 25.331 [32c] and 3GPP TS 44.118 [111])

The routing area updating procedure shall be initiated followed by a rerun of the service request procedure if the following condition applies:

i) The service request procedure was not due to a rerun of the procedure due to "Directed signalling connection re-establishment".

13.4.2.4.3 Test description

13.4.2.4.3.1 Pre-test conditions

System Simulator:

- Cell 1 and Cell 5
- System information combination 4 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cells.

UE:

None.

Preamble:

- The UE is in state Generic RB Established, UE test mode activated (state 3A) according to [18] using the UE TEST LOOP MODE B and then moved to RRC idle state, GMM-Registered and pdp-active State on Cell 5

13.4.2.4.3.2 Test procedure sequence

Table 13.4.2.4.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while columns marked "T1" is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 13.4.2.4.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 5	Remark
T1	Cell-specific RS EPRE	dBm/15kHz	-75	-	
	CPICH Ec (UTRA FDD)	dBm/3.84 MHz	-	-70	
	PCCPCH Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-72	

Table 13.4.2.4.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message	-	-
1	The SS sends a PAGING TYPE 1 message.	<--	PAGING TYPE 1	-	-
2	Check: does the UE include the IE include the IE Pre-redirection info with Support of E-UTRA set to TRUE and the Domain indicator is set to PS domain?	-->	RRC CONNECTION REQUEST	1	P
3	The SS transmit a RRC CONNECTION SETUP on SRB1 on Cell 5.	<--	RRC CONNECTION SETUP	-	-
4	The UE transmits an RRC CONNECTION SETUP COMPLETE message	-->	RRC CONNECTION SETUP COMPLETE	-	-
5	The UE transmits the SERVICE REQUEST message for Paging Response	-->	RRC: INITIAL DIRECT TRANSFER NAS: SERVICE REQUEST	-	-
6	The SS transmits an RRC CONNECTION RELEASE message (IE E-UTRA target info including DL Carrier frequency of Cell 1).	<--	RRC CONNECTION RELEASE	-	-
7	The UE transmits a RRC CONNECTION RELEASE COMPLETE message	-->	RRC CONNECTION RELEASE COMPLETE	-	-
8	The UE transmits a RRC CONNECTION RELEASE COMPLETE message	-->	RRC CONNECTION RELEASE COMPLETE	-	-
9-15	Steps 1 to 7 of the generic test procedure in TS 36.508 [18] subclause 6.4.2.7A-1 are performed on Cell 1. Note: The UE performs a TAU procedure.	-	-	.	-
15 A1	The SS starts timer Timer_1 = 1 s	-	-	-	-
-	EXCEPTION: Steps 15Ba1 to 15Bb1 describe a transaction that depends on the UE behaviour; the "lower case letter" identifies a step sequence that takes place if a specific behaviour happens.	-	-	-	-
15 Ba 1	The UE transmits a SERVICE REQUEST message.	-->	RRC: *ULInformationTransfer* NAS: SERVICE REQUEST	-	-
15 Bb 1	The SS waits for Timer_1 expiry	-	-	-	-
15 C	The SS transmits a *SecurityModeCommand* message to activate AS security.	<--	*SecurityModeCommand*	-	-
15 D	The UE transmits a *SecurityModeComplete* message and establishes the initial security configuration.	-->	*SecurityModeComplete*	-	-
15 E	The SS transmits an *RRCConnectionReconfiguration* message to establish the default bearer with condition SRB2-DRB(1, 0) according to 4.8.2.2.1.1.	<--	*RRCConnectionReconfiguration*	-	-
15F	The UE transmits an *RRCConnectionReconfigurationComplete* message to confirm the establishment of default bearer.	-->	*RRCConnectionReconfigurationComplete*	-	-
16	The SS closes the UE test loop mode.	-	-	-	-
17	The SS transmits one IP packet to the UE on the DRB associated with the default EPS bearer context.	<--	IP packet	-	-
18	Check: Does the UE loop back the IP packet on the DRB associated with the default EPS bearer context?	-->	IP packet	2, 3	P

13.4.2.4.3.3 Specific message contents

Table 13.4.2.4.3.3-1: System Information Block type 19 for Cell 5 (preamble and all steps, Table 13.4.2.4.3.2-2)

Derivation Path: 36.508 table Table 4.4.4.1-1			
Information Element	**Value/remark**	**Comment**	**Condition**
SysInfoType19 ::= SEQUENCE {			
utra-PriorityInfoList SEQUENCE {			
utra-ServingCell SEQUENCE {			
Priority	4		
}			
eutra-FrequencyAndPriorityInfoList SEQUENCE (SIZE (1..maxNumEUTRAFreqs)) OF SEQUENCE	1 entry		
earfcn[*1*]	Downlink EARFCN of Cell 1		
priority[*1*]	3		
}			
}			

Table 13.4.2.4.3.3-2: PAGING TYPE 1 (step 1, Table 13.4.2.4.3.2-2)

Derivation path: 34.108 default PAGING TYPE 1 in section 9.1.1 for UTRA FDD or 9.1.2 for UTRA TDD			
Information Element	**Value/Remark**	**Comment**	**Condition**
Paging record list	1 Entry		
Paging record	Present		
Paging cause	Terminating High Priority Signalling,		
CN domain identity	PS domain		

Table 13.4.2.4.3.3-3: RRC CONNECTION REQUEST (step 2, Table 13.4.2.4.3.2-2)

Derivation path: 34.108 default RRC CONNECTION REQUEST in section 9.1.1 for UTRA FDD or 9.1.2 for UTRA TDD			
Information Element	**Value/Remark**	**Comment**	**Condition**
Establishment cause	Terminating High Priority Signalling		
Domain indicator	PS domain		
Pre-redirection info	Present	The presence of this IE indicates the UE support of radio access technologies that the UE could be directed to	
Support of E-UTRA FDD	TRUE		E-UTRA-FDD
Support of E-UTRA TDD	TRUE		E-UTRA-TDD

Table 13.4.2.4.3.3-4: SERVICE REQUEST (step 5, Table 13.4.2.4.3.2-2)

Derivation path: 24.008 table 9.4.20			
Information Element	**Value/Remark**	**Comment**	**Condition**
Service Type	010 (Paging Response)		

Table 13.4.2.4.3.3-5: RRC CONNECTION RELEASE (step 6, Table 13.4.2.4.3.2-2)

Derivation path: 34.108 default RRC CONNECTION RELEASE in section 9.1.1 for UTRA FDD or 9.1.2 for UTRA TDD			
Information Element	**Value/Remark**	**Comment**	**Condition**
N308	1		
Release cause	Directed signalling connection reestablishment		
Redirection info			
Frequency info	Omitted		
Inter-RAT info	E-UTRA		
E-UTRA target info			
E-UTRA Target Frequency Info List	1 Entry		
FDD			E-UTRA-FDD
DL Carrier frequency	The DL Carrier frequency of Cell 1		
Blacklisted cells per freq list	Omitted		
TDD			E-UTRA-TDD
DL Carrier frequency	The DL Carrier frequency of Cell 1		
Blacklisted cells per freq list	Omitted		

13.4.2.5 Inter-system mobility/Service based redirection from GSM/GPRS to E-UTRA

13.4.2.5.1 Test Purpose (TP)

(1)

```
with { UE in GPRS Registered state }
ensure that {
  when { UE is requested to initiate a service based redirection to E-UTRA }
    then { UE performs service based redirection to E-UTRA cell }
}
```

13.4.2.5.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 44.060 section 7.4.2

[TS 44.060, section 7.4.2]

The network may initiate the cell change order procedure by sending an IMMEDIATE ASSIGNMENT message for single block assignment in a CCCH block monitored by the mobile station. No TBF shall be established. The single block assignment procedure is specified in 3GPP TS 44.018.

The network shall then send the PACKET CELL CHANGE ORDER message in the assigned downlink block to the mobile station. The PACKET CELL CHANGE ORDER message contains:

- the characteristics of the new cell that are necessary to identify it (i.e. BSIC + BCCH frequency);
- the NC measurement parameters valid for the mobile station in the new cell (NETWORK_CONTROL_ORDER and optionally: NC_NON_DRX_PERIOD, NC_REPORTING_PERIOD_I and NC_REPORTING_PERIOD_T).

For a multi-RAT mobile station supporting UTRAN, the PACKET CELL CHANGE ORDER message may contain information on a UTRAN target cell; in this case, the establishment of channel(s) and subsequent measurement reporting are defined in 3GPP TS 25.331.

For a multi-RAT mobile station supporting "CCN towards E-UTRAN, E-UTRAN Neighbour Cell measurement reporting and Network controlled cell reselection to E-UTRAN", the PACKET CELL CHANGE ORDER message may contain information on an E-UTRAN target cell; in this case, the establishment of channel(s) and subsequent measurement reporting are defined in 3GPP TS 36.331.

Upon receipt of the PACKET CELL CHANGE ORDER message, the mobile station shall stop all relevant RLC/MAC timers except for timers related to measurement reporting and start timer T3174. The mobile station shall then switch to

the specified new cell and obey the relevant RLC/MAC procedures on this new cell. If a valid RRBP field was received in the PACKET CELL CHANGE ORDER message then the MS shall send a PACKET CONTROL ACKNOWLEDMENT message in the reserved uplink radio block specified by the RRBP field before switching to the new cell. If the timers related to measurement reporting expire while the reselection procedure has not yet been completed, these timers shall be restarted so that the mobile station resumes the measurement reporting procedures once camped on the new cell. A UTRAN capable mobile station ordered to a UTRAN cell shall obey the PACKET CELL CHANGE ORDER message irrespective of whether or not the target cell is known (see 3GPP TS 25.133 and 3GPP TS 25.123); an E-UTRAN capable mobile station ordered to an E-UTRAN cell shall obey the PACKET CELL CHANGE ORDER message irrespective of whether the target cell is known or not known (see 3GPP TS 36.133).

13.4.2.5.3 Test description

13.4.2.5.3.1 Pre-test conditions

System Simulator:

- Cell 24 is serving GERAN Cell
- Cell 1 is suitable E-UTRAN Cell

UE:

None.

Preamble:

- The UE is in state Generic RB Established, UE test mode activated (state 4) according to [18] using the UE TEST LOOP MODE B and then moved to GPRS packet idle state, with power levels as in Table 13.4.2.5.3.2-1 T0, on Cell 24.

13.4.2.5.3.2 Test procedure sequence

Table 13.4.2.5.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 13.4.2.5.3.2-1: Time instances of cell power level and parameter changes for E-UTRA cell

	Parameter	Unit	Cell 1	Cell24	Remark
T0	Cell-specific RS EPRE	dBm/15kHz	off	-60	Camping on Cell 24 is guaranteed
T1	Cell-specific RS EPRE	dBm/15kHz	-60	Same as before	The power level is such that SrxlevCell 1 > 0
Note: Srxlev is calculated in the UE					

Table 13.4.2.5.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS changes Cell 1 levels according to the row "T1" in table 13.4.2.5.3.2-1.				
2	SS sends IMMEDIATE ASSIGNMENT	<--	IMMEDIATE ASSIGNMENT	-	-
3	The SS sends PACKET CELL CHANGE ORDER for cell 1 as the target cell on cell 24	<--	PACKET CELL CHANGE ORDER	-	-
4	Steps 1 to 7 of the generic test procedure in TS 36.508 [18] subclause 6.4.2.7A-1 are performed on Cell 1. Note: The UE performs a TAU procedure and a default EPS Bearer is setup.	-	-	.	-
5	The SS transmits one IP packet to the UE on the DRB associated with the default EPS bearer context.	<--	IP packet	-	-
6	Check: Does the UE loop back the IP packet on the DRB associated with the default EPS bearer context?	-->	IP packet	1	P

13.4.2.5.3.3 Specific message contents

Table 13.4.2.5.3.3-2: PACKET CELL CHANGE ORDER (step 5, Table 13.4.2.5.3.2-2)

Information element	Value/remark
< **PAGE_MODE** : bit (2) >	00 (Normal Paging)
0 | 10	0
< **GLOBAL_TFI** : Global TFI IE >	<5 bit Uplink TFI>
0 | 1	1
Message Escape < **IMMEDIATE_REL** > 0|1<UTRAN FDD Target cell IE> 0|1<UTRAN TDD Target cell IE> *Additions in Rel-5* 0 | 1 < **G-RNTI extension** *Additions in Rel-8* 0|1<E-UTRAN Target cell IE> EARFCN 0 | 1 < **Measurement Bandwidth** Physical Layer Cell identity 0 | 1 < **Individual Priorities**	00 1 (Immediate abort of operation in the old cell is required) 0 (not present) 0 (not present) 1 0 (not present) 1 1 EARFCN of the cell 1 0 (not present) PCID of the cell 1 0 (not present)

Table 13.4.2.5.3.3-3: Message ROUTING AREA UPDATE REQUEST (Preamble)

Derivation Path: Table 9.4.1/3GPP TS 24.008			
Information Element	**Value/remark**	**Comment**	**Condition**
MS Radio Access capability			
GERAN to E-UTRA support in GERAN packet transfer mode	'10'B or '11'B	CCN towards E-UTRAN, E-UTRAN Neighbour Cell measurement reporting and Network controlled cell reselection to E-UTRAN supported	
E-UTRA FDD support	'0'B or '1'B		C1
E-UTRA TDD support	'0'B or '1'B		C1
Note C1: At least one of these fields shall be set to '1'B			

13.4.2.6 Inter-RAT PS Handover / from GPRS Packet_transfer to E-UTRA cell

13.4.2.6.1 Test Purpose (TP)

(1)

```
with { UE in GPRS Registered state with active packet data transfer in NC2 mode }
ensure that {
  when { UE receives a PS HANDOVER COMMAND message configured for a EUTRAN Cell.Blind PS HANDOVER
sceanrio }
    then { UE transmits a RRCConnectionReconfigurationComplete message and performs Tracking Area
update on EUTRAN cell to continue the data transfer }
            }
```

13.4.2.6.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 43.129, clause 5.3a.

[TS 43.129, clause 5.3a.1]

For performing the inter-RAT handover from GERAN *A/Gb mode* to E-UTRAN the pre-conditions are:

- The MS is in packet transfer mode (GERAN A/Gb mode);
- The MS has at least one PDP Context established;
- The BSS supports PFM (Packet Flow Management) procedures.

[TS 43.129, clause 5.3a.2]

The detailed signalling flows are specified in 3GPP TS 23.401 [33] in sub-clause 5.5.2.4.2.

[TS 43.129, clause 5.3a.3]

The detailed signalling flows are specified in 3GPP TS 23.401 [33] in sub-clause 5.5.2.4.3.

13.4.2.6.3 Test description

13.4.2.6.3.1 Pre-test conditions

System Simulator:

- 2 cells, one GSM and one E-UTRA cell:
  - Cell 24 GSM serving cell
  - Cell 1 suitable neighbour E-UTRA Cell 1 is off.

UE:

None.

Preamble:

- The UE is in state Generic RB Established, UE test mode activated (state 4) according to [18] using the UE TEST LOOP MODE B and then moved to GPRS packet idle state with PDP context 2 activated State according to [23], on Cell 24.

13.4.2.6.3.2 Test procedure sequence

Table 13.4.2.6.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 13.4.2.6.3.2-1: Time instances of cell power level and parameter changes for E-UTRA cell

Parameter	Unit	Cell 1	Remark
Cell-specific RS EPRE	dBm/15kHz	-70	
Srxlev*	dB	36	
Note: Srxlev is calculated in the UE			

Table 13.4.2.6.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U – S	Message		
1	UE is brought into downlink packet transfer mode according to TS 51.010 clause 40.4.3.14 Note: The delay timer for the Test Loop in the preamble is set so that the UE would not loop any packets back before the UE camps on E-UTRA	-	-	-	-
2	SS transmits 1 IP Packet	-	-	-	-
-	EXCEPTION: In parallel to steps 3 to 5 the events described in Table 13.4.2.6.3.2-3 take place	-	-	-	-
3	SS adjusts power level for Cell 1 according to table 13.4.2.6.3.2-1	-	-	-	-
4	The SS transmits PS HANDOVER COMMAND on Cell24	<--	PS HANDOVER COMMAND	-	-
5	Check: Does the UE transmit a *RRCConnectionReconfigurationComplete* message on cell 1?	-->	*RRCConnectionReconfigurationComplete*	1	P
6	The UE transmits a TRACKING AREA UPDATE REQUEST message to update the registration of the actual tracking area.	-->	RRC: ULInformationTransfer NAS: TRACKING AREA UPDATE REQUEST	-	-
7	The SS transmits a NAS SECURITY MODE COMMAND message to activate NAS security (mapped security context)	<--	RRC: *DLInformationTransfer* NAS: SECURITY MODE COMMAND	-	-
8	The UE transmits a NAS SECURITY MODE COMPLETE message and establishes the initial security configuration.	-->	RRC: *ULInformationTransfer* NAS: SECURITY MODE COMPLETE	-	-
9	SS responds with TRACKING AREA UPDATE ACCEPT message.	<--	RRC: *DLInformationTransfer* NAS: TRACKING AREA UPDATE ACCEPT	-	-
10	Check: Does the UE send a TRACKING AREA UPDATE COMPLETE on the cell specified in the test case?	-->	RRC: *ULInformationTransfer* NAS: TRACKING AREA UPDATE COMPLETE	-	-
11	The SS transmits an *RRCConnectionRelease* message to release RRC connection and move to RRC_IDLE.	<--	RRC: *RRCConnectionRelease*	-	-
12	Check: Does the UE loop back the IP packets received when on GERAN on the DRB associated with the default EPS bearer context?	-->	IP Packet	1	P

Table 13.4.2.6.3.2-3: Parallel behaviour

St	Procedure	Message Sequence		TP	Verdict
		U – S	Message		
1	UE is in downlink packet transfer mode and transmits 3 IP Packets	-	-	-	-

13.4.2.6.3.3 Specific message or IE contents

Table 13.4.2.6.3.3-1: PS HANDOVER COMMAND [Table 13.4.2.6.3.2-1, Step 5]

Derivation Path: 44.060, Table 11.2.43.1			
Information Element	**Value/remark**	**Comment**	**Condition**
PAGE MODE	'00'B	Normal Paging	
Global TFI	TFI of the downlink TBF		
CONTAINER_ID	0		
PS Handover to E-UTRAN Payload	'10'B		
RRC Container IE			
RRC_CONTAINER_LENGTH	Length of the container data		
RRC_CONTAINER_DATA			
RRCConnectionReconfiguration message			HO-TO-EUTRA
RRCConnectionReconfiguration ::= SEQUENCE {			Derivation Path: 36.331 clause 6.2.2
rrc-TransactionIdentifier	RRC-TransactionIdentifier-DL		
criticalExtensions CHOICE {			
c1 CHOICE{			
rrcConnectionReconfiguration-r8 SEQUENCE {			
measConfig	Not present		
mobilityControlInfo	MobilityControlInfo		HO-TO-EUTRA Ref Table 13.4.2.6.3.3-2
dedicatedInfoNASList	Not present		
radioResourceConfigDedicated	RadioResourceConfigDedicated-HO-TO-EUTRA(n, m)		HO-TO-EUTRA(n, m)
securityConfigHO	SecurityConfigHO		HO-TO-EUTRA Ref Table 13.4.2.6.3.3-3
nonCriticalExtension SEQUENCE {}	Not present		
}			
}			
}			
}			

Table 13.4.2.6.3.3-2: MobilityControlInfo (Table 13.4.2.6.3.3-1)

Derivation Path: 36.508, Table 4.6.5-1			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityControlInfo			
targetPhysCellId	PhysicalCellIdentity of Cell 1.		
carrierFreq			
dl-CarrierFreq	Same downlink EARFCN as used for Cell 1.		
ul-CarrierFreq	Not present		
carrierBandwidth			
dl-Bandwidth	Downlink system bandwidth under test.		
ul-Bandwidth	Uplink Bandwidth under test.		FDD
ul-Bandwidth	Not present		TDD
additionalSpectrumEmission	1		

Condition	Explanation
FDD	FDD cell environment
TDD	TDD cell environment

Table 13.4.2.6.3.3-3: SecurityConfigHO (Table 13.4.2.6.3.3-1)

Derivation Path: 36.508, Table 4.6.4-1			
Information Element	**Value/remark**	**Comment**	**Condition**
SecurityConfigHO			
handoverType			
interRAT			
securityAlgorithmConfig			
cipheringAlgorithm	Set according to PIXIT parameter for default ciphering protection algorithm		
integrityProtAlgorithm	Set according to PIXIT parameter for default integrity algorithm		
nas-SecurityParamToEUTRA	Octets 1 to 4 are arbitrarily selected. Bits 1 to 3 of octet 5 are set according to PIXIT parameter for default integrity protection algorithm. Bits 5 to 7 of octet 5 are set according to PIXIT parameter for default ciphering algorithm. Bits 1 to 3 of octet 6 are arbitrarily selected between '000'B and '110'B, different from the valid NAS key set identifier of the UE if such a value exists. Bit 4 of octet 6 is set to 1.	Octets 1 to 4 include the NonceMME value. Bits 1 to 3 of octet 5 include the Type of integrity protection algorithm Bits 5 to 7 of octet 5 include the Type of ciphering algorithm. Bits 1 to 4 of octet 6 include the NAS key set identifier.	

Table 13.4.2.6.3.3-3: ACTIVATE TEST MODE (preamble, Table 13.4.2.6.3.2-2)

Derivation Path: 36.508, Table 4.7A-1, condition UE TEST LOOP MODE B

Table 13.4.2.6.3.3-4: CLOSE UE TEST LOOP (preamble, Table 13.4.2.6.3.2-2)

Derivation Path: 36.508, Table 4.7A-3, condition UE TEST LOOP MODE B			
Information Element	**Value/remark**	**Comment**	**Condition**
UE test loop mode B LB setup			
IP PDU delay	0 0 0 0 0 1 0 1	5 seconds	

13.4.2.7 Inter-RAT PS Handover / Synchronised / From GPRS Packet_transfer to E-UTRA cell (CCN mode)

13.4.2.7.1 Test Purpose (TP)

(1)

```
with { UE in GPRS Registered state with active packet data transfer in NC1 mode }
ensure that {
  when { UE enters CCN mode by transmitting Packet Cell Change Notification message and subsequently
receives PS HANDOVER COMMAND message configured for already synchronised Target EUTRAN
Cell,indicating CCN support}
    then { UE performs Tracking Area update on EUTRAN cell and continues data transfer }
          }
```

13.4.2.7.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 43.129, clause 5.3a, TS 44.060, clause 5.5.1.1a.2 and TS 45.008, clause 10.1.4.

[TS 43.129, clause 5.3a.1]

For performing the inter-RAT handover from GERAN *A/Gb mode* to E-UTRAN the pre-conditions are:

- The MS is in packet transfer mode (GERAN A/Gb mode);
- The MS has at least one PDP Context established;
- The BSS supports PFM (Packet Flow Management) procedures.

[TS 43.129, clause 5.3a.2]

The detailed signalling flows are specified in 3GPP TS 23.401 [33] in sub-clause 5.5.2.4.2.

[TS 43.129, clause 5.3a.3]

The detailed signalling flows are specified in 3GPP TS 23.401 [33] in sub-clause 5.5.2.4.3.

[TS 44.060, section 5.5.1.1a.2]

A mobile station, which has *CCN Enabled*, can enter *CCN Mode*.

The mobile station shall enable CCN when the following criteria are fulfilled:

- the mobile station is camping on a cell (see 3GPP TS 45.008); and
- the network indicates CCN ACTIVE/3G CCN ACTIVE/E-UTRAN CCN ACTIVE either in system information to all mobile stations in the cell or in an individual order to a certain mobile station; and
- the mobile station is neither in dedicated mode nor Dual Transfer Mode; and
- the mobile station is in NC0 or in NC1 mode; and
- the mobile station is in Packet Transfer mode.

The CCN procedures and the criteria for entering and leaving CCN mode are specified in sub-clauses 8.8.2 and 8.8.3.

[TS 45.008, clause 10.1.4]

The network may request measurement reports from the MS and control its cell re-selection. This is indicated by the parameter NETWORK_CONTROL_ORDER. The meaning of the different parameter values is specified as follows:

...

NC1 MS control with measurement reports
The MS shall send measurement reports to the network as defined in subclause 10.1.4.1.
The MS shall perform autonomous cell re-selection.

13.4.2.7.3 Test description

13.4.2.7.3.1 Pre-test conditions

System Simulator:

- 2 cells, one GSM and one E-UTRA cell:
  - Cell 24 GSM serving cell
  - Cell 1 is suitable neighbour E-UTRAN Cell

UE:

None.

Preamble:

- The UE is in state Generic RB Established, UE test mode activated (state 4) according to [18] using the UE TEST LOOP MODE B and then moved to GPRS packet idle state with PDP context 2 activated State according to [23], on Cell 24.

13.4.2.7.3.2 Test procedure sequence

Table 13.4.2.7.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 13.4.2.7.3.2-1: Time instances of cell power level and parameter changes for E-UTRA cell

	Parameter	Unit	Cell 1	Cell24	Remark
T1	Cell-specific RS EPRE	dBm/15kHz	-60	No change	The power level is such that SrxlevCell 1 > 0
Note: Srxlev is calculated in the UE					

Table 13.4.2.7.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U – S	Message		
1	UE is brought into downlink packet transfer mode according to TS 51.010 clause 40.4.3.14 Note: The delay timer for the Test Loop in the preamble is set so that the UE would not loop any packets back before the UE camps on E-UTRA	-	-	-	-
2	SS transmits 1 IP Packet	-	-	-	-
-	EXCEPTION: In parallel to steps 3 to 7 the events described in Table 13.4.2.7.3.2-3 take place	-	-	-	-
3	UE continues data transfer and send measurement reports for cell 1 in PACKET MEASUREMENT REPORT in parallel to data transfer.	-	-	-	-
4	SS adjusts power level for Cell 1 according to table 13.4.2.7.3.2-1	-	-	-	-
5	UE transmits PACKET CELL CHANGE NOTIFICATION to E_UTRA cell on cell 24. PCCN message should be received with in 15 s after step 3. In parallel the UE continues data transfer and send measurement reports for cell 1 in PACKET MEASUREMENT REPORT.	-->	PACKET CELL CHANGE NOTIFICATION	-	-
6	The SS transmits PS HANDOVER COMMAND on Cell24, with CCN enabled towards target cell.	<--	PS HANDOVER COMMAND	-	-
7	Check: Does the UE transmit a *RRCConnectionReconfigurationComplete* message on cell 1?	-->	*RRCConnectionReconfigurationComplete*	1	P
8	The UE transmits a TRACKING AREA UPDATE REQUEST message to update the registration of the actual tracking area.	-->	RRC: ULInformationTransfer NAS: TRACKING AREA UPDATE REQUEST	-	-
9	The SS transmits a NAS SECURITY MODE COMMAND message to activate NAS security (mapped security context)	<--	RRC: *DLInformationTransfer* NAS: SECURITY MODE COMMAND	-	-
10	The UE transmits a NAS SECURITY MODE COMPLETE message and establishes the initial security configuration.	-->	RRC: *ULInformationTransfer* NAS: SECURITY MODE COMPLETE	-	-
11	SS responds with TRACKING AREA UPDATE ACCEPT message.	<--	RRC: *DLInformationTransfer* NAS: TRACKING AREA UPDATE ACCEPT	-	-
12	Check: Does the UE send a TRACKING AREA UPDATE COMPLETE on the cell specified in the test case?	-->	RRC: *ULInformationTransfer* NAS: TRACKING AREA UPDATE COMPLETE	-	-
13	The SS transmits an *RRCConnectionRelease* message to release RRC connection and move to RRC_IDLE.	<--	RRC: *RRCConnectionRelease*	-	-
14	Check: Does the UE loop back the IP packets received when on GERAN on the DRB associated with the default EPS bearer context?	-->	IP Packet	1	P

Table 13.4.2.7.3.2-3: Parallel behaviour

St	Procedure	Message Sequence		TP	Verdict
		U – S	Message		
1	UE is in downlink packet transfer mode and transmits 3 IP Packets	-	-	-	-

13.4.2.7.3.3 Specific message or IE contents

Table 13.4.2.7.3.3-1: Repeated E-UTRAN Neighbour Cells structure of SI2Quater for Cell 24[Preamble]

Derivation Path: 36.508 table 4.4.5-1			
Information Element	**Value/remark**	**Comment**	**Condition**
E-UTRAN Parameters Description	1	Present	
E-UTRAN_CCN_ACTIVE	1	CCN is enabled in the cell	

Table 13.4.2.7.3.3-2: Message ROUTING AREA UPDATE REQUEST(Preamble)

Derivation Path: Table 9.4.1/3GPP TS 24.008			
Information Element	**Value/remark**	**Comment**	**Condition**
MS Radio Access capability			
GERAN to E-UTRA support in GERAN packet transfer mode	'11'B	PS Handover to E-UTRAN supported	

Table 13.4.2.7.3.3-3: PS HANDOVER COMMAND [Table 13.4.2.7.3.2-2, Step 5]

Derivation Path: 44.060, Table 11.2.43.1			
Information Element	**Value/remark**	**Comment**	**Condition**
PAGE_MODE	'00'B	Normal Paging	
Global TFI	TFI of the downlink TBF		
CONTAINER_ID	0		
PS Handover to E-UTRAN Payload	'10'B		
RRC Container IE			
RRC_CONTAINER_LENGTH	Length of the container data		
RRC_CONTAINER_DATA			
RRCConnectionReconfiguration message			HO-TO-EUTRA
RRCConnectionReconfiguration ::= SEQUENCE {			Derivation Path: 36.331 clause 6.2.2
rrc-TransactionIdentifier	RRC-TransactionIdentifier-DL		
criticalExtensions CHOICE {			
c1 CHOICE{			
rrcConnectionReconfiguration-r8 SEQUENCE {			
measConfig	Not present		
mobilityControlInfo	MobilityControlInfo		HO-TO-EUTRA Ref Table 13.4.2.7.3.3-4
dedicatedInfoNASList	Not present		
radioResourceConfigDedicated	RadioResourceConfigDedicated-HO-TO-EUTRA(n, m)		HO-TO-EUTRA(n, m)
securityConfigHO	SecurityConfigHO		HO-TO-EUTRA Ref Table 13.4.2.7.3.3-5
nonCriticalExtension SEQUENCE {}	Not present		
}			
}			
}			
}			

Table 13.4.2.7.3.3-4: MobilityControlInfo (Table 13.4.2.7.3.3-3)

Derivation Path: 36.508, Table 4.6.5-1			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityControlInfo			
targetPhysCellId	PhysicalCellIdentity of Cell 1.		
carrierFreq			
dl-CarrierFreq	Same downlink EARFCN as used for Cell 1.		
ul-CarrierFreq	Not present		
carrierBandwidth			
dl-Bandwidth	Downlink system bandwidth under test.		
ul-Bandwidth	Uplink Bandwidth under test.		FDD
ul-Bandwidth	Not present		TDD
additionalSpectrumEmission	1		

Condition	Explanation

FDD	FDD cell environment
TDD	TDD cell environment

Table 13.4.2.7.3.3-5: SecurityConfigHO (Table 13.4.2.7.3.3-3)

Derivation Path: 36.508, Table 4.6.4-1			
Information Element	**Value/remark**	**Comment**	**Condition**
SecurityConfigHO			
handoverType			
interRAT			
securityAlgorithmConfig			
cipheringAlgorithm	Set according to PIXIT parameter for default ciphering protection algorithm		
integrityProtAlgorithm	Set according to PIXIT parameter for default integrity algorithm		
nas-SecurityParamToEUTRA	Octets 1 to 4 are arbitrarily selected. Bits 1 to 3 of octet 5 are set according to PIXIT parameter for default integrity protection algorithm. Bits 5 to 7 of octet 5 are set according to PIXIT parameter for default ciphering algorithm. Bits 1 to 3 of octet 6 are arbitrarily selected between '000'B and '110'B, different from the valid NAS key set identifier of the UE if such a value exists. Bit 4 of octet 6 is set to 1.	Octets 1 to 4 include the NonceMME value. Bits 1 to 3 of octet 5 include the Type of integrity protection algorithm Bits 5 to 7 of octet 5 include the Type of ciphering algorithm. Bits 1 to 4 of octet 6 include the NAS key set identifier.	

Table 13.4.2.7.3.3-6: ACTIVATE TEST MODE (preamble, Table 13.4.2.7.3.2-2)

Derivation Path: 36.508, Table 4.7A-1, condition UE TEST LOOP MODE B

Table 13.4.2.7.3.3-7: CLOSE UE TEST LOOP (preamble, Table 13.4.2.7.3.2-2)

Derivation Path: 36.508, Table 4.7A-3, condition UE TEST LOOP MODE B			
Information Element	**Value/remark**	**Comment**	**Condition**
UE test loop mode B LB setup			
IP PDU delay	0 0 0 0 0 1 0 1	5 seconds	

13.4.2.8 Inter-RAT PS Handover / Synchronised / From GPRS Packet_transfer to E-UTRA cell (NC2 mode)

13.4.2.8.1 Test Purpose (TP)

(1)

```
with { UE in GPRS Registered state with active packet data transfer in NC2 mode }
ensure that {
  when { UE receives a PS HANDOVER COMMAND message configured for already synchronised EUTRAN Cell}
```

```
    then { UE performs Tracking Area update on EUTRAN cell and continues data transfer }
           }
```

13.4.2.8.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 43.129, clause 5.3a and TS 45.008 clause 10.1.4.

[TS 43.129, clause 5.3a.1]

For performing the inter-RAT handover from GERAN *A/Gb mode* to E-UTRAN the pre-conditions are:

- The MS is in packet transfer mode (GERAN A/Gb mode);
- The MS has at least one PDP Context established;
- The BSS supports PFM (Packet Flow Management) procedures.

[TS 43.129, clause 5.3a.2]

The detailed signalling flows are specified in 3GPP TS 23.401 [33] in sub-clause 5.5.2.4.2.

[TS 43.129, clause 5.3a.3]

The detailed signalling flows are specified in 3GPP TS 23.401 [33] in sub-clause 5.5.2.4.3.

[TS 45.008, clause 10.1.4]

The network may request measurement reports from the MS and control its cell re-selection. This is indicated by the parameter NETWORK_CONTROL_ORDER. The meaning of the different parameter values is specified as follows:

...

NC2	Network control The MS shall send measurement reports to the network as defined in subclause 10.1.4.1. The MS shall only perform autonomous cell re-selection when the reselection is triggered by a downlink signalling failure as defined in subclause 6.5 or a random access failure as defined in 3GPP TS 44.018 and 3GPP TS 44.060 or if the cell is barred or the C1 criterion falls below zero. The MS shall only determine whether the cell is barred once camped on the cell.

13.4.2.8.3 Test description

13.4.2.8.3.1 Pre-test conditions

System Simulator:

- 2 cells, one GSM and one E-UTRA cell:
  - Cell 24 GSM serving cell
  - Cell 1 suitable neighbour E-UTRA Cell 1.

UE:

None.

Preamble:

- The UE is in state Generic RB Established, UE test mode activated (state 4) according to [18] using the UE TEST LOOP MODE B and then moved to GPRS packet idle state with PDP context 2 activated State according to [23], on Cell 24.

13.4.2.8.3.2 Test procedure sequence

Table 13.4.2.8.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 13.4.2.8.3.2-1: Time instances of cell power level and parameter changes for E-UTRA cell

	Parameter	Unit	Cell 1	Cell24	Remark
T1	Cell-specific RS EPRE	dBm/15kHz	-60	No change	The power level is such that SrxlevCell 1 > 0
Note: Srxlev is calculated in the UE					

Table 13.4.2.8.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U – S	Message		
1	UE is brought into downlink packet transfer mode according to TS 51.010 clause 40.4.3.14 Note: The delay timer for the Test Loop in the preamble is set so that the UE would not loop any packets back before the UE camps on E-UTRA	-	-	-	-
2	SS transmits 1 IP Packet	-	-	-	-
-	EXCEPTION: In parallel to steps 3 to 6 the events described in Table 13.4.2.8.3.2-3 take place	-	-	-	-
3	MS continues data transfer and send measurement reports for cell 1 in PACKET MEASUREMENT REPORT in parallel to data transfer.	-	-	-	-
4	SS adjusts power level for Cell 1 according to table 13.4.2.8.3.2-1	-	-	-	-
5	The SS transmits PS HANDOVER COMMAND on Cell24	<--	PS HANDOVER COMMAND	-	-
6	Check: Does the UE transmit a *RRCConnectionReconfigurationComplete* message on cell 1?	-->	*RRCConnectionReconfigurationComplete*	1	P
7	The UE transmits a TRACKING AREA UPDATE REQUEST message to update the registration of the actual tracking area.	-->	RRC: ULInformationTransfer NAS: TRACKING AREA UPDATE REQUEST	-	-
8	The SS transmits a NAS SECURITY MODE COMMAND message to activate NAS security (mapped security context)	<--	RRC: *DLInformationTransfer* NAS: SECURITY MODE COMMAND	-	-
9	The UE transmits a NAS SECURITY MODE COMPLETE message and establishes the initial security configuration.	-->	RRC: *ULInformationTransfer* NAS: SECURITY MODE COMPLETE	-	-
10	SS responds with TRACKING AREA UPDATE ACCEPT message.	<--	RRC: *DLInformationTransfer* NAS: TRACKING AREA UPDATE ACCEPT	-	-
11	Check: Does the UE send a TRACKING AREA UPDATE COMPLETE on the cell specified in the test case?	-->	RRC: *ULInformationTransfer* NAS: TRACKING AREA UPDATE COMPLETE	-	-
12	The SS transmits an *RRCConnectionRelease* message to release RRC connection and move to RRC_IDLE.	<--	RRC: *RRCConnectionRelease*	-	-
13	Check: Does the UE loop back the IP packets received when on GERAN on the DRB associated with the default EPS bearer context?	-->	IP Packet	1	P

Table 13.4.2.8.3.2-3: Parallel behaviour

St	Procedure	Message Sequence		TP	Verdict
		U – S	Message		

1	UE is in downlink packet transfer mode and transmits 3 IP Packets	-	-	-	-

13.4.2.8.3.3 Specific message or IE contents

Table 13.4.2.8.3.3-1: Message ROUTING AREA UPDATE REQUEST (Preamble)

Derivation Path: Table 9.4.1/3GPP TS 24.008			
Information Element	**Value/remark**	**Comment**	**Condition**
MS Radio Access capability			
GERAN to E-UTRA support in GERAN packet transfer mode	'11'B	PS Handover to E-UTRAN supported	

Table 13.4.2.8.3.3-2: PS HANDOVER COMMAND [Table 13.4.2.8.3.2-2, Step 5]

Derivation Path: 44.060, Table 11.2.43.1			
Information Element	**Value/remark**	**Comment**	**Condition**
PAGE_MODE	'00'B	Normal Paging	
Global TFI	TFI of the downlink TBF		
CONTAINER_ID	0		
PS Handover to E-UTRAN Payload	'10'B		
RRC Container IE			
RRC_CONTAINER_LENGTH	Length of the container data		
RRC_CONTAINER_DATA			
RRCConnectionReconfiguration message			HO-TO-EUTRA
RRCConnectionReconfiguration ::= SEQUENCE {			Derivation Path: 36.331 clause 6.2.2
rrc-TransactionIdentifier	RRC-TransactionIdentifier-DL		
criticalExtensions CHOICE {			
c1 CHOICE{			
rrcConnectionReconfiguration-r8 SEQUENCE {			
measConfig	Not present		
mobilityControlInfo	MobilityControlInfo		HO-TO-EUTRA Ref Table 13.4.2.8.3.3-3
dedicatedInfoNASList	Not present		
radioResourceConfigDedicated	RadioResourceConfigDedicated-HO-TO-EUTRA(n, m)		HO-TO-EUTRA(n, m)
securityConfigHO	SecurityConfigHO		HO-TO-EUTRA Ref Table 13.4.2.8.3.3-4
nonCriticalExtension SEQUENCE {}	Not present		
}			
}			
}			
}			

Table 13.4.2.8.3.3-3: MobilityControlInfo (Table 13.4.2.8.3.3-2)

Derivation Path: 36.508, Table 4.6.5-1			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityControlInfo			
targetPhysCellId	PhysicalCellIdentity of Cell 1.		
carrierFreq			
dl-CarrierFreq	Same downlink EARFCN as used for Cell 1.		
ul-CarrierFreq	Not present		
carrierBandwidth			
dl-Bandwidth	Downlink system bandwidth under test.		
ul-Bandwidth	Uplink Bandwidth under test.		FDD
ul-Bandwidth	Not present		TDD
additionalSpectrumEmission	1		

Condition	Explanation
FDD	FDD cell environment
TDD	TDD cell environment

Table 13.4.2.8.3.3-4: SecurityConfigHO (Table 13.4.2.8.3.3-2)

Derivation Path: 36.508, Table 4.6.4-1			
Information Element	**Value/remark**	**Comment**	**Condition**
SecurityConfigHO			
handoverType			
interRAT			
securityAlgorithmConfig			
cipheringAlgorithm	Set according to PIXIT parameter for default ciphering protection algorithm		
integrityProtAlgorithm	Set according to PIXIT parameter for default integrity algorithm		
nas-SecurityParamToEUTRA	Octets 1 to 4 are arbitrarily selected. Bits 1 to 3 of octet 5 are set according to PIXIT parameter for default integrity protection algorithm. Bits 5 to 7 of octet 5 are set according to PIXIT parameter for default ciphering algorithm. Bits 1 to 3 of octet 6 are arbitrarily selected between '000'B and '110'B, different from the valid NAS key set identifier of the UE if such a value exists. Bit 4 of octet 6 is set to 1.	Octets 1 to 4 include the NonceMME value. Bits 1 to 3 of octet 5 include the Type of integrity protection algorithm Bits 5 to 7 of octet 5 include the Type of ciphering algorithm. Bits 1 to 4 of octet 6 include the NAS key set identifier.	

Table 13.4.2.8.3.3-5: ACTIVATE TEST MODE (preamble, Table 13.4.2.8.3.2-2)

Derivation Path: 36.508, Table 4.7A-1, condition UE TEST LOOP MODE B

Table 13.4.2.8.3.3-6: CLOSE UE TEST LOOP (preamble, Table 13.4.2.8.3.2-2)

Derivation Path: 36.508, Table 4.7A-3, condition UE TEST LOOP MODE B			
Information Element	**Value/remark**	**Comment**	**Condition**
UE test loop mode B LB setup			
IP PDU delay	0 0 0 0 0 1 0 1	5 seconds	

13.4.3 Inter-system mobility voice

13.4.3.0 General

Unless stated otherwise in a test case, for all test cases in this clause, the UE shall contain either ISIM and USIM applications or only a USIM application on UICC.

13.4.3.1 Inter-system mobility / E-UTRA voice to UTRA CS voice / SRVCC

13.4.3.1.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_CONNECTED state }
ensure that {
  when { UE receives a MobilityFromEUTRACommand message and an IMS voice call is ongoing and an UTRA
Speech RAB combination is configured for an UTRA cell}
    then { UE transmits a HANDOVER TO UTRAN COMPLETE message on the utra cell}
          }
```

13.4.3.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.331, clause 5.4.3.3, TS 23.216, clause 6.2.2. 1 and clause 6.2.2.1A.

[TS 36.331, clause 5.4.3.3]

The UE shall be able to receive a *MobilityFromEUTRACommand* message and perform a cell change order to GERAN, even if no prior UE measurements have been performed on the target cell.

The UE shall:

1> stop timer T310, if running;

1> if the *MobilityFromEUTRACommand* message includes the *purpose* set to '*handover*':

2> if the *targetRAT-Type* is set to '*utra*' or '*geran*':

3> consider inter-RAT mobility as initiated towards the RAT indicated by the *targetRAT-Type* included in the *MobilityFromEUTRACommand* message;

3> forward the *nas-SecurityParamFromEUTRA* to the upper layers;

3> access the target cell indicated in the inter-RAT message in accordance with the specifications of the target RAT;

[TS 23.216, clause 6.2.2. 1]

Depicted in figure 6.2.2.1-1 is a call flow for SRVCC from E-UTRAN to GERAN without DTM support. The flow requires that eNB can determine that the target is GERAN without DTM support or that the UE is without DTM support.

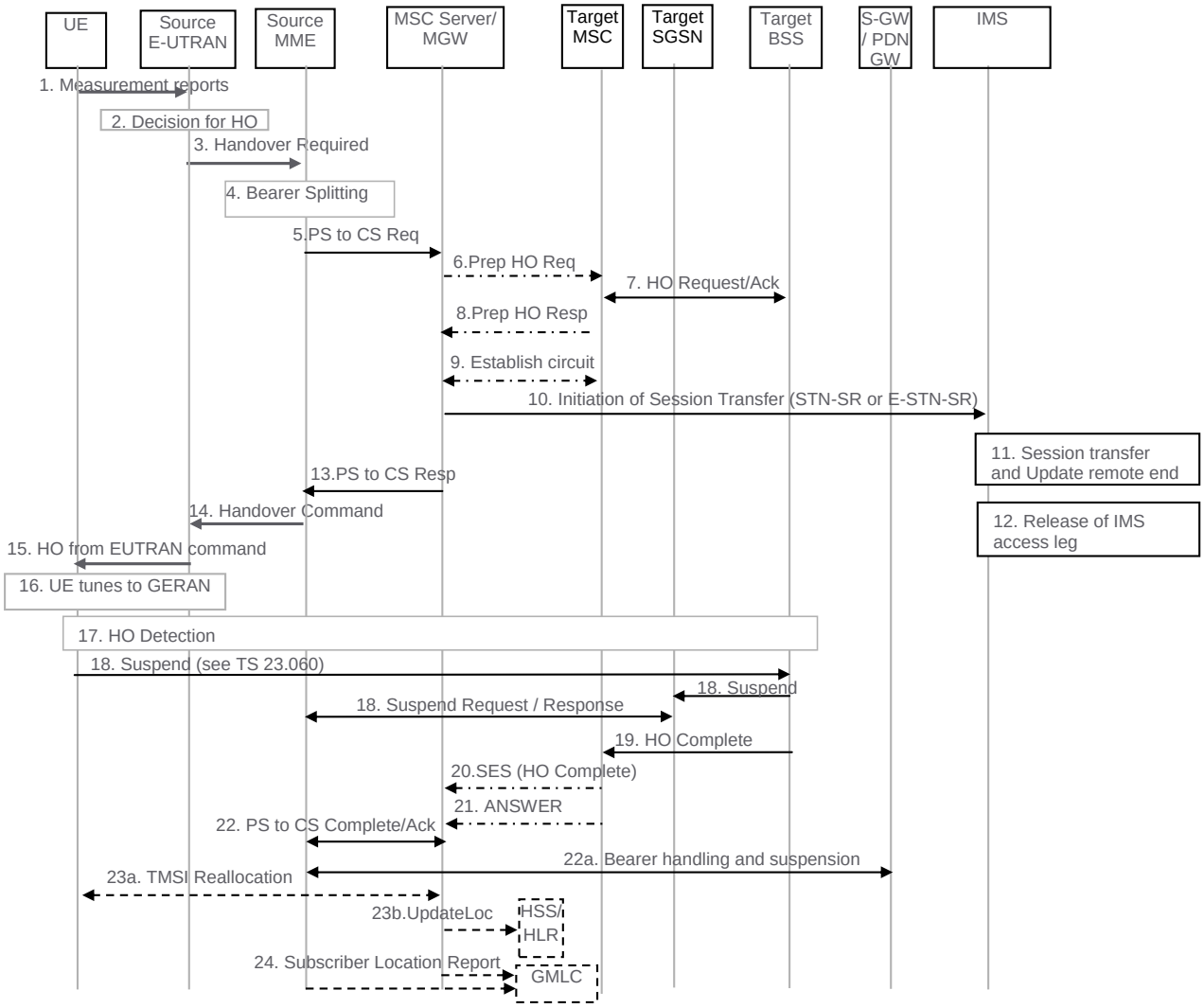

Figure 6.2.2.1-1: SRVCC from E-UTRAN to GERAN without DTM support

1. UE sends measurement reports to E-UTRAN.

2. Based on UE measurement reports the source E-UTRAN decides to trigger an SRVCC handover to GERAN.

3. Source E-UTRAN sends Handover Required (Target ID, generic Source to Target Transparent Container, SRVCC HO Indication) message to the source MME. The E-UTRAN places the "old BSS to new BSS information IE" for the CS domain in the generic Source to Target Transparent Container. The SRVCC HO indication indicates to the MME that target is only CS capable, hence this is a SRVCC handover operation only towards the CS domain. The message includes an indication that the UE is not available for the PS service in the target cell.

4. Based on the QCI associated with the voice bearer (QCI 1) and the SRVCC HO indication, the source MME splits the voice bearer from the non voice bearers and initiates the PS-CS handover procedure for the voice bearer only towards MSC Server.

5. The MME sends a SRVCC PS to CS Request (IMSI, Target ID, STN-SR, C-MSISDN, generic Source to Target Transparent Container, MM Context, Emergency Indication) message to the MSC Server. The Emergency Indication and the equipment identifier are is included if the ongoing session is emergency session. Authenticated IMSI and C-MSISDN shall also be included, if available. The MME received STN-SR and C-MSISDN from the HSS as part of the subscription profile downloaded during the E-UTRAN attach procedure. The MM Context contains security related information. CS security key is derived by the MME from the E-UTRAN/EPS domain key as defined in TS 33.401 [22]. The CS Security key is sent in the MM Context.

6. The MSC Server interworks the PS-CS handover request with a CS inter-MSC handover request by sending a Prepare Handover Request message to the target MSC. The MSC Server assigns a default SAI as Source ID on the interface to the target BSS and uses BSSMAP encapsulated for the Prepare Handover Request.

NOTE 1: The value of the default SAI is configured in the MSC and allows a release 8 and later BSC to identify that the source for the SRVCC Handover is E-UTRAN. To ensure correct statistics in the target BSS the default SAI should be different from the SAIs used in UTRAN.

7. Target MSC performs resource allocation with the target BSS by exchanging Handover Request/ Acknowledge messages.

8. Target MSC sends a Prepare Handover Response message to the MSC Server.

9. Establishment of circuit connection between the target MSC and the MGW associated with the MSC Server e.g. using ISUP IAM and ACM messages.

10. For non-emergency session, the MSC Server initiates the Session Transfer by using the STN-SR e.g. by sending an ISUP IAM (STN-SR) message towards the IMS. For emergency session, the MSC Server initiates the Session Transfer by using the locally configured E-STN-SR and by including the equipment identifier. Standard IMS Service Continuity or Emergency IMS Service Continuity procedures are applied for execution of the Session Transfer, see TS 23.237 [14].

NOTE 2: This step can be started after step 8.

NOTE 3: If the MSC Server is using an ISUP interface, then the initiation of the session transfer for non-emergency session may fail if the subscriber profile including CAMEL triggers is not available prior handover (see clause 7.3.2.1.3 in TS 23.292 [13]).

11. During the execution of the Session Transfer procedure the remote end is updated with the SDP of the CS access leg. The downlink flow of VoIP packets is switched towards the CS access leg at this point.

12. Source IMS access leg is released as per TS 23.237 [14].

NOTE 4: Steps 11 and 12 are independent of step 13.

13. MSC Server sends a SRVCC PS to CS Response (Target to Source Transparent Container) message to the source MME.

14. Source MME sends a Handover Command (Target to Source Transparent Container) message to the source E-UTRAN. The message includes information about the voice component only.

15. Source E-UTRAN sends a Handover from E-UTRAN Command message to the UE.

16. UE tunes to GERAN.

17. Handover Detection at the target BSS occurs. The UE sends a Handover Complete message via the target BSS to the target MSC. If the target MSC is not the MSC Server, then the Target MSC sends an SES (Handover Complete) message to the MSC Server.

18. The UE starts the Suspend procedure specified in TS 23.060 [10], clause 16.2.1.1.2. The TLLI and RAI pair are derived from the GUTI as described in TS 23.003 [27]. This triggers the Target SGSN to send a Suspend Notification message to the Source MME. The MME returns a Suspend Acknowledge to the Target SGSN.

NOTE 5: The MME might not be able to derive the GUTI from the received P-TMSI and RAI pair and therefore it might not be able to identify which UE context is associated with the Suspend Notification message. Also in this case the bearers are deactivated and/or suspended as in step 22a.

19. Target BSS sends a Handover Complete message to the target MSC.

20. Target MSC sends an SES (Handover Complete) message to the MSC Server. The speech circuit is through connected in the MSC Server/MGW according to TS 23.009 [18].

21. Completion of the establishment procedure with ISUP Answer message to the MSC Server according to TS 23.009 [18].

22. MSC Server sends a SRVCC PS to CS Complete Notification message to the source MME, informing it that the UE has arrived on the target side. Source MME acknowledges the information by sending a SRVCC PS to CS Complete Acknowledge message to the MSC Server.

22a. The MME deactivates bearers used for voice and other GBR bearers. All GBR bearers are deactivated towards S-GW and P-GW by initiating MME-initiated Dedicated Bearer Deactivation procedure as specified in TS 23.401 [2]. The MME does not send deactivation request toward the eNodeB on receiving PS-to-CS Complete Notification in step 22. PS-to-CS handover indicator is notified to P-GW for voice bearer during the bearer deactivation procedure. For GTP-based S5/S8, the S-GW requests the P-GW to delete all GBR bearer contexts by sending a Delete Bearer Command message. If dynamic PCC is deployed, the P-GW may interact with PCRF as defined in TS 23.203 [31]. For PMIP-based S5/S8, S-GW interacts with the PCRF which in turn updates PCC rules for GBR traffic in the P-GW.

The MME starts preservation and suspension of non-GBR bearers by sending Suspend Notification message towards S-GW. For these non-GBR bearers, the S-GW releases S1-U bearers for the UE and sends Suspend Notification message to the P-GW(s). The MME stores in the UE context that UE is in suspended status. All the preserved non-GBR bearers are marked as suspended status in the S-GW and P-GW. The P-GW should discard packets if received for the suspended UE.

23a. If the HLR is to be updated, i.e. if the IMSI is authenticated but unknown in the VLR, the MSC Server performs a TMSI reallocation towards the UE using its own non-broadcast LAI and, if the MSC Server and other MSC/VLRs serve the same (target) LAI, with its own Network Resource Identifier (NRI).

NOTE 5: The TMSI reallocation is performed by the MSC Server towards the UE via target MSC.

23b. If the MSC Server performed a TMSI reallocation in step 23a, and if this TMSI reallocation was completed successfully, the MSC Server performs a MAP Update Location to the HSS/HLR.

NOTE 6: This Update Location is not initiated by the UE.

24. For an emergency services session after handover is complete, the source MME or the MSC Server may send a Subscriber Location Report carrying the identity of the MSC Server to a GMLC associated with the source or target side, respectively, as defined in TS 23.271 [29] to support location continuity.

NOTE 7: Any configuration of the choice between a source MME versus MSC Server update to a GMLC needs to ensure that a single update occurs from one of these entities when the control plane location solution is used on the source and/or target sides.

After the CS voice call is terminated and if the UE is still in GERAN (or for any other reason specified in TS 24.008), then the UE shall resume PS services as specified in TS 23.060 [10]. A Gn SGSN will follow TS 23.060 [10] to resume the PDP Context(s). An S4 SGSN will follow TS 23.060 [10] to resume the bearers, and will in addition inform S-GW and P-GW(s) to resume the suspended bearers. If the UE has returned to E-UTRAN after the CS voice call was terminated, then the UE shall resume PS service by sending TAU to MME. The MME will in addition inform S-GW and P-GW(s) to resume the suspended bearers. Resuming the suspended bearers in the S-GW and in the P-GW should be done by implicit resume using the Modify Bearer request message if it is triggered by the procedure in operation, e.g. RAU, TAU or Service Request. The S-GW is aware of the suspend state of the bearers and will forward the Modify Bearer request to the P-GW. Explicit resume using the Resume Notification message should be used in cases when Modify Bearer Request is not triggered by the procedure in operation.

[TS 23.216, clause 6.2.2.1A]

The call flow for this scenario is similar to the call flow depicted in figure 6.2.2.1-1, with the exceptions that the Suspend procedure (step 18 and step 22a in figure 6.2.2.1-1) is not performed and that the MME only deactivates bearers used for voice (step 22a in figure 6.2.2.1-1) and sets the PS-to-CS handover indicator. The scenario requires that eNB can determine that the target is either GERAN with DTM but without DTM HO support and that the UE is supporting DTM or that the target is UTRAN (HSPA) without PS HO support. The message in step 3 in figure 6.2.2.1-1 includes an indication to the MME that the UE is available for PS service in the target cell. Furthermore, if the target is GERAN, the E-UTRAN places in the generic Source to Target Transparent Container the "old BSS to new BSS information IE", while if the target is UTRAN, the generic Source to Target Transparent container is encoded according to the Source RNC to Target RNC Transparent Container IE definition. At the end of the procedure described in figure 6.2.2.1-1, the remaining PS resources are re-established when the UE performs the Routeing Area update procedure. Triggers for performing Routeing Area update procedure are described in TS 23.060 [10]. The target SGSN may deactivate the PDP contexts that cannot be established as described in TS 23.060 [10].

13.4.3.1.3 Test description

13.4.3.1.3.1 Pre-test conditions

System Simulator:

- Cell 1 and Cell 5.
- System information combination 4 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cells.

UE:

None.

Preamble:

- The UE is in state Registered, Idle mode (state 2) on Cell 1 according to [18].

13.4.3.1.3.2 Test procedure sequence

Table 13.4.3.1.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while columns marked "T1" is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 13.4.3.1.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 5	Remark
T0	Cell-specific RS EPRE	dBm/15kHz	-60	-	The power level values are such that entering conditions for event B2 are not satisfied.
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-88	
	PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-88	
T1	Cell-specific RS EPRE	dBm/15kHz	-84	-	The power level values are such that entering conditions for event B2 are satisfied.
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-64	
	PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-64	

Table 13.4.3.1.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS configures UTRA cell 5 to reference configuration according 36.508 table 4.8.3-1, condition UTRA Speech.	-	-	-	-
2-25	Steps 1 to 24 of the generic test procedure for IMS MT speech call (TS 36.508 4.5A.7.3-1).	-	-	-	-
26-27	Void	-	-	-	-
28	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1 to setup inter RAT measurement and reporting for event B2.	<--	*RRCConnectionReconfiguration*	-	-
29	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1.	-->	*RRCConnectionReconfigurationComplete*	-	-
30	The SS changes the power level for Cell 1 and Cell 5 according to the row "T1" in table 13.4.3.1.3.2-1	-	-	-	-
31	The UE transmits a *MeasurementReport* message on Cell 1 to report event B2 for Cell 5.	-->	*MeasurementReport*	-	-
31A	The SS transmits a *UECapabilityEnquiry* message to request UE radio access capability information for E-UTRA and UTRA.	<--	*UECapabilityEnquiry*	-	-
31B	The UE transmit a *UECapabilityInformation* message on Cell 1. NOTE: The start-CS values received, should be used to configure ciphering on cell 5.	-->	*UECapabilityInformation*	-	-
32	The SS transmits a *MobilityFromEUTRACommand* message on Cell 1.	<--	*MobilityFromEUTRACommand*	-	-
33	Check: Does the UE transmit a HANDOVER TO UTRAN COMPLETE message on cell 5?	-->	HANDOVER TO UTRAN COMPLETE	1	P
-	EXCEPTION: In parallel to the events described in step 34 to 39 the steps specified in table 13.4.3.1.3.2-5 takes place.	-	-	-	-
34	The SS transmits a SECURITY MODE COMMAND message for the CS domain.	<--	SECURITY MODE COMMAND	-	-
35	The UE transmits a SECURITY MODE COMPLETE message.	-->	SECURITY MODE COMPLETE	-	-
36	The SS transmits an UTRAN MOBILITY INFORMATION message to notify CN information.	<--	UTRAN MOBILITY INFORMATION	-	-
37	The UE transmits an UTRAN MOBILITY INFORMATION CONFIRM message.	-->	UTRAN MOBILITY INFORMATION CONFIRM	-	-
38	The SS transmits a TMSI REALLOCATION COMMAND message.	<--	TMSI REALLOCATION COMMAND	-	-
39	The UE transmits a TMSI REALLOCATION COMPLETE message.	-->	TMSI REALLOCATION COMPLETE	-	-

Table 13.4.3.1.3.2-3: Void

Table 13.4.3.1.3.2-4: Void

Table 13.4.3.1.3.2-5: Parallel behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Check: Does the UE transmit a ROUTING AREA UPDATE REQUEST message?	-->	ROUTING AREA UPDATE REQUEST	-	P
2	The SS transmits a ROUTING AREA UPDATE ACCEPT message.	<--	ROUTING AREA UPDATE ACCEPT	-	-
3	The UE transmits a ROUTING AREA UPDATE COMPLETE message.	-->	ROUTING AREA UPDATE COMPLETE	-	-

13.4.3.1.3.3 Specific message contents

Table 13.4.3.1.3.3-1: ATTACH REQUEST (preamble)

Derivation path: 36.508 table 4.7.2-4			
Information Element	**Value/remark**	**Comment**	**Condition**
MS network capability	SRVCC from UTRAN HSPA or E-UTRAN to GERAN/UTRAN supported		
Mobile station classmark 2	Any allowed value		
Supported Codecs	Any allowed value		

Table 13.4.3.1.3.3-2: *RRCConnectionReconfiguration* (step 28, Table 13.4.3.1.3.2-2)

Derivation Path: 36.508 clause 4.6.1 table 4.6.1-8 with condition MEAS

Table 13.4.3.1.3.3-3: *MeasConfig* (step 28, Table 13.4.3.1.3.2-2)

Derivation path: 36.508 clause 4.6.6 table 4.6.6-1 with condition UTRAN			
Information Element	**Value/Remark**	**Comment**	**Condition**
measurementConfiguration ::= SEQUENCE {			
measObjectToAddModifyList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entries		
measObjectId[1]	IdMeasObject-f8		
measObject[1]	MeasObjectUTRA-GENERIC(f8)		
measObjectId[2]	IdMeasObject-f1		
measObject[2]	MeasObjectEUTRA-GENERIC(f1)		
}			
reportConfigToAddModifyList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	1 entry		
reportConfigId[1]	IdReportConfigInterRAT-B2-UTRA		
reportConfig[1]	ReportConfigInterRAT-B2-UTRA (-72, -76)		
}			
measIdToAddModifyList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	1 entry		
measId[1]	1		
measObjectId[1]	IdMeasObject-f8		
reportConfigId[1]	IdReportConfigInterRAT-B2-UTRA		
}			

Table 13.4.3.1.3.3-4: *MeasurementReport* (step 31, Table 13.4.3.1.3.2-2)

Derivation Path: 36.508, table 4.6.1-5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
measurementReport-r8 SEQUENCE {			
measResults SEQUENCE {			
measId	1		
measResultServCell SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListUTRA SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {	1 entry		
physCellId[1]	PhysicalCellIdentity of Cell 5		
cgi-Info[1]	Not present		
measResult[1] SEQUENCE {			
utra-RSCP	(-5..91)		
}			
}			
}			
}			
}			
}			
}			

Table 13.4.3.1.3.3-5: *MobilityFromEUTRACommand* (step 32, Table 13.4.3.1.3.2-2)

Derivation Path: 36.508, Table 4.6.1-6			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityFromEUTRACommand ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
mobilityFromEUTRACommand-r8 SEQUENCE {			
cs-FallbackIndicator	True		
purpose CHOICE{			
handover SEQUENCE {			
targetRAT-Type	Utra		
targetRAT-MessageContainer	HANDOVER TO UTRAN COMMAND(UTRA RRC message)		
nas-SecurityParamFromEUTRA	The 4 least significant bits of the NAS downlink COUNT value		
systemInformation	Not present		
}			
}			
}			
}			
}			
}			

Table 13.4.3.1.3.3-6: HANDOVER TO UTRAN COMMAND (step 32, Table 13.4.3.1.3.3-5)

Derivation Path: 36.508, Table 4.7B.1-1, condition UTRA Speech

Table 13.4.3.1.3.3-7: UECapabilityEnquiry (step 31A, Table 13.4.3.1.3.2-2)

Derivation path: 36.508 clause 4.6.1 table 4.6.1-22			
Information Element	**Value/Remark**	**Comment**	**Condition**
UECapabilityEnquiry ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
ueCapabilityEnquiry-r8 SEQUENCE {			
ue-CapabilityRequest SEQUENCE (SIZE (1..maxRAT-Capabilities)) OF SEQUENCE {	2 entry		
RAT-Type[1]	eutra		
RAT-Type[2]	utra		
}			
}			
}			
}			
}			

Table 13.4.3.1.3.3-8: SECURITY MODE COMMAND (step 34, Table 13.4.3.1.3.2-2)

Derivation Path: 36.508, Table 4.7B.1-n		
Information Element	**Condition**	**Value/remark**
Ciphering mode info		Not Present

Table 13.4.3.1.3.3-9: Void

Table 13.4.3.1.3.3-10: QuantityConfig-DEFAULT-RSCP (Table 13.4.3.1.3.3-3)

Derivation Path: 36.508, Table 4.6.6-3A			
Information Element	**Value/remark**	**Comment**	**Condition**
quantityConfigUTRA SEQUENCE {			
measQuantityUTRA-FDD	cpich-RSCP		
measQuantityUTRA-TDD	pccpch-RSCP		
filterCoefficient	Not present	DEFAULT fc4	
}			

Table 13.4.3.1.3.3-11: ROUTING AREA UPDATE ACCEPT (step 2, Table 13.4.3.1.3.2-5)

Derivation path: 36.508, Table 4.7B.2-2			
Information Element	**Value/Remark**	**Comment**	**Condition**
PDP context status	0	NSAPI(0) - NSAPI(15) is set to 0, which means that the SM state of all PDP contexts is PDP-INACTIVE	

13.4.3.2 Inter-system mobility / E-UTRA PS voice + PS data to UTRA CS voice + PS data / SRVCC

13.4.3.2.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_CONNECTED state }
ensure that {
  when { UE receives a MobilityFromEUTRACommand message and an IMS voice call is ongoing and an UTRA
PS RB + Speech combination is configured for an UTRA cell}
    then { UE transmits a HANDOVER TO UTRAN COMPLETE message on the utra cell}
          }
```

13.4.3.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.331, clause 5.4.3.3 and TS 23.216, clause 6.2.2.2.

[TS 36.331, clause 5.4.3.3]

The UE shall be able to receive a *MobilityFromEUTRACommand* message and perform a cell change order to GERAN, even if no prior UE measurements have been performed on the target cell.

The UE shall:

1> stop timer T310, if running;

1> if the *MobilityFromEUTRACommand* message includes the *purpose* set to '*handover*':

2> if the *targetRAT-Type* is set to '*utra*' or '*geran*':

3> consider inter-RAT mobility as initiated towards the RAT indicated by the *targetRAT-Type* included in the *MobilityFromEUTRACommand* message;

3> forward the *nas-SecurityParamFromEUTRA* to the upper layers;

3> access the target cell indicated in the inter-RAT message in accordance with the specifications of the target RAT;

[TS 23.216, clause 6.2.2.2]

Depicted in figure 6.2.2.2-1 is a call flow for SRVCC from E-UTRAN to UTRAN or GERAN with DTM HO support, including the handling of the non-voice component. The flow requires that eNB can determine that either the target is UTRAN with PS HO or the target is GERAN with DTM support and the UE is supporting DTM.

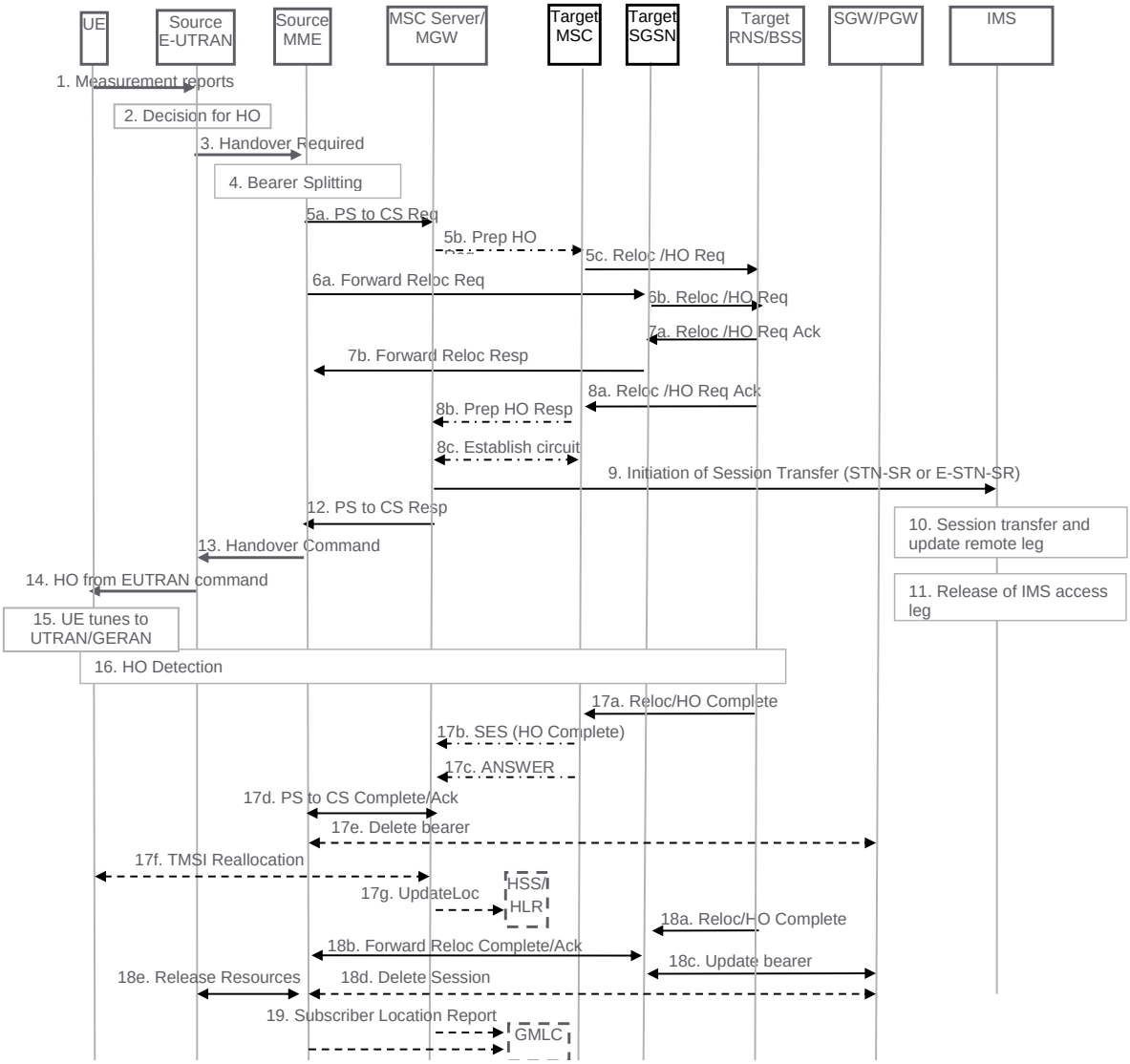

Figure 6.2.2.2-1: SRVCC from E-UTRAN to UTRAN with PS HO or GERAN with DTM HO support

1. UE sends measurement reports to E-UTRAN.

2. Based on UE measurement reports the source E-UTRAN decides to trigger an SRVCC handover to UTRAN/GERAN.

3. If target is UTRAN, the source E-UTRAN sends a Handover Required (Target ID, generic Source to Target Transparent Container, SRVCC HO indication) message to the source MME. SRVCC HO indication indicates to MME that this is for CS+PS HO.

NOTE 1: When the source E-UTRAN indicates using SRVCC HO Indication that target is both CS and PS capable and this is a CS+PS HO request, the source MME sends the single received transparent container to both the target CS domain and the target PS domain.

If target is GERAN, the source E UTRAN sends a Handover Required (Target ID, generic Source to Target Transparent Container, additional Source to Target Transparent Container, SRVCC HO Indication) message to the source MME. The E-UTRAN places the "old BSS to new BSS information IE" for the CS domain in the additional Source to Target Transparent Container. The differentiation between CS and PS containers is described in TS 36.413 [30]. In this case, the MME identifies from SRVCC HO Indication that this is a request for a CS+PS handover.

4. Based on the QCI associated with the voice bearer (QCI 1) and the SRVCC HO Indication, the source MME splits the voice bearer from all other PS bearers and initiates their relocation towards MSC Server and SGSN, respectively.

5a) Source MME initiates the PS-CS handover procedure for the voice bearer by sending a SRVCC PS to CS Request (IMSI, Target ID, STN-SR, C-MSISDN, Source to Target Transparent Container, MM Context, Emergency Indication) message to the MSC Server. The Emergency Indication and the equipment identifier are included if the ongoing session is emergency session. Authenticated IMSI and C-MSISDN shall also be included if available. The message includes information relevant to the CS domain only. MME received STN-SR and C-MSISDN from the HSS as part of the subscription profile downloaded during the E-UTRAN attach procedure. MM Context contains security related information. CS security key is derived by the MME from the E-UTRAN/EPS domain key as defined in TS 33.401 [22]. The CS Security key is sent in the MM Context.

5b) MSC Server interworks the PS-CS handover request with a CS inter-MSC handover request by sending a Prepare Handover Request message to the target MSC. If the target system is GERAN, the MSC Server assigns a default SAI as Source ID on the interface to the target BSS and uses BSSMAP encapsulated for the Prepare Handover Request. If the target system is UTRAN, the MSC Server uses RANAP encapsulated for the Prepare Handover Request.

NOTE 2: The value of the default SAI is configured in the MSC and allows a release 8 and later BSC to identify that the source for the SRVCC Handover is E-UTRAN. To ensure correct statistics in the target BSS the default SAI should be different from the SAIs used in UTRAN.

5c) Target MSC requests resource allocation for the CS relocation by sending the Relocation Request/Handover Request message to the target RNS/BSS. If the target RAT is UTRAN, Relocation Request/Handover Request message contains the generic Source to Target Transparent Container. If the target RAT is GERAN, Relocation Request/Handover Request message contains the additional Source to Target Transparent Container.

6. In parallel to the previous step the source MME initiates relocation of the PS bearers. The following steps are performed (for details see TS 23.401 [2] clauses 5.5.2.1 and 5.5.2.3):

   a) Source MME sends a Forward Relocation Request (generic Source to Target Transparent Container, MM Context, PDN Connections IE) message to the target SGSN. If the target SGSN uses S4 based interaction with S-GW and P-GW, the PDN Connections IE includes bearer information for all bearers except the voice bearer. The handling of security keys for PS handover of the remaining non-voice PS bearers is specified in TS 33.401 [22].

NOTE 3: If the target SGSN uses Gn/Gp based interaction with GGSN the Forward Relocation Request will contain PDP Contexts, instead of PDN Connections IE, including bearer information for all bearers except the voice bearer.

   b) Target SGSN requests resource allocation for the PS relocation by sending the Relocation Request/Handover Request (Source to Target Transparent Container) message to the target RNS/BSS.

7. After the target RNS/BSS receives both the CS relocation/handover request with the PS relocation/handover request, it assigns the appropriate CS and PS resources. The following steps are performed:

   a) Target RNS/BSS acknowledges the prepared PS relocation/handover by sending the Relocation Request Acknowledge/Handover Request Acknowledge (Target to Source Transparent Container) message to the target SGSN.

   b) Target SGSN sends a Forward Relocation Response (Target to Source Transparent Container) message to the source MME.

8. In parallel to the previous step the following steps are performed:

   a) Target RNS/BSS acknowledges the prepared CS relocation/handover by sending the Relocation Request Acknowledge/Handover Request Acknowledge (Target to Source Transparent Container) message to the target MSC.

   b) Target MSC sends a Prepare Handover Response (Target to Source Transparent Container) message to the MSC Server.

   c) Establishment of circuit connection between the target MSC and the MGW associated with the MSC Server e.g. using ISUP IAM and ACM messages.

NOTE 4: The Target to Source Transparent Container sent to the target SGSN is step 7a and the Target to Source Transparent Container sent to the target MSC in step 8a, include the same allocation of CS and PS resources (e.g. the target BSS includes the same DTM Handover Command in both containers).

9. For non-emergency session, the MSC Server initiates the Session Transfer by using the STN-SR e.g. by sending an ISUP IAM (STN-SR) message towards the IMS. For emergency session, the MSC Server initiates the Session Transfer by using the locally configured E-STN-SR and by including the equipment identifier. Standard IMS Service Continuity or Emergency IMS Service Continuity procedures are applied for execution of the Session Transfer, TS 23.237 [14].

NOTE 5: This step can be started after step 8b.

NOTE 6: If the MSC Server is using an ISUP interface, then the initiation of the session transfer for non-emergency sessions may fail if the subscriber profile including CAMEL triggers is not available prior handover (see clause 7.3.2.1.3 of TS 23.292 [13]).

10. During the execution of the Session Transfer procedure the remote end is updated with the SDP of the CS access leg according to TS 23.237 [14]. The downlink flow of VoIP packets is switched towards the CS access leg at this point.

11. The source IMS access leg is released according to TS 23.237 [14].

NOTE 7: Steps 10 and 11 are independent of step 12.

12. The MSC Server sends a SRVCC PS to CS Response (Target to Source Transparent Container) message to the source MME.

13. Source MME synchronises the two prepared relocations and sends a Handover Command (Target to Source Transparent Container) message to the source E-UTRAN.

NOTE 8: When the target cell is GERAN, the MME may receive different Target to Source Transparent Containers from the MSC Server and from the SGSN, i.e. a "New BSS to Old BSS Information" (see TS 48.008 [23]) may be received from the MSC Server and a "Target BSS to Source BSS Transparent Container" (see TS 48.018 [24]) may be received from the SGSN.

14. E-UTRAN sends a Handover from E-UTRAN Command message to the UE.

15. UE tunes to the target UTRAN/GERAN cell.

16. Handover Detection at the target RNS/BSS occurs. The UE sends a Handover Complete message via the target RNS/BSS to the target MSC. If the target MSC is not the MSC Server, then the Target MSC sends an SES (Handover Complete) message to the MSC Server. At this stage, the UE re-establishes the connection with the network and can send/receive voice data.

17. The CS relocation/handover is complete. The following steps are performed:

    a) Target RNS/BSS sends Relocation Complete/Handover Complete message to the target MSC.

    b) Target MSC sends an SES (Handover Complete) message to the MSC Server. The speech circuit is through connected in the MSC Server/MGW according to TS 23.009 [18].

    c) Completion of the establishment procedure with ISUP Answer message to the MSC Server according to TS 23.009 [18].

    d) MSC Server sends a SRVCC PS to CS Complete Notification message to the source MME. Source MME acknowledges the information by sending a SRVCC PS to CS Complete Acknowledge message to the MSC Server.

    e) The source MME deactivates the voice bearer towards S-GW/P-GW and sets the PS-to-CS handover indicator to Delete Bearer Command message. This triggers MME-initiated Dedicated Bearer Deactivation procedure as specified in TS 23.401 [2]. The MME does not send deactivation request toward the eNodeB on receiving PS-to-CS Complete Notification in step 17d. If dynamic PCC is deployed, the PGW may interact with PCRF as defined in TS 23.203 [31].

f) If the HLR is to be updated, i.e. if the IMSI is authenticated but unknown in the VLR, the MSC Server performs a TMSI reallocation towards the UE using its own non-broadcast LAI and, if the MSC Server and other MSC/VLRs serve the same (target) LAI, with its own Network Resource Identifier (NRI).

NOTE 9: The TMSI reallocation is performed by the MSC Server towards the UE via target MSC.

g) If the MSC Server performed a TMSI reallocation in step 17f, and if this TMSI reallocation was completed successfully, the MSC Server performs a MAP Update Location to the HSS/HLR.

NOTE 10: This Update Location is not initiated by the UE.

18. In parallel to the previous step, the PS relocation/handover is completed. The following steps are performed:

a) Target RNS/BSS sends Relocation Complete/Handover Complete message to target SGSN.

b) Target SGSN sends a Forward Relocation Complete message to the source MME. After having completed step 17e, the source MME acknowledges the information by sending a Forward Relocation Complete Acknowledge message to the target SGSN.

c) Target SGSN updates the bearer with S-GW/P-GW/GGSN as specified in TS 23.401 [2].

d) The MME sends Delete Session Request to the SGW as defined in TS 23.401 [2].

e) The source MME sends a Release Resources message to the Source eNodeB as defined in TS 23.401 [2]. The Source eNodeB releases its resources related to the UE.

NOTE 11: Routing Area Update procedures by the UE are done in accordance with TS 23.401 [2].

19. For an emergency services session after handover is complete, the source MME or the MSC Server may send a Subscriber Location Report carrying the identity of the MSC Server to a GMLC associated with the source or target side, respectively, as defined in TS 23.271 [29] to support location continuity.

NOTE 12: Any configuration of the choice between a source MME versus MSC Server update to a GMLC needs to ensure that a single update occurs from one of these entities when the control plane location solution is used on the source and/or target sides.

In case the MME determines that only the relocation of the voice bearer but not the relocation of one or more PS bearers succeeds, then the MME proceeds with step 13 after receiving SRVCC PS to CS Response from the MSC Server in step 12 and both UE and MME continue the procedure as described in clause 6.2.2.1A.

13.4.3.2.3 Test description

13.4.3.2.3.1 Pre-test conditions

System Simulator:

- Cell 1 and Cell 5.
- System information combination 4 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cells.

UE:

None.

Preamble:

- The UE is in state Registered, Idle mode (state 2) on Cell 1 according to [18].

13.4.3.2.3.2 Test procedure sequence

Table 13.4.3.2.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while columns marked "T1" is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 13.4.3.2.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 5	Remark
T0	Cell-specific RS EPRE	dBm/15kHz	-60	-	The power level values are such that entering conditions for event B2 are not satisfied.
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-88	
	PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-88	
T1	Cell-specific RS EPRE	dBm/15kHz	-84	-	The power level values are such that entering conditions for event B2 are satisfied.
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-64	
	PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-64	

Table 13.4.3.2.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS configures UTRA cell 5 to reference configuration according 36.508 table 4.8.3-1, condition UTRA PS RB + Speech.	-	-	-	-
2-25	Steps 1 to 24 of the generic test procedure for IMS MT speech call (TS 36.508 4.5A.7.3-1).	-	-	-	-
26-27	Void				
28	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1 to setup inter RAT measurement and reporting for event B2.	<--	*RRCConnectionReconfiguration*	-	-
29	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1.	-->	*RRCConnectionReconfigurationComplete*	-	-
30	The SS changes the power level for Cell 1 and Cell 5 according to the row "T1" in table 13.4.3.2.3.2-1	-	-	-	-
31	The UE transmits a *MeasurementReport* message on Cell 1 to report event B2 for Cell 5.	-->	*MeasurementReport*	-	-
32	The SS transmits a *MobilityFromEUTRACommand* message on Cell 1.	<--	*MobilityFromEUTRACommand*	-	-
32A	The SS transmits a *UECapabilityEnquiry* message to request UE radio access capability information for E-UTRA and UTRA.	<--	*UECapabilityEnquiry*	-	-
32B	The UE transmit a *UECapabilityInformation* message on Cell 1. NOTE: The start-CS values received, should be used to configure ciphering on cell 5.	-->	*UECapabilityInformation*	-	-
33	Check: Does the UE transmit a HANDOVER TO UTRAN COMPLETE message on cell 5?	-->	HANDOVER TO UTRAN COMPLETE	1	P
-	EXCEPTION: In parallel to the events described in step 34 to 39 the steps specified in table 13.4.3.2.3.2-5 takes place.	-	-	-	-
-	EXCEPTION: In parallel to the events described in step 34 to 39 the steps specified in table 13.4.3.2.3.2-6 takes place if requested by the UE.	-	-	-	-
34	The SS transmits a SECURITY MODE COMMAND message for the CS domain.	<--	SECURITY MODE COMMAND	-	-
35	The UE transmits a SECURITY MODE COMPLETE message.	-->	SECURITY MODE COMPLETE	-	-
36	The SS transmits an UTRAN MOBILITY INFORMATION message to notify CN information.	<--	UTRAN MOBILITY INFORMATION	-	-
37	The UE transmits an UTRAN MOBILITY INFORMATION CONFIRM message.	-->	UTRAN MOBILITY INFORMATION CONFIRM	-	-
38	The SS transmits a TMSI REALLOCATION COMMAND message.	<--	TMSI REALLOCATION COMMAND	-	-
39	The UE transmits a TMSI REALLOCATION COMPLETE message.	-->	TMSI REALLOCATION COMPLETE	-	-

Table 13.4.3.2.3.2-3: Void

Table 13.4.3.2.3.2-4: Void

Table 13.4.3.2.3.2-5: Parallel behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Check: Does the UE transmit a ROUTING AREA UPDATE REQUEST message?	-->	ROUTING AREA UPDATE REQUEST	-	P
2	The SS transmits a ROUTING AREA UPDATE ACCEPT message.	<--	ROUTING AREA UPDATE ACCEPT	-	-
3	The UE transmits a ROUTING AREA UPDATE COMPLETE message.	-->	ROUTING AREA UPDATE COMPLETE	-	-

Table 13.4.3.2.3.2-6: Parallel behaviour

St	Procedure	Message Sequence		TP	Verdict
		U – S	Message		
1-4	Steps 1-4 defined in annex C.24 of TS 34.229-1 [35]. SRVCC media removal.	-	-	-	-

13.4.3.2.3.3 Specific message contents

Table 13.4.3.2.3.3-1: ATTACH REQUEST (preamble)

Derivation path: 36.508 table 4.7.2-4			
Information Element	**Value/remark**	**Comment**	**Condition**
MS network capability	SRVCC from UTRAN HSPA or E-UTRAN to GERAN/UTRAN supported		
Mobile station classmark 2	Any allowed value		
Supported Codecs	Any allowed value		

Table 13.4.3.2.3.3-2: *RRCConnectionReconfiguration* (step 28, Table 13.4.3.2.3.2-2)

Derivation Path: 36.508 clause 4.6.1 table 4.6.1-8 with condition MEAS

Table 13.4.3.2.3.3-3: *MeasConfig* (step 28, Table 13.4.3.2.3.2-2)

Derivation path: 36.508 clause 4.6.6 table 4.6.6-1 with condition UTRAN			
Information Element	**Value/Remark**	**Comment**	**Condition**
measurementConfiguration ::= SEQUENCE {			
measObjectToAddModifyList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entries		
measObjectId[1]	IdMeasObject-f8		
measObject[1]	MeasObjectUTRA-GENERIC(f8)		
measObjectId[2]	IdMeasObject-f1		
measObject[2]	MeasObjectEUTRA-GENERIC(f1)		
}			
reportConfigToAddModifyList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	1 entry		
reportConfigId[1]	IdReportConfigInterRAT-B2-UTRA		
reportConfig[1]	ReportConfigInterRAT-B2-UTRA (-72, -76)		
}			
measIdToAddModifyList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	1 entry		
measId[1]	1		
measObjectId[1]	IdMeasObject-f8		
reportConfigId[1]	IdReportConfigInterRAT-B2-UTRA		
}			
}			

Table 13.4.3.2.3.3-4: *MeasurementReport* (step 31, Table 13.4.3.2.3.2-2)

Derivation Path: 36.508, table 4.6.1-5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
measurementReport-r8 SEQUENCE {			
measResults SEQUENCE {			
measId	1		
measResultServCell SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListUTRA SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {	1 entry		
physCellId[1]	PhysicalCellIdentity of Cell 5		
cgi-Info[1]	Not present		
measResult[1] SEQUENCE {			
utra-RSCP	(-5..91)		
}			
}			
}			
}			
}			
}			
}			
}			

Table 13.4.3.2.3.3-5: *MobilityFromEUTRACommand* (step 32, Table 13.4.3.2.3.2-2)

Derivation Path: 36.508, Table 4.6.1-6			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityFromEUTRACommand ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
mobilityFromEUTRACommand-r8 SEQUENCE {			
cs-FallbackIndicator	True		
purpose CHOICE{			
handover SEQUENCE {			
targetRAT-Type	Utra		
targetRAT-MessageContainer	HANDOVER TO UTRAN COMMAND(UTRA RRC message)		
nas-SecurityParamFromEUTRA	The 4 least significant bits of the NAS downlink COUNT value		
systemInformation	Not present		
}			
}			
}			
}			
}			
}			

Table 13.4.3.2.3.3-6: HANDOVER TO UTRAN COMMAND (step 32, Table 13.4.3.2.3.3-5)

Derivation Path: 36.508, Table 4.7B.1-1, condition UTRA Speech + Packet RAB Setup after Speech RAB Setup in CELL_DCH

Table 13.4.3.2.3.3-7: UECapabilityEnquiry (step 32A, Table 13.4.3.2.3.2-2)

Derivation path: 36.508 clause 4.6.1 table 4.6.1-22			
Information Element	**Value/Remark**	**Comment**	**Condition**
UECapabilityEnquiry ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
ueCapabilityEnquiry-r8 SEQUENCE {			
ue-CapabilityRequest SEQUENCE (SIZE (1..maxRAT-Capabilities)) OF SEQUENCE {	2 entry		
RAT-Type[1]	eutra		
RAT-Type[2]	utra		
}			
}			
}			
}			
}			

Table 13.4.3.2.3.3-8: SECURITY MODE COMMAND (step 34, Table 13.4.3.2.3.2-2)

Derivation Path: 36.508, Table 4.7B.1-n		
Information Element	**Condition**	**Value/remark**
Ciphering mode info		Not Present

Table 13.4.3.2.3.3-9: Void

Table 13.4.3.2.3.3-10: Void

13.4.3.3 Inter-system mobility / E-UTRA voice to GSM CS voice / SRVCC

13.4.3.3.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_CONNECTED state }
ensure that {
   when { UE receives a MobilityFromEUTRACommand message and an IMS voice call is ongoing and an
GERAN Speech RAB combination is configured for an GERAN cell}
    then { UE transmits a HANDOVER COMPLETE message on the geran cell}
}
```

13.4.3.3.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.331, clause 5.4.3.3 and TS 23.216, clause 6.2.2.1.

[TS 36.331, clause 5.4.3.3]

The UE shall be able to receive a *MobilityFromEUTRACommand* message and perform a cell change order to GERAN, even if no prior UE measurements have been performed on the target cell.

The UE shall:

1> stop timer T310, if running;

1> if the *MobilityFromEUTRACommand* message includes the *purpose* set to '*handover*':

2> if the *targetRAT-Type* is set to '*utra*' or '*geran*':

3> consider inter-RAT mobility as initiated towards the RAT indicated by the *targetRAT-Type* included in the *MobilityFromEUTRACommand* message;

3> forward the *nas-SecurityParamFromEUTRA* to the upper layers;

3> access the target cell indicated in the inter-RAT message in accordance with the specifications of the target RAT;

[TS 23.216, clause 6.2.2.1]

Depicted in figure 6.2.2.1-1 is a call flow for SRVCC from E-UTRAN to GERAN without DTM support. The flow requires that eNB can determine that the target is GERAN without DTM support or that the UE is without DTM support.

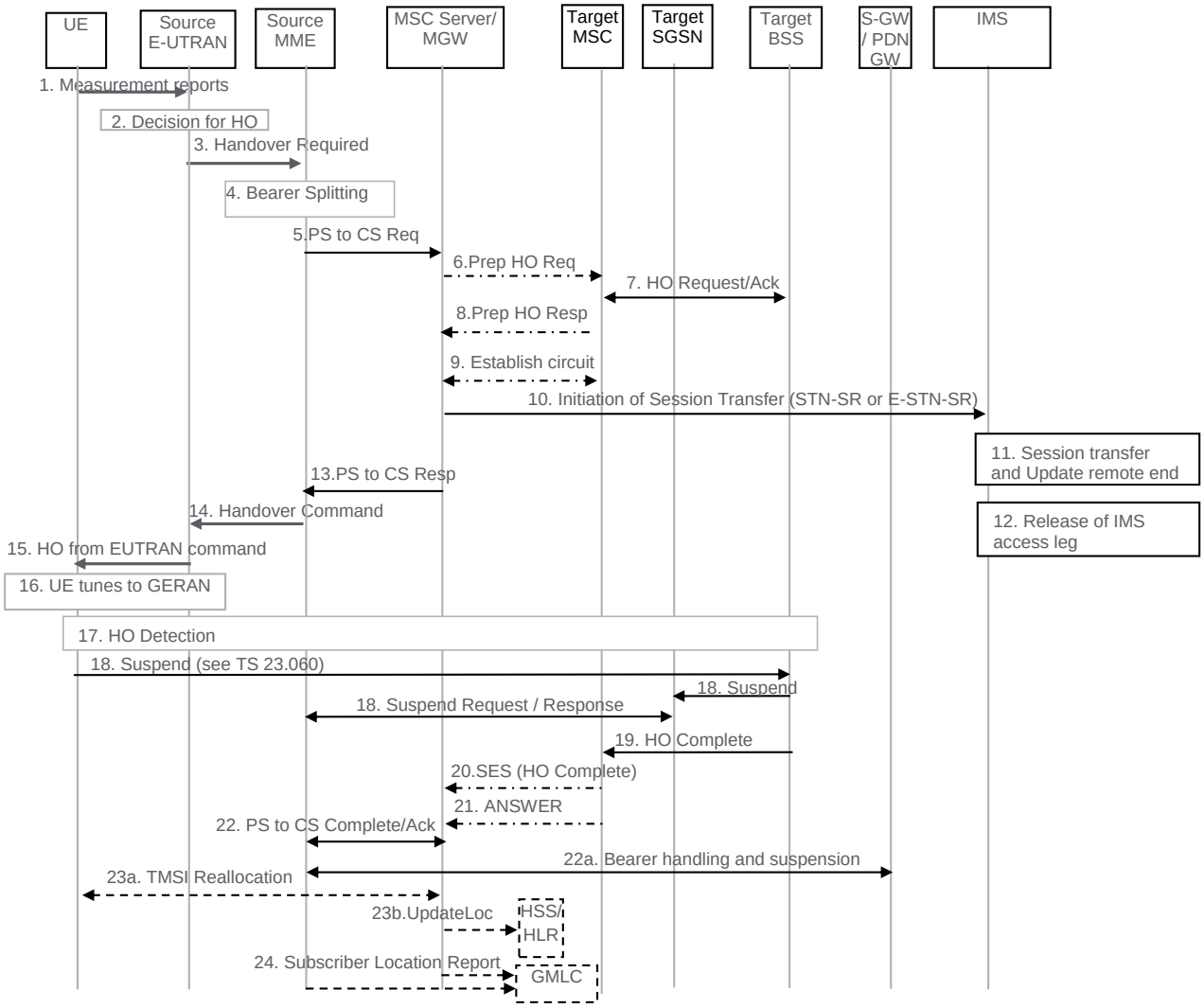

Figure 6.2.2.1-1: SRVCC from E-UTRAN to GERAN without DTM support

1. UE sends measurement reports to E-UTRAN.

2. Based on UE measurement reports the source E-UTRAN decides to trigger an SRVCC handover to GERAN.

3. Source E-UTRAN sends Handover Required (Target ID, generic Source to Target Transparent Container, SRVCC HO Indication) message to the source MME. The E-UTRAN places the "old BSS to new BSS information IE" for the CS domain in the generic Source to Target Transparent Container. The SRVCC HO indication indicates to the MME that target is only CS capable, hence this is a SRVCC handover operation only towards the CS domain. The message includes an indication that the UE is not available for the PS service in the target cell.

4. Based on the QCI associated with the voice bearer (QCI 1) and the SRVCC HO indication, the source MME splits the voice bearer from the non voice bearers and initiates the PS-CS handover procedure for the voice bearer only towards MSC Server.

5. The MME sends a SRVCC PS to CS Request (IMSI, Target ID, STN-SR, C-MSISDN, generic Source to Target Transparent Container, MM Context, Emergency Indication) message to the MSC Server. The Emergency Indication and the equipment identifier are is included if the ongoing session is emergency session. Authenticated IMSI and C-MSISDN shall also be included, if available. The MME received STN-SR and C-MSISDN from the HSS as part of the subscription profile downloaded during the E-UTRAN attach procedure. The MM Context contains security related information. CS security key is derived by the MME from the E-UTRAN/EPS domain key as defined in TS 33.401 [22]. The CS Security key is sent in the MM Context.

6. The MSC Server interworks the PS-CS handover request with a CS inter-MSC handover request by sending a Prepare Handover Request message to the target MSC. The MSC Server assigns a default SAI as Source ID on the interface to the target BSS and uses BSSMAP encapsulated for the Prepare Handover Request.

NOTE 1: The value of the default SAI is configured in the MSC and allows a release 8 and later BSC to identify that the source for the SRVCC Handover is E-UTRAN. To ensure correct statistics in the target BSS the default SAI should be different from the SAIs used in UTRAN.

7. Target MSC performs resource allocation with the target BSS by exchanging Handover Request/ Acknowledge messages.

8. Target MSC sends a Prepare Handover Response message to the MSC Server.

9. Establishment of circuit connection between the target MSC and the MGW associated with the MSC Server e.g. using ISUP IAM and ACM messages.

10. For non-emergency session, the MSC Server initiates the Session Transfer by using the STN-SR e.g. by sending an ISUP IAM (STN-SR) message towards the IMS. For emergency session, the MSC Server initiates the Session Transfer by using the locally configured E-STN-SR and by including the equipment identifier. Standard IMS Service Continuity or Emergency IMS Service Continuity procedures are applied for execution of the Session Transfer, see TS 23.237 [14].

NOTE 2: This step can be started after step 8.

NOTE 3: If the MSC Server is using an ISUP interface, then the initiation of the session transfer for non-emergency session may fail if the subscriber profile including CAMEL triggers is not available prior handover (see clause 7.3.2.1.3 in TS 23.292 [13]).

11. During the execution of the Session Transfer procedure the remote end is updated with the SDP of the CS access leg. The downlink flow of VoIP packets is switched towards the CS access leg at this point.

12. Source IMS access leg is released as per TS 23.237 [14].

NOTE 4: Steps 11 and 12 are independent of step 13.

13. MSC Server sends a SRVCC PS to CS Response (Target to Source Transparent Container) message to the source MME.

14. Source MME sends a Handover Command (Target to Source Transparent Container) message to the source E-UTRAN. The message includes information about the voice component only.

15. Source E-UTRAN sends a Handover from E-UTRAN Command message to the UE.

16. UE tunes to GERAN.

17. Handover Detection at the target BSS occurs. The UE sends a Handover Complete message via the target BSS to the target MSC. If the target MSC is not the MSC Server, then the Target MSC sends an SES (Handover Complete) message to the MSC Server.

18. The UE starts the Suspend procedure specified in TS 23.060 [10], clause 16.2.1.1.2. The TLLI and RAI pair are derived from the GUTI as described in TS 23.003 [27]. This triggers the Target SGSN to send a Suspend Notification message to the Source MME. The MME returns a Suspend Acknowledge to the Target SGSN.

NOTE 5: The MME might not be able to derive the GUTI from the received P-TMSI and RAI pair and therefore it might not be able to identify which UE context is associated with the Suspend Notification message. Also in this case the bearers are deactivated and/or suspended as in step 22a.

19. Target BSS sends a Handover Complete message to the target MSC.

20. Target MSC sends an SES (Handover Complete) message to the MSC Server. The speech circuit is through connected in the MSC Server/MGW according to TS 23.009 [18].

21. Completion of the establishment procedure with ISUP Answer message to the MSC Server according to TS 23.009 [18].

22. MSC Server sends a SRVCC PS to CS Complete Notification message to the source MME, informing it that the UE has arrived on the target side. Source MME acknowledges the information by sending a SRVCC PS to CS Complete Acknowledge message to the MSC Server.

22a. The MME deactivates bearers used for voice and other GBR bearers. All GBR bearers are deactivated towards S-GW and P-GW by initiating MME-initiated Dedicated Bearer Deactivation procedure as specified in TS 23.401 [2]. The MME does not send deactivation request toward the eNodeB on receiving PS-to-CS Complete Notification in step 22. PS-to-CS handover indicator is notified to P-GW for voice bearer during the bearer deactivation procedure. For GTP-based S5/S8, the S-GW requests the P-GW to delete all GBR bearer contexts by sending a Delete Bearer Command message. If dynamic PCC is deployed, the P-GW may interact with PCRF as defined in TS 23.203 [31]. For PMIP-based S5/S8, S-GW interacts with the PCRF which in turn updates PCC rules for GBR traffic in the P-GW.

The MME starts preservation and suspension of non-GBR bearers by sending Suspend Notification message towards S-GW. For these non-GBR bearers, the S-GW releases S1-U bearers for the UE and sends Suspend Notification message to the P-GW(s). The MME stores in the UE context that UE is in suspended status. All the preserved non-GBR bearers are marked as suspended status in the S-GW and P-GW. The P-GW should discard packets if received for the suspended UE.

23a. If the HLR is to be updated, i.e. if the IMSI is authenticated but unknown in the VLR, the MSC Server performs a TMSI reallocation towards the UE using its own non-broadcast LAI and, if the MSC Server and other MSC/VLRs serve the same (target) LAI, with its own Network Resource Identifier (NRI).

NOTE 5: The TMSI reallocation is performed by the MSC Server towards the UE via target MSC.

23b. If the MSC Server performed a TMSI reallocation in step 23a, and if this TMSI reallocation was completed successfully, the MSC Server performs a MAP Update Location to the HSS/HLR.

NOTE 6: This Update Location is not initiated by the UE.

24. For an emergency services session after handover is complete, the source MME or the MSC Server may send a Subscriber Location Report carrying the identity of the MSC Server to a GMLC associated with the source or target side, respectively, as defined in TS 23.271 [29] to support location continuity.

NOTE 7: Any configuration of the choice between a source MME versus MSC Server update to a GMLC needs to ensure that a single update occurs from one of these entities when the control plane location solution is used on the source and/or target sides.

13.4.3.3.3 Test description

13.4.3.3.3.1 Pre-test conditions

System Simulator:

- Cell 1 and Cell 24.
- System information combination 5 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cells.

UE:

None.

Preamble:

- The UE is in state Registered, Idle mode (state 2) on Cell 1 according to [18].

13.4.3.3.3.2 Test procedure sequence

Table 13.4.3.3.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while columns marked "T1" is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 13.4.3.3.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 24	Remark
T0	Cell-specific RS EPRE	dBm/15kHz	-85	-	The power level values are such that entering conditions for event B2 are not satisfied.
	RSSI	dBm	-	-85	
T1	Cell-specific RS EPRE	dBm/15kHz	-100	-	The power level values are such that entering conditions for event B2 are satisfied.
	RSSI	dBm	-	-65	

Table 13.4.3.3.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1-26	Steps 1 to 26 of the generic test procedure for IMS MT speech call (TS 36.508 4.5A.7.3-1).	-	-	-	-
27	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1 to setup inter RAT measurement and reporting for event B2.	<--	*RRCConnectionReconfiguration*	-	-
28	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1.	-->	*RRCConnectionReconfigurationComplete*	-	-
29	The SS changes the power level for Cell 1 and Cell 5 according to the row "T1" in table 13.4.3.3.3.2-1	-	-	-	-
30	The UE transmits a *MeasurementReport* message on Cell 1 to report event B2 for Cell 24.	-->	*MeasurementReport*	-	-
31	The SS transmits a *MobilityFromEUTRACommand* message on Cell 1.	<--	*MobilityFromEUTRACommand*	-	-
32	Check: Does the UE transmit a HANDOVER COMPLETE message on cell 24?	-->	HANDOVER COMPLETE	1	P
33	The UE transmits a GPRS SUSPENSION REQUEST message	-->	GPRS SUSPENSION REQUEST	-	-
34	The SS transmits a TMSI REALLOCATION COMMAND message.	<--	TMSI REALLOCATION COMMAND	-	-
35	The UE transmits a TMSI REALLOCATION COMPLETE message.	-->	TMSI REALLOCATION COMPLETE	-	-

Table 13.4.3.3.3.2-4: Void

13.4.3.3.3.3 Specific message contents

Table 13.4.3.3.3.3-1: ATTACH REQUEST (preamble)

Derivation path: 36.508 table 4.7.2-4			
Information Element	**Value/remark**	**Comment**	**Condition**
MS network capability	SRVCC from UTRAN HSPA or E-UTRAN to GERAN/UTRAN supported		
Mobile station classmark 2	Any allowed value		
Supported Codecs	Any allowed value		

Table 13.4.3.3.3.3-2: *RRCConnectionReconfiguration* (step 27, Table 13.4.3.3.3.2-2)

Derivation Path: 36.508 clause 4.6.1 table 4.6.1-8 with condition MEAS

Table 13.4.3.3.3.3-3: *MeasConfig* (step 27, Table 13.4.3.3.3.2-2)

Derivation path: 36.508 clause 4.6.6 table 4.6.6-1 with condition GERAN			
Information Element	**Value/Remark**	**Comment**	**Condition**
measurementConfiguration ::= SEQUENCE {			
measObjectToAddModifyList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entries		
measObjectId[1]	IdMeasObject-f11		
measObject[1]	MeasObjectGERAN-GENERIC(f11)		
measObjectId[2]	IdMeasObject-f1		
measObject[2]	MeasObjectEUTRA-GENERIC(f1)		
}			
reportConfigToAddModifyList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	1 entry		
reportConfigId[1]	IdReportConfigInterRAT-B2-GERAN		
reportConfig[1]	ReportConfigInterRAT-B2-GERAN (-90, -100)		
}			
measIdToAddModifyList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	1 entry		
measId[1]	1		
measObjectId[1]	IdMeasObject-f8		
reportConfigId[1]	IdReportConfigInterRAT-B2-GERAN		
}			
}			

Table 13.4.3.3.3.3-4: *MeasurementReport* (step 30, Table 13.4.3.3.3.2-2)

Derivation Path: 36.508, table 4.6.1-5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
measurementReport-r8 SEQUENCE {			
measResults SEQUENCE {			
measId	1		
measResultServCell SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListGERAN SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {	1 entry		
physCellId	PhysicalCellIdentity of Cell 24		
cgi-Info[1]	Not present		
measResult[1] SEQUENCE {			
rssi	The value of rssi is present but contents not checked		
}			
}			
}			
}			
}			
}			
}			
}			

Table 13.4.3.3.3.3-5: *MobilityFromEUTRACommand* (step 31, Table 13.4.3.3.3.2-2)

Derivation Path: 36.508, Table 4.6.1-6			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityFromEUTRACommand ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
mobilityFromEUTRACommand-r8 SEQUENCE {			
cs-FallbackIndicator	True		
purpose CHOICE{			
handover SEQUENCE {			
targetRAT-Type	geran		
targetRAT-MessageContainer	HANDOVER COMMAND(GERAN RRC message), see Table 13.4.3.3.3.3-6		
nas-SecurityParamFromEUTRA	The 4 least significant bits of the NAS downlink COUNT value		
systemInformation	Not present		
}			
}			
}			
}			
}			
}			

Table 13.4.3.3.3.3-6: HANDOVER COMMAND (step 31, Table 13.4.3.3.3.2-2)

Derivation Path: 51.010, Table 40.2.4.33			
Information Element	**Value/remark**	**Comment**	**Condition**
Cell Description			
Network Colour Code	1		
Base Station Colour Code	5		
BCCH Carrier Number	The BCCH Carrier ARFCN as per table in clause 40.1.1 of 51.010-1.		
Description of the First Channel, after time			
Channel Description			
Channel Type and TDMA offset	TCH/F + ACCH's		
Timeslot Number	Chosen arbitrarily, but not Zero.		
Training Sequence Code	Same as the BCCH		
Hopping channel	Single RF channel		
ARFCN	The first ARFCN in the cell allocation as per table in clause 40.2.1.1.1 of 51.010-1		
Cipher Mode Setting	1001xxxy	See TS 44.018 §9.1.15.10 xxx - px_GSM_CipherAlg y - px_GSM_CipheringOnOff	

13.4.3.4 Inter-system mobility / E-UTRA voice to UTRA CS voice / Unsuccessful case / Retry on old cell / SRVCC

13.4.3.4.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_CONNECTED state }
ensure that {
  when { UE receives a MobilityFromEUTRACommand message and an IMS voice call is ongoing and the UE
does not succeed in establishing the connection to the target radio access technology }
    then { UE initiates the connection re-establishment procedure }
          }

13.
```

(2)

```
with { UE in E-UTRA RRC_CONNECTED state }
ensure that {
  when { UE successfully completes the RRC Connection re-establishment procedure }
   then { UE is in E-UTRA RRC_CONNECTED state }
         }
```

4.3.4.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.331, clause 5.4.3.3, 5.4.3.5, 5.3.7.2, 5.3.7.3, 5.3.7.4, 5.3.7.5, TS 23.216, clause 6.2.2. 1 and 6.2.2.1A.

[TS 36.331, clause 5.4.3.3]

The UE shall be able to receive a *MobilityFromEUTRACommand* message and perform a cell change order to GERAN, even if no prior UE measurements have been performed on the target cell.

The UE shall:

1> stop timer T310, if running;

1> if the *MobilityFromEUTRACommand* message includes the *purpose* set to '*handover*':

2> if the *targetRAT-Type* is set to '*utra*' or '*geran*':

3> consider inter-RAT mobility as initiated towards the RAT indicated by the *targetRAT-Type* included in the *MobilityFromEUTRACommand* message;

3> forward the *nas-SecurityParamFromEUTRA* to the upper layers;

3> access the target cell indicated in the inter-RAT message in accordance with the specifications of the target RAT;

[TS 36.331, clause 5.4.3.5]

The UE shall:

1> if T304 expires (mobility from E-UTRA failure); or

1> if the UE does not succeed in establishing the connection to the target radio access technology; or

1> if the UE is unable to comply with (part of) the configuration included in the *MobilityFromEUTRACommand* message; or

1> if there is a protocol error in the inter RAT information included in the *MobilityFromEUTRACommand* message, causing the UE to fail the procedure according to the specifications applicable for the target RAT:

2> stop T304, if running;

2> if the *cs-FallbackIndicator* in the *MobilityFromEUTRACommand* message was set to '*TRUE*':

3> indicate to upper layers that the CS Fallback procedure has failed;

2> revert back to the configuration used in the source cell, excluding the configuration configured by the *physicalConfigDedicated*, *mac-MainConfig* and *sps-Config*;

2> initiate the connection re-establishment procedure as specified in 5.3.7;

[TS 36.331, clause 5.3.7.2]

The UE shall only initiate the procedure when AS security has been activated. The UE initiates the procedure when one of the following conditions is met:

...

1> upon mobility from E-UTRA failure, in accordance with 5.4.3.5; or

...

Upon initiation of the procedure, the UE shall:

1> stop timer T310, if running;

1> start timer T311;

1> suspend all RBs except SRB0;

1> reset MAC;

1> apply the default physical channel configuration as specified in 9.2.4;

1> apply the default semi-persistent scheduling configuration as specified in 9.2.3;

1> apply the default MAC main configuration as specified in 9.2.2;

1> perform cell selection in accordance with the cell selection process as specified in TS 36.304 [4];

[TS 36.331, clause 5.3.7.3]

Upon selecting a suitable E-UTRA cell, the UE shall:

1> stop timer T311;

1> start timer T301;

1> apply the *timeAlignmentTimerCommon* included in *SystemInformationBlockType2*;

1> initiate transmission of the *RRCConnectionReestablishmentRequest* message in accordance with 5.3.7.4;

[TS 36.331, clause 5.3.7.4]

The UE shall set the contents of *RRCConnectionReestablishmentRequest* message as follows:

1> set the *ue-Identity* as follows:

2> set the *c-RNTI* to the C-RNTI used in the source cell (handover and mobility from E-UTRA failure) or used in the cell in which the trigger for the re-establishment occurred (other cases);

2> set the *physCellId* to the physical cell identity of the source cell (handover and mobility from E-UTRA failure) or of the cell in which the trigger for the re-establishment occurred (other cases);

2> set the *shortMAC-I* to the 16 least significant bits of the MAC-I calculated:

3> over the ASN.1 encoded as per section 8 (i.e., a multiple of 8 bits) *VarShortMAC-Input*;

3> with the K_{RRCint} key and integrity protection algorithm that was used in the source cell (handover and mobility from E-UTRA failure) or of the cell in which the trigger for the re-establishment occurred (other cases); and

3> with all input bits for COUNT, BEARER and DIRECTION set to binary ones;

1> set the *reestablishmentCause* as follows:

...

2> else if the re-establishment procedure was initiated due to handover failure as specified in 5.3.5.6 (intra-LTE handover failure) or 5.4.3.5 (inter-RAT mobility from EUTRA failure):

3> set the *reestablishmentCause* to the value '*handoverFailure*';

...

The UE shall submit the *RRCConnectionReestablishmentRequest* message to lower layers for transmission.

[TS 36.331, clause 5.3.7.5]

The UE shall:

1> stop timer T301;

1> re-establish PDCP for SRB1;

1> re-establish RLC for SRB1;

1> perform the radio resource configuration procedure in accordance with the received *radioResourceConfigDedicated* and as specified in 5.3.10;

1> resume SRB1;

1> update the K_{eNB} key based on the K_{ASME} key to which the current K_{eNB} is associated, using the *nextHopChainingCount* value indicated in the *RRCConnectionReestablishment* message, as specified in TS 33.401 [32];

1> store the *nextHopChainingCount* value;

1> derive the K_{RRCint} key associated with the previously configured integrity algorithm, as specified in TS 33.401 [32];

1> derive the K_{RRCenc} key and the K_{UPenc} key associated with the previously configured ciphering algorithm, as specified in TS 33.401 [32];

1> configure lower layers to activate integrity protection using the previously configured algorithm and the K_{RRCint} key immediately, i.e., integrity protection shall be applied to all subsequent messages received and sent by the UE, including the message used to indicate the successful completion of the procedure;

1> configure lower layers to apply ciphering using the previously configured algorithm, the K_{RRCenc} key and the K_{UPenc} key immediately, i.e., ciphering shall be applied to all subsequent messages received and sent by the UE, including the message used to indicate the successful completion of the procedure;

1> perform the measurement related actions as specified in 5.5.6.1;

1> submit the *RRCConnectionReestablishmentComplete* message to lower layers for transmission, upon which the procedure ends;

[TS 23.216, clause 6.2.2. 1]

Depicted in figure 6.2.2.1-1 is a call flow for SRVCC from E-UTRAN to GERAN without DTM support. The flow requires that eNB can determine that the target is GERAN without DTM support or that the UE is without DTM support.

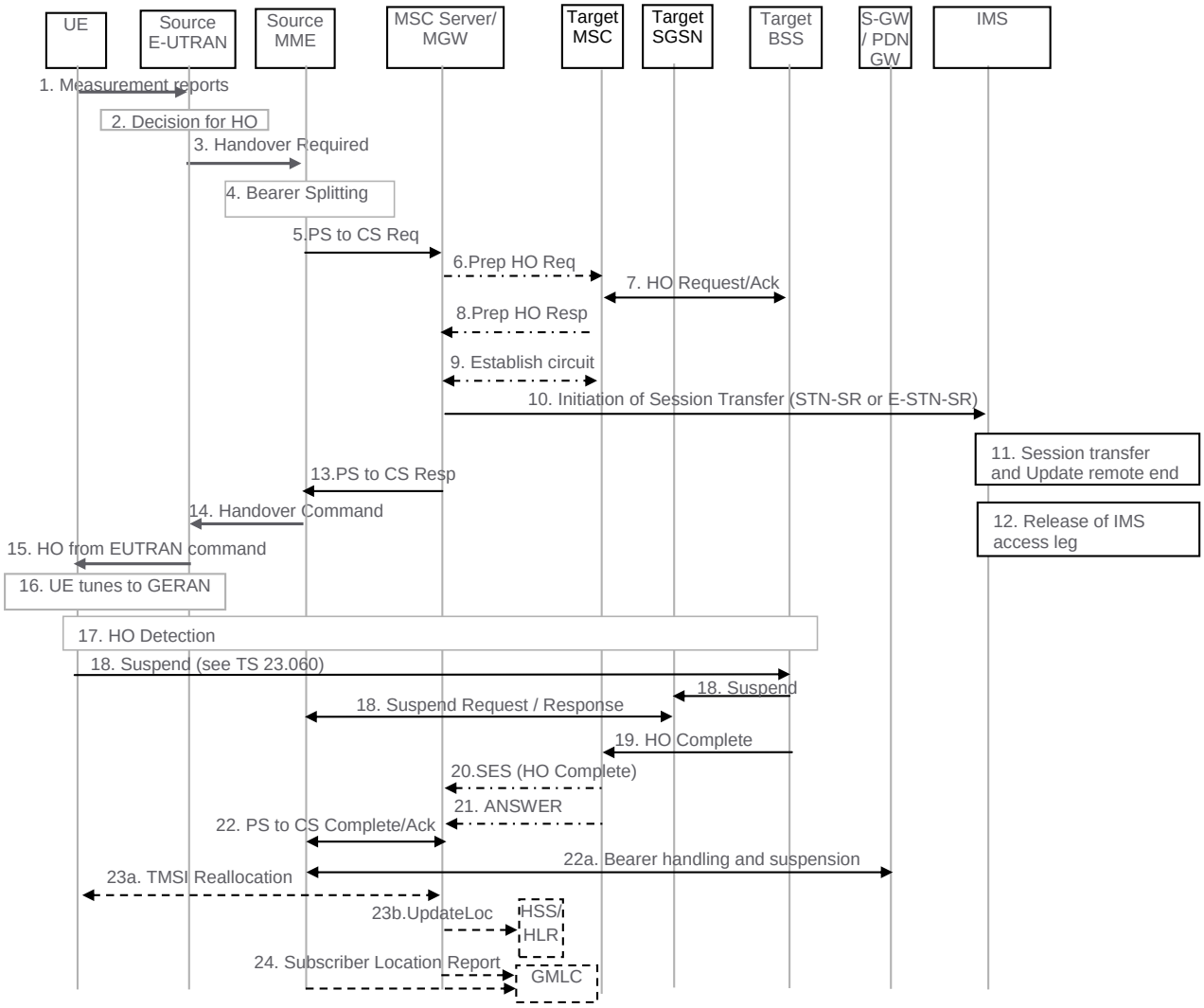

Figure 6.2.2.1-1: SRVCC from E-UTRAN to GERAN without DTM support

1. UE sends measurement reports to E-UTRAN.

2. Based on UE measurement reports the source E-UTRAN decides to trigger an SRVCC handover to GERAN.

3. Source E-UTRAN sends Handover Required (Target ID, generic Source to Target Transparent Container, SRVCC HO Indication) message to the source MME. The E-UTRAN places the "old BSS to new BSS information IE" for the CS domain in the generic Source to Target Transparent Container. The SRVCC HO indication indicates to the MME that target is only CS capable, hence this is a SRVCC handover operation only towards the CS domain. The message includes an indication that the UE is not available for the PS service in the target cell.

4. Based on the QCI associated with the voice bearer (QCI 1) and the SRVCC HO indication, the source MME splits the voice bearer from the non voice bearers and initiates the PS-CS handover procedure for the voice bearer only towards MSC Server.

5. The MME sends a SRVCC PS to CS Request (IMSI, Target ID, STN-SR, C-MSISDN, generic Source to Target Transparent Container, MM Context, Emergency Indication) message to the MSC Server. The Emergency Indication and the equipment identifier are is included if the ongoing session is emergency session. Authenticated IMSI and C-MSISDN shall also be included, if available. The MME received STN-SR and C-MSISDN from the HSS as part of the subscription profile downloaded during the E-UTRAN attach procedure. The MM Context contains security related information. CS security key is derived by the MME from the E-UTRAN/EPS domain key as defined in TS 33.401 [22]. The CS Security key is sent in the MM Context.

6. The MSC Server interworks the PS-CS handover request with a CS inter-MSC handover request by sending a Prepare Handover Request message to the target MSC. The MSC Server assigns a default SAI as Source ID on the interface to the target BSS and uses BSSMAP encapsulated for the Prepare Handover Request.

NOTE 1: The value of the default SAI is configured in the MSC and allows a release 8 and later BSC to identify that the source for the SRVCC Handover is E-UTRAN. To ensure correct statistics in the target BSS the default SAI should be different from the SAIs used in UTRAN.

7. Target MSC performs resource allocation with the target BSS by exchanging Handover Request/ Acknowledge messages.

8. Target MSC sends a Prepare Handover Response message to the MSC Server.

9. Establishment of circuit connection between the target MSC and the MGW associated with the MSC Server e.g. using ISUP IAM and ACM messages.

10. For non-emergency session, the MSC Server initiates the Session Transfer by using the STN-SR e.g. by sending an ISUP IAM (STN-SR) message towards the IMS. For emergency session, the MSC Server initiates the Session Transfer by using the locally configured E-STN-SR and by including the equipment identifier. Standard IMS Service Continuity or Emergency IMS Service Continuity procedures are applied for execution of the Session Transfer, see TS 23.237 [14].

NOTE 2: This step can be started after step 8.

NOTE 3: If the MSC Server is using an ISUP interface, then the initiation of the session transfer for non-emergency session may fail if the subscriber profile including CAMEL triggers is not available prior handover (see clause 7.3.2.1.3 in TS 23.292 [13]).

11. During the execution of the Session Transfer procedure the remote end is updated with the SDP of the CS access leg. The downlink flow of VoIP packets is switched towards the CS access leg at this point.

12. Source IMS access leg is released as per TS 23.237 [14].

NOTE 4: Steps 11 and 12 are independent of step 13.

13. MSC Server sends a SRVCC PS to CS Response (Target to Source Transparent Container) message to the source MME.

14. Source MME sends a Handover Command (Target to Source Transparent Container) message to the source E-UTRAN. The message includes information about the voice component only.

15. Source E-UTRAN sends a Handover from E-UTRAN Command message to the UE.

16. UE tunes to GERAN.

17. Handover Detection at the target BSS occurs. The UE sends a Handover Complete message via the target BSS to the target MSC. If the target MSC is not the MSC Server, then the Target MSC sends an SES (Handover Complete) message to the MSC Server.

18. The UE starts the Suspend procedure specified in TS 23.060 [10], clause 16.2.1.1.2. The TLLI and RAI pair are derived from the GUTI as described in TS 23.003 [27]. This triggers the Target SGSN to send a Suspend Notification message to the Source MME. The MME returns a Suspend Acknowledge to the Target SGSN.

NOTE 5: The MME might not be able to derive the GUTI from the received P-TMSI and RAI pair and therefore it might not be able to identify which UE context is associated with the Suspend Notification message. Also in this case the bearers are deactivated and/or suspended as in step 22a.

19. Target BSS sends a Handover Complete message to the target MSC.

20. Target MSC sends an SES (Handover Complete) message to the MSC Server. The speech circuit is through connected in the MSC Server/MGW according to TS 23.009 [18].

21. Completion of the establishment procedure with ISUP Answer message to the MSC Server according to TS 23.009 [18].

22. MSC Server sends a SRVCC PS to CS Complete Notification message to the source MME, informing it that the UE has arrived on the target side. Source MME acknowledges the information by sending a SRVCC PS to CS Complete Acknowledge message to the MSC Server.

22a. The MME deactivates bearers used for voice and other GBR bearers. All GBR bearers are deactivated towards S-GW and P-GW by initiating MME-initiated Dedicated Bearer Deactivation procedure as specified in TS 23.401 [2]. The MME does not send deactivation request toward the eNodeB on receiving PS-to-CS Complete Notification in step 22. PS-to-CS handover indicator is notified to P-GW for voice bearer during the bearer deactivation procedure. For GTP-based S5/S8, the S-GW requests the P-GW to delete all GBR bearer contexts by sending a Delete Bearer Command message. If dynamic PCC is deployed, the P-GW may interact with PCRF as defined in TS 23.203 [31]. For PMIP-based S5/S8, S-GW interacts with the PCRF which in turn updates PCC rules for GBR traffic in the P-GW.

The MME starts preservation and suspension of non-GBR bearers by sending Suspend Notification message towards S-GW. For these non-GBR bearers, the S-GW releases S1-U bearers for the UE and sends Suspend Notification message to the P-GW(s). The MME stores in the UE context that UE is in suspended status. All the preserved non-GBR bearers are marked as suspended status in the S-GW and P-GW. The P-GW should discard packets if received for the suspended UE.

23a. If the HLR is to be updated, i.e. if the IMSI is authenticated but unknown in the VLR, the MSC Server performs a TMSI reallocation towards the UE using its own non-broadcast LAI and, if the MSC Server and other MSC/VLRs serve the same (target) LAI, with its own Network Resource Identifier (NRI).

NOTE 5: The TMSI reallocation is performed by the MSC Server towards the UE via target MSC.

23b. If the MSC Server performed a TMSI reallocation in step 23a, and if this TMSI reallocation was completed successfully, the MSC Server performs a MAP Update Location to the HSS/HLR.

NOTE 6: This Update Location is not initiated by the UE.

24. For an emergency services session after handover is complete, the source MME or the MSC Server may send a Subscriber Location Report carrying the identity of the MSC Server to a GMLC associated with the source or target side, respectively, as defined in TS 23.271 [29] to support location continuity.

NOTE 7: Any configuration of the choice between a source MME versus MSC Server update to a GMLC needs to ensure that a single update occurs from one of these entities when the control plane location solution is used on the source and/or target sides.

After the CS voice call is terminated and if the UE is still in GERAN (or for any other reason specified in TS 24.008), then the UE shall resume PS services as specified in TS 23.060 [10]. A Gn SGSN will follow TS 23.060 [10] to resume the PDP Context(s). An S4 SGSN will follow TS 23.060 [10] to resume the bearers, and will in addition inform S-GW and P-GW(s) to resume the suspended bearers. If the UE has returned to E-UTRAN after the CS voice call was terminated, then the UE shall resume PS service by sending TAU to MME. The MME will in addition inform S-GW and P-GW(s) to resume the suspended bearers. Resuming the suspended bearers in the S-GW and in the P-GW should be done by implicit resume using the Modify Bearer request message if it is triggered by the procedure in operation, e.g. RAU, TAU or Service Request. The S-GW is aware of the suspend state of the bearers and will forward the Modify Bearer request to the P-GW. Explicit resume using the Resume Notification message should be used in cases when Modify Bearer Request is not triggered by the procedure in operation.

[TS 23.216, clause 6.2.2.1A]

The call flow for this scenario is similar to the call flow depicted in figure 6.2.2.1-1, with the exceptions that the Suspend procedure (step 18 and step 22a in figure 6.2.2.1-1) is not performed and that the MME only deactivates bearers used for voice (step 22a in figure 6.2.2.1-1) and sets the PS-to-CS handover indicator. The scenario requires that eNB can determine that the target is either GERAN with DTM but without DTM HO support and that the UE is supporting DTM or that the target is UTRAN (HSPA) without PS HO support. The message in step 3 in figure 6.2.2.1-1 includes an indication to the MME that the UE is available for PS service in the target cell. Furthermore, if the target is GERAN, the E-UTRAN places in the generic Source to Target Transparent Container the "old BSS to new BSS information IE", while if the target is UTRAN, the generic Source to Target Transparent container is encoded according to the Source RNC to Target RNC Transparent Container IE definition. At the end of the procedure described in figure 6.2.2.1-1, the remaining PS resources are re-established when the UE performs the Routeing Area update procedure. Triggers for performing Routeing Area update procedure are described in TS 23.060 [10]. The target SGSN may deactivate the PDP contexts that cannot be established as described in TS 23.060 [10].

13.4.3.4.3 Test description

13.4.3.4.3.1 Pre-test conditions

System Simulator:

- Cell 1 and Cell 5.
- System information combination 4 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cells.

UE:

None.

Preamble:

- The UE is in state Registered, Idle mode (state 2) on Cell 1 according to [18].

13.4.3.4.3.2 Test procedure sequence

Table 13.4.3.5.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while columns marked "T1" is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 13.4.3.4.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 5	Remark
T0	Cell-specific RS EPRE	dBm/15kHz	-60	-	The power level values are such that entering conditions for event B2 are not satisfied.
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-88	
	PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-88	
T1	Cell-specific RS EPRE	dBm/15kHz	-84	-	The power level values are such that entering conditions for event B2 are satisfied.
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-64	
	PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-64	
T2	Cell-specific RS EPRE	dBm/15kHz	-60	-	
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	“Off”	
	PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	“Off”	
NOTE 1: Power level “Off” for Cell 5 is defined in TS 34.108 [5] Table 6.1.4					

Table 13.4.3.4.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS configures UTRA cell 5 to reference configuration according 36.508 table 4.8.3-1, condition UTRA Speech.	-	-	-	-
2-25	Steps 1 to 24 of the generic test procedure for IMS MT speech call (TS 36.508 4.5A.7.3-1).	-	-	-	-
26-27	Void	-	-	-	-
28	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1 to setup inter RAT measurement and reporting for event B2.	<--	*RRCConnectionReconfiguration*	-	-
29	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1.	-->	*RRCConnectionReconfigurationComplete*	-	-
30	The SS changes the power level for Cell 1 and Cell 5 according to the row "T1" in table 13.4.3.4.3.2-1	-	-	-	-
31	The UE transmits a *MeasurementReport* message on Cell 1 to report event B2 for Cell 5.	-->	*MeasurementReport*	-	-
32	The SS changes the power level for Cell 1 and Cell 5 according to the row "T2" in table 13.4.3.4.3.2-1	-	-	-	-
33	The SS transmits a *MobilityFromEUTRACommand* message on Cell 1.	<--	*MobilityFromEUTRACommand*	-	-
34A	EXCEPTION: In parallel to the events described in step 34 to 39 the step specified in table 13.4.3.4.3.2-4 takes place if requested by the UE.	-	-	-	-
34	The UE transmits an *RRCConnectionReestablishmentRequest* on Cell 1.	-->	*RRCConnectionReestablishmentRequest*	1	P
35	The SS transmits an *RRCConnectionReestablishment* message on Cell 1.	<--	*RRCConnectionReestablishment*	-	-
36	The UE transmits an *RRCConnectionReestablishmentComplete* on Cell 1	-->	*RRCConnectionReestablishmentComplete*	-	-
37	The SS transmits an *RRCConnectionReconfiguration* message to resume existing radio bearer.	<--	*RRCConnectionReconfiguration*	-	-
38	The UE transmits an *RRCConnectionReconfigurationComplete* message.	-->	*RRCConnectionReconfigurationtComplete*	-	-
39	Check: Does the test result of generic test procedure in TS 36.508 subclause 6.4.2.3 indicate that the UE is in E-UTRA RRC_CONNECTED state on Cell 1?	-	-	2	P

Table 13.4.3.4.3.2-3: Void

Table 13.4.3.4.3.2-4: Parallel behaviour

St	Procedure	Message Sequence		TP	Verdict
		U – S	Message		
1	The UE transmits a re-INVITE according annex A.2.1 of TS 34.229-1 [35].	-	-	-	-

13.4.3.4.3.3 Specific message contents

Table 13.4.3.4.3.3-1: ATTACH REQUEST (preamble)

Derivation path: 36.508 table 4.7.2-4			
Information Element	**Value/remark**	**Comment**	**Condition**
MS network capability	SRVCC from UTRAN HSPA or E-UTRAN to GERAN/UTRAN supported		
Mobile station classmark 2	Any allowed value		
Supported Codecs	Any allowed value		

Table 13.4.3.4.3.3-2: *RRCConnectionReconfiguration* (step28, Table 13.4.3.4.3.2-2)

Derivation Path: 36.508 clause 4.6.1 table 4.6.1-8 with condition MEAS

Table 13.4.3.4.3.3-3: *MeasConfig* (step28, Table 13.4.3.4.3.2-2)

Derivation path: 36.508 clause 4.6.6 table 4.6.6-1 with condition UTRAN			
Information Element	**Value/Remark**	**Comment**	**Condition**
measurementConfiguration ::= SEQUENCE {			
measObjectToAddModifyList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entries		
measObjectId[1]	IdMeasObject-f8		
measObject[1]	MeasObjectUTRA-GENERIC(f8)		
measObjectId[2]	IdMeasObject-f1		
measObject[2]	MeasObjectEUTRA-GENERIC(f1)		
}			
reportConfigToAddModifyList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	1 entry		
reportConfigId[1]	IdReportConfigInterRAT-B2-UTRA		
reportConfig[1]	ReportConfigInterRAT-B2-UTRA (-72, -76)		
}			
measIdToAddModifyList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	1 entry		
measId[1]	1		
measObjectId[1]	IdMeasObject-f8		
reportConfigId[1]	IdReportConfigInterRAT-B2-UTRA		
}			
}			

Table 13.4.3.4.3.3-4: *MeasurementReport* (step31, Table 13.4.3.4.3.2-2)

Derivation Path: 36.508, table 4.6.1-5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
measurementReport-r8 SEQUENCE {			
measResults SEQUENCE {			
measId	1		
measResultServCell SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListUTRA SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {	1 entry		
physCellId[1]	PhysicalCellIdentity of Cell 5		
cgi-Info[1]	Not present		
measResult[1] SEQUENCE {			
utra-RSCP	(-5..91)		
}			
}			
}			
}			
}			
}			
}			
}			

Table 13.4.3.4.3.3-5: *MobilityFromEUTRACommand* (step 33, Table 13.4.3.4.3.2-2)

Derivation Path: 36.508, Table 4.6.1-6			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityFromEUTRACommand ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
mobilityFromEUTRACommand-r8 SEQUENCE {			
cs-FallbackIndicator	True		
purpose CHOICE{			
handover SEQUENCE {			
targetRAT-Type	Utra		
targetRAT-MessageContainer	HANDOVER TO UTRAN COMMAND(UTRA RRC message)		
nas-SecurityParamFromEUTRA	The 4 least significant bits of the NAS downlink COUNT value		
systemInformation	Not present		
}			
}			
}			
}			
}			
}			

Table 13.4.3.4.3.3-6: HANDOVER TO UTRAN COMMAND (step33, Table 13.4.3.4.3.2-2)

Derivation Path: 36.508, Table 4.7B.1-1, condition UTRA Speech

Table 13.4.3.4.3.3-7: *RRCConnectionReestablishmentRequest* (step34, Table 13.4.3.4.3.2-2)

Derivation Path: 36.508, Table 4.6.1-6			
Information Element	**Value/remark**	**Comment**	**Condition**
RRCConnectionReestablishmentRequest ::= SEQUENCE {			
criticalExtensions CHOICE {			
rrcConnectionReestablishmentRequest-r8 SEQUENCE {			
ue-Identity SEQUENCE {			
c-RNTI	the value of the C-RNTI of the UE		
physCellId	PhysicalCellIdentity of Cell 1		
shortMAC-I	The same value as the 16 least significant bits of the XMAC-I value calculated by SS.		
}			
reestablishmentCause	handoverFailure		
spare	Present but contents not checked		
}			
}			
}			

Table 13.4.3.4.3.3-8: *RRCConnectionReconfiguration* (step 37, Table 13.4.3.4.3.2-2)

Derivation Path: 36.508, Table 4.6.1-8			
Information Element	**Value/remark**	**Comment**	**Condition**
RRCConnectionReconfiguration ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
rrcConnectionReconfiguration-r8 SEQUENCE {			
radioResourceConfigDedicated	RadioResourceConfigDedicated-SRB2-DRB(1, 1)		
}			
}			
}			
}			

Table 13.4.3.4.3.3-9: Void

Table 13.4.3.4.3.3-10: Void

13.4.3.5 Inter-system mobility / E-UTRA voice to GSM CS voice / Unsuccessful case / Retry on old cell / SRVCC

13.4.3.5.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_CONNECTED state }
ensure that {
when { UE receives a MobilityFromEUTRACommand message and an IMS voice call is ongoing and the UE
does not succeed in establishing the connection to the target radio access technology }
   then { UE initiates the connection re-establishment procedure }
}
```

(2)

```
with { UE in E-UTRA RRC_CONNECTED state }
ensure that {
  when { UE successfully completes the RRC Connection re-establishment procedure }
   then { UE is in E-UTRA RRC_CONNECTED state }
}
```

13.4.3.5.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.331, clause 5.4.3.3, 5.4.3.5, 5.3.7.2, 5.3.7.3, 5.3.7.4, 5.3.7.5 and TS 23.216, clause 6.2.2.1.

[TS 36.331, clause 5.4.3.3]

The UE shall be able to receive a *MobilityFromEUTRACommand* message and perform a cell change order to GERAN, even if no prior UE measurements have been performed on the target cell.

The UE shall:

1> stop timer T310, if running;

1> if the *MobilityFromEUTRACommand* message includes the *purpose* set to '*handover*':

2> if the *targetRAT-Type* is set to '*utra*' or '*geran*':

3> consider inter-RAT mobility as initiated towards the RAT indicated by the *targetRAT-Type* included in the *MobilityFromEUTRACommand* message;

3> forward the *nas-SecurityParamFromEUTRA* to the upper layers;

3> access the target cell indicated in the inter-RAT message in accordance with the specifications of the target RAT;

[TS 36.331, clause 5.4.3.5]

The UE shall:

1> if T304 expires (mobility from E-UTRA failure); or

1> if the UE does not succeed in establishing the connection to the target radio access technology; or

1> if the UE is unable to comply with (part of) the configuration included in the *MobilityFromEUTRACommand* message; or

1> if there is a protocol error in the inter RAT information included in the *MobilityFromEUTRACommand* message, causing the UE to fail the procedure according to the specifications applicable for the target RAT:

2> stop T304, if running;

2> if the *cs-FallbackIndicator* in the *MobilityFromEUTRACommand* message was set to '*TRUE*':

3> indicate to upper layers that the CS Fallback procedure has failed;

2> revert back to the configuration used in the source cell, excluding the configuration configured by the *physicalConfigDedicated*, *mac-MainConfig* and *sps-Config*;

2> initiate the connection re-establishment procedure as specified in 5.3.7;

…

[TS 36.331, clause 5.3.7.2]

The UE shall only initiate the procedure when AS security has been activated. The UE initiates the procedure when one of the following conditions is met:

…

1> upon mobility from E-UTRA failure, in accordance with 5.4.3.5; or

…

Upon initiation of the procedure, the UE shall:

1> stop timer T310, if running;

1> start timer T311;

1> suspend all RBs except SRB0;

1> reset MAC;

1> apply the default physical channel configuration as specified in 9.2.4;

1> apply the default semi-persistent scheduling configuration as specified in 9.2.3;

1> apply the default MAC main configuration as specified in 9.2.2;

1> release *reportProximityConfig* and clear any associated proximity status reporting timer;

1> perform cell selection in accordance with the cell selection process as specified in TS 36.304 [4];

[TS 36.331, clause 5.3.7.3]

Upon selecting a suitable E-UTRA cell, the UE shall:

1> stop timer T311;

1> start timer T301;

1> apply the *timeAlignmentTimerCommon* included in *SystemInformationBlockType2*;

1> initiate transmission of the *RRCConnectionReestablishmentRequest* message in accordance with 5.3.7.4;

NOTE: This procedure applies also if the UE returns to the source cell.

Upon selecting an inter-RAT cell, the UE shall:

1> perform the actions upon leaving RRC_CONNECTED as specified in 5.3.12, with release cause 'RRC connection failure';

[TS 36.331, clause 5.3.7.4]

The UE shall set the contents of *RRCConnectionReestablishmentRequest* message as follows:

1> set the *ue-Identity* as follows:

2> set the *c-RNTI* to the C-RNTI used in the source cell (handover and mobility from E-UTRA failure) or used in the cell in which the trigger for the re-establishment occurred (other cases);

2> set the *physCellId* to the physical cell identity of the source cell (handover and mobility from E-UTRA failure) or of the cell in which the trigger for the re-establishment occurred (other cases);

2> set the *shortMAC-I* to the 16 least significant bits of the MAC-I calculated:

3> over the ASN.1 encoded as per section 8 (i.e., a multiple of 8 bits) *VarShortMAC-Input*;

3> with the K_{RRCint} key and integrity protection algorithm that was used in the source cell (handover and mobility from E-UTRA failure) or of the cell in which the trigger for the re-establishment occurred (other cases); and

3> with all input bits for COUNT, BEARER and DIRECTION set to binary ones;

1> set the *reestablishmentCause* as follows:

…

2> else if the re-establishment procedure was initiated due to handover failure as specified in 5.3.5.6 (intra-LTE handover failure) or 5.4.3.5 (inter-RAT mobility from EUTRA failure):

3> set the *reestablishmentCause* to the value '*handoverFailure*';

…

The UE shall submit the *RRCConnectionReestablishmentRequest* message to lower layers for transmission.

[TS 36.331, clause 5.3.7.5]

…

The UE shall:

1> stop timer T301;

1> re-establish PDCP for SRB1;

1> re-establish RLC for SRB1;

1> perform the radio resource configuration procedure in accordance with the received *radioResourceConfigDedicated* and as specified in 5.3.10;

1> resume SRB1;

1> update the K_{eNB} key based on the K_{ASME} key to which the current K_{eNB} is associated, using the *nextHopChainingCount* value indicated in the *RRCConnectionReestablishment* message, as specified in TS 33.401 [32];

1> store the *nextHopChainingCount* value;

1> derive the K_{RRCint} key associated with the previously configured integrity algorithm, as specified in TS 33.401 [32];

1> derive the K_{RRCenc} key and the K_{UPenc} key associated with the previously configured ciphering algorithm, as specified in TS 33.401 [32];

1> configure lower layers to activate integrity protection using the previously configured algorithm and the K_{RRCint} key immediately, i.e., integrity protection shall be applied to all subsequent messages received and sent by the UE, including the message used to indicate the successful completion of the procedure;

1> configure lower layers to apply ciphering using the previously configured algorithm, the K_{RRCenc} key and the K_{UPenc} key immediately, i.e., ciphering shall be applied to all subsequent messages received and sent by the UE, including the message used to indicate the successful completion of the procedure;

1> set the content of *RRCConnectionReestablishmentComplete* message as follows:

2> include the *rlf-InfoAvailable* and set it to *true*, if the UE has radio link failure information available that is related to the last occurrence of radio link failure;

1> perform the measurement related actions as specified in 5.5.6.1;

1> submit the *RRCConnectionReestablishmentComplete* message to lower layers for transmission, upon which the procedure ends;

[TS 23.216, clause 6.2.2.1]

Depicted in figure 6.2.2.1-1 is a call flow for SRVCC from E-UTRAN to GERAN without DTM support. The flow requires that eNB can determine that the target is GERAN without DTM support or that the UE is without DTM support.

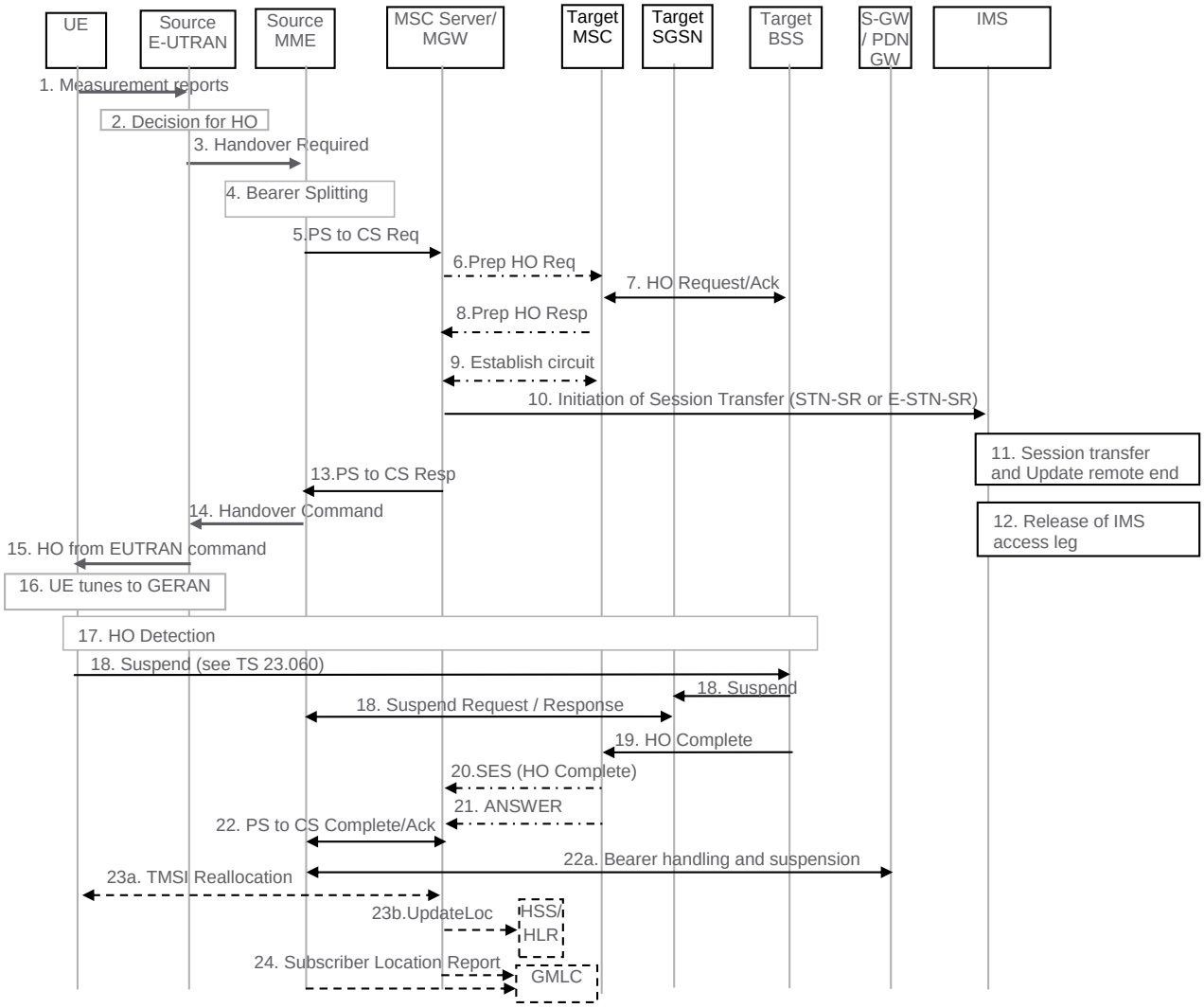

Figure 6.2.2.1-1: SRVCC from E-UTRAN to GERAN without DTM support

1. UE sends measurement reports to E-UTRAN.

2. Based on UE measurement reports the source E-UTRAN decides to trigger an SRVCC handover to GERAN.

3. Source E-UTRAN sends Handover Required (Target ID, generic Source to Target Transparent Container, SRVCC HO Indication) message to the source MME. The E-UTRAN places the "old BSS to new BSS information IE" for the CS domain in the generic Source to Target Transparent Container. The SRVCC HO indication indicates to the MME that target is only CS capable, hence this is a SRVCC handover operation only towards the CS domain. The message includes an indication that the UE is not available for the PS service in the target cell.

4. Based on the QCI associated with the voice bearer (QCI 1) and the SRVCC HO indication, the source MME splits the voice bearer from the non voice bearers and initiates the PS-CS handover procedure for the voice bearer only towards MSC Server.

5. The MME sends a SRVCC PS to CS Request (IMSI, Target ID, STN-SR, C-MSISDN, generic Source to Target Transparent Container, MM Context, Emergency Indication) message to the MSC Server. The Emergency Indication and the equipment identifier are is included if the ongoing session is emergency session. Authenticated IMSI and C-MSISDN shall also be included, if available. The MME received STN-SR and C-MSISDN from the HSS as part of the subscription profile downloaded during the E-UTRAN attach procedure. The MM Context contains security related information. CS security key is derived by the MME from the E-UTRAN/EPS domain key as defined in TS 33.401 [22]. The CS Security key is sent in the MM Context.

6. The MSC Server interworks the PS-CS handover request with a CS inter-MSC handover request by sending a Prepare Handover Request message to the target MSC. The MSC Server assigns a default SAI as Source ID on the interface to the target BSS and uses BSSMAP encapsulated for the Prepare Handover Request.

NOTE 1: The value of the default SAI is configured in the MSC and allows a release 8 and later BSC to identify that the source for the SRVCC Handover is E-UTRAN. To ensure correct statistics in the target BSS the default SAI should be different from the SAIs used in UTRAN.

7. Target MSC performs resource allocation with the target BSS by exchanging Handover Request/ Acknowledge messages.

8. Target MSC sends a Prepare Handover Response message to the MSC Server.

9. Establishment of circuit connection between the target MSC and the MGW associated with the MSC Server e.g. using ISUP IAM and ACM messages.

10. For non-emergency session, the MSC Server initiates the Session Transfer by using the STN-SR e.g. by sending an ISUP IAM (STN-SR) message towards the IMS. For emergency session, the MSC Server initiates the Session Transfer by using the locally configured E-STN-SR and by including the equipment identifier. Standard IMS Service Continuity or Emergency IMS Service Continuity procedures are applied for execution of the Session Transfer, see TS 23.237 [14].

NOTE 2: This step can be started after step 8.

NOTE 3: If the MSC Server is using an ISUP interface, then the initiation of the session transfer for non-emergency session may fail if the subscriber profile including CAMEL triggers is not available prior handover (see clause 7.3.2.1.3 in TS 23.292 [13]).

11. During the execution of the Session Transfer procedure the remote end is updated with the SDP of the CS access leg. The downlink flow of VoIP packets is switched towards the CS access leg at this point.

12. Source IMS access leg is released as per TS 23.237 [14].

NOTE 4: Steps 11 and 12 are independent of step 13.

13. MSC Server sends a SRVCC PS to CS Response (Target to Source Transparent Container) message to the source MME.

14. Source MME sends a Handover Command (Target to Source Transparent Container) message to the source E-UTRAN. The message includes information about the voice component only.

15. Source E-UTRAN sends a Handover from E-UTRAN Command message to the UE.

16. UE tunes to GERAN.

17. Handover Detection at the target BSS occurs. The UE sends a Handover Complete message via the target BSS to the target MSC. If the target MSC is not the MSC Server, then the Target MSC sends an SES (Handover Complete) message to the MSC Server.

18. The UE starts the Suspend procedure specified in TS 23.060 [10], clause 16.2.1.1.2. The TLLI and RAI pair are derived from the GUTI as described in TS 23.003 [27]. This triggers the Target SGSN to send a Suspend Notification message to the Source MME. The MME returns a Suspend Acknowledge to the Target SGSN.

NOTE 5: The MME might not be able to derive the GUTI from the received P-TMSI and RAI pair and therefore it might not be able to identify which UE context is associated with the Suspend Notification message. Also in this case the bearers are deactivated and/or suspended as in step 22a.

19. Target BSS sends a Handover Complete message to the target MSC.

20. Target MSC sends an SES (Handover Complete) message to the MSC Server. The speech circuit is through connected in the MSC Server/MGW according to TS 23.009 [18].

21. Completion of the establishment procedure with ISUP Answer message to the MSC Server according to TS 23.009 [18].

22. MSC Server sends a SRVCC PS to CS Complete Notification message to the source MME, informing it that the UE has arrived on the target side. Source MME acknowledges the information by sending a SRVCC PS to CS Complete Acknowledge message to the MSC Server.

22a. The MME deactivates bearers used for voice and other GBR bearers. All GBR bearers are deactivated towards S-GW and P-GW by initiating MME-initiated Dedicated Bearer Deactivation procedure as specified in TS 23.401 [2]. The MME does not send deactivation request toward the eNodeB on receiving PS-to-CS Complete Notification in step 22. PS-to-CS handover indicator is notified to P-GW for voice bearer during the bearer deactivation procedure. For GTP-based S5/S8, the S-GW requests the P-GW to delete all GBR bearer contexts by sending a Delete Bearer Command message. If dynamic PCC is deployed, the P-GW may interact with PCRF as defined in TS 23.203 [31]. For PMIP-based S5/S8, S-GW interacts with the PCRF which in turn updates PCC rules for GBR traffic in the P-GW.

The MME starts preservation and suspension of non-GBR bearers by sending Suspend Notification message towards S-GW. For these non-GBR bearers, the S-GW releases S1-U bearers for the UE and sends Suspend Notification message to the P-GW(s). The MME stores in the UE context that UE is in suspended status. All the preserved non-GBR bearers are marked as suspended status in the S-GW and P-GW. The P-GW should discard packets if received for the suspended UE.

23a. If the HLR is to be updated, i.e. if the IMSI is authenticated but unknown in the VLR, the MSC Server performs a TMSI reallocation towards the UE using its own non-broadcast LAI and, if the MSC Server and other MSC/VLRs serve the same (target) LAI, with its own Network Resource Identifier (NRI).

NOTE 5: The TMSI reallocation is performed by the MSC Server towards the UE via target MSC.

23b. If the MSC Server performed a TMSI reallocation in step 23a, and if this TMSI reallocation was completed successfully, the MSC Server performs a MAP Update Location to the HSS/HLR.

NOTE 6: This Update Location is not initiated by the UE.

24. For an emergency services session after handover is complete, the source MME or the MSC Server may send a Subscriber Location Report carrying the identity of the MSC Server to a GMLC associated with the source or target side, respectively, as defined in TS 23.271 [29] to support location continuity.

NOTE 7: Any configuration of the choice between a source MME versus MSC Server update to a GMLC needs to ensure that a single update occurs from one of these entities when the control plane location solution is used on the source and/or target sides.

13.4.3.5.3 Test description

13.4.3.5.3.1 Pre-test conditions

System Simulator:

- Cell 1 and Cell 24.
- System information combination 5 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cells.

UE:

None.

Preamble:

- The UE is in state Registered, Idle mode (state 2) on Cell 1 according to [18].

13.4.3.5.3.2 Test procedure sequence

Table 13.4.3.5.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while columns marked "T1" is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 13.4.3.5.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 24	Remark
T0	Cell-specific RS EPRE	dBm/15kHz	-85	-	The power level values are such that entering conditions for event B2 are not satisfied.
	RSSI	dBm	-	-85	
T1	Cell-specific RS EPRE	dBm/15kHz	-100	-	The power level values are such that entering conditions for event B2 are satisfied.
	RSSI	dBm	-	-65	
T2	Cell-specific RS EPRE	dBm/15kHz	-85	-	
	RSSI	dBm	-	"Off"	

Table 13.4.3.5.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1-24	Steps 1 to 24 of the generic test procedure for IMS MT speech call (TS 36.508 4.5A.7.3-1).	-	-	-	-
25-26	Void	-	-	-	-
27	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1 to setup inter RAT measurement and reporting for event B2.	<--	*RRCConnectionReconfiguration*	-	-
28	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1.	-->	*RRCConnectionReconfigurationComplete*	-	-
29	The SS changes the power level for Cell 1 and Cell 24 according to the row "T1" in table 13.4.3.5.3.2-1	-	-	-	-
30	The UE transmits a *MeasurementReport* message on Cell 1 to report event B2 for Cell 24.	-->	*MeasurementReport*	-	-
31	The SS changes the power level for Cell 1 and Cell 24 according to the row "T2" in table 13.4.3.5.3.2-1	-	-	-	-
32	The SS transmits a *MobilityFromEUTRACommand* message on Cell 1.	<--	*MobilityFromEUTRACommand*	-	-
33A	EXCEPTION: In parallel to the events described in step 34 to 39 the step specified in table 13.4.3.5.3.2-3 takes place if requested by the UE.	-	-	-	-
33	The UE transmits an *RRCConnectionReestablishmentRequest* on Cell 1.	-->	*RRCConnectionReestablishmentRequest*	1	P
34	The SS transmits an *RRCConnectionReestablishment* message on Cell 1.	<--	*RRCConnectionReestablishment*	-	-
35	The UE transmits an *RRCConnectionReestablishmentComplete* on Cell 1	-->	*RRCConnectionReestablishmentComplete*	-	-
36	The SS transmits an *RRCConnectionReconfiguration* message to resume existing radio bearer.	<--	*RRCConnectionReconfiguration*	-	-
37	The UE transmits an *RRCConnectionReconfigurationComplete* message.	-->	*RRCConnectionReconfigurationtComplete*	-	-
38	Check: Does the test result of generic test procedure in TS 36.508 subclause 6.4.2.3 indicate that the UE is in E-UTRA RRC_CONNECTED state on Cell 1?	-		2	P

Table 13.4.3.5.3.2-3: Parallel behaviour

St	Procedure	Message Sequence		TP	Verdict
		U – S	Message		
1	The UE transmits a re-INVITE according annex A.2.1 of TS 34.229-1 [35].	-	-	-	-

13.4.3.5.3.3 Specific message contents

Table 13.4.3.5.3.3-1: ATTACH REQUEST (preamble)

Derivation path: 36.508 table 4.7.2-4			
Information Element	**Value/remark**	**Comment**	**Condition**
MS network capability	SRVCC from UTRAN HSPA or E-UTRAN to GERAN/UTRAN supported		
Mobile station classmark 2	Any allowed value		
Supported Codecs	Any allowed value		

Table 13.4.3.5.3.3-2: *RRCConnectionReconfiguration* (step 27, Table 13.4.3.5.3.2-2)

Derivation Path: 36.508 clause 4.6.1 table 4.6.1-8 with condition MEAS

Table 13.4.3.5.3.3-3: *MeasConfig* (step 27, Table 13.4.3.5.3.2-2)

Derivation path: 36.508 clause 4.6.6 table 4.6.6-1 with condition GERAN			
Information Element	**Value/Remark**	**Comment**	**Condition**
measurementConfiguration ::= SEQUENCE {			
measObjectToAddModifyList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entries		
measObjectId[1]	IdMeasObject-f11		
measObject[1]	MeasObjectGERAN-GENERIC(f11)		
measObjectId[2]	IdMeasObject-f1		
measObject[2]	MeasObjectEUTRA-GENERIC(f1)		
}			
reportConfigToAddModifyList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	1 entry		
reportConfigId[1]	IdReportConfigInterRAT-B2-GERAN		
reportConfig[1]	ReportConfigInterRAT-B2-GERAN (-90, -100)		
}			
measIdToAddModifyList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	1 entry		
measId[1]	1		
measObjectId[1]	IdMeasObject-f8		
reportConfigId[1]	IdReportConfigInterRAT-B2-GERAN		
}			
}			

Table 13.4.3.5.3.3-4: *MeasurementReport* (step 30, Table 13.4.3.5.3.2-2)

Derivation Path: 36.508, table 4.6.1-5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
measurementReport-r8 SEQUENCE {			
measResults SEQUENCE {			
measId	1		
measResultServCell SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListGERAN SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {	1 entry		
physCellId	PhysicalCellIdentity of Cell 24		
cgi-Info[1]	Not present		
measResult[1] SEQUENCE {			
rssi	The value of rssi is present but contents not checked		
}			
}			
}			
}			
}			
}			
}			

Table 13.4.3.5.3.3-5: *MobilityFromEUTRACommand* (step 32, Table 13.4.3.5.3.2-2)

Derivation Path: 36.508, Table 4.6.1-6			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityFromEUTRACommand ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
mobilityFromEUTRACommand-r8 SEQUENCE {			
cs-FallbackIndicator	True		
purpose CHOICE{			
handover SEQUENCE {			
targetRAT-Type	GERAN		
targetRAT-MessageContainer	HANDOVER COMMAND(GERAN RRC message) , see Table 13.4.3.5.3.3-5a		
nas-SecurityParamFromEUTRA	The 4 least significant bits of the NAS downlink COUNT value		
systemInformation	Not present		
}			
}			
}			
}			
}			

Table 13.4.3.5.3.3-5a: HANDOVER COMMAND (step 32, Table 13.4.3.5.3.2-2)

Derivation Path: 51.01040.018, Table 40.2.4.339.1.15.1			
Information Element	**Value/remark**	**Comment**	**Condition**
Cell Description			
Network Colour Code	1		
Base Station Colour Code	5		
BCCH Carrier Number	The BCCH Carrier ARFCN as per table in clause 40.1.1 of 51.010-1.		
Description of the First Channel, after time			
Channel Description			
Channel Type and TDMA offset	TCH/F + ACCH's		
Timeslot Number	Chosen arbitrarily, but not Zero.		
Training Sequence Code	Same as the BCCH		
Hopping channel	Single RF channel		
ARFCN	The first ARFCN in the cell allocation as per table in clause 40.2.1.1.1 of 51.010-1		

Table 13.4.3.5.3.3-6: *RRCConnectionReestablishmentRequest* (step 33, Table 13.4.3.5.3.2-2)

Derivation Path: 36.508, Table 4.6.1-6			
Information Element	**Value/remark**	**Comment**	**Condition**
RRCConnectionReestablishmentRequest ::= SEQUENCE {			
criticalExtensions CHOICE {			
rrcConnectionReestablishmentRequest-r8 SEQUENCE {			
ue-Identity SEQUENCE {			
c-RNTI	the value of the C-RNTI of the UE		
physCellId	PhysicalCellIdentity of Cell 1		
shortMAC-I	The same value as the 16 least significant bits of the XMAC-I value calculated by SS.		
}			
reestablishmentCause	handoverFailure		
spare	Present but contents not checked		
}			
}			
}			

Table 13.4.3.5.3.3-7: *RRCConnectionReconfiguration* (step 36, Table 13.4.3.5.3.2-2)

Derivation Path: 36.508, Table 4.6.1-8			
Information Element	**Value/remark**	**Comment**	**Condition**
RRCConnectionReconfiguration ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
rrcConnectionReconfiguration-r8 SEQUENCE {			
radioResourceConfigDedicated	RadioResourceConfigDedicated-SRB2-DRB(1, 1)		
}			
}			
}			
}			

13.4.3.6 Inter-system mobility / E-UTRA PS voice + PS Data / HO cancelled / Notification procedure / SRVCC

13.4.3.6.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_CONNECTED state }
ensure that {
  when { UE receives a NOTIFICATION message and an IMS voice call is ongoing and an UTRA PS RB +
Speech combination is configured for an UTRA cell}
    then { UE transmits a SIP re-INVITE message on the e-utra cell}
           }
```

13.4.3.6.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 23.216, clauses 8.1.3; TS 24.237, clause 12.2.4.1, 12.2.4.2; TS 24.301, clause 6.6.2.2; TS 24.301, clause 6.6.2.3

[TS 23.216, clause 8.1.3]

…

If the source E-UTRAN/UTRAN decides to terminate the handover procedure before its completion, the MME/SGSN shall return to its state before the handover procedure was triggered. The MME/SGSN attempts to trigger, at the MSC Server enhanced for SRVCC, handover cancellation procedures according to TS 23.009 [18]. The MSC Server enhanced for SRVCC shall take no SRVCC-specific action towards IMS.

The MME/SGSN shall also send a session reestablishment trigger notification to UE to start the recovery procedure if it receives notification from the MSC Server that the Session Transfer procedure is in progress. Figure 8.1.3-1 shows the overall procedure for SRVCC handover cancellation.

For vSRVCC the MME and MSC also behave the same way as in the case of SRVCC handover cancellation.

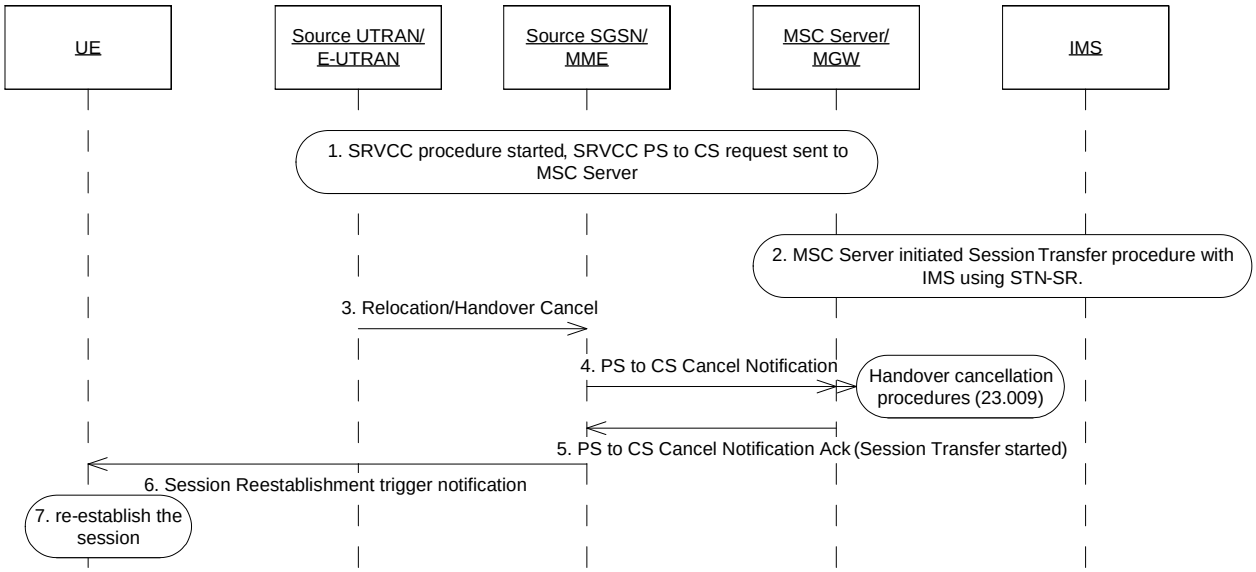

Figure 8.1.3-1: SRVCC Handover Cancellation Procedure

1. Network has started the SRVCC procedure. SGSN/MME has sent the SRVCC PS to CS request to MSC Server.
2. MSC Server is performing the CS HO procedure with target network, and has also started the Session Transfer procedure with IMS with STN-SR, see TS 23.237 [14].
3. Source UTRAN/E-UTRAN decides to cancel the SRVCC HO Procedure by sending a Cancel message to SGSN/MME.

4. Source SGSN/MME indicates SRVCC PS to CS Cancel Notification to MSC Server to start the HO cancellation procedure as according to TS 23.009 [18].
5. MSC Server acks the PS to CS Cancel Notification with an indication that Session Transfer procedure is in progress.
6. Due to the Session Transfer procedure in progress indication, the source SGSN/MME sends a Session Reestablishment trigger notification to UE to start the session re-establishment procedure
7. UE starts the re-establishment procedure, by attempting to return to E-UTRAN/UTRAN by sending a re-INVITE towards IMS for the related session. If the session is no longer active, then this session transfer request shall be rejected by the IMS.

[TS 24.237, clause 12.2.4.1]

…

If the SC UE engaged in one or more ongoing IMS sessions and:

- receives a SM NOTIFICATION message containing an "SRVCC handover cancelled, IMS session re-establishment required" as described in 3GPP TS 24.008 [8] or 3GPP TS 24.301 [52] depending on the access in use; or
- does not successfully retune to the 3GPP UTRAN or 3GPP GERAN after it receives the handover command from the eNodeB (as described in 3GPP TS 36.331 [62]) or from the NodeB (as described in 3GPP TS 25.331 [61]);

then the SC UE shall send a SIP re-INVITE request containing:

1) an SDP offer, including the media characteristics as used in the existing dialog; and
2) a Reason header field containing protocol "SIP" and reason parameter "cause" with value "487" as specified in IETF RFC 3326 [57] and with reason-text text set to either "handover cancelled" or "failure to transition to CS domain";

by following the rules of 3GPP TS 24.229 [2] in each transferred session.

[TS 24.237, clause 12.2.4.2]

…

If the SC UE is engaged in a session in early dialog state and:

- receives a SM NOTIFICATION message containing an "SRVCC handover cancelled, IMS session re-establishment required" as described in 3GPP TS 24.008 [8] or 3GPP TS 24.301 [52] depending on the access in use; or
- does not successfully retune to the 3GPP UTRAN or 3GPP GERAN after it receives the handover command from the eNodeB (as described in 3GPP TS 36.331 [62]) or from the NodeB (as described in 3GPP TS 25.331 [61]);

then the SC UE shall send a SIP UPDATE request containing:

1) an SDP offer, including the media characteristics as used in the existing dialog; and
2) a Reason header field containing protocol "SIP" and reason parameter "cause" with value "487" as specified in IETF RFC 3326 [57], and with reason-text set to either "handover cancelled" or "failure to transition to CS domain";

by following the rules of 3GPP TS 24.229 [2] in each transferred session.

[TS 24.301, clause 6.6.2.2]

…

The network initiates the notification procedure by sending a NOTIFICATION message to the UE (see example in figure 6.6.2.2.1).

Figure 6.6.2.2.1: Notification procedure

[TS 24.301, clause 6.6.2.3]

…

When the UE receives a NOTIFICATION message, the ESM protocol entity in the UE shall provide the notification indicator to the upper layer.

The notification indicator can have the following value:

#1: SRVCC handover cancelled, IMS session re-establishment required.

13.4.3.6.3 Test description

13.4.3.6.3.1 Pre-test conditions

System Simulator:

- Cell 1 and Cell 5.
- System information combination 4 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cells.

UE:

None.

Preamble:

- The UE is in state Registered, Idle mode (state 2) on Cell 1 according to [18].

13.4.3.6.3.2 Test procedure sequence

Table 13.4.3.6.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while columns marked "T1" is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 13.4.3.6.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 5	Remark
T0	Cell-specific RS EPRE	dBm/15kHz	-60	-	The power level values are such that entering conditions for event B2 are not satisfied.
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-88	
	PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-88	
T1	Cell-specific RS EPRE	dBm/15kHz	-84	-	The power level values are such that entering conditions for event B2 are satisfied.
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-64	
	PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-64	

Table 13.4.3.6.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS configures UTRA cell 5 to reference configuration according 36.508 table 4.8.3-1, condition UTRA PS RB + Speech .	-	-	-	-
2-27	Steps 1 to 26 of the generic test procedure for IMS MT speech call (TS 36.508 4.5A.7.3-1).	-	-	-	-
28	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1 to setup inter RAT measurement and reporting for event B2.	<--	*RRCConnectionReconfiguration*	-	-
29	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1.	-->	*RRCConnectionReconfigurationComplete*	-	-
30	The SS changes the power level for Cell 1 and Cell 5 according to the row "T1" in table 13.4.3.6.3.2-1	-	-	-	-
31	The UE transmits a *MeasurementReport* message on Cell 1 to report event B2 for Cell 5.	-->	*MeasurementReport*	-	-
32	The SS transmits a NOTIFICATION *message on Cell 1*.	<--	NOTIFICATION	-	-
33	Check: Does the UE transmit a SIP re-INVITE. UE continues the call on EUTRAN.	-->	re-INVITE	1	P

13.4.3.6.3.3 Specific message contents

Table 13.4.3.6.3.3-1: ATTACH REQUEST (preamble)

Derivation path: 36.508 table 4.7.2-4			
Information Element	**Value/remark**	**Comment**	**Condition**
MS network capability	SRVCC from UTRAN HSPA or E-UTRAN to GERAN/UTRAN supported		
Mobile station classmark 2	Any allowed value		
Supported Codecs	Any allowed value		

Table 13.4.3.6.3.3-2: *RRCConnectionReconfiguration* (step28, Table 13.4.3.6.3.2-2)

Derivation Path: 36.508 clause 4.6.1 table 4.6.1-8 with condition MEAS

Table 13.4.3.6.3.3-3: *MeasConfig* (step28, Table 13.4.3.6.3.2-2)

Derivation path: 36.508 clause 4.6.6 table 4.6.6-1 with condition UTRAN			
Information Element	**Value/Remark**	**Comment**	**Condition**
measurementConfiguration ::= SEQUENCE {			
measObjectToAddModifyList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entries		
measObjectId[1]	IdMeasObject-f8		
measObject[1]	MeasObjectUTRA-GENERIC(f8)		
measObjectId[2]	IdMeasObject-f1		
measObject[2]	MeasObjectEUTRA-GENERIC(f1)		
}			
reportConfigToAddModifyList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	1 entry		
reportConfigId[1]	IdReportConfigInterRAT-B2-UTRA		
reportConfig[1]	ReportConfigInterRAT-B2-UTRA(-72, -76)		
}			
measIdToAddModifyList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	1 entry		
measId[1]	1		
measObjectId[1]	IdMeasObject-f8		
reportConfigId[1]	IdReportConfigInterRAT-B2-UTRA		
}			
}			

Table 13.4.3.6.3.3-4: *MeasurementReport* (step31, Table 13.4.3.6.3.2-2)

Derivation Path: 36.508, table 4.6.1-5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
measurementReport-r8 SEQUENCE {			
measResults SEQUENCE {			
measId	1		
measResultServCell SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListUTRA SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {	1 entry		
physCellId[1]	PhysicalCellIdentity of Cell 5		
cgi-Info[1]	Not present		
measResult[1] SEQUENCE {			
utra-RSCP	(-5..91)		
}			
}			
}			
}			
}			
}			
}			
}			

Table 13.4.3.6.3.3-5: NOTIFICATION (step32, Table 13.4.3.6.3.2-2)

FFS

Table 13.4.3.6.3.3-6: re-INVITE (step33, Table 13.4.3.6.3.2-2)

FFS

13.4.3.7 Inter-system mobility / E-UTRA voice to UTRA CS voice / aSRVCC / MO call

13.4.3.7.1 Test Purpose (TP)

(1)

```
with { UE is in E-UTRA RRC_CONNECTED state and an IMS MO speech call is in alerting phase }
ensure that {
  when { UE receives a MobilityFromEUTRACommand message }
    then { UE transmits a HANDOVER TO UTRAN COMPLETE message on the UTRA cell }
          }
```

(2)

```
with { UE is in UTRA CELL_DCH state and an SRVCC procedure for MO call in alerting phase is
completed }
ensure that {
  when { UE receives a CONNECT message }
    then { UE transmits a CONNECT ACKNOWLEDGE message }
          }
```

13.4.3.7.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.331, clause 5.4.3.3, TS 23.237, clause 6.3.2.1.4d, TS 23.216, clause 6.2.2.2, TS 24.237, clauses 12.1, 12.2.3B.1, 12.2.3B.2, 12.2.3B.3.2, and TS 24.008, clause 5.2.4.2.

[TS 36.331, clause 5.4.3.3]

The UE shall:

1> stop timer T310, if running;

1> if the *MobilityFromEUTRACommand* message includes the *purpose* set to *handover*:

2> if the *targetRAT-Type* is set to *utra* or *geran*:

3> consider inter-RAT mobility as initiated towards the RAT indicated by the *targetRAT-Type* included in the *MobilityFromEUTRACommand* message;

3> forward the *nas-SecurityParamFromEUTRA* to the upper layers;

3> access the target cell indicated in the inter-RAT message in accordance with the specifications of the target RAT;

[TS 23.237, clause 6.3.2.1.4d]

Figure 6.3.2.1.4d-1 PS-CS: PS to CS - Single Radio, outgoing call in alerting phase, provides an information flow for Access Transfer of media of an IMS session in PS to CS direction for Access Transfers as specified in TS 23.216 [10].

The flow requires that the user is active in an outgoing IMS session and that the SIP session is in alerting state and there is no other ongoing session; procedures and capabilities specified in TS 23.216 [10], clause 6.2.1 are used for the switching of access networks at the transport layer. It further requires that the MSC Server supports I2 reference point.

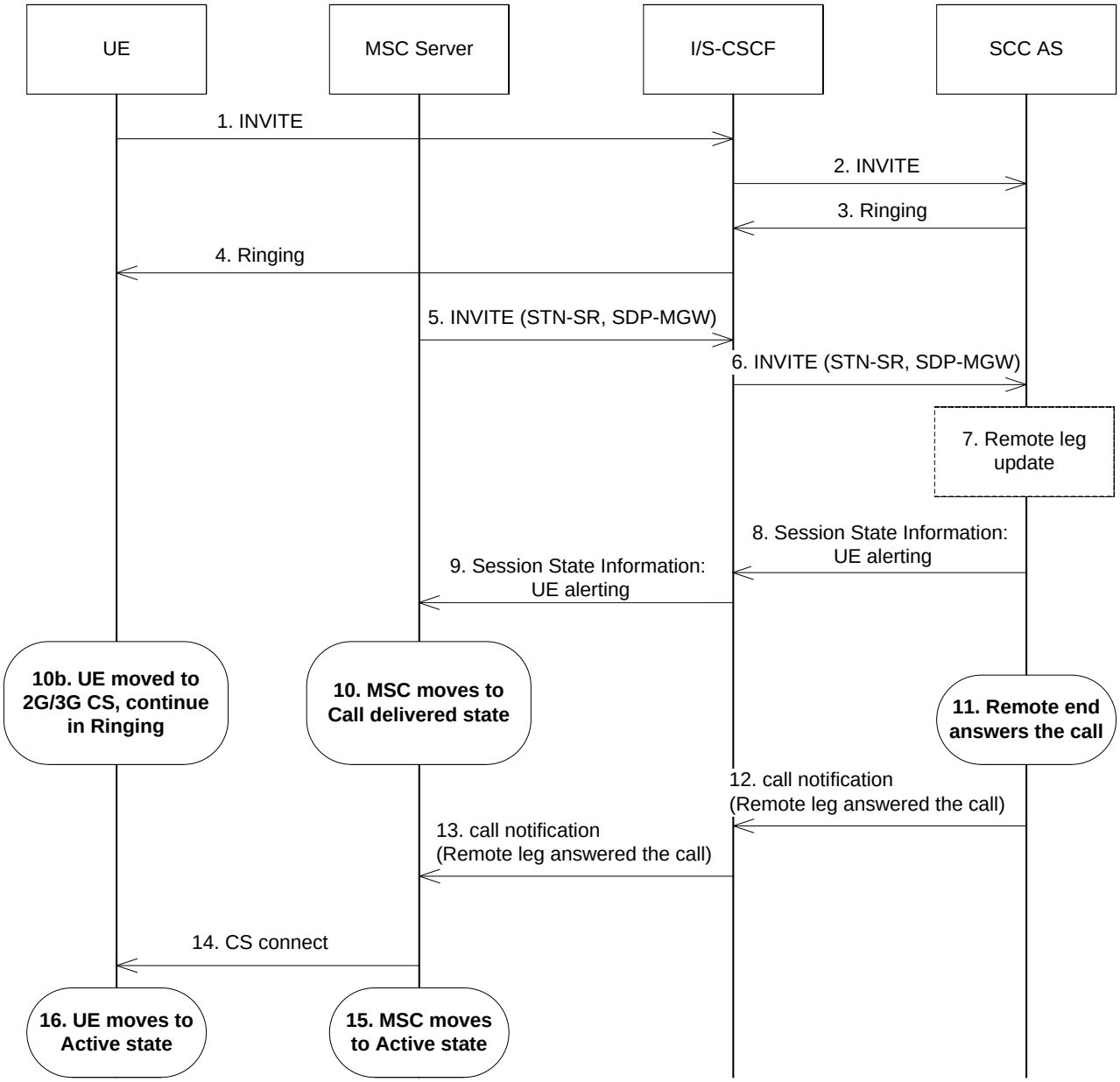

Figure 6.3.2.1.4d-1: PS-CS: PS to CS – Single Radio, outgoing call in alerting phase

1-4. Standard procedures are used to initiate a SIP session from the UE towards the remote end. The remote end is alerting the user for the incoming voice session.

...

10. The MSC moves to the corresponding CS call state, e.g. Call Delivered in TS 24.008 [24].

10b. In parallel to step 10, the UE has received the HO command as described in TS 23.216 [10]. The UE determines the local call state in the SIP session, and creates the corresponding CS call state, e.g. Call Delivered in TS 24.008 [24]. The UE ensures that the same ring back tone is played to the end user.

...

14. The MSC uses the standard procedure to send the CS connect message to UE as e.g. described in TS 24.008 [24].

15. The MSC moves to Active state.

16. The UE moves to Active state.

[TS 23.216, clause 6.2.2.2]

Depicted in figure 6.2.2.2-1 is a call flow for SRVCC from E-UTRAN to UTRAN or GERAN with DTM HO support, including the handling of the non-voice component. The flow requires that eNB can determine that either the target is UTRAN with PS HO or the target is GERAN with DTM support and the UE is supporting DTM.

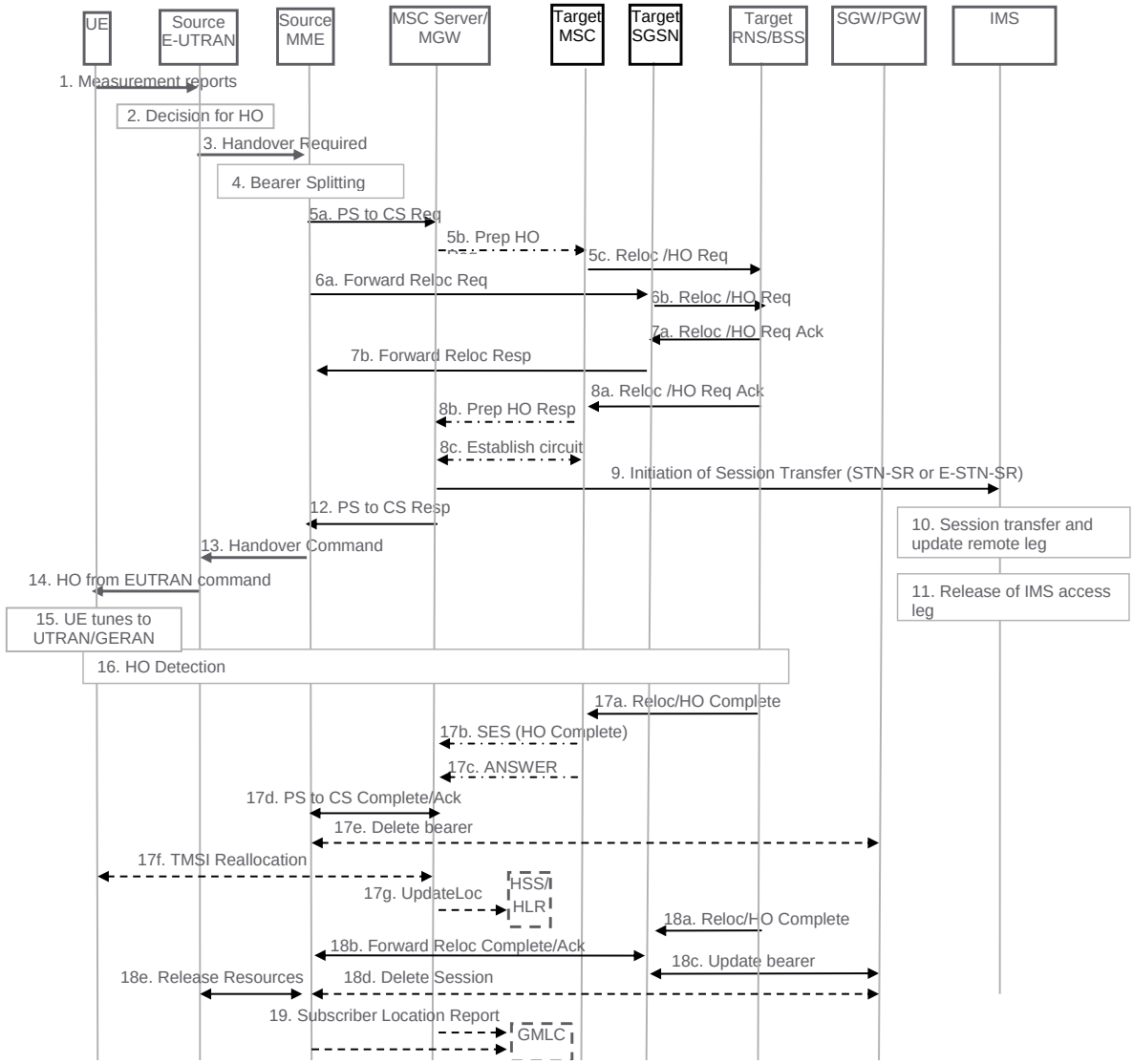

Figure 6.2.2.2-1: SRVCC from E-UTRAN to UTRAN with PS HO or GERAN with DTM HO support

1. UE sends measurement reports to E-UTRAN.

...

14. E-UTRAN sends a Handover from E-UTRAN Command message to the UE.

15. UE tunes to the target UTRAN/GERAN cell.

16. Handover Detection at the target RNS/BSS occurs. The UE sends a Handover Complete message via the target RNS/BSS to the target MSC. If the target MSC is not the MSC Server, then the Target MSC sends an SES (Handover Complete) message to the MSC Server. At this stage, the UE re-establishes the connection with the network and can send/receive voice data.

17. The CS relocation/handover is complete. The following steps are performed:

a) Target RNS/BSS sends Relocation Complete/Handover Complete message to the target MSC.

b) Target MSC sends an SES (Handover Complete) message to the MSC Server. The speech circuit is through connected in the MSC Server/MGW according to TS 23.009 [18].

c) Completion of the establishment procedure with ISUP Answer message to the MSC Server according to TS 23.009 [18].

d) MSC Server sends a SRVCC PS to CS Complete Notification message to the source MME. Source MME acknowledges the information by sending a SRVCC PS to CS Complete Acknowledge message to the MSC Server.

e) The source MME deactivates the voice bearer towards S-GW/P-GW and sets the PS-to-CS handover indicator to Delete Bearer Command message. This triggers MME-initiated Dedicated Bearer Deactivation procedure as specified in TS 23.401 [2]. The MME does not send deactivation request toward the eNodeB on receiving PS-to-CS Complete Notification in step 17d. If dynamic PCC is deployed, the PGW may interact with PCRF as defined in TS 23.203 [31].

f) If the HLR is to be updated, i.e. if the IMSI is authenticated but unknown in the VLR, the MSC Server performs a TMSI reallocation towards the UE using its own non-broadcast LAI and, if the MSC Server and other MSC/VLRs serve the same (target) LAI, with its own Network Resource Identifier (NRI).

NOTE 9: The TMSI reallocation is performed by the MSC Server towards the UE via target MSC.

g) If the MSC Server performed a TMSI reallocation in step 17f, and if this TMSI reallocation was completed successfully, the MSC Server performs a MAP Update Location to the HSS/HLR.

NOTE 10: This Update Location is not initiated by the UE.

[TS 24.237, clause 12.1]

In order to fulfil the requirements for PS-CS access transfer in SR-VCC for calls in alerting state, the SC UE needs to be engaged in a session with speech media component in early dialog state according to the following conditions before SR-VCC access transfer is performed:

- a SIP 180 (Ringing) response for the initial SIP INVITE request to establish this session has been sent or received; and

- a SIP final response for the initial SIP INVITE request to establish this session has not been sent or received.

[TS 24.237, clause 12.2.3B.1]

The SC UE shall apply the procedures in subclauses 12.2.3B.3 for access transfer for calls in alerting state if:

1) the SC UE supports single radio PS to CS access transfer for calls in alerting state; and

2) there are one or more early dialogs created by the same SIP INVITE request with at least one dialog that is an early dialog supporting a session with active speech media component where the SC UE:

   - has sent a Contact header field in a SIP INVITE request or 180 (Ringing) response containing the g.3gpp.srvcc-alerting media feature tag (as described in annex C); and

   - has received a Feature-Caps header field in a SIP INVITE request or 180 (Ringing) response containing the g.3gpp.srvcc-alerting feature capability indicator (as described in annex C).

[TS 24.237, clause 12.2.3B.2]

If the SC UE applies the procedures in subclause 12.2.3B.3 and the SC UE only has a single call in alerting state following access transfer, then the SC UE shall associate this session with transaction identifier value and TI flag as described in 3GPP TS 24.008 [8].

[TS 24.237, clause 12.2.3B.3.2]

If the SC UE has initiated an outgoing call which is in the early dialog state according to the conditions in subclauses 12.1 and 12.2.3B.1 and the SC UE successfully performs access transfer to the CS domain, then the UE continues in Ringing state in CS, i.e. UE moves to Call Delivered (U4) state as described in 3GPP TS 24.008 [8].

[TS 24.008, clause 5.2.4.2]

If the MS supports single radio PS to CS access transfer for calls in alerting state as specified in 3GPP TS 24.237 [136] subclause 12.2.3B, and the MS has a single voice media stream over the PS domain that is handed over to the CS domain via SRVCC, and the call control entity in "null" state receives an indication "MM connection establishment due to SRVCC handover", then:

- if the voice media stream is associated with a mobile originated session in the "early" state (defined in IETF RFC 3261 [137]) according to the conditions specified in 3GPP TS 24.237 [136] subclause 12.2.3B.3.2, the call control entity of the MS shall enter the "call delivered" state for this transaction. The MS and the network shall locally set the TI value of the call to "000" and the TI flag value as in mobile terminated call; and

...

If the MS has additional voice media streams carried over the PS domain that are handed over to the CS domain via SRVCC, the state for the transactions and the setting of the TI value and TI flag for these additional media streams is described in 3GPP TS 24.237 [136].

13.4.3.7.3 Test description

13.4.3.7.3.1 Pre-test conditions

System Simulator:

- Cell 1 and Cell 5.
- System information combination 4 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cell.

UE:

None.

Preamble:

- The UE is in state Registered, Idle mode (state 2) on Cell 1 according to [18].

13.4.3.7.3.2 Test procedure sequence

Table 13.4.3.7.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while columns marked "T1" is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 13.4.3.7.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 5	Remark
T0	Cell-specific RS EPRE	dBm/15kHz	-60	-	The power level values are such that entering conditions for event B2 are not satisfied.
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-88	
	PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-88	
T1	Cell-specific RS EPRE	dBm/15kHz	-84	-	The power level values are such that entering conditions for event B2 are satisfied.
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-64	
	PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-64	

Table 13.4.3.7.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS configures UTRA Cell 5 to reference configuration according 36.508 Table 4.8.3-1, condition UTRA Speech.	-	-	-	-
2-13	Steps 1 to 12 of the generic test procedure for IMS MO speech call (TS 36.508 4.5A.6.3-1).	-	-	-	-
-	EXCEPTION: In parallel to the events described in steps 14 to 15 the steps specified in Table 13.4.3.7.3.2-3 should take place.	-	-	-	-
14	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1 to confirm the establishment of the new data radio bearer, associated with the dedicated EPS bearer.	-->	*RRCConnectionReconfigurationComplete*	-	-
15	The UE transmits an ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT message on Cell 1.	-->	ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT	-	-
16	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1 to setup inter-RAT measurement and reporting for event B2.	<--	*RRCConnectionReconfiguration*	-	-
17	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1.	-->	*RRCConnectionReconfigurationComplete*	-	-
18	The SS changes the power level for Cell 1 and Cell 5 according to the row "T1" in Table 13.4.3.7.3.2-1.	-	-	-	-
19	The UE transmits a *MeasurementReport* message on Cell 1 to report event B2 for Cell 5.	-->	*MeasurementReport*	-	-
20	The SS transmits a *UECapabilityEnquiry* message on Cell 1 to request UE radio access capability information for E-UTRA and UTRA.	<--	*UECapabilityEnquiry*	-	-
21	The UE transmit a *UECapabilityInformation* message on Cell 1. NOTE: The start-CS values received, should be used to configure ciphering on Cell 5.	-->	*UECapabilityInformation*	-	-
22	The SS transmits a *MobilityFromEUTRACommand* message on Cell 1.	<--	*MobilityFromEUTRACommand*	-	-
23	Check: Does the UE transmit a HANDOVER TO UTRAN COMPLETE message on Cell 5?	-->	HANDOVER TO UTRAN COMPLETE	1	P
-	EXCEPTION: In parallel to the events described in step 24 to 29 the steps specified in Table 13.4.3.7.3.2-4 takes place.	-	-	-	-
24	The SS transmits a SECURITY MODE COMMAND message for the CS domain on Cell 5.	<--	SECURITY MODE COMMAND	-	-
25	The UE transmits a SECURITY MODE COMPLETE message on Cell 5.	-->	SECURITY MODE COMPLETE	-	-
26	The SS transmits an UTRAN MOBILITY INFORMATION message on Cell 5 to notify CN information.	<--	UTRAN MOBILITY INFORMATION	-	-
27	The UE transmits an UTRAN MOBILITY INFORMATION CONFIRM message on Cell 5.	-->	UTRAN MOBILITY INFORMATION CONFIRM	-	-
28	The SS transmits a TMSI REALLOCATION COMMAND message on Cell 5.	<--	TMSI REALLOCATION COMMAND	-	-
29	The UE transmits a TMSI REALLOCATION COMPLETE message on Cell 5.	-->	TMSI REALLOCATION COMPLETE	-	-
30	The SS transmits a CONNECT message on Cell 5.	<--	CONNECT	-	-
31	Check: Does the UE transmit a CONNECT ACKNOWLEDGE message on Cell 5?	-->	CONNECT ACKNOWLEDGE	2	P

Table 13.4.3.7.3.2-3: Parallel behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1-7	Steps 5-11 expected sequence defined in annex C.21 of TS 34.229-1 [35]. NOTE: IMS MO speech call is in alerting phase.	-	-	-	-

Table 13.4.3.7.3.2-4: Parallel behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The UE transmits a ROUTING AREA UPDATE REQUEST message on Cell 5.	-->	ROUTING AREA UPDATE REQUEST	-	-
2	The SS transmits a SECURITY MODE COMMAND message for the PS domain on Cell 5.	<--	SECURITY MODE COMMAND	-	-
3	The UE transmits a SECURITY MODE COMPLETE message on Cell 5.	-->	SECURITY MODE COMPLETE	-	-
4	The SS transmits a ROUTING AREA UPDATE ACCEPT message on Cell 5.	<--	ROUTING AREA UPDATE ACCEPT	-	-
5	The UE transmits a ROUTING AREA UPDATE COMPLETE message on Cell 5.	-->	ROUTING AREA UPDATE COMPLETE	-	-

13.4.3.7.3.3 Specific message contents

Table 13.4.3.7.3.3-1: ATTACH REQUEST (preamble)

Derivation path: 36.508 Table 4.7.2-4			
Information Element	**Value/remark**	**Comment**	**Condition**
MS network capability	SRVCC from UTRAN HSPA or E-UTRAN to GERAN/UTRAN supported		
Mobile station classmark 2	Any allowed value		
Supported Codecs	Any allowed value		
Old GUTI type	Any allowed value		

Table 13.4.3.7.3.3-2: *RRCConnectionReconfiguration* (step 16, Table 13.4.3.7.3.2-2)

Derivation Path: 36.508, Table 4.6.1-8, condition MEAS

Table 13.4.3.7.3.3-3: *MeasConfig* (Table 13.4.3.7.3.3-2)

Derivation Path: 36.508, Table 4.6.6-1, condition UTRAN			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig ::= SEQUENCE {			
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entries		
measObjectId[1]	IdMeasObject-f1		
measObject[1]	MeasObjectEUTRA-GENERIC(f1)		
measObjectId[2]	IdMeasObject-f8		
measObject[2]	MeasObjectUTRA-f8		
}			
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	1 entry		
reportConfigId[1]	IdReportConfig-B2-UTRA		
reportConfig[1]	ReportConfigInterRAT-B2-UTRA (-72, -76)		
}			
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	1 entry		
measId[1]	1		
measObjectId[1]	IdMeasObject-f8		
reportConfigId[1]	IdReportConfig-B2-UTRA		
}			
}			

Table 13.4.3.7.3.3-4: MeasObjectUTRA-f8 (Table 13.4.3.7.3.3-3)

Derivation Path: 36.508, Table 4.6.6-3			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasObjectUTRA ::= SEQUENCE {			
carrierFreq	Same downlink ARFCN as used for Cell 5		
cellsToAddModList CHOICE {			
cellsToAddModListUTRA-FDD SEQUENCE (SIZE (1..maxCellMeas)) OF SEQUENCE {	1 entry		UTRA-FDD
cellIndex[1]	1		
physCellId[1]	PhysicalCellIdentity of Cell 5		
}			
cellsToAddModListUTRA-TDD SEQUENCE (SIZE (1..maxCellMeas)) OF SEQUENCE {			UTRA-TDD
cellIndex[1]	1		
physCellId[1]	PhysicalCellIdentity of Cell 5		
}			
}			
csg-allowedReportingCells-v930	Not present		
}			

Condition	Explanation
UTRA-FDD	UTRA FDD cell environment
UTRA-TDD	UTRA TDD cell environment

Table 13.4.3.7.3.3-5: *MeasurementReport* (step 19, Table 13.4.3.7.3.2-2)

Derivation Path: 36.508, Table 4.6.1-5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
measurementReport-r8 SEQUENCE {			
measResults SEQUENCE {			
measId	1		
measResultPCell SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListUTRA SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {	1 entry		
physCellId[1] CHOICE {			
fdd	PhysicalCellIdentity of Cell 5		UTRA-FDD
tdd	PhysicalCellIdentity of Cell 5		UTRA-TDD
}			
cgi-Info[1]	Not present		
measResult[1] SEQUENCE {			
utra-RSCP	(-5..91)		
utra-EcN0	Not present		
additionalSI-Info-r9	Not present		
}			
}			
}			
measResultForECID-r9	Not present		
locationInfo-r10	Not present		
measResultServFreqList-r10	Not present		
}			
}			
}			
}			
}			

Condition	Explanation
UTRA-FDD	UTRA FDD cell environment
UTRA-TDD	UTRA TDD cell environment

Table 13.4.3.7.3.3-6: *UECapabilityEnquiry* (step 20, Table 13.4.3.7.3.2-2)

Derivation Path: 36.508, Table 4.6.1-22			
Information Element	**Value/remark**	**Comment**	**Condition**
UECapabilityEnquiry ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
ueCapabilityEnquiry-r8 SEQUENCE {			
ue-CapabilityRequest (SIZE (1..maxRAT-Capabilities)) OF SEQUENCE {	2 entries		
RAT-Type[1]	eutra		
RAT-Type[2]	utra		
}			
}			
}			
}			
}			

Table 13.4.3.7.3.3-7: *MobilityFromEUTRACommand* (step 22, Table 13.4.3.7.3.2-2)

Derivation Path: 36.508, Table 4.6.1-6			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityFromEUTRACommand ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
mobilityFromEUTRACommand-r8 SEQUENCE {			
cs-FallbackIndicator	True		
purpose CHOICE {			
handover SEQUENCE {			
targetRAT-Type	utra		
targetRAT-MessageContainer	HANDOVER TO UTRAN COMMAND(UTRA RRC message)		
nas-SecurityParamFromEUTRA	The 4 least significant bits of the NAS downlink COUNT value		
systemInformation	Not present		
}			
}			
}			
}			
}			
}			

Table 13.4.3.7.3.3-8: HANDOVER TO UTRAN COMMAND (Table 13.4.3.7.3.3-7)

Derivation Path: 36.508, Table 4.7B.1-1, condition UTRA Speech

Table 13.4.3.7.3.3-9: SECURITY MODE COMMAND (step 24, Table 13.4.3.7.3.2-2)

Derivation Path: 36.508, Table 4.7B.1-n			
Information Element	**Value/remark**	**Comment**	**Condition**
Ciphering mode info	Not present		

Table 13.4.3.7.3.3-10: CONNECT (step 30, Table 13.4.3.7.3.2-2)

Derivation Path: TS 24.008 Table 9.59			
Information Element	**Value/remark**	**Comment**	**Condition**
Transaction identifier			
TI flag	'0'B	The message is sent from the side that originates the TI	
TIO	'000'B	TI value 0	

Table 13.4.3.7.3.3-11: CONNECT ACKNOWLEDGE (step 31, Table 13.4.3.7.3.2-2)

Derivation Path: TS 24.008 Table 9.60			
Information Element	**Value/remark**	**Comment**	**Condition**
Transaction identifier			
TI flag	'1'B	The message is sent to the side that originates the TI	
TIO	'000'B	TI value 0	

13.4.3.8 Inter-system mobility / E-UTRA voice to UTRA CS voice / aSRVCC / MO call / Forked responses

13.4.3.8.1 Test Purpose (TP)

(1)

```
with { UE is in E-UTRA RRC_CONNECTED state, an IMS MO speech call is in alerting phase and UE has
received several SIP forked responses }
ensure that {
  when { UE receives a MobilityFromEUTRACommand message }
    then { UE transmits a HANDOVER TO UTRAN COMPLETE message on the UTRA cell }
            }
```

(2)

```
with { UE is in UTRA CELL_DCH state and an SRVCC procedure for MO call in alerting phase is
completed }
ensure that {
  when { UE receives a CONNECT message }
    then { UE transmits a CONNECT ACKNOWLEDGE message }
            }
```

13.4.3.8.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.331, clause 5.4.3.3, TS 23.237, clause 6.3.2.1.4d, TS 23.216, clause 6.2.2.2, TS 24.237, clauses 12.1, 12.2.3B.1, 12.2.3B.2, 12.2.3B.3.2, A.17.6 and TS 24.008, clause 5.2.4.2.

[TS 36.331, clause 5.4.3.3]

The UE shall:

1> stop timer T310, if running;

1> if the *MobilityFromEUTRACommand* message includes the *purpose* set to *handover*:

2> if the *targetRAT-Type* is set to *utra* or *geran*:

3> consider inter-RAT mobility as initiated towards the RAT indicated by the *targetRAT-Type* included in the *MobilityFromEUTRACommand* message;

3> forward the *nas-SecurityParamFromEUTRA* to the upper layers;

3> access the target cell indicated in the inter-RAT message in accordance with the specifications of the target RAT;

[TS 23.237, clause 6.3.2.1.4d]

Figure 6.3.2.1.4d-1 PS-CS: PS to CS - Single Radio, outgoing call in alerting phase, provides an information flow for Access Transfer of media of an IMS session in PS to CS direction for Access Transfers as specified in TS 23.216 [10].

The flow requires that the user is active in an outgoing IMS session and that the SIP session is in alerting state and there is no other ongoing session; procedures and capabilities specified in TS 23.216 [10], clause 6.2.1 are used for the switching of access networks at the transport layer. It further requires that the MSC Server supports I2 reference point.

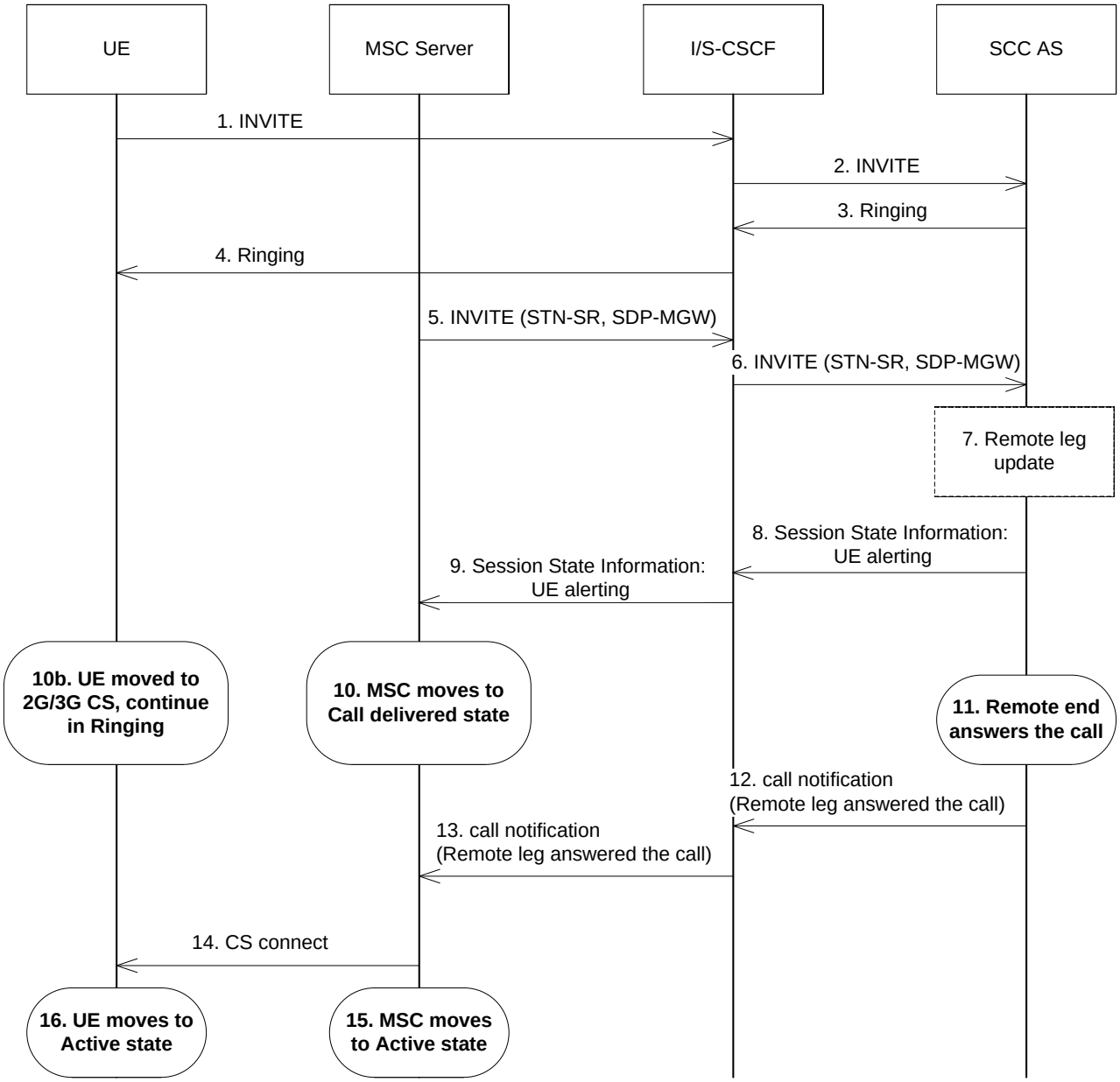

Figure 6.3.2.1.4d-1: PS-CS: PS to CS – Single Radio, outgoing call in alerting phase

1-4. Standard procedures are used to initiate a SIP session from the UE towards the remote end. The remote end is alerting the user for the incoming voice session.

...

10. The MSC moves to the corresponding CS call state, e.g. Call Delivered in TS 24.008 [24].

10b. In parallel to step 10, the UE has received the HO command as described in TS 23.216 [10]. The UE determines the local call state in the SIP session, and creates the corresponding CS call state, e.g. Call Delivered in TS 24.008 [24]. The UE ensures that the same ring back tone is played to the end user.

...

14. The MSC uses the standard procedure to send the CS connect message to UE as e.g. described in TS 24.008 [24].

15. The MSC moves to Active state.

16. The UE moves to Active state.

[TS 23.216, clause 6.2.2.2]

Depicted in figure 6.2.2.2-1 is a call flow for SRVCC from E-UTRAN to UTRAN or GERAN with DTM HO support, including the handling of the non-voice component. The flow requires that eNB can determine that either the target is UTRAN with PS HO or the target is GERAN with DTM support and the UE is supporting DTM.

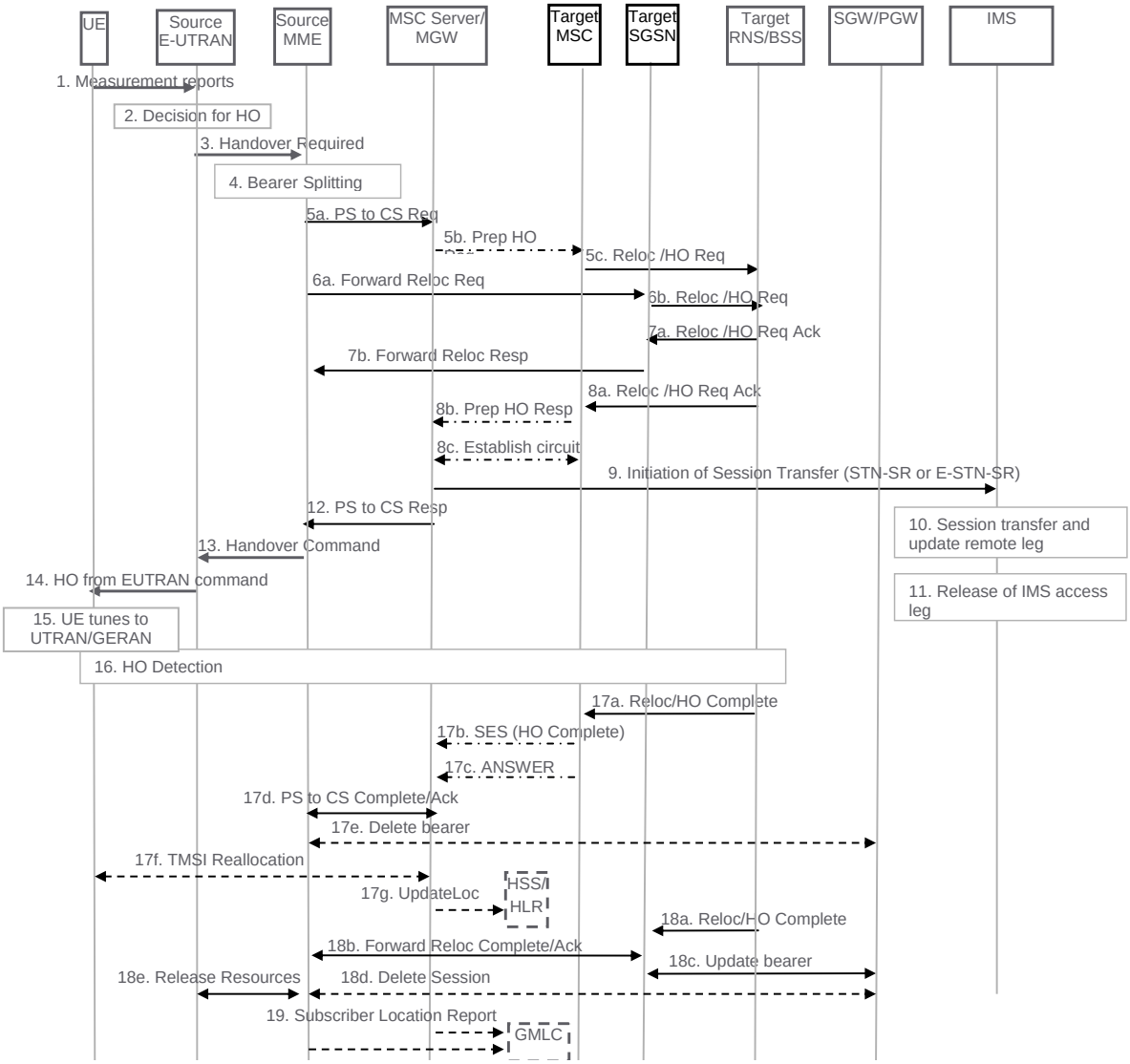

Figure 6.2.2.2-1: SRVCC from E-UTRAN to UTRAN with PS HO or GERAN with DTM HO support

1. UE sends measurement reports to E-UTRAN.

...

14. E-UTRAN sends a Handover from E-UTRAN Command message to the UE.

15. UE tunes to the target UTRAN/GERAN cell.

16. Handover Detection at the target RNS/BSS occurs. The UE sends a Handover Complete message via the target RNS/BSS to the target MSC. If the target MSC is not the MSC Server, then the Target MSC sends an SES (Handover Complete) message to the MSC Server. At this stage, the UE re-establishes the connection with the network and can send/receive voice data.

17. The CS relocation/handover is complete. The following steps are performed:

a) Target RNS/BSS sends Relocation Complete/Handover Complete message to the target MSC.

b) Target MSC sends an SES (Handover Complete) message to the MSC Server. The speech circuit is through connected in the MSC Server/MGW according to TS 23.009 [18].

c) Completion of the establishment procedure with ISUP Answer message to the MSC Server according to TS 23.009 [18].

d) MSC Server sends a SRVCC PS to CS Complete Notification message to the source MME. Source MME acknowledges the information by sending a SRVCC PS to CS Complete Acknowledge message to the MSC Server.

e) The source MME deactivates the voice bearer towards S-GW/P-GW and sets the PS-to-CS handover indicator to Delete Bearer Command message. This triggers MME-initiated Dedicated Bearer Deactivation procedure as specified in TS 23.401 [2]. The MME does not send deactivation request toward the eNodeB on receiving PS-to-CS Complete Notification in step 17d. If dynamic PCC is deployed, the PGW may interact with PCRF as defined in TS 23.203 [31].

f) If the HLR is to be updated, i.e. if the IMSI is authenticated but unknown in the VLR, the MSC Server performs a TMSI reallocation towards the UE using its own non-broadcast LAI and, if the MSC Server and other MSC/VLRs serve the same (target) LAI, with its own Network Resource Identifier (NRI).

NOTE 9: The TMSI reallocation is performed by the MSC Server towards the UE via target MSC.

g) If the MSC Server performed a TMSI reallocation in step 17f, and if this TMSI reallocation was completed successfully, the MSC Server performs a MAP Update Location to the HSS/HLR.

NOTE 10: This Update Location is not initiated by the UE.

[TS 24.237, clause 12.1]

In order to fulfil the requirements for PS-CS access transfer in SR-VCC for calls in alerting state, the SC UE needs to be engaged in a session with speech media component in early dialog state according to the following conditions before SR-VCC access transfer is performed:

- a SIP 180 (Ringing) response for the initial SIP INVITE request to establish this session has been sent or received; and

- a SIP final response for the initial SIP INVITE request to establish this session has not been sent or received.

[TS 24.237, clause 12.2.3B.1]

The SC UE shall apply the procedures in subclauses 12.2.3B.3 for access transfer for calls in alerting state if:

1) the SC UE supports single radio PS to CS access transfer for calls in alerting state; and

2) there are one or more early dialogs created by the same SIP INVITE request with at least one dialog that is an early dialog supporting a session with active speech media component where the SC UE:

   - has sent a Contact header field in a SIP INVITE request or 180 (Ringing) response containing the g.3gpp.srvcc-alerting media feature tag (as described in annex C); and

   - has received a Feature-Caps header field in a SIP INVITE request or 180 (Ringing) response containing the g.3gpp.srvcc-alerting feature capability indicator (as described in annex C).

[TS 24.237, clause 12.2.3B.2]

If the SC UE applies the procedures in subclause 12.2.3B.3 and the SC UE only has a single call in alerting state following access transfer, then the SC UE shall associate this session with transaction identifier value and TI flag as described in 3GPP TS 24.008 [8].

[TS 24.237, clause 12.2.3B.3.2]

If the SC UE has initiated an outgoing call which is in the early dialog state according to the conditions in subclauses 12.1 and 12.2.3B.1 and the SC UE successfully performs access transfer to the CS domain, then the UE continues in Ringing state in CS, i.e. UE moves to Call Delivered (U4) state as described in 3GPP TS 24.008 [8].

[TS 24.237, clause A.17.6]

In the example flow at the figure A.17.6-1, SC UE A initiates an originating session with speech media component which has received several forked responses. The call is anchored at SCC AS and in alerting phase. Based upon measurement reports sent from the UE to E-UTRAN, the source E-UTRAN decides to trigger a SRVCC handover to CS access.

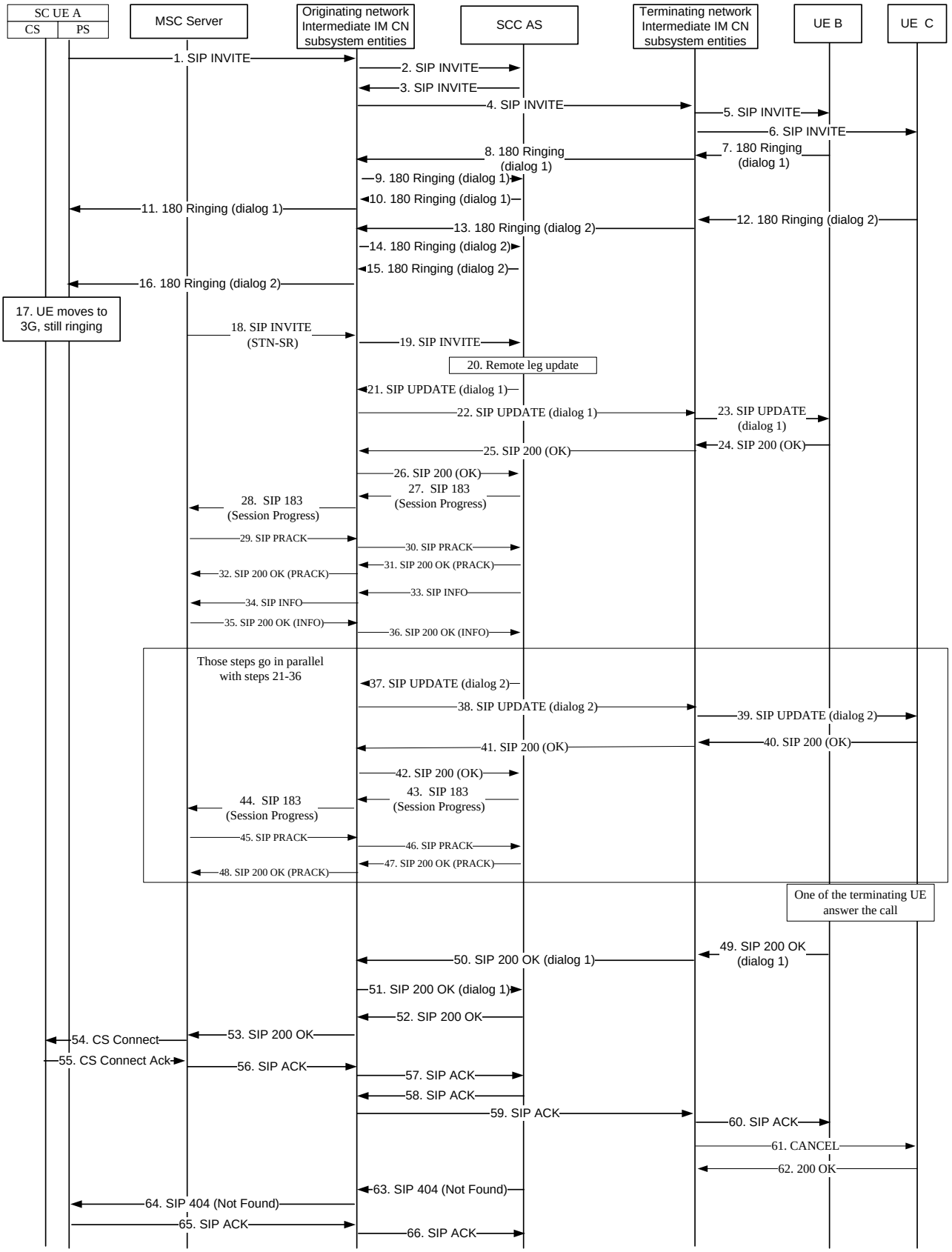

Figure A.17.6-1: PS-CS SRVCC, incoming call in alerting phase with forked responses

[TS 24.008, clause 5.2.4.2]

If the MS supports single radio PS to CS access transfer for calls in alerting state as specified in 3GPP TS 24.237 [136] subclause 12.2.3B, and the MS has a single voice media stream over the PS domain that is handed over to the CS domain via SRVCC, and the call control entity in "null" state receives an indication "MM connection establishment due to SRVCC handover", then:

- if the voice media stream is associated with a mobile originated session in the "early" state (defined in IETF RFC 3261 [137]) according to the conditions specified in 3GPP TS 24.237 [136] subclause 12.2.3B.3.2, the call control entity of the MS shall enter the "call delivered" state for this transaction. The MS and the network shall locally set the TI value of the call to "000" and the TI flag value as in mobile terminated call; and

...

If the MS has additional voice media streams carried over the PS domain that are handed over to the CS domain via SRVCC, the state for the transactions and the setting of the TI value and TI flag for these additional media streams is described in 3GPP TS 24.237 [136].

13.4.3.8.3 Test description

13.4.3.8.3.1 Pre-test conditions

System Simulator:

- Cell 1 and Cell 5.

- System information combination 4 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cell.

UE:

None.

Preamble:

- The UE is in state Registered, Idle mode (state 2) on Cell 1 according to [18].

13.4.3.8.3.2 Test procedure sequence

Table 13.4.3.1.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while columns marked "T1" is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 13.4.3.8.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 5	Remark
T0	Cell-specific RS EPRE	dBm/15kHz	-60	-	The power level values are such that entering conditions for event B2 are not satisfied.
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-88	
	PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-88	
T1	Cell-specific RS EPRE	dBm/15kHz	-84	-	The power level values are such that entering conditions for event B2 are satisfied.
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-64	
	PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-64	

Table 13.4.3.8.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS configures UTRA Cell 5 to reference configuration according 36.508 Table 4.8.3-1, condition UTRA Speech.	-	-	-	-
2-13	Steps 1 to 12 of the generic test procedure for IMS MO speech call (TS 36.508 4.5A.6.3-1).	-	-	-	-
-	EXCEPTION: In parallel to the events described in steps 14 to 15 the steps specified in Table 13.4.3.8.3.2-3 should take place.	-	-	-	-
14	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1 to confirm the establishment of the new data radio bearer, associated with the dedicated EPS bearer.	-->	*RRCConnectionReconfigurationComplete*	-	-
15	The UE transmits an ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT message on Cell 1.	-->	ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT	-	-
16	Expected sequence defined in annex C.27 of TS 34.229-1 [35]. NOTE: The UE receives forked response.	-	-	-	-
17	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1 to setup inter-RAT measurement and reporting for event B2.	<--	*RRCConnectionReconfiguration*	-	-
18	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1.	-->	*RRCConnectionReconfigurationComplete*	-	-
19	The SS changes the power level for Cell 1 and Cell 5 according to the row "T1" in Table 13.4.3.8.3.2-1.	-	-	-	-
20	The UE transmits a *MeasurementReport* message on Cell 1 to report event B2 for Cell 5.	-->	*MeasurementReport*	-	-
21	The SS transmits a *UECapabilityEnquiry* message on Cell 1 to request UE radio access capability information for E-UTRA and UTRA.	<--	*UECapabilityEnquiry*	-	-
22	The UE transmit a *UECapabilityInformation* message on Cell 1. NOTE: The start-CS values received, should be used to configure ciphering on Cell 5.	-->	*UECapabilityInformation*	-	-
23	The SS transmits a *MobilityFromEUTRACommand* message on Cell 1.	<--	*MobilityFromEUTRACommand*	-	-
24	Check: Does the UE transmit a HANDOVER TO UTRAN COMPLETE message on Cell 5?	-->	HANDOVER TO UTRAN COMPLETE	1	P
-	EXCEPTION: In parallel to the events described in step 25 to 30 the steps specified in Table 13.4.3.8.3.2-4 takes place.	-	-	-	-
25	The SS transmits a SECURITY MODE COMMAND message for the CS domain on Cell 5.	<--	SECURITY MODE COMMAND	-	-
26	The UE transmits a SECURITY MODE COMPLETE message on Cell 5.	-->	SECURITY MODE COMPLETE	-	-
27	The SS transmits an UTRAN MOBILITY INFORMATION message on Cell 5 to notify CN information.	<--	UTRAN MOBILITY INFORMATION	-	-
28	The UE transmits an UTRAN MOBILITY INFORMATION CONFIRM message on Cell 5.	-->	UTRAN MOBILITY INFORMATION CONFIRM	-	-
29	The SS transmits a TMSI REALLOCATION COMMAND message on Cell 5.	<--	TMSI REALLOCATION COMMAND	-	-
30	The UE transmits a TMSI REALLOCATION COMPLETE message on Cell 5.	-->	TMSI REALLOCATION COMPLETE	-	-
31	The SS transmits a CONNECT message on Cell 5.	<--	CONNECT	-	-

32	Check: Does the UE transmit a CONNECT ACKNOWLEDGE message on Cell 5?	-->	CONNECT ACKNOWLEDGE	2	P

Table 13.4.3.8.3.2-3: Parallel behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1-7	Steps 5-11 expected sequence defined in annex C.21 of TS 34.229-1 [35]. NOTE: IMS MO speech call is in alerting phase.	-	-	-	-

Table 13.4.3.8.3.2-4: Parallel behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The UE transmits a ROUTING AREA UPDATE REQUEST message on Cell 5.	-->	ROUTING AREA UPDATE REQUEST	-	-
2	The SS transmits a SECURITY MODE COMMAND message for the PS domain on Cell 5.	<--	SECURITY MODE COMMAND	-	-
3	The UE transmits a SECURITY MODE COMPLETE message on Cell 5.	-->	SECURITY MODE COMPLETE	-	-
4	The SS transmits a ROUTING AREA UPDATE ACCEPT message on Cell 5.	<--	ROUTING AREA UPDATE ACCEPT	-	-
5	The UE transmits a ROUTING AREA UPDATE COMPLETE message on Cell 5.	-->	ROUTING AREA UPDATE COMPLETE	-	-

13.4.3.8.3.3 Specific message contents

Table 13.4.3.8.3.3-1: ATTACH REQUEST (preamble)

Derivation path: 36.508 Table 4.7.2-4			
Information Element	**Value/remark**	**Comment**	**Condition**
MS network capability	SRVCC from UTRAN HSPA or E-UTRAN to GERAN/UTRAN supported		
Mobile station classmark 2	Any allowed value		
Supported Codecs	Any allowed value		
Old GUTI type	Any allowed value		

Table 13.4.3.8.3.3-2: *RRCConnectionReconfiguration* (step 17, Table 13.4.3.8.3.2-2)

Derivation Path: 36.508, Table 4.6.1-8, condition MEAS

Table 13.4.3.8.3.3-3: *MeasConfig* (Table 13.4.3.8.3.3-2)

Derivation Path: 36.508, Table 4.6.6-1, condition UTRAN			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig ::= SEQUENCE {			
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entries		
measObjectId[1]	IdMeasObject-f1		
measObject[1]	MeasObjectEUTRA-GENERIC(f1)		
measObjectId[2]	IdMeasObject-f8		
measObject[2]	MeasObjectUTRA-f8		
}			
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	1 entry		
reportConfigId[1]	IdReportConfig-B2-UTRA		
reportConfig[1]	ReportConfigInterRAT-B2-UTRA (-72, -76)		
}			
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	1 entry		
measId[1]	1		
measObjectId[1]	IdMeasObject-f8		
reportConfigId[1]	IdReportConfig-B2-UTRA		
}			
}			

Table 13.4.3.8.3.3-4: MeasObjectUTRA-f8 (Table 13.4.3.8.3.3-3)

Derivation Path: 36.508, Table 4.6.6-3			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasObjectUTRA ::= SEQUENCE {			
carrierFreq	Same downlink ARFCN as used for Cell 5		
cellsToAddModList CHOICE {			
cellsToAddModListUTRA-FDD SEQUENCE (SIZE (1..maxCellMeas)) OF SEQUENCE {	1 entry		UTRA-FDD
cellIndex[1]	1		
physCellId[1]	PhysicalCellIdentity of Cell 5		
}			
cellsToAddModListUTRA-TDD SEQUENCE (SIZE (1..maxCellMeas)) OF SEQUENCE {			UTRA-TDD
cellIndex[1]	1		
physCellId[1]	PhysicalCellIdentity of Cell 5		
}			
}			
csg-allowedReportingCells-v930	Not present		
}			

Condition	Explanation
UTRA-FDD	UTRA FDD cell environment
UTRA-TDD	UTRA TDD cell environment

Table 13.4.3.8.3.3-5: *MeasurementReport* (step 20, Table 13.4.3.8.3.2-2)

Derivation Path: 36.508, Table 4.6.1-5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
measurementReport-r8 SEQUENCE {			
measResults SEQUENCE {			
measId	1		
measResultPCell SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListUTRA SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {	1 entry		
physCellId[1] CHOICE {			
fdd	PhysicalCellIdentity of Cell 5		UTRA-FDD
tdd	PhysicalCellIdentity of Cell 5		UTRA-TDD
}			
cgi-Info[1]	Not present		
measResult[1] SEQUENCE {			
utra-RSCP	(-5..91)		
utra-EcN0	Not present		
additionalSI-Info-r9	Not present		
}			
}			
}			
measResultForECID-r9	Not present		
locationInfo-r10	Not present		
measResultServFreqList-r10	Not present		
}			
}			
}			
}			
}			

Condition	Explanation
UTRA-FDD	UTRA FDD cell environment
UTRA-TDD	UTRA TDD cell environment

Table 13.4.3.8.3.3-6: *UECapabilityEnquiry* (step 21, Table 13.4.3.8.3.2-2)

Derivation Path: 36.508, Table 4.6.1-22			
Information Element	**Value/remark**	**Comment**	**Condition**
UECapabilityEnquiry ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
ueCapabilityEnquiry-r8 SEQUENCE {			
ue-CapabilityRequest (SIZE (1..maxRAT-Capabilities)) OF SEQUENCE {	2 entries		
RAT-Type[1]	eutra		
RAT-Type[2]	utra		
}			
}			
}			
}			
}			

Table 13.4.3.8.3.3-7: *MobilityFromEUTRACommand* (step 23, Table 13.4.3.8.3.2-2)

Derivation Path: 36.508, Table 4.6.1-6			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityFromEUTRACommand ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
mobilityFromEUTRACommand-r8 SEQUENCE {			
cs-FallbackIndicator	True		
purpose CHOICE {			
handover SEQUENCE {			
targetRAT-Type	utra		
targetRAT-MessageContainer	HANDOVER TO UTRAN COMMAND(UTRA RRC message)		
nas-SecurityParamFromEUTRA	The 4 least significant bits of the NAS downlink COUNT value		
systemInformation	Not present		
}			
}			
}			
}			
}			
}			

Table 13.4.3.8.3.3-8: HANDOVER TO UTRAN COMMAND (Table 13.4.3.8.3.3-7)

Derivation Path: 36.508, Table 4.7B.1-1, condition UTRA Speech

Table 13.4.3.8.3.3-9: SECURITY MODE COMMAND (step 25 Table 13.4.3.8.3.2-2)

Derivation Path: 36.508, Table 4.7B.1-n			
Information Element	**Value/remark**	**Comment**	**Condition**
Ciphering mode info	Not present		

Table 13.4.3.8.3.3-10: CONNECT (step 31, Table 13.4.3.8.3.2-2)

Derivation Path: TS 24.008 Table 9.59			
Information Element	**Value/remark**	**Comment**	**Condition**
Transaction identifier			
TI flag	'0'B	The message is sent from the side that originates the TI	
TIO	'000'B	TI value 0	

Table 13.4.3.8.3.3-11: CONNECT ACKNOWLEDGE (step 32, Table 13.4.3.8.3.2-2)

Derivation Path: TS 24.008 Table 9.60			
Information Element	**Value/remark**	**Comment**	**Condition**
Transaction identifier			
TI flag	'1'B	The message is sent to the side that originates the TI	
TIO	'000'B	TI value 0	

13.4.3.9 Inter-system mobility / E-UTRA voice to UTRA CS voice / aSRVCC / MO call / SRVCC HO failure

13.4.3.9.1 Test Purpose (TP)

(1)

```
with { UE is in E-UTRA RRC_CONNECTED state, an IMS MO speech call is in alerting phase and UE
receives a MobilityFromEUTRACommand message }
ensure that {
  when { UE detects radio link failure }
    then { UE transmits SIP UPDATE message after RRC connection re-establishment procedure }
           }
```

13.4.3.9.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.331, clauses 5.4.3.3, 5.4.3.5, 5.3.7.2, 5.3.7.3, 5.3.7.4, 5.3.7.5 and TS 24.237, clause 12.2.4.2.

[TS 36.331, clause 5.4.3.3]

The UE shall:

1> stop timer T310, if running;

1> if the *MobilityFromEUTRACommand* message includes the *purpose* set to *handover*:

2> if the *targetRAT-Type* is set to *utra* or *geran*:

3> consider inter-RAT mobility as initiated towards the RAT indicated by the *targetRAT-Type* included in the *MobilityFromEUTRACommand* message;

3> forward the *nas-SecurityParamFromEUTRA* to the upper layers;

3> access the target cell indicated in the inter-RAT message in accordance with the specifications of the target RAT;

[TS 36.331, clause 5.4.3.5]

The UE shall:

1> if T304 expires (mobility from E-UTRA failure); or

1> if the UE does not succeed in establishing the connection to the target radio access technology; or

1> if the UE is unable to comply with (part of) the configuration included in the *MobilityFromEUTRACommand* message; or

1> if there is a protocol error in the inter RAT information included in the *MobilityFromEUTRACommand* message, causing the UE to fail the procedure according to the specifications applicable for the target RAT:

2> stop T304, if running;

2> if the *cs-FallbackIndicator* in the *MobilityFromEUTRACommand* message was set to *TRUE*:

3> indicate to upper layers that the CS Fallback procedure has failed;

2> revert back to the configuration used in the source PCell, excluding the configuration configured by the *physicalConfigDedicated*, *mac-MainConfig* and *sps-Config*;

2> initiate the connection re-establishment procedure as specified in 5.3.7;

[TS 36.331, clause 5.3.7.2]

The UE shall only initiate the procedure when AS security has been activated. The UE initiates the procedure when one of the following conditions is met:

...

1> upon mobility from E-UTRA failure, in accordance with 5.4.3.5; or

...

Upon initiation of the procedure, the UE shall:

1> stop timer T310, if running;

1> start timer T311;

1> suspend all RBs except SRB0;

1> reset MAC;

1> release the SCell(s), if configured, in accordance with 5.3.10.3a;

1> apply the default physical channel configuration as specified in 9.2.4;

1> apply the default semi-persistent scheduling configuration as specified in 9.2.3;

1> apply the default MAC main configuration as specified in 9.2.2;

1> release *reportProximityConfig* and clear any associated proximity status reporting timer;

1> release *measSubframePatternPCell*, if configured;

...

1> perform cell selection in accordance with the cell selection process as specified in TS 36.304 [4];

[TS 36.331, clause 5.3.7.3]

Upon selecting a suitable E-UTRA cell, the UE shall:

1> stop timer T311;

1> start timer T301;

1> apply the *timeAlignmentTimerCommon* included in *SystemInformationBlockType2*;

1> initiate transmission of the *RRCConnectionReestablishmentRequest* message in accordance with 5.3.7.4;

[TS 36.331, clause 5.3.7.4]

If the procedure was initiated due to radio link failure or handover failure, the UE shall:

1> set the *reestablishmentCellId* in the *VarRLF-Report* to the global cell identity of the selected cell;

The UE shall set the contents of *RRCConnectionReestablishmentRequest* message as follows:

1> set the *ue-Identity* as follows:

2> set the *c-RNTI* to the C-RNTI used in the source PCell (handover and mobility from E-UTRA failure) or used in the PCell in which the trigger for the re-establishment occurred (other cases);

2> set the *physCellId* to the physical cell identity of the source PCell (handover and mobility from E-UTRA failure) or of the PCell in which the trigger for the re-establishment occurred (other cases);

2> set the *shortMAC-I* to the 16 least significant bits of the MAC-I calculated:

3> over the ASN.1 encoded as per section 8 (i.e., a multiple of 8 bits) *VarShortMAC-Input*;

3> with the K_{RRCint} key and integrity protection algorithm that was used in the source PCell (handover and mobility from E-UTRA failure) or of the PCell in which the trigger for the re-establishment occurred (other cases); and

3> with all input bits for COUNT, BEARER and DIRECTION set to binary ones;

1> set the *reestablishmentCause* as follows:

...

2> else if the re-establishment procedure was initiated due to handover failure as specified in 5.3.5.6 (intra-LTE handover failure) or 5.4.3.5 (inter-RAT mobility from EUTRA failure):

3> set the reestablishmentCause to the value handoverFailure;

The UE shall submit the *RRCConnectionReestablishmentRequest* message to lower layers for transmission.

[TS 36.331, clause 5.3.7.5]

The UE shall:

1> stop timer T301;

1> consider the current cell to be the PCell;

1> re-establish PDCP for SRB1;

1> re-establish RLC for SRB1;

1> perform the radio resource configuration procedure in accordance with the received *radioResourceConfigDedicated* and as specified in 5.3.10;

1> resume SRB1;

NOTE: E-UTRAN should not transmit any message on SRB1 prior to receiving the *RRCConnectionReestablishmentComplete* message.

1> update the K_{eNB} key based on the K_{ASME} key to which the current K_{eNB} is associated, using the *nextHopChainingCount* value indicated in the *RRCConnectionReestablishment* message, as specified in TS 33.401 [32];

1> store the *nextHopChainingCount* value;

1> derive the K_{RRCint} key associated with the previously configured integrity algorithm, as specified in TS 33.401 [32];

1> derive the K_{RRCenc} key and the K_{UPenc} key associated with the previously configured ciphering algorithm, as specified in TS 33.401 [32];

...

1> configure lower layers to activate integrity protection using the previously configured algorithm and the K_{RRCint} key immediately, i.e., integrity protection shall be applied to all subsequent messages received and sent by the UE, including the message used to indicate the successful completion of the procedure;

...

1> configure lower layers to apply ciphering using the previously configured algorithm, the K_{RRCenc} key and the K_{UPenc} key immediately, i.e., ciphering shall be applied to all subsequent messages received and sent by the UE, including the message used to indicate the successful completion of the procedure;

1> set the content of *RRCConnectionReestablishmentComplete* message as follows:

2> if the UE has radio link failure or handover failure information available in *VarRLF-Report* and *plmn-Identity* stored in *VarRLF-Report* is equal to the RPLMN:

3> include the *rlf-InfoAvailable*;

...

1> perform the measurement related actions as specified in 5.5.6.1;

1> perform the measurement identity autonomous removal as specified in 5.5.2.2a;

1> submit the *RRCConnectionReestablishmentComplete* message to lower layers for transmission, upon which the procedure ends;

[TS 24.237, clause 12.2.4.2]

If the SC UE is engaged in a session in early dialog state and:

...

- does not successfully retune to the 3GPP UTRAN or 3GPP GERAN after it receives the handover command from the eNodeB (as described in 3GPP TS 36.331 [62]) or from the NodeB (as described in 3GPP TS 25.331 [61]);

then if the SC UE the SC UE shall send a SIP UPDATE request containing:

1) an SDP offer, including the media characteristics as used in the existing dialog; and

2) a Reason header field containing protocol "SIP" and reason parameter "cause" with value "487" as specified in IETF RFC 3326 [57], and with reason-text set to either "handover cancelled" or "failure to transition to CS domain";

by following the rules of 3GPP TS 24.229 [2] in each transferred session.

13.4.3.9.3 Test description

13.4.3.9.3.1 Pre-test conditions

System Simulator:

- Cell 1 and Cell 5.

- System information combination 4 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cell.

UE:

None.

Preamble:

- The UE is in state Registered, Idle mode (state 2) on Cell 1 according to [18].

13.4.3.9.3.2 Test procedure sequence

Table 13.4.3.9.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while columns marked "T1" and "T2" are to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 13.4.3.9.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 5	Remark
T0	Cell-specific RS EPRE	dBm/15kHz	-60	-	The power level values are such that entering conditions for event B2 are not satisfied.
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-88	
	PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-88	
T1	Cell-specific RS EPRE	dBm/15kHz	-84	-	The power level values are such that entering conditions for event B2 are satisfied.
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-64	
	PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-64	
T2	Cell-specific RS EPRE	dBm/15kHz	-85	-	Only Cell 1 is available. (NOTE 1)
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	"Off"	
	PCCPCH_Ec (UTRA LCR	dBm/1.28 MHz	-	"Off"	

	TDD)				
NOTE 1: Power level "Off" for UTRA cell is defined in TS 34.108 Table 6.1.4 and Table 6.1.9.					

Table 13.4.3.9.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS configures UTRA Cell 5 to reference configuration according 36.508 Table 4.8.3-1, condition UTRA Speech.	-	-	-	-
2-13	Steps 1 to 12 of the generic test procedure for IMS MO speech call (TS 36.508 4.5A.6.3-1).	-	-	-	-
-	EXCEPTION: In parallel to the events described in steps 14 to 15 the steps specified in Table 13.4.3.9.3.2-3 should take place.	-	-	-	-
14	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1 to confirm the establishment of the new data radio bearer, associated with the dedicated EPS bearer.	-->	*RRCConnectionReconfigurationComplete*	-	-
15	The UE transmits an ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT message on Cell 1.	-->	ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT	-	-
16	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1 to setup inter-RAT measurement and reporting for event B2.	<--	*RRCConnectionReconfiguration*	-	-
17	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1.	-->	*RRCConnectionReconfigurationComplete*	-	-
18	The SS changes the power level for Cell 1 and Cell 5 according to the row "T1" in Table 13.4.3.9.3.2-1.	-	-	-	-
19	The UE transmits a *MeasurementReport* message on Cell 1 to report event B2 for Cell 5.	-->	*MeasurementReport*	-	-
20	The SS changes the power level for Cell 1 and Cell 5 according to the row "T2" in Table 13.4.3.9.3.2-1.	-	-	-	-
21	The SS transmits a *UECapabilityEnquiry* message on Cell 1 to request UE radio access capability information for E-UTRA and UTRA.	<--	*UECapabilityEnquiry*	-	-
22	The UE transmit a *UECapabilityInformation* message on Cell 1. NOTE: The start-CS values received, should be used to configure ciphering on Cell 5.	-->	*UECapabilityInformation*	-	-
23	The SS transmits a *MobilityFromEUTRACommand* message on Cell 1.	<--	*MobilityFromEUTRACommand*	-	-
24	The UE transmits an *RRCConnectionReestablishmentRequest* message on Cell 1.	-->	*RRCConnectionReestablishmentRequest*	-	-
25	The SS transmits an *RRCConnectionReestablishment* message on Cell 1.	<--	*RRCConnectionReestablishment*	-	-
26	The UE transmits an *RRCConnectionReestablishmentComplete* message on Cell 1.	-->	*RRCConnectionReestablishmentComplete*	-	-
27	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1.	<--	*RRCConnectionReconfiguration*	-	-
-	EXCEPTION: In parallel to the events described in step 28 the steps specified in Table 13.4.3.9.3.2-4 should take place.	-	-	-	-
28	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1.	-->	*RRCConnectionReconfigurationComplete*	-	-
29-30	Steps 12-13 expected sequence defined in annex C.21 of TS 34.229-1 [35].	-	-	-	-

Table 13.4.3.9.3.2-3: Parallel behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1-7	Steps 5-11 expected sequence defined in annex C.21 of TS 34.229-1 [35]. NOTE: IMS MO speech call is in alerting phase.	-	-	-	-

Table 13.4.3.9.3.2-4: Parallel behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Check: Does the UE transmit SIP UPDATE request on Cell 1? NOTE: Step 1 defined in annex C.28 of TS 34.229-1 [35] is performed.	-	-	1	P
2	Step 2 expected sequence defined in annex C.28 of TS 34.229-1 [35].	-	-	-	-

13.4.3.9.3.3 Specific message contents

Table 13.4.3.9.3.3-1: ATTACH REQUEST (preamble)

Derivation path: 36.508 Table 4.7.2-4			
Information Element	**Value/remark**	**Comment**	**Condition**
MS network capability	SRVCC from UTRAN HSPA or E-UTRAN to GERAN/UTRAN supported		
Mobile station classmark 2	Any allowed value		
Supported Codecs	Any allowed value		
Old GUTI type	Any allowed value		

Table 13.4.3.9.3.3-2: *RRCConnectionReconfiguration* (step 16, Table 13.4.3.9.3.2-2)

Derivation Path: 36.508, Table 4.6.1-8, condition MEAS

Table 13.4.3.9.3.3-3: *MeasConfig* (Table 13.4.3.9.3.3-2)

Derivation Path: 36.508, Table 4.6.6-1, condition UTRAN			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig ::= SEQUENCE {			
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entries		
measObjectId[1]	IdMeasObject-f1		
measObject[1]	MeasObjectEUTRA-GENERIC(f1)		
measObjectId[2]	IdMeasObject-f8		
measObject[2]	MeasObjectUTRA-f8		
}			
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	1 entry		
reportConfigId[1]	IdReportConfig-B2-UTRA		
reportConfig[1]	ReportConfigInterRAT-B2-UTRA (-72, -76)		
}			
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	1 entry		
measId[1]	1		
measObjectId[1]	IdMeasObject-f8		
reportConfigId[1]	IdReportConfig-B2-UTRA		
}			
}			

Table 13.4.3.9.3.3-4: MeasObjectUTRA-f8 (Table 13.4.3.9.3.3-3)

Derivation Path: 36.508, Table 4.6.6-3			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasObjectUTRA ::= SEQUENCE {			
carrierFreq	Same downlink ARFCN as used for Cell 5		
cellsToAddModList CHOICE {			
cellsToAddModListUTRA-FDD SEQUENCE (SIZE (1..maxCellMeas)) OF SEQUENCE {	1 entry		UTRA-FDD
cellIndex[1]	1		
physCellId[1]	PhysicalCellIdentity of Cell 5		
}			
cellsToAddModListUTRA-TDD SEQUENCE (SIZE (1..maxCellMeas)) OF SEQUENCE {			UTRA-TDD
cellIndex[1]	1		
physCellId[1]	PhysicalCellIdentity of Cell 5		
}			
}			
csg-allowedReportingCells-v930	Not present		
}			

Condition	Explanation
UTRA-FDD	UTRA FDD cell environment
UTRA-TDD	UTRA TDD cell environment

Table 13.4.3.9.3.3-5: *MeasurementReport* (step 19, Table 13.4.3.9.3.2-2)

Derivation Path: 36.508, Table 4.6.1-5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
measurementReport-r8 SEQUENCE {			
measResults SEQUENCE {			
measId	1		
measResultPCell SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListUTRA SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {	1 entry		
physCellId[1] CHOICE {			
fdd	PhysicalCellIdentity of Cell 5		UTRA-FDD
tdd	PhysicalCellIdentity of Cell 5		UTRA-TDD
}			
cgi-Info[1]	Not present		
measResult[1] SEQUENCE {			
utra-RSCP	(-5..91)		
utra-EcN0	Not present		
additionalSI-Info-r9	Not present		
}			
}			
}			
measResultForECID-r9	Not present		
locationInfo-r10	Not present		
measResultServFreqList-r10	Not present		
}			
}			
}			
}			
}			

Condition	Explanation
UTRA-FDD	UTRA FDD cell environment
UTRA-TDD	UTRA TDD cell environment

Table 13.4.3.9.3.3-6: *UECapabilityEnquiry* (step 21, Table 13.4.3.9.3.2-2)

Derivation Path: 36.508, Table 4.6.1-22			
Information Element	**Value/remark**	**Comment**	**Condition**
UECapabilityEnquiry ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
ueCapabilityEnquiry-r8 SEQUENCE {			
ue-CapabilityRequest (SIZE (1..maxRAT-Capabilities)) OF SEQUENCE {	2 entries		
RAT-Type[1]	eutra		
RAT-Type[2]	utra		
}			
}			
}			
}			
}			

Table 13.4.3.9.3.3-7: *MobilityFromEUTRACommand* (step 23, Table 13.4.3.9.3.2-2)

Derivation Path: 36.508, Table 4.6.1-6			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityFromEUTRACommand ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
mobilityFromEUTRACommand-r8 SEQUENCE {			
cs-FallbackIndicator	True		
purpose CHOICE {			
handover SEQUENCE {			
targetRAT-Type	utra		
targetRAT-MessageContainer	HANDOVER TO UTRAN COMMAND(UTRA RRC message)		
nas-SecurityParamFromEUTRA	The 4 least significant bits of the NAS downlink COUNT value		
systemInformation	Not present		
}			
}			
}			
}			
}			
}			

Table 13.4.3.9.3.3-8: HANDOVER TO UTRAN COMMAND (Table 13.4.3.9.3.3-7)

Derivation Path: 36.508, Table 4.7B.1-1, condition UTRA Speech

Table 13.4.3.9.3.3-9: *RRCConnectionReestablishmentRequest* (step 24, Table 13.4.3.9.3.2-2)

Derivation Path: 36.508, Table 4.6.1-13			
Information Element	**Value/remark**	**Comment**	**Condition**
RRCConnectionReestablishmentRequest ::= SEQUENCE {			
criticalExtensions CHOICE {			
rrcConnectionReestablishmentRequest-r8 SEQUENCE {			
ue-Identity SEQUENCE {			
c-RNTI	the value of the C-RNTI of the UE		
physCellId	PhysicalCellIdentity of Cell 1		
shortMAC-I	The same value as the 16 least significant bits of the XMAC-I value calculated by SS		
}			
reestablishmentCause	otherFailure		
}			
}			
}			

Table 13.4.3.9.3.3-10: *RRCConnectionReestablishmentComplete* (step 26, Table 13.4.3.9.3.2-2)

Derivation Path: 36.508, Table 4.6.1-11			
Information Element	**Value/remark**	**Comment**	**Condition**
RRCConnectionReestablishmentComplete ::= SEQUENCE {			
criticalExtensions CHOICE {			
rrcConnectionReestablishmentComplete-r8 = SEQUENCE {			
nonCriticalExtension SEQUENCE {			
rlf-InfoAvailable-r9	true		
nonCriticalExtension	Not present or any allowed value		
}			
}			
}			
}			

Table 13.4.3.9.3.3-11: *RRCConnectionReconfiguration* (step 27, Table 13.4.3.9.3.2-2)

Derivation Path: 36.508, Table 4.6.1-8			
Information Element	**Value/remark**	**Comment**	**Condition**
RRCConnectionReconfiguration ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
rrcConnectionReconfiguration-r8 SEQUENCE {			
radioResourceConfigDedicated	RadioResourceConfigDedicated-HO		
}			
}			
}			
}			

13.4.3.10 Inter-system mobility / E-UTRA voice to UTRA CS voice / aSRVCC / MT call

13.4.3.10.1 Test Purpose (TP)

(1)

```
with { UE is in E-UTRA RRC_CONNECTED state and an IMS MT speech call is in alerting phase }
ensure that {
  when { UE receives a MobilityFromEUTRACommand message }
    then { UE transmits a HANDOVER TO UTRAN COMPLETE message on the UTRA cell }
          }
```

(2)

```
with { UE is in UTRA CELL_DCH state and an SRVCC procedure for MT call in alerting phase is
completed }
ensure that {
  when { User answers the MT call }
    then { UE transmits a CONNECT message }
          }
```

13.4.3.10.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.331, clause 5.4.3.3, TS 23.237, clause 6.3.2.1.4c, TS 23.216, clause 6.2.2.2, TS 24.237, clauses 12.1, 12.2.3B.1, 12.2.3B.2, 12.2.3B.3.1, and TS 24.008 clause 5.2.4.2.

[TS 36.331, clause 5.4.3.3]

The UE shall:

1> stop timer T310, if running;

1> if the *MobilityFromEUTRACommand* message includes the *purpose* set to *handover*:

2> if the *targetRAT-Type* is set to *utra* or *geran*:

3> consider inter-RAT mobility as initiated towards the RAT indicated by the *targetRAT-Type* included in the *MobilityFromEUTRACommand* message;

3> forward the *nas-SecurityParamFromEUTRA* to the upper layers;

3> access the target cell indicated in the inter-RAT message in accordance with the specifications of the target RAT;

[TS 23.237, clause 6.3.2.1.4c]

Figure 6.3.2.1.4c-1 PS-CS: PS to CS - Single Radio, incoming call in alerting phase, provides an information flow for Access Transfer of media of an IMS session in PS to CS direction for Access Transfers as specified in TS 23.216 [10].

The flow requires that the user is active in a terminating IMS session and that the SIP session is in alerting state there is no other ongoing session and the UE has not responded over the access leg; procedures and capabilities specified in TS 23.216 [10], clause 6.2.1 are used for the switching of access networks at the transport layer. It further requires that the MSC Server supports I2 reference point.

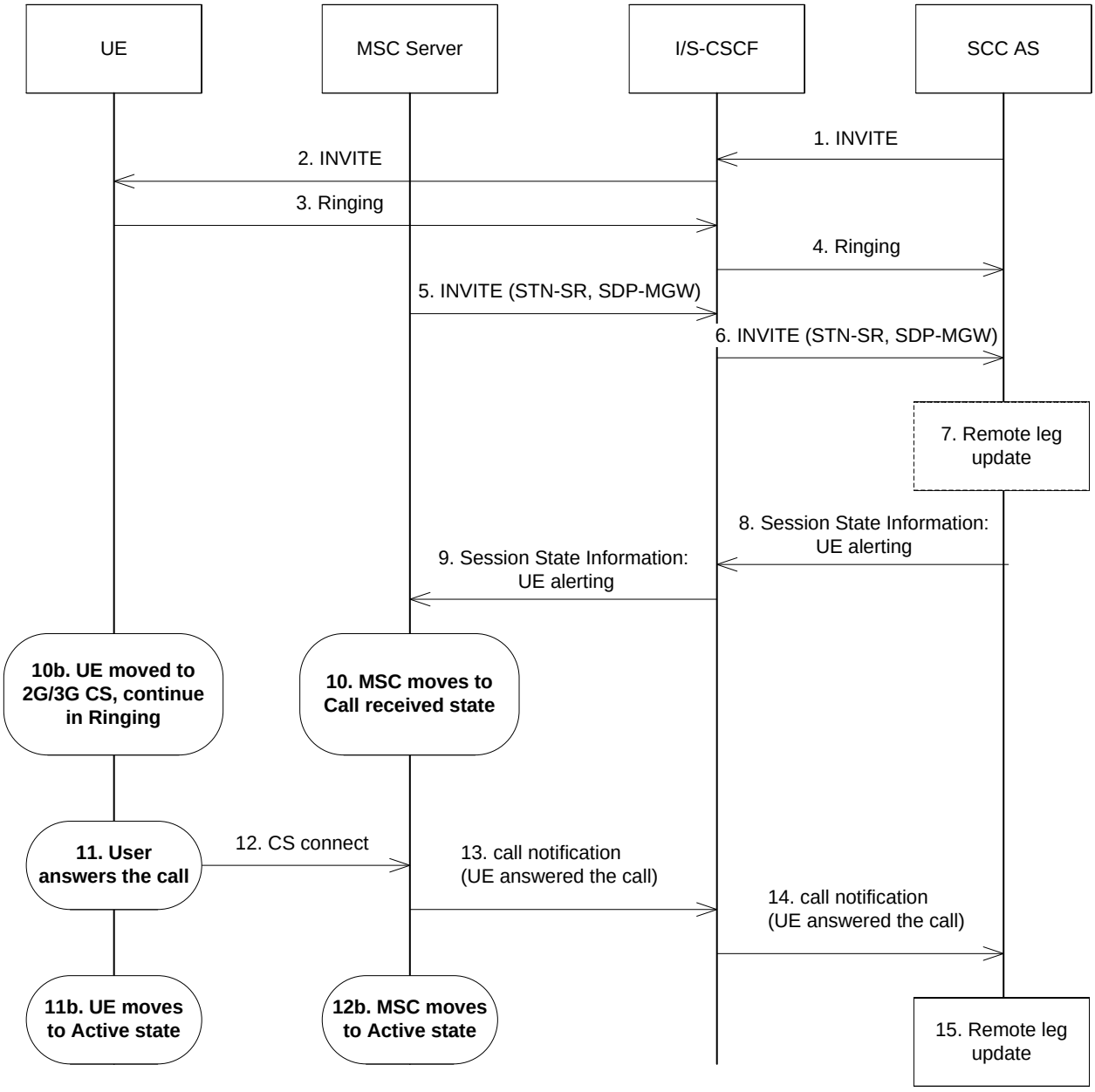

Figure 6.3.2.1.4c-1: PS-CS: PS to CS - Single Radio, incoming call in alerting phase

1-4. Standard procedures are used to initiate a SIP session towards the UE. The UE is alerting the user for the incoming voice session.

...

10. The MSC moves to the corresponding CS call state, e.g. Call Received in TS 24.008 [24].

NOTE 2: In call received state the MSC does not generate an in-band ring tone to the calling party.

10b. In parallel to step 10, the UE has received the HO command as described in TS 23.216 [10]. The UE determines the local call state in the SIP session, and creates the corresponding CS call state, e.g. Call Received in TS 24.008 [24]. The UE continues to alert the user for incoming call.

11. The user answers to the call.

11a. UE moves to Active state.

12. The UE uses the standard procedure to send the CS connect message to MSC as e.g. described in TS 24.008 [24].

[TS 23.216, clause 6.2.2.2]

Depicted in figure 6.2.2.2-1 is a call flow for SRVCC from E-UTRAN to UTRAN or GERAN with DTM HO support, including the handling of the non-voice component. The flow requires that eNB can determine that either the target is UTRAN with PS HO or the target is GERAN with DTM support and the UE is supporting DTM.

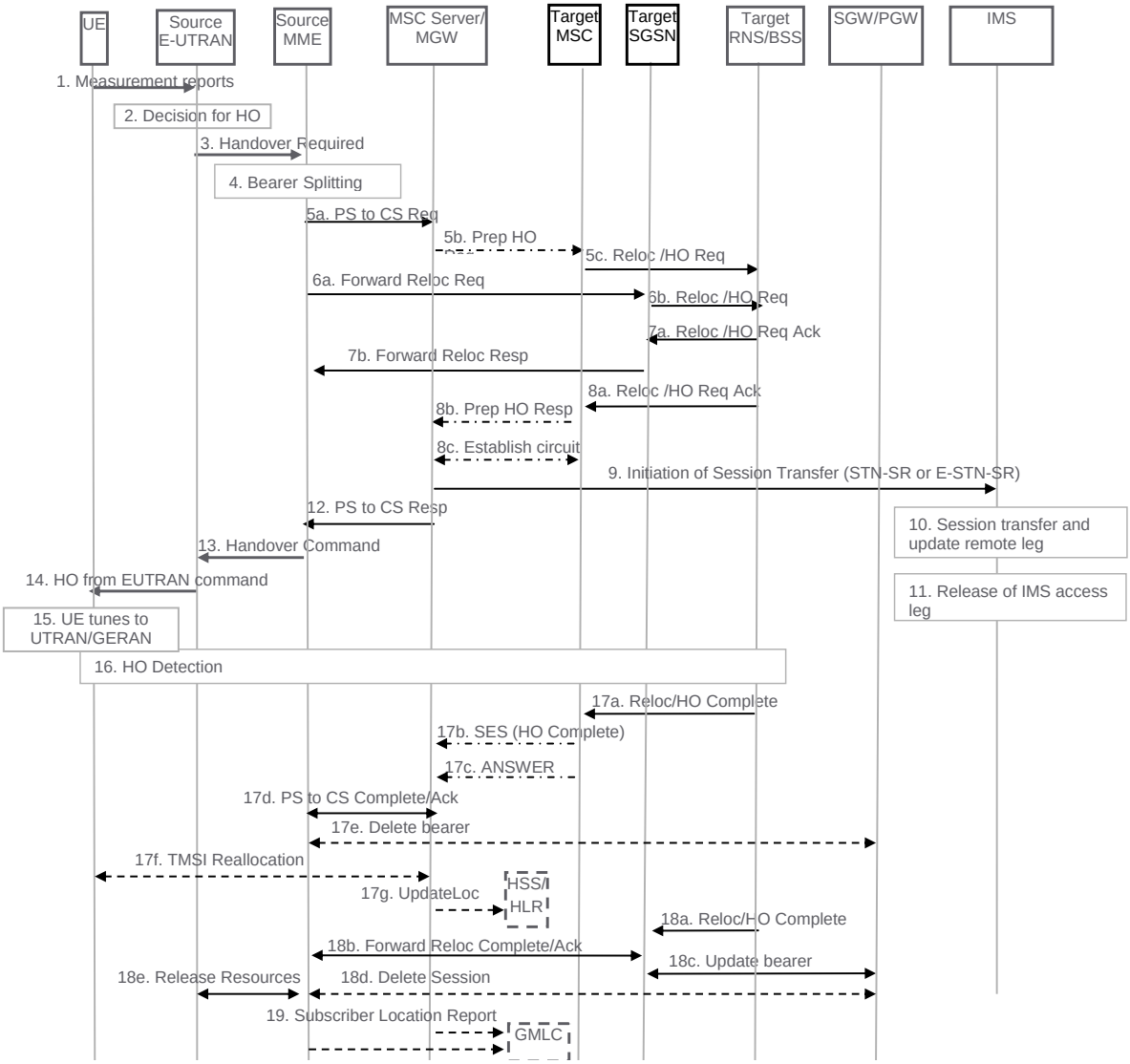

Figure 6.2.2.2-1: SRVCC from E-UTRAN to UTRAN with PS HO or GERAN with DTM HO support

1. UE sends measurement reports to E-UTRAN.

...

14. E-UTRAN sends a Handover from E-UTRAN Command message to the UE.

15. UE tunes to the target UTRAN/GERAN cell.

16. Handover Detection at the target RNS/BSS occurs. The UE sends a Handover Complete message via the target RNS/BSS to the target MSC. If the target MSC is not the MSC Server, then the Target MSC sends an SES (Handover Complete) message to the MSC Server. At this stage, the UE re-establishes the connection with the network and can send/receive voice data.

17. The CS relocation/handover is complete. The following steps are performed:

    a) Target RNS/BSS sends Relocation Complete/Handover Complete message to the target MSC.

    b) Target MSC sends an SES (Handover Complete) message to the MSC Server. The speech circuit is through connected in the MSC Server/MGW according to TS 23.009 [18].

    c) Completion of the establishment procedure with ISUP Answer message to the MSC Server according to TS 23.009 [18].

d) MSC Server sends a SRVCC PS to CS Complete Notification message to the source MME. Source MME acknowledges the information by sending a SRVCC PS to CS Complete Acknowledge message to the MSC Server.

e) The source MME deactivates the voice bearer towards S-GW/P-GW and sets the PS-to-CS handover indicator to Delete Bearer Command message. This triggers MME-initiated Dedicated Bearer Deactivation procedure as specified in TS 23.401 [2]. The MME does not send deactivation request toward the eNodeB on receiving PS-to-CS Complete Notification in step 17d. If dynamic PCC is deployed, the PGW may interact with PCRF as defined in TS 23.203 [31].

f) If the HLR is to be updated, i.e. if the IMSI is authenticated but unknown in the VLR, the MSC Server performs a TMSI reallocation towards the UE using its own non-broadcast LAI and, if the MSC Server and other MSC/VLRs serve the same (target) LAI, with its own Network Resource Identifier (NRI).

NOTE 9: The TMSI reallocation is performed by the MSC Server towards the UE via target MSC.

g) If the MSC Server performed a TMSI reallocation in step 17f, and if this TMSI reallocation was completed successfully, the MSC Server performs a MAP Update Location to the HSS/HLR.

NOTE 10: This Update Location is not initiated by the UE.

[TS 24.237, clause 12.1]

In order to fulfil the requirements for PS-CS access transfer in SR-VCC for calls in alerting state, the SC UE needs to be engaged in a session with speech media component in early dialog state according to the following conditions before SR-VCC access transfer is performed:

- a SIP 180 (Ringing) response for the initial SIP INVITE request to establish this session has been sent or received; and

- a SIP final response for the initial SIP INVITE request to establish this session has not been sent or received.

[TS 24.237, clause 12.2.3B.1]

The SC UE shall apply the procedures in subclauses 12.2.3B.3 for access transfer for calls in alerting state if:

1) the SC UE supports single radio PS to CS access transfer for calls in alerting state; and

2) there are one or more early dialogs created by the same SIP INVITE request with at least one dialog that is an early dialog supporting a session with active speech media component where the SC UE:

   - has sent a Contact header field in a SIP INVITE request or 180 (Ringing) response containing the g.3gpp.srvcc-alerting media feature tag (as described in annex C); and

   - has received a Feature-Caps header field in a SIP INVITE request or 180 (Ringing) response containing the g.3gpp.srvcc-alerting feature capability indicator (as described in annex C).

[TS 24.237, clause 12.2.3B.2]

If the SC UE applies the procedures in subclause 12.2.3B.3 and the SC UE only has a single call in alerting state following access transfer, then the SC UE shall associate this session with transaction identifier value and TI flag as described in 3GPP TS 24.008 [8].

[TS 24.237, clause 12.2.3B.3.1]

If the SC UE:

- has received a terminating call which is in the early dialog state according to the conditions in subclauses 12.1 and 12.2.3B.1; and

- successfully performs access transfer to the CS domain;

then the UE continues in Ringing state in CS, i.e. UE moves to Call Received (U7) state as described in 3GPP TS 24.008 [8].

[TS 24.008, clause 5.2.4.2]

If the MS supports single radio PS to CS access transfer for calls in alerting state as specified in 3GPP TS 24.237 [136] subclause 12.2.3B, and the MS has a single voice media stream over the PS domain that is handed over to the CS domain via SRVCC, and the call control entity in "null" state receives an indication "MM connection establishment due to SRVCC handover", then:

...

- if the voice media stream is associated with a mobile terminating session in the "early" state (defined in IETF RFC 3261 [137]) according to the conditions specified in 3GPP TS 24.237 [136] subclause 12.2.3B.3.1, the call control entity of the MS shall enter the "call received" state for this transaction. The MS and the network shall locally set the TI value of the call to "000" and the TI flag value as in mobile terminated call.

If the MS has additional voice media streams carried over the PS domain that are handed over to the CS domain via SRVCC, the state for the transactions and the setting of the TI value and TI flag for these additional media streams is described in 3GPP TS 24.237 [136].

13.4.3.10.3 Test description

13.4.3.10.3.1 Pre-test conditions

System Simulator:

- Cell 1 and Cell 5

- System information combination 4 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cell.

UE:

None.

Preamble:

- The UE is in state Registered, Idle mode (state 2) on Cell 1 according to [18].

13.4.3.10.3.2 Test procedure sequence

Table 13.4.3.10.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while columns marked "T1" is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 13.4.3.10.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 5	Remark
T0	Cell-specific RS EPRE	dBm/15kHz	-60	-	The power level values are such that entering conditions for event B2 are not satisfied.
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-88	
	PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-88	
T1	Cell-specific RS EPRE	dBm/15kHz	-84	-	The power level values are such that entering conditions for event B2 are satisfied.
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-64	
	PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-64	

Table 13.4.3.10.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS configures UTRA Cell 5 to reference configuration according 36.508 Table 4.8.3-1, condition UTRA Speech.	-	-	-	-
2-23	Steps 1 to 22 of the generic test procedure for IMS MT speech call (TS 36.508 4.5A.7.3-1).	-	-	-	-
24	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1 to setup inter-RAT measurement and reporting for event B2.	<--	*RRCConnectionReconfiguration*	-	-
25	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1.	-->	*RRCConnectionReconfigurationComplete*	-	-
26	The SS changes the power level for Cell 1 and Cell 5 according to the row "T1" in Table 13.4.3.10.3.2-1	-	-	-	-
27	The UE transmits a *MeasurementReport* message on Cell 1 to report event B2 for Cell 5.	-->	*MeasurementReport*	-	-
28	The SS transmits a *UECapabilityEnquiry* message on Cell 1 to request UE radio access capability information for E-UTRA and UTRA.	<--	*UECapabilityEnquiry*	-	-
29	The UE transmit a *UECapabilityInformation* message on Cell 1. NOTE: The start-CS values received, should be used to configure ciphering on Cell 5.	-->	*UECapabilityInformation*	-	-
30	The SS transmits a *MobilityFromEUTRACommand* message on Cell 1.	<--	*MobilityFromEUTRACommand*	-	-
31	Check: Does the UE transmit a HANDOVER TO UTRAN COMPLETE message on Cell 5?	-->	HANDOVER TO UTRAN COMPLETE	1	P
-	EXCEPTION: In parallel to the events described in step 32 to 37 the steps specified in Table 13.4.3.10.3.2-3 takes place.	-	-	-	-
32	The SS transmits a SECURITY MODE COMMAND message for the CS domain on Cell 5.	<--	SECURITY MODE COMMAND	-	-
33	The UE transmits a SECURITY MODE COMPLETE message on Cell 5.	-->	SECURITY MODE COMPLETE	-	-
34	The SS transmits an UTRAN MOBILITY INFORMATION message on Cell 5 to notify CN information.	<--	UTRAN MOBILITY INFORMATION	-	-
35	The UE transmits an UTRAN MOBILITY INFORMATION CONFIRM message on Cell 5.	-->	UTRAN MOBILITY INFORMATION CONFIRM	-	-
36	The SS transmits a TMSI REALLOCATION COMMAND message on Cell 5.	<--	TMSI REALLOCATION COMMAND	-	-
37	The UE transmits a TMSI REALLOCATION COMPLETE message on Cell 5.	-->	TMSI REALLOCATION COMPLETE	-	-
38	Cause the UE to answer an MT call. (NOTE 1)	-	-	-	-
39	Check: Does the UE transmit a CONNECT message on Cell 5?	-->	CONNECT	2	P
40	The SS transmits a CONNECT ACKNOWLEDGE message on Cell 5.	<--	CONNECT ACKNOWLEDGE	-	-
NOTE 1: The request may be triggered by MMI or by AT command A.					

Table 13.4.3.10.3.2-3: Parallel behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The UE transmit a ROUTING AREA UPDATE REQUEST message on Cell 5.	-->	ROUTING AREA UPDATE REQUEST	-	-
2	The SS transmits a SECURITY MODE COMMAND message for the PS domain on Cell 5.	<--	SECURITY MODE COMMAND	-	-
3	The UE transmits a SECURITY MODE COMPLETE message on Cell 5.	-->	SECURITY MODE COMPLETE	-	-
4	The SS transmits a ROUTING AREA UPDATE ACCEPT message on Cell 5.	<--	ROUTING AREA UPDATE ACCEPT	-	-
5	The UE transmits a ROUTING AREA UPDATE COMPLETE message on Cell 5.	-->	ROUTING AREA UPDATE COMPLETE	-	-

13.4.3.10.3.3 Specific message contents

Table 13.4.3.10.3.3-1: ATTACH REQUEST (preamble)

Derivation path: 36.508 Table 4.7.2-4			
Information Element	**Value/remark**	**Comment**	**Condition**
MS network capability	SRVCC from UTRAN HSPA or E-UTRAN to GERAN/UTRAN supported		
Mobile station classmark 2	Any allowed value		
Supported Codecs	Any allowed value		
Old GUTI type	Any allowed value		

Table 13.4.3.10.3.3-2: *RRCConnectionReconfiguration* (step 24, Table 13.4.3.10.3.2-2)

Derivation Path: 36.508, Table 4.6.1-8, condition MEAS

Table 13.4.3.10.3.3-3: *MeasConfig* (Table 13.4.3.10.3.3-2)

Derivation Path: 36.508, Table 4.6.6-1, condition UTRAN			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig ::= SEQUENCE {			
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entries		
measObjectId[1]	IdMeasObject-f1		
measObject[1]	MeasObjectEUTRA-GENERIC(f1)		
measObjectId[2]	IdMeasObject-f8		
measObject[2]	MeasObjectUTRA-f8		
}			
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	1 entry		
reportConfigId[1]	IdReportConfig-B2-UTRA		
reportConfig[1]	ReportConfigInterRAT-B2-UTRA (-72, -76)		
}			
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	1 entry		
measId[1]	1		
measObjectId[1]	IdMeasObject-f8		
reportConfigId[1]	IdReportConfig-B2-UTRA		
}			
}			

Table 13.4.3.10.3.3-4: MeasObjectUTRA-f8 (Table 13.4.3.10.3.3-3)

Derivation Path: 36.508, Table 4.6.6-3			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasObjectUTRA ::= SEQUENCE {			
carrierFreq	Same downlink ARFCN as used for Cell 5		
cellsToAddModList CHOICE {			
cellsToAddModListUTRA-FDD SEQUENCE (SIZE (1..maxCellMeas)) OF SEQUENCE {	1 entry		UTRA-FDD
cellIndex[1]	1		
physCellId[1]	PhysicalCellIdentity of Cell 5		
}			
cellsToAddModListUTRA-TDD SEQUENCE (SIZE (1..maxCellMeas)) OF SEQUENCE {			UTRA-TDD
cellIndex[1]	1		
physCellId[1]	PhysicalCellIdentity of Cell 5		
}			
}			
csg-allowedReportingCells-v930	Not present		
}			

Condition	Explanation
UTRA-FDD	UTRA FDD cell environment
UTRA-TDD	UTRA TDD cell environment

Table 13.4.3.10.3.3-5: *MeasurementReport* (step 27, Table 13.4.3.10.3.2-2)

Derivation Path: 36.508, Table 4.6.1-5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
measurementReport-r8 SEQUENCE {			
measResults SEQUENCE {			
measId	1		
measResultPCell SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListUTRA SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {	1 entry		
physCellId[1] CHOICE {			
fdd	PhysicalCellIdentity of Cell 5		UTRA-FDD
tdd	PhysicalCellIdentity of Cell 5		UTRA-TDD
}			
cgi-Info[1]	Not present		
measResult[1] SEQUENCE {			
utra-RSCP	(-5..91)		
utra-EcN0	Not present		
additionalSI-Info-r9	Not present		
}			
}			
}			
measResultForECID-r9	Not present		
locationInfo-r10	Not present		
measResultServFreqList-r10	Not present		
}			
}			
}			
}			
}			

Condition	Explanation
UTRA-FDD	UTRA FDD cell environment
UTRA-TDD	UTRA TDD cell environment

Table 13.4.3.10.3.3-6: *UECapabilityEnquiry* (step 28, Table 13.4.3.10.3.2-2)

Derivation Path: 36.508, Table 4.6.1-22			
Information Element	**Value/remark**	**Comment**	**Condition**
UECapabilityEnquiry ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
ueCapabilityEnquiry-r8 SEQUENCE {			
ue-CapabilityRequest (SIZE (1..maxRAT-Capabilities)) OF SEQUENCE {	2 entries		
RAT-Type[1]	eutra		
RAT-Type[2]	utra		
}			
}			
}			
}			
}			

Table 13.4.3.10.3.3-7: *MobilityFromEUTRACommand* (step 30, Table 13.4.3.10.3.2-2)

Derivation Path: 36.508, Table 4.6.1-6			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityFromEUTRACommand ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
mobilityFromEUTRACommand-r8 SEQUENCE {			
cs-FallbackIndicator	True		
purpose CHOICE {			
handover SEQUENCE {			
targetRAT-Type	utra		
targetRAT-MessageContainer	HANDOVER TO UTRAN COMMAND(UTRA RRC message)		
nas-SecurityParamFromEUTRA	The 4 least significant bits of the NAS downlink COUNT value		
systemInformation	Not present		
}			
}			
}			
}			
}			
}			

Table 13.4.3.10.3.3-8: HANDOVER TO UTRAN COMMAND (Table 13.4.3.10.3.3-7)

Derivation Path: 36.508, Table 4.7B.1-1, condition UTRA Speech

Table 13.4.3.10.3.3-9: SECURITY MODE COMMAND (step 32 Table 13.4.3.10.3.2-2)

Derivation Path: 36.508, Table 4.7B.1-n			
Information Element	**Value/remark**	**Comment**	**Condition**
Ciphering mode info	Not present		

Table 13.4.3.10.3.3-10: CONNECT (step 39, Table 13.4.3.10.3.2-2)

Derivation Path: TS 24.008 Table 9.59a			
Information Element	**Value/remark**	**Comment**	**Condition**
Transaction identifier			
TI flag	'1'B	The message is sent to the side that originates the TI	
TIO	'000'B	TI value 0	

Table 13.4.3.10.3.3-11: CONNECT ACKNOWLEDGE (step 40, Table 13.4.3.10.3.2-2)

Derivation Path: TS 24.008 Table 9.60			
Information Element	**Value/remark**	**Comment**	**Condition**
Transaction identifier			
TI flag	'0'B	The message is sent from the side that originates the TI	
TIO	'000'B	TI value 0	

13.4.3.11 Inter-system mobility / E-UTRA voice to UTRA CS voice / aSRVCC / MT call / SRVCC HO failure

13.4.3.11.1 Test Purpose (TP)

(1)

```
with { UE is in E-UTRA RRC_CONNECTED state, an IMS MT speech call is in alerting phase and UE
receives a MobilityFromEUTRACommand message }
ensure that {
  when { UE detects radio link failure }
    then { UE transmits SIP UPDATE message after RRC connection re-establishment procedure }
}
```

13.4.3.11.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.331, clauses 5.4.3.3, 5.4.3.5, 5.3.7.2, 5.3.7.3, 5.3.7.4, 5.3.7.5 and TS 24.237, clause 12.2.4.2.

[TS 36.331, clause 5.4.3.3]

The UE shall:

1> stop timer T310, if running;

1> if the *MobilityFromEUTRACommand* message includes the *purpose* set to *handover*:

2> if the *targetRAT-Type* is set to *utra* or *geran*:

3> consider inter-RAT mobility as initiated towards the RAT indicated by the *targetRAT-Type* included in the *MobilityFromEUTRACommand* message;

3> forward the *nas-SecurityParamFromEUTRA* to the upper layers;

3> access the target cell indicated in the inter-RAT message in accordance with the specifications of the target RAT;

[TS 36.331, clause 5.4.3.5]

The UE shall:

1> if T304 expires (mobility from E-UTRA failure); or

1> if the UE does not succeed in establishing the connection to the target radio access technology; or

1> if the UE is unable to comply with (part of) the configuration included in the *MobilityFromEUTRACommand* message; or

1> if there is a protocol error in the inter RAT information included in the *MobilityFromEUTRACommand* message, causing the UE to fail the procedure according to the specifications applicable for the target RAT:

2> stop T304, if running;

2> if the *cs-FallbackIndicator* in the *MobilityFromEUTRACommand* message was set to *TRUE*:

3> indicate to upper layers that the CS Fallback procedure has failed;

2> revert back to the configuration used in the source PCell, excluding the configuration configured by the *physicalConfigDedicated*, *mac-MainConfig* and *sps-Config*;

2> initiate the connection re-establishment procedure as specified in 5.3.7;

[TS 36.331, clause 5.3.7.2]

The UE shall only initiate the procedure when AS security has been activated. The UE initiates the procedure when one of the following conditions is met:

...

1> upon mobility from E-UTRA failure, in accordance with 5.4.3.5; or

...

Upon initiation of the procedure, the UE shall:

1> stop timer T310, if running;

1> start timer T311;

1> suspend all RBs except SRB0;

1> reset MAC;

1> release the SCell(s), if configured, in accordance with 5.3.10.3a;

1> apply the default physical channel configuration as specified in 9.2.4;

1> apply the default semi-persistent scheduling configuration as specified in 9.2.3;

1> apply the default MAC main configuration as specified in 9.2.2;

1> release *reportProximityConfig* and clear any associated proximity status reporting timer;

1> release *measSubframePatternPCell*, if configured;

...

1> perform cell selection in accordance with the cell selection process as specified in TS 36.304 [4];

[TS 36.331, clause 5.3.7.3]

Upon selecting a suitable E-UTRA cell, the UE shall:

1> stop timer T311;

1> start timer T301;

1> apply the *timeAlignmentTimerCommon* included in *SystemInformationBlockType2*;

1> initiate transmission of the *RRCConnectionReestablishmentRequest* message in accordance with 5.3.7.4;

[TS 36.331, clause 5.3.7.4]

If the procedure was initiated due to radio link failure or handover failure, the UE shall:

1> set the *reestablishmentCellId* in the *VarRLF-Report* to the global cell identity of the selected cell;

The UE shall set the contents of *RRCConnectionReestablishmentRequest* message as follows:

1> set the *ue-Identity* as follows:

2> set the *c-RNTI* to the C-RNTI used in the source PCell (handover and mobility from E-UTRA failure) or used in the PCell in which the trigger for the re-establishment occurred (other cases);

2> set the *physCellId* to the physical cell identity of the source PCell (handover and mobility from E-UTRA failure) or of the PCell in which the trigger for the re-establishment occurred (other cases);

2> set the *shortMAC-I* to the 16 least significant bits of the MAC-I calculated:

3> over the ASN.1 encoded as per section 8 (i.e., a multiple of 8 bits) *VarShortMAC-Input*;

3> with the K_{RRCint} key and integrity protection algorithm that was used in the source PCell (handover and mobility from E-UTRA failure) or of the PCell in which the trigger for the re-establishment occurred (other cases); and

3> with all input bits for COUNT, BEARER and DIRECTION set to binary ones;

1> set the *reestablishmentCause* as follows:

...

2> else if the re-establishment procedure was initiated due to handover failure as specified in 5.3.5.6 (intra-LTE handover failure) or 5.4.3.5 (inter-RAT mobility from EUTRA failure):

3> set the reestablishmentCause to the value handoverFailure;

The UE shall submit the *RRCConnectionReestablishmentRequest* message to lower layers for transmission.

[TS 36.331, clause 5.3.7.5]

The UE shall:

1> stop timer T301;

1> consider the current cell to be the PCell;

1> re-establish PDCP for SRB1;

1> re-establish RLC for SRB1;

1> perform the radio resource configuration procedure in accordance with the received *radioResourceConfigDedicated* and as specified in 5.3.10;

1> resume SRB1;

NOTE: E-UTRAN should not transmit any message on SRB1 prior to receiving the *RRCConnectionReestablishmentComplete* message.

1> update the K_{eNB} key based on the K_{ASME} key to which the current K_{eNB} is associated, using the *nextHopChainingCount* value indicated in the *RRCConnectionReestablishment* message, as specified in TS 33.401 [32];

1> store the *nextHopChainingCount* value;

1> derive the K_{RRCint} key associated with the previously configured integrity algorithm, as specified in TS 33.401 [32];

1> derive the K_{RRCenc} key and the K_{UPenc} key associated with the previously configured ciphering algorithm, as specified in TS 33.401 [32];

...

1> configure lower layers to activate integrity protection using the previously configured algorithm and the K_{RRCint} key immediately, i.e., integrity protection shall be applied to all subsequent messages received and sent by the UE, including the message used to indicate the successful completion of the procedure;

...

1> configure lower layers to apply ciphering using the previously configured algorithm, the K_{RRCenc} key and the K_{UPenc} key immediately, i.e., ciphering shall be applied to all subsequent messages received and sent by the UE, including the message used to indicate the successful completion of the procedure;

1> set the content of *RRCConnectionReestablishmentComplete* message as follows:

2> if the UE has radio link failure or handover failure information available in *VarRLF-Report* and *plmn-Identity* stored in *VarRLF-Report* is equal to the RPLMN:

3> include the *rlf-InfoAvailable*;

...

1> perform the measurement related actions as specified in 5.5.6.1;

1> perform the measurement identity autonomous removal as specified in 5.5.2.2a;

1> submit the *RRCConnectionReestablishmentComplete* message to lower layers for transmission, upon which the procedure ends;

[TS 24.237, clause 12.2.4.2]

If the SC UE is engaged in a session in early dialog state and:

...

- does not successfully retune to the 3GPP UTRAN or 3GPP GERAN after it receives the handover command from the eNodeB (as described in 3GPP TS 36.331 [62]) or from the NodeB (as described in 3GPP TS 25.331 [61]);

then if the SC UE the SC UE shall send a SIP UPDATE request containing:

1) an SDP offer, including the media characteristics as used in the existing dialog; and

2) a Reason header field containing protocol "SIP" and reason parameter "cause" with value "487" as specified in IETF RFC 3326 [57], and with reason-text set to either "handover cancelled" or "failure to transition to CS domain";

by following the rules of 3GPP TS 24.229 [2] in each transferred session.

13.4.3.11.3 Test description

13.4.3.11.3.1 Pre-test conditions

System Simulator:

- Cell 1 and Cell 5.

- System information combination 4 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cell.

UE:

None.

Preamble:

- The UE is in state Registered, Idle mode (state 2) on Cell 1 according to [18].

13.4.3.11.3.2 Test procedure sequence

Table 13.4.3.11.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while columns marked "T1" and "T2" are to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 13.4.3.11.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 5	Remark
T0	Cell-specific RS EPRE	dBm/15kHz	-60	-	The power level values are such that entering conditions for event B2 are not satisfied.
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-88	
	PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-88	
T1	Cell-specific RS EPRE	dBm/15kHz	-84	-	The power level values are such that entering conditions for event B2 are satisfied.
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-64	
	PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-64	
T2	Cell-specific RS EPRE	dBm/15kHz	-85	-	Only Cell 1 is available. (NOTE 1)
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	"Off"	
	PCCPCH_Ec (UTRA LCR	dBm/1.28 MHz	-	"Off"	

	TDD)				
NOTE 1: Power level "Off" for UTRA cell is defined in TS 34.108 Table 6.1.4 and Table 6.1.9.					

Table 13.4.3.11.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS configures UTRA Cell 5 to reference configuration according 36.508 Table 4.8.3-1, condition UTRA Speech.	-	-	-	-
2-23	Steps 1 to 22 of the generic test procedure for IMS MT speech call (TS 36.508 4.5A.7.3-1).	-	-	-	-
24	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1 to setup inter-RAT measurement and reporting for event B2.	<--	*RRCConnectionReconfiguration*	-	-
25	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1.	-->	*RRCConnectionReconfigurationComplete*	-	-
26	The SS changes the power level for Cell 1 and Cell 5 according to the row "T1" in Table 13.4.3.11.3.2-1	-	-	-	-
27	The UE transmits a *MeasurementReport* message on Cell 1 to report event B2 for Cell 5.	-->	*MeasurementReport*	-	-
28	The SS changes the power level for Cell 1 and Cell 5 according to the row "T2" in Table 13.4.3.11.3.2-1.	-	-	-	-
29	The SS transmits a *UECapabilityEnquiry* message on Cell 1 to request UE radio access capability information for E-UTRA and UTRA.	<--	*UECapabilityEnquiry*	-	-
30	The UE transmit a *UECapabilityInformation* message on Cell 1. NOTE: The start-CS values received, should be used to configure ciphering on Cell 5.	-->	*UECapabilityInformation*	-	-
31	The SS transmits a *MobilityFromEUTRACommand* message on Cell 1.	<--	*MobilityFromEUTRACommand*	-	-
32	The UE transmits an *RRCConnectionReestablishmentRequest* message on Cell 1.	-->	*RRCConnectionReestablishmentRequest*	-	-
33	The SS transmits an *RRCConnectionReestablishment* message on Cell 1.	<--	*RRCConnectionReestablishment*	-	-
34	The UE transmits an *RRCConnectionReestablishmentComplete* message on Cell 1.	-->	*RRCConnectionReestablishmentComplete*	-	-
35	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1.	<--	*RRCConnectionReconfiguration*	-	-
-	EXCEPTION: In parallel to the events described in step 36 the steps specified in Table 13.4.3.11.3.2-3 should take place.	-	-	-	-
36	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1.	-->	*RRCConnectionReconfigurationComplete*	-	-
37-38	Steps 12-13 expected sequence defined in annex C.21 of TS 34.229-1 [35].	-	-	-	-

Table 13.4.3.11.3.2-3: Parallel behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Check: Does the UE transmit SIP UPDATE request on Cell 1? NOTE: Step 1 defined in annex C.28 of TS 34.229-1 [35] is performed.	-	-	1	P
2	Step 2 expected sequence defined in annex C.28 of TS 34.229-1 [35].	-	-	-	-

13.4.3.11.3.3 Specific message contents

Table 13.4.3.11.3.3-1: ATTACH REQUEST (preamble)

Derivation path: 36.508 Table 4.7.2-4			
Information Element	**Value/remark**	**Comment**	**Condition**
MS network capability	SRVCC from UTRAN HSPA or E-UTRAN to GERAN/UTRAN supported		
Mobile station classmark 2	Any allowed value		
Supported Codecs	Any allowed value		
Old GUTI type	Any allowed value		

Table 13.4.3.11.3.3-2: *RRCConnectionReconfiguration* (step 24, Table 13.4.3.11.3.2-2)

Derivation Path: 36.508, Table 4.6.1-8, condition MEAS

Table 13.4.3.11.3.3-3: *MeasConfig* (Table 13.4.3.11.3.3-2)

Derivation Path: 36.508, Table 4.6.6-1, condition UTRAN			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig ::= SEQUENCE {			
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entries		
measObjectId[1]	IdMeasObject-f1		
measObject[1]	MeasObjectEUTRA-GENERIC(f1)		
measObjectId[2]	IdMeasObject-f8		
measObject[2]	MeasObjectUTRA-f8		
}			
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	1 entry		
reportConfigId[1]	IdReportConfig-B2-UTRA		
reportConfig[1]	ReportConfigInterRAT-B2-UTRA (-72, -76)		
}			
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	1 entry		
measId[1]	1		
measObjectId[1]	IdMeasObject-f8		
reportConfigId[1]	IdReportConfig-B2-UTRA		
}			
}			

Table 13.4.3.11.3.3-4: MeasObjectUTRA-f8 (Table 13.4.3.11.3.3-3)

Derivation Path: 36.508, Table 4.6.6-3			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasObjectUTRA ::= SEQUENCE {			
carrierFreq	Same downlink ARFCN as used for Cell 5		
cellsToAddModList CHOICE {			
cellsToAddModListUTRA-FDD SEQUENCE (SIZE (1..maxCellMeas)) OF SEQUENCE {	1 entry		UTRA-FDD
cellIndex[1]	1		
physCellId[1]	PhysicalCellIdentity of Cell 5		
}			
cellsToAddModListUTRA-TDD SEQUENCE (SIZE (1..maxCellMeas)) OF SEQUENCE {			UTRA-TDD
cellIndex[1]	1		
physCellId[1]	PhysicalCellIdentity of Cell 5		
}			
}			
csg-allowedReportingCells-v930	Not present		
}			

Condition	Explanation
UTRA-FDD	UTRA FDD cell environment
UTRA-TDD	UTRA TDD cell environment

Table 13.4.3.11.3.3-5: *MeasurementReport* (step 27, Table 13.4.3.11.3.2-2)

Derivation Path: 36.508, Table 4.6.1-5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
measurementReport-r8 SEQUENCE {			
measResults SEQUENCE {			
measId	1		
measResultPCell SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListUTRA SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {	1 entry		
physCellId[1] CHOICE {			
fdd	PhysicalCellIdentity of Cell 5		UTRA-FDD
tdd	PhysicalCellIdentity of Cell 5		UTRA-TDD
}			
cgi-Info[1]	Not present		
measResult[1] SEQUENCE {			
utra-RSCP	(-5..91)		
utra-EcN0	Not present		
additionalSI-Info-r9	Not present		
}			
}			
}			
measResultForECID-r9	Not present		
locationInfo-r10	Not present		
measResultServFreqList-r10	Not present		
}			
}			
}			
}			
}			

Condition	Explanation
UTRA-FDD	UTRA FDD cell environment
UTRA-TDD	UTRA TDD cell environment

Table 13.4.3.11.3.3-6: *UECapabilityEnquiry* (step 29, Table 13.4.3.11.3.2-2)

Derivation Path: 36.508, Table 4.6.1-22			
Information Element	**Value/remark**	**Comment**	**Condition**
UECapabilityEnquiry ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
ueCapabilityEnquiry-r8 SEQUENCE {			
ue-CapabilityRequest (SIZE (1..maxRAT-Capabilities)) OF SEQUENCE {	2 entries		
RAT-Type[1]	eutra		
RAT-Type[2]	utra		
}			
}			
}			
}			
}			

Table 13.4.3.11.3.3-7: *MobilityFromEUTRACommand* (step 31, Table 13.4.3.11.3.2-2)

Derivation Path: 36.508, Table 4.6.1-6			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityFromEUTRACommand ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
mobilityFromEUTRACommand-r8 SEQUENCE {			
cs-FallbackIndicator	True		
purpose CHOICE {			
handover SEQUENCE {			
targetRAT-Type	utra		
targetRAT-MessageContainer	HANDOVER TO UTRAN COMMAND(UTRA RRC message)		
nas-SecurityParamFromEUTRA	The 4 least significant bits of the NAS downlink COUNT value		
systemInformation	Not present		
}			
}			
}			
}			
}			
}			

Table 13.4.3.11.3.3-8: HANDOVER TO UTRAN COMMAND (Table 13.4.3.11.3.3-7)

Derivation Path: 36.508, Table 4.7B.1-1, condition UTRA Speech

Table 13.4.3.11.3.3-9: *RRCConnectionReestablishmentRequest* (step 32, Table 13.4.3.11.3.2-2)

Derivation Path: 36.508, Table 4.6.1-13			
Information Element	**Value/remark**	**Comment**	**Condition**
RRCConnectionReestablishmentRequest ::= SEQUENCE {			
criticalExtensions CHOICE {			
rrcConnectionReestablishmentRequest-r8 SEQUENCE {			
ue-Identity SEQUENCE {			
c-RNTI	the value of the C-RNTI of the UE		
physCellId	PhysicalCellIdentity of Cell 1		
shortMAC-I	The same value as the 16 least significant bits of the XMAC-I value calculated by SS		
}			
reestablishmentCause	otherFailure		
}			
}			
}			

Table 13.4.3.11.3.3-10: *RRCConnectionReestablishmentComplete* (step 34, Table 13.4.3.11.3.2-2)

Derivation Path: 36.508, Table 4.6.1-11			
Information Element	**Value/remark**	**Comment**	**Condition**
RRCConnectionReestablishmentComplete ::= SEQUENCE {			
criticalExtensions CHOICE {			
rrcConnectionReestablishmentComplete-r8 = SEQUENCE {			
nonCriticalExtension SEQUENCE {			
rlf-InfoAvailable-r9	true		
nonCriticalExtension	Not present or any allowed value		
}			
}			
}			
}			

Table 13.4.3.11.3.3-11: *RRCConnectionReconfiguration* (step 35, Table 13.4.3.11.3.2-2)

Derivation Path: 36.508, Table 4.6.1-8			
Information Element	**Value/remark**	**Comment**	**Condition**
RRCConnectionReconfiguration ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
rrcConnectionReconfiguration-r8 SEQUENCE {			
radioResourceConfigDedicated	RadioResourceConfigDedicated-HO		
}			
}			
}			
}			

13.4.3.12 Inter-system mobility / E-UTRA voice to UTRA CS voice / aSRVCC / MT call / User answers in PS domain

13.4.3.12.1 Test Purpose (TP)

(1)

```
with { UE is in E-UTRA RRC_CONNECTED state and an IMS MT speech call is in alerting phase and UE has
answered the call }
ensure that {
  when { UE receives a MobilityFromEUTRACommand message }
    then { UE transmits a HANDOVER TO UTRAN COMPLETE message on the UTRA cell }
          }
```

(2)

```
with { UE has answered the MT call on the EUTRA cell }
ensure that {
  when { an SRVCC procedure for MT call in alerting phase is completed }
    then { UE transmits a CONNECT message }
          }
```

13.4.3.12.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.331, clause 5.4.3.3, TS 23.237, clause 6.3.2.1.4c, TS 23.216, clause 6.2.2.2, TS 24.237, clauses 12.1, 12.2.3B.1, 12.2.3B.2, 12.2.3B.3.1, and TS 24.008, clause 5.2.4.2.

[TS 36.331, clause 5.4.3.3]

The UE shall:

1> stop timer T310, if running;

1> if the *MobilityFromEUTRACommand* message includes the *purpose* set to *handover*:

2> if the *targetRAT-Type* is set to *utra* or *geran*:

3> consider inter-RAT mobility as initiated towards the RAT indicated by the *targetRAT-Type* included in the *MobilityFromEUTRACommand* message;

3> forward the *nas-SecurityParamFromEUTRA* to the upper layers;

3> access the target cell indicated in the inter-RAT message in accordance with the specifications of the target RAT;

[TS 23.237, clause 6.3.2.1.4c]

Figure 6.3.2.1.4c-1 PS-CS: PS to CS - Single Radio, incoming call in alerting phase, provides an information flow for Access Transfer of media of an IMS session in PS to CS direction for Access Transfers as specified in TS 23.216 [10].

The flow requires that the user is active in a terminating IMS session and that the SIP session is in alerting state there is no other ongoing session and the UE has not responded over the access leg; procedures and capabilities specified in TS 23.216 [10], clause 6.2.1 are used for the switching of access networks at the transport layer. It further requires that the MSC Server supports I2 reference point.

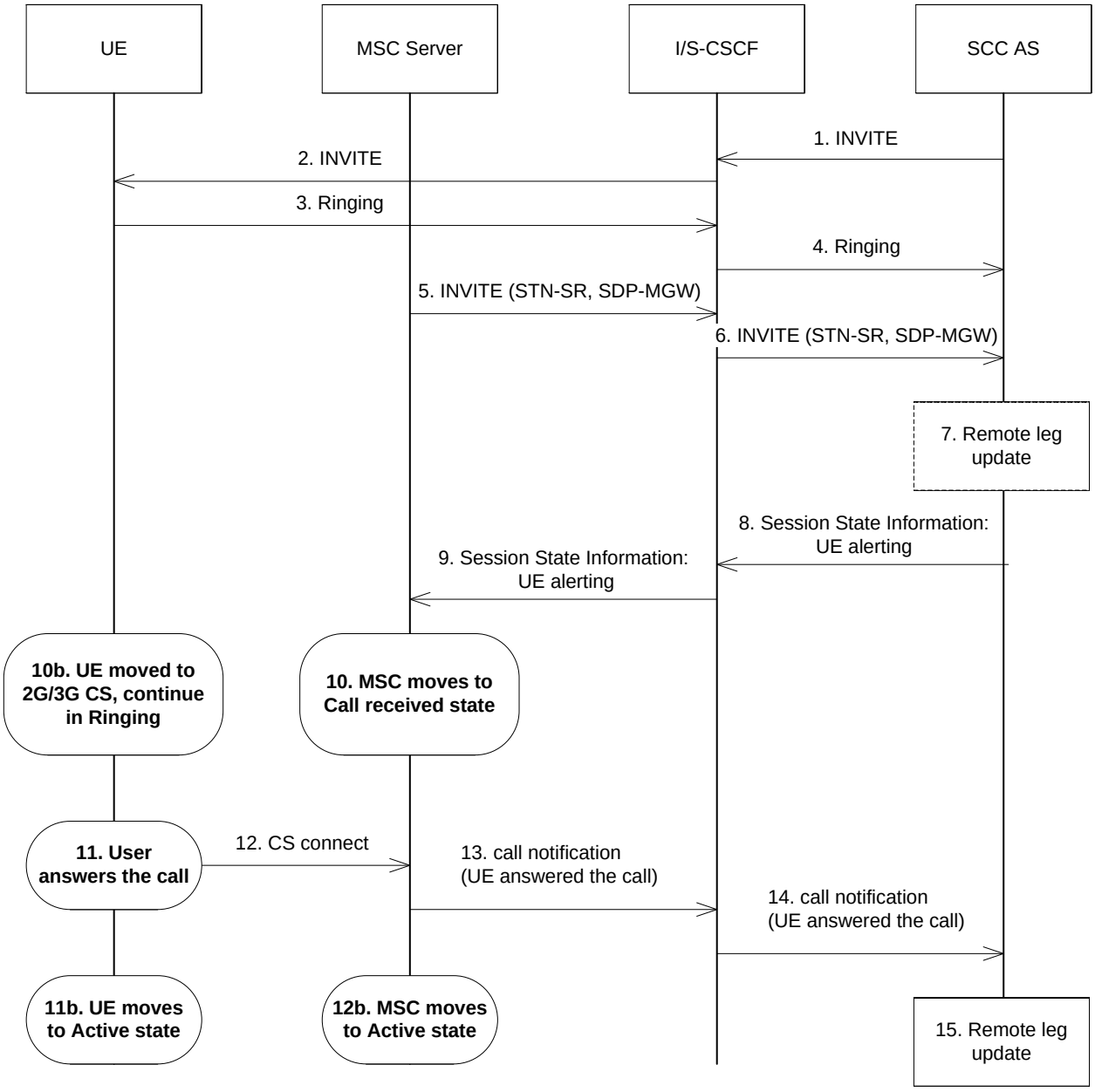

Figure 6.3.2.1.4c-1: PS-CS: PS to CS - Single Radio, incoming call in alerting phase

1-4. Standard procedures are used to initiate a SIP session towards the UE. The UE is alerting the user for the incoming voice session.

...

10. The MSC moves to the corresponding CS call state, e.g. Call Received in TS 24.008 [24].

NOTE 2: In call received state the MSC does not generate an in-band ring tone to the calling party.

10b. In parallel to step 10, the UE has received the HO command as described in TS 23.216 [10]. The UE determines the local call state in the SIP session, and creates the corresponding CS call state, e.g. Call Received in TS 24.008 [24]. The UE continues to alert the user for incoming call.

11. The user answers to the call.

11a. UE moves to Active state.

12. The UE uses the standard procedure to send the CS connect message to MSC as e.g. described in TS 24.008 [24].

[TS 23.216, clause 6.2.2.2]

Depicted in figure 6.2.2.2-1 is a call flow for SRVCC from E-UTRAN to UTRAN or GERAN with DTM HO support, including the handling of the non-voice component. The flow requires that eNB can determine that either the target is UTRAN with PS HO or the target is GERAN with DTM support and the UE is supporting DTM.

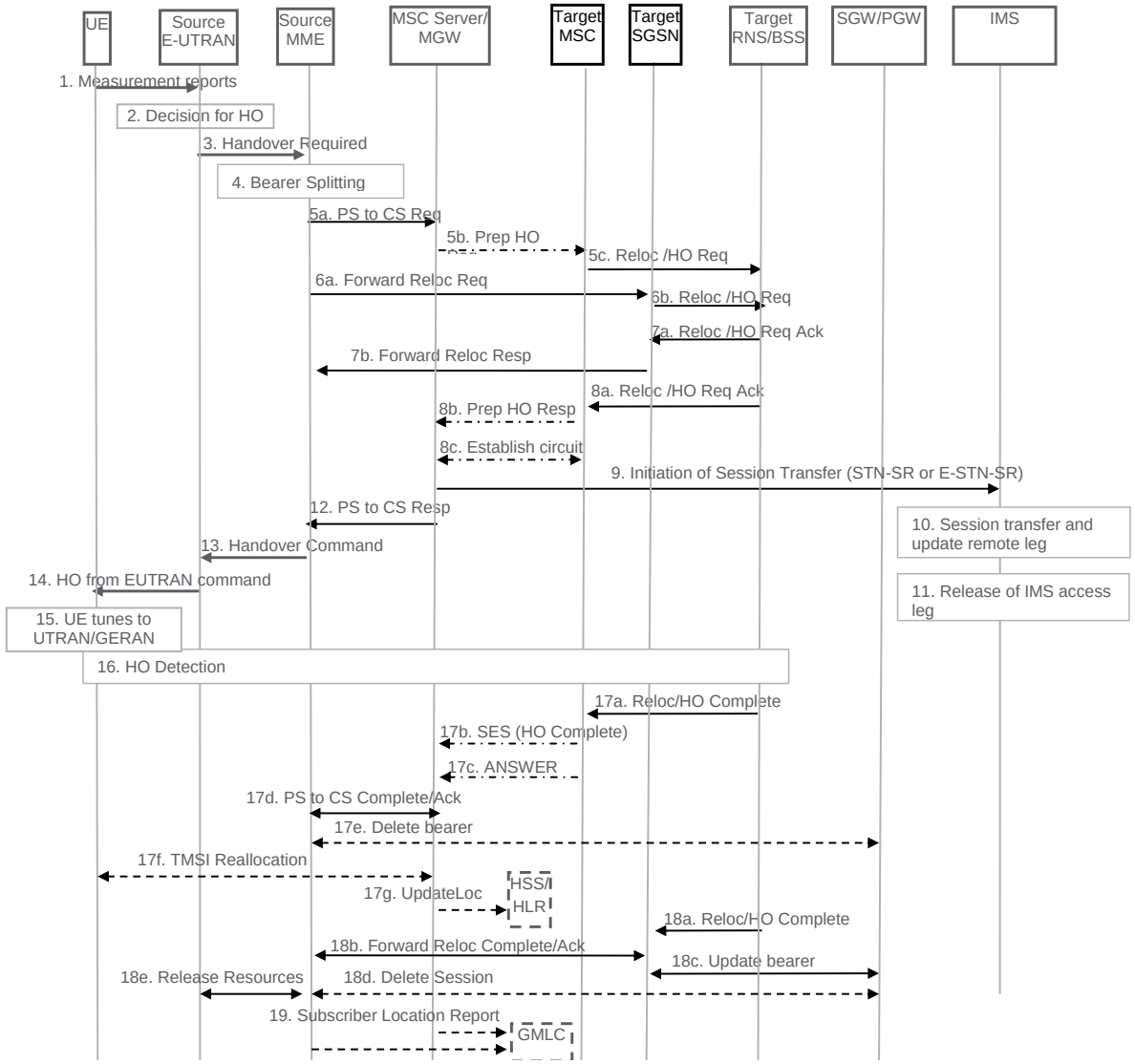

Figure 6.2.2.2-1: SRVCC from E-UTRAN to UTRAN with PS HO or GERAN with DTM HO support

1. UE sends measurement reports to E-UTRAN.

...

14. E-UTRAN sends a Handover from E-UTRAN Command message to the UE.

15. UE tunes to the target UTRAN/GERAN cell.

16. Handover Detection at the target RNS/BSS occurs. The UE sends a Handover Complete message via the target RNS/BSS to the target MSC. If the target MSC is not the MSC Server, then the Target MSC sends an SES (Handover Complete) message to the MSC Server. At this stage, the UE re-establishes the connection with the network and can send/receive voice data.

17. The CS relocation/handover is complete. The following steps are performed:

a) Target RNS/BSS sends Relocation Complete/Handover Complete message to the target MSC.

b) Target MSC sends an SES (Handover Complete) message to the MSC Server. The speech circuit is through connected in the MSC Server/MGW according to TS 23.009 [18].

c) Completion of the establishment procedure with ISUP Answer message to the MSC Server according to TS 23.009 [18].

d) MSC Server sends a SRVCC PS to CS Complete Notification message to the source MME. Source MME acknowledges the information by sending a SRVCC PS to CS Complete Acknowledge message to the MSC Server.

e) The source MME deactivates the voice bearer towards S-GW/P-GW and sets the PS-to-CS handover indicator to Delete Bearer Command message. This triggers MME-initiated Dedicated Bearer Deactivation procedure as specified in TS 23.401 [2]. The MME does not send deactivation request toward the eNodeB on receiving PS-to-CS Complete Notification in step 17d. If dynamic PCC is deployed, the PGW may interact with PCRF as defined in TS 23.203 [31].

f) If the HLR is to be updated, i.e. if the IMSI is authenticated but unknown in the VLR, the MSC Server performs a TMSI reallocation towards the UE using its own non-broadcast LAI and, if the MSC Server and other MSC/VLRs serve the same (target) LAI, with its own Network Resource Identifier (NRI).

NOTE 9: The TMSI reallocation is performed by the MSC Server towards the UE via target MSC.

g) If the MSC Server performed a TMSI reallocation in step 17f, and if this TMSI reallocation was completed successfully, the MSC Server performs a MAP Update Location to the HSS/HLR.

NOTE 10: This Update Location is not initiated by the UE.

[TS 24.237, clause 12.1]

In order to fulfil the requirements for PS-CS access transfer in SR-VCC for calls in alerting state, the SC UE needs to be engaged in a session with speech media component in early dialog state according to the following conditions before SR-VCC access transfer is performed:

- a SIP 180 (Ringing) response for the initial SIP INVITE request to establish this session has been sent or received; and

- a SIP final response for the initial SIP INVITE request to establish this session has not been sent or received.

[TS 24.237, clause 12.2.3B.1]

The SC UE shall apply the procedures in subclauses 12.2.3B.3 for access transfer for calls in alerting state if:

1) the SC UE supports single radio PS to CS access transfer for calls in alerting state; and

2) there are one or more early dialogs created by the same SIP INVITE request with at least one dialog that is an early dialog supporting a session with active speech media component where the SC UE:

   - has sent a Contact header field in a SIP INVITE request or 180 (Ringing) response containing the g.3gpp.srvcc-alerting media feature tag (as described in annex C); and

   - has received a Feature-Caps header field in a SIP INVITE request or 180 (Ringing) response containing the g.3gpp.srvcc-alerting feature capability indicator (as described in annex C).

[TS 24.237, clause 12.2.3B.2]

If the SC UE applies the procedures in subclause 12.2.3B.3 and the SC UE only has a single call in alerting state following access transfer, then the SC UE shall associate this session with transaction identifier value and TI flag as described in 3GPP TS 24.008 [8].

[TS 24.237, clause 12.2.3B.3.1]

If the SC UE:

- has received a terminating call which is in the early dialog state according to the conditions in subclauses 12.1 and 12.2.3B.1; and

- successfully performs access transfer to the CS domain;

then the UE continues in Ringing state in CS, i.e. UE moves to Call Received (U7) state as described in 3GPP TS 24.008 [8].

[TS 24.008, clause 5.2.4.2]

If the MS supports single radio PS to CS access transfer for calls in alerting state as specified in 3GPP TS 24.237 [136] subclause 12.2.3B, and the MS has a single voice media stream over the PS domain that is handed over to the CS domain via SRVCC, and the call control entity in "null" state receives an indication "MM connection establishment due to SRVCC handover", then:

...

- if the voice media stream is associated with a mobile terminating session in the "early" state (defined in IETF RFC 3261 [137]) according to the conditions specified in 3GPP TS 24.237 [136] subclause 12.2.3B.3.1, the call control entity of the MS shall enter the "call received" state for this transaction. The MS and the network shall locally set the TI value of the call to "000" and the TI flag value as in mobile terminated call.

If the MS has additional voice media streams carried over the PS domain that are handed over to the CS domain via SRVCC, the state for the transactions and the setting of the TI value and TI flag for these additional media streams is described in 3GPP TS 24.237 [136].

13.4.3.12.3 Test description

13.4.3.12.3.1 Pre-test conditions

System Simulator:

- Cell 1 and Cell 5
- System information combination 4 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cell.

UE:

None.

Preamble:

- The UE is in state Registered, Idle mode (state 2) on Cell 1 according to [18].

13.4.3.12.3.2 Test procedure sequence

Table 13.4.3.12.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while columns marked "T1" is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 13.4.3.12.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 5	Remark
T0	Cell-specific RS EPRE	dBm/15kHz	-60	-	The power level values are such that entering conditions for event B2 are not satisfied.
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-88	
	PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-88	
T1	Cell-specific RS EPRE	dBm/15kHz	-84	-	The power level values are such that entering conditions for event B2 are satisfied.
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-64	
	PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-64	

Table 13.4.3.12.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS configures UTRA Cell 5 to reference configuration according 36.508 Table 4.8.3-1, condition UTRA Speech.	-	-	-	-
2-23	Steps 1 to 22 of the generic test procedure for IMS MT speech call (TS 36.508 4.5A.7.3-1).	-	-	-	-
24	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1 to setup inter-RAT measurement and reporting for event B2.	<--	*RRCConnectionReconfiguration*	-	-
25	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1.	-->	*RRCConnectionReconfigurationComplete*	-	-
26	The SS changes the power level for Cell 1 and Cell 5 according to the row "T1" in Table 13.4.3.12.3.2-1	-	-	-	-
27	The UE transmits a *MeasurementReport* message on Cell 1 to report event B2 for Cell 5.	-->	*MeasurementReport*	-	-
28	Cause the UE to answer an MT call. (NOTE 1)	-	-	-	-
29	Step 23 of the generic test procedure for IMS MT speech call (TS 36.508 4.5A.7.3-1).	-	-	-	-
30	The SS transmits a *UECapabilityEnquiry* message on Cell 1 to request UE radio access capability information for E-UTRA and UTRA.	<--	*UECapabilityEnquiry*	-	-
31	The UE transmit a *UECapabilityInformation* message on Cell 1. NOTE: The start-CS values received, should be used to configure ciphering on Cell 5.	-->	*UECapabilityInformation*	-	-
32	The SS transmits a *MobilityFromEUTRACommand* message on Cell 1.	<--	*MobilityFromEUTRACommand*	-	-
33	Check: Does the UE transmit a HANDOVER TO UTRAN COMPLETE message on Cell 5?	-->	HANDOVER TO UTRAN COMPLETE	1	P
-	EXCEPTION: In parallel to the events described in step 34 to 39 the steps specified in Table 13.4.3.12.3.2-3 and 13.4.3.12.3.2-4 takes place.	-	-	-	-
34	The SS transmits a SECURITY MODE COMMAND message for the CS domain on Cell 5.	<--	SECURITY MODE COMMAND	-	-
35	The UE transmits a SECURITY MODE COMPLETE message on Cell 5.	-->	SECURITY MODE COMPLETE	-	-
36	The SS transmits an UTRAN MOBILITY INFORMATION message on Cell 5 to notify CN information.	<--	UTRAN MOBILITY INFORMATION	-	-
37	The UE transmits an UTRAN MOBILITY INFORMATION CONFIRM message on Cell 5.	-->	UTRAN MOBILITY INFORMATION CONFIRM	-	-
38	The SS transmits a TMSI REALLOCATION COMMAND message on Cell 5.	<--	TMSI REALLOCATION COMMAND	-	-
39	The UE transmits a TMSI REALLOCATION COMPLETE message on Cell 5.	-->	TMSI REALLOCATION COMPLETE	-	-
NOTE 1: The request may be triggered by MMI or by AT command A.					

Table 13.4.3.12.3.2-3: Parallel behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Check: Does the UE transmit a CONNECT message on Cell 5?	-->	CONNECT	2	P
2	The SS transmits a CONNECT ACKNOWLEDGE message on Cell 5.	<--	CONNECT ACKNOWLEDGE	-	-

Table 13.4.3.12.3.2-4: Parallel behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The UE transmit a ROUTING AREA UPDATE REQUEST message on Cell 5.	-->	ROUTING AREA UPDATE REQUEST	-	-
2	The SS transmits a SECURITY MODE COMMAND message for the PS domain on Cell 5.	<--	SECURITY MODE COMMAND	-	-
3	The UE transmits a SECURITY MODE COMPLETE message on Cell 5.	-->	SECURITY MODE COMPLETE	-	-
4	The SS transmits a ROUTING AREA UPDATE ACCEPT message on Cell 5.	<--	ROUTING AREA UPDATE ACCEPT	-	-
5	The UE transmits a ROUTING AREA UPDATE COMPLETE message on Cell 5.	-->	ROUTING AREA UPDATE COMPLETE	-	-

13.4.3.12.3.3 Specific message contents

Table 13.4.3.12.3.3-1: ATTACH REQUEST (preamble)

Derivation path: 36.508 Table 4.7.2-4			
Information Element	**Value/remark**	**Comment**	**Condition**
MS network capability	SRVCC from UTRAN HSPA or E-UTRAN to GERAN/UTRAN supported		
Mobile station classmark 2	Any allowed value		
Supported Codecs	Any allowed value		
Old GUTI type	Any allowed value		

Table 13.4.3.12.3.3-2: *RRCConnectionReconfiguration* (step 24, Table 13.4.3.12.3.2-2)

Derivation Path: 36.508, Table 4.6.1-8, condition MEAS

Table 13.4.3.12.3.3-3: *MeasConfig* (Table 13.4.3.12.3.3-2)

Derivation Path: 36.508, Table 4.6.6-1, condition UTRAN			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig ::= SEQUENCE {			
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entries		
measObjectId[1]	IdMeasObject-f1		
measObject[1]	MeasObjectEUTRA-GENERIC(f1)		
measObjectId[2]	IdMeasObject-f8		
measObject[2]	MeasObjectUTRA-f8		
}			
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	1 entry		
reportConfigId[1]	IdReportConfig-B2-UTRA		
reportConfig[1]	ReportConfigInterRAT-B2-UTRA (-72, -76)		
}			
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	1 entry		
measId[1]	1		
measObjectId[1]	IdMeasObject-f8		
reportConfigId[1]	IdReportConfig-B2-UTRA		
}			
}			

Table 13.4.3.12.3.3-4: MeasObjectUTRA-f8 (Table 13.4.3.12.3.3-3)

Derivation Path: 36.508, Table 4.6.6-3			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasObjectUTRA ::= SEQUENCE {			
carrierFreq	Same downlink ARFCN as used for Cell 5		
cellsToAddModList CHOICE {			
cellsToAddModListUTRA-FDD SEQUENCE (SIZE (1..maxCellMeas)) OF SEQUENCE {	1 entry		UTRA-FDD
cellIndex[1]	1		
physCellId[1]	PhysicalCellIdentity of Cell 5		
}			
cellsToAddModListUTRA-TDD SEQUENCE (SIZE (1..maxCellMeas)) OF SEQUENCE {			UTRA-TDD
cellIndex[1]	1		
physCellId[1]	PhysicalCellIdentity of Cell 5		
}			
}			
csg-allowedReportingCells-v930	Not present		
}			

Condition	Explanation
UTRA-FDD	UTRA FDD cell environment
UTRA-TDD	UTRA TDD cell environment

Table 13.4.3.12.3.3-5: *MeasurementReport* (step 27, Table 13.4.3.12.3.2-2)

Derivation Path: 36.508, Table 4.6.1-5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
measurementReport-r8 SEQUENCE {			
measResults SEQUENCE {			
measId	1		
measResultPCell SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListUTRA SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {	1 entry		
physCellId[1] CHOICE {			
fdd	PhysicalCellIdentity of Cell 5		UTRA-FDD
tdd	PhysicalCellIdentity of Cell 5		UTRA-TDD
}			
cgi-Info[1]	Not present		
measResult[1] SEQUENCE {			
utra-RSCP	(-5..91)		
utra-EcN0	Not present		
additionalSI-Info-r9	Not present		
}			
}			
}			
measResultForECID-r9	Not present		
locationInfo-r10	Not present		
measResultServFreqList-r10	Not present		
}			
}			
}			
}			
}			

Condition	Explanation
UTRA-FDD	UTRA FDD cell environment
UTRA-TDD	UTRA TDD cell environment

Table 13.4.3.12.3.3-6: *UECapabilityEnquiry* (step 30, Table 13.4.3.12.3.2-2)

Derivation Path: 36.508, Table 4.6.1-22			
Information Element	**Value/remark**	**Comment**	**Condition**
UECapabilityEnquiry ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
ueCapabilityEnquiry-r8 SEQUENCE {			
ue-CapabilityRequest (SIZE (1..maxRAT-Capabilities)) OF SEQUENCE {	2 entries		
RAT-Type[1]	eutra		
RAT-Type[2]	utra		
}			
}			
}			
}			
}			

Table 13.4.3.12.3.3-7: *MobilityFromEUTRACommand* (step 32, Table 13.4.3.12.3.2-2)

Derivation Path: 36.508, Table 4.6.1-6			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityFromEUTRACommand ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
mobilityFromEUTRACommand-r8 SEQUENCE {			
cs-FallbackIndicator	True		
purpose CHOICE {			
handover SEQUENCE {			
targetRAT-Type	utra		
targetRAT-MessageContainer	HANDOVER TO UTRAN COMMAND(UTRA RRC message)		
nas-SecurityParamFromEUTRA	The 4 least significant bits of the NAS downlink COUNT value		
systemInformation	Not present		
}			
}			
}			
}			
}			
}			

Table 13.4.3.12.3.3-8: HANDOVER TO UTRAN COMMAND (Table 13.4.3.12.3.3-7)

Derivation Path: 36.508, Table 4.7B.1-1, condition UTRA Speech

Table 13.4.3.12.3.3-9: SECURITY MODE COMMAND (step 34 Table 13.4.3.12.3.2-2)

Derivation Path: 36.508, Table 4.7B.1-n			
Information Element	**Value/remark**	**Comment**	**Condition**
Ciphering mode info	Not present		

Table 13.4.3.12.3.3-10: CONNECT (step 1, Table 13.4.3.12.3.2-3)

Derivation Path: TS 24.008 Table 9.59			
Information Element	**Value/remark**	**Comment**	**Condition**
Transaction identifier			
TI flag	'1'B	The message is sent to the side that originates the TI	
TIO	'000'B	TI value 0	

Table 13.4.3.12.3.3-11: CONNECT ACKNOWLEDGE (step 2, Table 13.4.3.12.3.2-3)

Derivation Path: TS 24.008 Table 9.60			
Information Element	**Value/remark**	**Comment**	**Condition**
Transaction identifier			
TI flag	'0'B	The message is sent from the side that originates the TI	
TIO	'000'B	TI value 0	

13.4.3.13 Inter-system mobility / E-UTRA voice to UTRA CS voice / aSRVCC / MT call / User answers in PS domain / SRVCC HO cancelled

13.4.3.13.1 Test Purpose (TP)

(1)

```
with { UE is in E-UTRA RRC_CONNECTED state and an IMS MT speech call is in alerting phase and UE has
answered the call }
ensure that {
  when { UE receives a NOTIFICATION message }
    then { UE transmits a UPDATE message on the UTRA cell }
          }
```

13.4.3.13.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 23.216, clause 6.2.2.2, clause 8.1.3, TS 24.237, clauses 12.1, 12.2.3B.1, clause 12.2.4.2 and TS 24.301, clause 6.6.2.2, clause 6.6.2.3.

[TS 23.216, clause 6.2.2.2]

Depicted in figure 6.2.2.2-1 is a call flow for SRVCC from E-UTRAN to UTRAN or GERAN with DTM HO support, including the handling of the non-voice component. The flow requires that eNB can determine that either the target is UTRAN with PS HO or the target is GERAN with DTM support and the UE is supporting DTM.

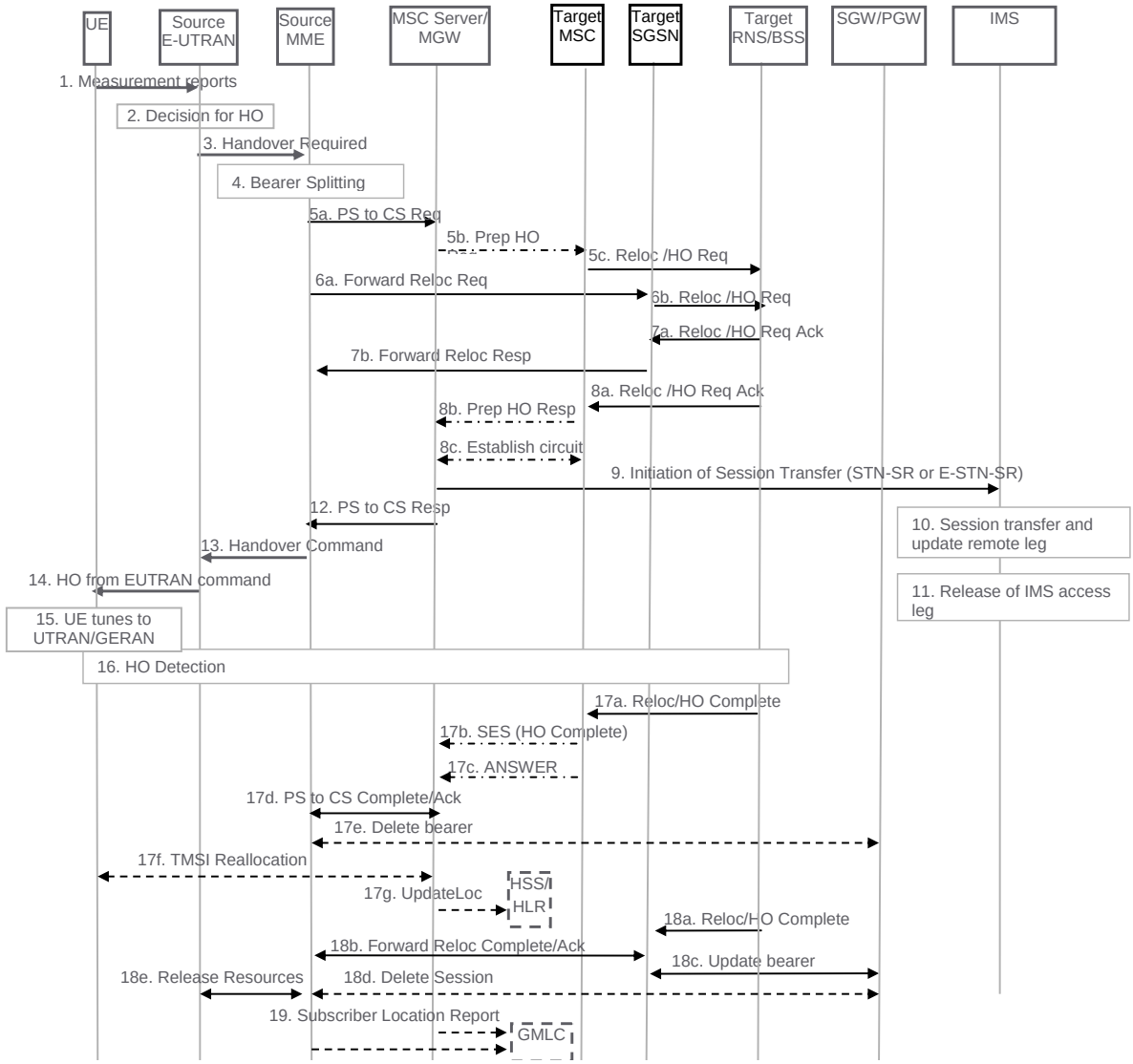

Figure 6.2.2.2-1: SRVCC from E-UTRAN to UTRAN with PS HO or GERAN with DTM HO support

1. UE sends measurement reports to E-UTRAN.

...

14. E-UTRAN sends a Handover from E-UTRAN Command message to the UE.

15. UE tunes to the target UTRAN/GERAN cell.

16. Handover Detection at the target RNS/BSS occurs. The UE sends a Handover Complete message via the target RNS/BSS to the target MSC. If the target MSC is not the MSC Server, then the Target MSC sends an SES (Handover Complete) message to the MSC Server. At this stage, the UE re-establishes the connection with the network and can send/receive voice data.

17. The CS relocation/handover is complete. The following steps are performed:

    a) Target RNS/BSS sends Relocation Complete/Handover Complete message to the target MSC.

    b) Target MSC sends an SES (Handover Complete) message to the MSC Server. The speech circuit is through connected in the MSC Server/MGW according to TS 23.009 [18].

    c) Completion of the establishment procedure with ISUP Answer message to the MSC Server according to TS 23.009 [18].

    d) MSC Server sends a SRVCC PS to CS Complete Notification message to the source MME. Source MME acknowledges the information by sending a SRVCC PS to CS Complete Acknowledge message to the MSC Server.

    e) The source MME deactivates the voice bearer towards S-GW/P-GW and sets the PS-to-CS handover indicator to Delete Bearer Command message. This triggers MME-initiated Dedicated Bearer Deactivation procedure as specified in TS 23.401 [2]. The MME does not send deactivation request toward the eNodeB on receiving PS-to-CS Complete Notification in step 17d. If dynamic PCC is deployed, the PGW may interact with PCRF as defined in TS 23.203 [31].

    f) If the HLR is to be updated, i.e. if the IMSI is authenticated but unknown in the VLR, the MSC Server performs a TMSI reallocation towards the UE using its own non-broadcast LAI and, if the MSC Server and other MSC/VLRs serve the same (target) LAI, with its own Network Resource Identifier (NRI).

NOTE 9: The TMSI reallocation is performed by the MSC Server towards the UE via target MSC.

    g) If the MSC Server performed a TMSI reallocation in step 17f, and if this TMSI reallocation was completed successfully, the MSC Server performs a MAP Update Location to the HSS/HLR.

NOTE 10: This Update Location is not initiated by the UE.

[TS 23.216, clause 8.1.3]

If the source E-UTRAN/UTRAN decides to terminate the handover procedure before its completion, the MME/SGSN shall return to its state before the handover procedure was triggered. The MME/SGSN attempts to trigger, at the MSC Server enhanced for SRVCC, handover cancellation procedures according to TS 23.009 [18]. The MSC Server enhanced for SRVCC shall take no SRVCC-specific action towards IMS.

The MME/SGSN shall also send a session reestablishment trigger notification to UE to start the recovery procedure if it receives notification from the MSC Server that the Session Transfer procedure is in progress. Figure 8.1.3-1 shows the overall procedure for SRVCC handover cancellation.

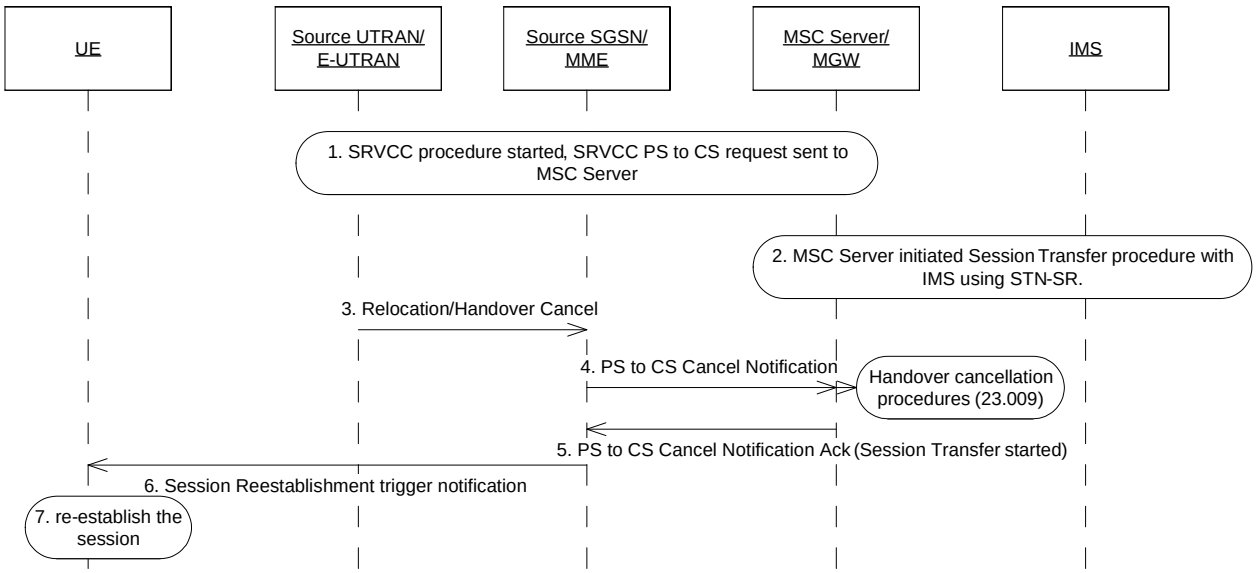

Figure 8.1.3-1: SRVCC Handover Cancellation Procedure

1. Network has started the SRVCC procedure. SGSN/MME has sent the SRVCC PS to CS request to MSC Server.
2. MSC Server is performing the CS HO procedure with target network, and has also started the Session Transfer procedure with IMS with STN-SR, see TS 23.237 [14].
3. Source UTRAN/E-UTRAN decides to cancel the SRVCC HO Procedure by sending a Cancel message to SGSN/MME.
4. Source SGSN/MME indicates SRVCC PS to CS Cancel Notification to MSC Server to start the HO cancellation procedure as according to TS 23.009 [18].
5. MSC Server acks the PS to CS Cancel Notification with an indication that Session Transfer procedure is in progress.
6. Due to the Session Transfer procedure in progress indication, the source SGSN/MME sends a Session Reestablishment trigger notification to UE to start the session re-establishment procedure
7. UE starts the re-establishment procedure, by attempting to return to E-UTRAN/UTRAN by sending a re-INVITE towards IMS for the related session. If the session is no longer active, then this session transfer request shall be rejected by the IMS.

[TS 24.237, clause 12.1]

In order to fulfil the requirements for PS-CS access transfer in SR-VCC for calls in alerting state, the SC UE needs to be engaged in a session with speech media component in early dialog state according to the following conditions before SR-VCC access transfer is performed:

- a SIP 180 (Ringing) response for the initial SIP INVITE request to establish this session has been sent or received; and
- a SIP final response for the initial SIP INVITE request to establish this session has not been sent or received.

[TS 24.237, clause 12.2.3B.1]

The SC UE shall apply the procedures in subclauses 12.2.3B.3 for access transfer for calls in alerting state if:

1) the SC UE supports single radio PS to CS access transfer for calls in alerting state; and
2) there are one or more early dialogs created by the same SIP INVITE request with at least one dialog that is an early dialog supporting a session with active speech media component where the SC UE:

- has sent a Contact header field in a SIP INVITE request or 180 (Ringing) response containing the g.3gpp.srvcc-alerting media feature tag (as described in annex C); and
- has received a Feature-Caps header field in a SIP INVITE request or 180 (Ringing) response containing the g.3gpp.srvcc-alerting feature capability indicator (as described in annex C).

[TS 24.237, clause 12.2.4.2]

If the SC UE is engaged in a session in early dialog state and:

- receives a SM NOTIFICATION message containing an "SRVCC handover cancelled, IMS session re-establishment required" as described in 3GPP TS 24.008 [8] or 3GPP TS 24.301 [52] depending on the access in use; or
- does not successfully retune to the 3GPP UTRAN or 3GPP GERAN after it receives the handover command from the eNodeB (as described in 3GPP TS 36.331 [62]) or from the NodeB (as described in 3GPP TS 25.331 [61]);

then if the SC UE the SC UE shall send a SIP UPDATE request containing:

1) an SDP offer, including the media characteristics as used in the existing dialog; and
2) a Reason header field containing protocol "SIP" and reason parameter "cause" with value "487" as specified in IETF RFC 3326 [57], and with reason-text set to either "handover cancelled" or "failure to transition to CS domain";

by following the rules of 3GPP TS 24.229 [2] in each transferred session.

[TS 24.301, clause 6.6.2.2]

The network initiates the notification procedure by sending a NOTIFICATION message to the UE (see example in figure 6.6.2.2.1).

Figure 6.6.2.2.1: Notification procedure

[TS 24.301, clause 6.6.2.3]

When the UE receives a NOTIFICATION message, the ESM protocol entity in the UE shall provide the notification indicator to the upper layer.

The notification indicator can have the following value:

- #1: SRVCC handover cancelled, IMS session re-establishment required.

13.4.3.13.3 Test description

13.4.3.13.3.1 Pre-test conditions

System Simulator:

- Cell 1 and Cell 5
- System information combination 4 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cell.

UE:

None.

Preamble:

- The UE is in state Registered, Idle mode (state 2) on Cell 1 according to [18].

13.4.3.13.3.2 Test procedure sequence

Table 13.4.3.13.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while columns marked "T1" is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 13.4.3.13.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 5	Remark
T0	Cell-specific RS EPRE	dBm/15kHz	-60	-	The power level values are such that entering conditions for event B2 are not satisfied.
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-88	
	PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-88	
T1	Cell-specific RS EPRE	dBm/15kHz	-84	-	The power level values are such that entering conditions for event B2 are satisfied.
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-64	
	PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-64	

Table 13.4.3.13.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS configures UTRA Cell 5 to reference configuration according 36.508 Table 4.8.3-1, condition UTRA Speech.	-	-	-	-
2-23	Steps 1 to 22 of the generic test procedure for IMS MT speech call (TS 36.508 4.5A.7.3-1).	-	-	-	-
24	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1 to setup inter-RAT measurement and reporting for event B2.	<--	*RRCConnectionReconfiguration*	-	-
25	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1.	-->	*RRCConnectionReconfigurationComplete*	-	-
26	The SS changes the power level for Cell 1 and Cell 5 according to the row "T1" in Table 13.4.3.13.3.2-1	-	-	-	-
27	The UE transmits a *MeasurementReport* message on Cell 1 to report event B2 for Cell 5.	-->	*MeasurementReport*	-	-
28	Cause the UE to answer an MT call. (NOTE 1)	-	-	-	-
29	Step 23 of the generic test procedure for IMS MT speech call (TS 36.508 4.5A.7.3-1).	-	-	-	-
30	The SS transmits a NOTIFICATION message on Cell 1.	<--	NOTIFICATION	-	-
31	Check: Does the UE transmit SIP UPDATE request on Cell 1? NOTE: Step 1 defined in annex C.28 of TS 34.229-1 [35] is performed.	-	-	1	P
32	Step 2 expected sequence defined in annex C.28 of TS 34.229-1 [35].	-	-	-	-
33	Step 24 of the generic test procedure for IMS MT speech call (TS 36.508 4.5A.7.3-1).	-	-	-	-
NOTE 1: The request may be triggered by MMI or by AT command A.					

13.4.3.13.3.3 Specific message contents

Table 13.4.3.13.3.3-1: ATTACH REQUEST (preamble)

Derivation path: 36.508 Table 4.7.2-4			
Information Element	**Value/remark**	**Comment**	**Condition**
MS network capability	SRVCC from UTRAN HSPA or E-UTRAN to GERAN/UTRAN supported		
Mobile station classmark 2	Any allowed value		
Supported Codecs	Any allowed value		
Old GUTI type	Any allowed value		

Table 13.4.3.13.3.3-2: *RRCConnectionReconfiguration* (step 24, Table 13.4.3.13.3.2-2)

Derivation Path: 36.508, Table 4.6.1-8, condition MEAS

Table 13.4.3.13.3.3-3: *MeasConfig* (Table 13.4.3.13.3.3-2)

Derivation Path: 36.508, Table 4.6.6-1, condition UTRAN			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig ::= SEQUENCE {			
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entries		
measObjectId[1]	IdMeasObject-f1		
measObject[1]	MeasObjectEUTRA-GENERIC(f1)		
measObjectId[2]	IdMeasObject-f8		
measObject[2]	MeasObjectUTRA-f8		
}			
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	1 entry		
reportConfigId[1]	IdReportConfig-B2-UTRA		
reportConfig[1]	ReportConfigInterRAT-B2-UTRA (-72, -76)		
}			
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	1 entry		
measId[1]	1		
measObjectId[1]	IdMeasObject-f8		
reportConfigId[1]	IdReportConfig-B2-UTRA		
}			
quantityConfig	QuantityConfig-DEFAULT-RSCP		
}			

Table 13.4.3.13.3.3-4: MeasObjectUTRA-f8 (Table 13.4.3.13.3.3-3)

Derivation Path: 36.508, Table 4.6.6-3			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasObjectUTRA ::= SEQUENCE {			
carrierFreq	Same downlink ARFCN as used for Cell 5		
cellsToAddModList CHOICE {			
cellsToAddModListUTRA-FDD SEQUENCE (SIZE (1..maxCellMeas)) OF SEQUENCE {	1 entry		UTRA-FDD
cellIndex[1]	1		
physCellId[1]	PhysicalCellIdentity of Cell 5		
}			
cellsToAddModListUTRA-TDD SEQUENCE (SIZE (1..maxCellMeas)) OF SEQUENCE {			UTRA-TDD
cellIndex[1]	1		
physCellId[1]	PhysicalCellIdentity of Cell 5		
}			
}			
csg-allowedReportingCells-v930	Not present		
}			

Condition	Explanation
UTRA-FDD	UTRA FDD cell environment
UTRA-TDD	UTRA TDD cell environment

Table 13.4.3.13.3.3-5: *MeasurementReport* (step 27, Table 13.4.3.13.3.2-2)

Derivation Path: 36.508, Table 4.6.1-5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
measurementReport-r8 SEQUENCE {			
measResults SEQUENCE {			
measId	1		
measResultPCell SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListUTRA SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {	1 entry		
physCellId[1] CHOICE {			
fdd	PhysicalCellIdentity of Cell 5		UTRA-FDD
tdd	PhysicalCellIdentity of Cell 5		UTRA-TDD
}			
cgi-Info[1]	Not present		
measResult[1] SEQUENCE {			
utra-RSCP	(-5..91)		
utra-EcN0	Not present		
additionalSI-Info-r9	Not present		
}			
}			
}			
measResultForECID-r9	Not present		
locationInfo-r10	Not present		
measResultServFreqList-r10	Not present		
}			
}			
}			
}			
}			

Condition	Explanation
UTRA-FDD	UTRA FDD cell environment
UTRA-TDD	UTRA TDD cell environment

Table 13.4.3.13.3.3-6: NOTIFICATION (step 30, Table 13.4.3.13.3.2-2)

Derivation Path: 36.508, Table 4.7.3-19A, condition SRVCC-HO-CANCELLED

13.4.3.14 Inter-system mobility / E-UTRA PS voice + PS data to UTRA CS voice + PS data / aSRVCC / MO call

13.4.3.14.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_CONNECTED state }
ensure that {
  when { UE receives a MobilityFromEUTRACommand message and an MO IMS voice call is in alerting
state and an UTRA PS RB + Speech combination is configured for an UTRA cell}
    then { UE transmits a HANDOVER TO UTRAN COMPLETE message on the utra cell}
```

```
                }
```

(2)

```
with { UE having transmitted a HANDOVER TO UTRAN COMPLETE message }
ensure that {
  when { the voice call is accepted }
    then { UE transmits a CONNECT ACKNOWLEDGE message on the utra cell}
                }
```

13.4.3.14.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.331, clause 5.4.3.3, TS 24.237 clause 12.2.3B.1 and clause 12.2.3B.3.2.

[TS 36.331, clause 5.4.3.3]

The UE shall be able to receive a *MobilityFromEUTRACommand* message and perform a cell change order to GERAN, even if no prior UE measurements have been performed on the target cell.

The UE shall:

1> stop timer T310, if running;

1> if the *MobilityFromEUTRACommand* message includes the *purpose* set to '*handover*':

2> if the *targetRAT-Type* is set to '*utra*' or '*geran*':

3> consider inter-RAT mobility as initiated towards the RAT indicated by the *targetRAT-Type* included in the *MobilityFromEUTRACommand* message;

3> forward the *nas-SecurityParamFromEUTRA* to the upper layers;

3> access the target cell indicated in the inter-RAT message in accordance with the specifications of the target RAT;

[TS 24.237 clause 12.2.3B.1]

The SC UE shall apply the procedures in subclauses 12.2.3B.3 for access transfer for calls in alerting state if:

1) the SC UE supports single radio PS to CS access transfer for calls in alerting state; and

2) there are one or more early dialogs created by the same SIP INVITE request with at least one dialog that is an early dialog supporting a session with active speech media component where the SC UE:

- has sent a Contact header field in a SIP INVITE request or 180 (Ringing) response containing the g.3gpp.srvcc-alerting media feature tag (as described in annex C); and

- has received a Feature-Caps header field in a SIP INVITE request or 180 (Ringing) response containing the g.3gpp.srvcc-alerting feature capability indicator (as described in annex C).

[TS 24.237 clause 12.2.3B.3.2]

If the SC UE has initiated an outgoing call which is in the early dialog state according to the conditions in subclauses 12.1 and 12.2.3B.1 and the SC UE successfully performs access transfer to the CS domain, then the UE continues in Ringing state in CS, i.e. UE moves to Call Delivered (U4) state as described in 3GPP TS 24.008 [8].

13.4.3.14.3 Test description

13.4.3.14.3.1 Pre-test conditions

System Simulator:

- Cell 1 and Cell 5.

- System information combination 4 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cells.

UE:

None.

Preamble:

- The UE is in state Registered, Idle mode (state 2) on Cell 1 according to [18].

13.4.3.14.3.2 Test procedure sequence

Table 13.4.3.14.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while columns marked "T1" is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 13.4.3.14.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 5	Remark
T0	Cell-specific RS EPRE	dBm/15kHz	-60	-	The power level values are such that entering conditions for event B2 are not satisfied.
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-88	
	PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-88	
T1	Cell-specific RS EPRE	dBm/15kHz	-84	-	The power level values are such that entering conditions for event B2 are satisfied.
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-64	
	PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-64	

Table 13.4.3.14.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS configures UTRA cell 5 to reference configuration according 36.508 table 4.8.3-1, condition UTRA PS RB + Speech.	-	-	-	-
2-15	Steps 1 to 14 of the generic test procedure for IMS MO speech call and aSRVCC (TS 36.508 4.5A.10.3-1).	-	-	-	-
16	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1 to setup inter RAT measurement and reporting for event B2.	<--	*RRCConnectionReconfiguration*	-	-
17	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1.	-->	*RRCConnectionReconfigurationComplete*	-	-
18	The SS changes the power level for Cell 1 and Cell 5 according to the row "T1" in table 13.4.3.14.3.2-1	-	-	-	-
19	The UE transmits a *MeasurementReport* message on Cell 1 to report event B2 for Cell 5.	-->	*MeasurementReport*	-	-
20	The SS transmits a *UECapabilityEnquiry* message to request UE radio access capability information for E-UTRA and UTRA.	<--	*UECapabilityEnquiry*	-	-
21	The UE transmit a *UECapabilityInformation* message on Cell 1. NOTE: The start-PS and start-CS values received, should be used to configure ciphering on cell 5.	-->	*UECapabilityInformation*	-	-
22	The SS transmits a *MobilityFromEUTRACommand* message on Cell 1.	<--	*MobilityFromEUTRACommand*	-	-
23	Check: Does the UE transmit a HANDOVER TO UTRAN COMPLETE message on cell 5?	-->	HANDOVER TO UTRAN COMPLETE	1	P
-	EXCEPTION: In parallel to the events described in step 24 to 31 the step specified in table 13.4.3.14.3.2-3 takes place.	-	-	-	-
24	The SS transmits a SECURITY MODE COMMAND message for the CS domain.	<--	SECURITY MODE COMMAND	-	-
25	The UE transmits a SECURITY MODE COMPLETE message.	-->	SECURITY MODE COMPLETE	-	-
26	The SS transmits an UTRAN MOBILITY INFORMATION message to notify CN information.	<--	UTRAN MOBILITY INFORMATION	-	-
27	The UE transmits an UTRAN MOBILITY INFORMATION CONFIRM message.	-->	UTRAN MOBILITY INFORMATION CONFIRM	-	-
28	The SS transmits a TMSI REALLOCATION COMMAND message.	<--	TMSI REALLOCATION COMMAND	-	-
29	The UE transmits a TMSI REALLOCATION COMPLETE message.	-->	TMSI REALLOCATION COMPLETE	-	-
30	The SS transmits a CONNECT message on Cell 5.	<--	CONNECT	-	-
31	Check: Does the UE transmit a CONNECT ACKNOWLEDGE message on Cell 5?	-->	CONNECT ACKNOWLEDGE	2	P
32	The SS transmits a SECURITY MODE COMMAND message for the PS domain.	<--	SECURITY MODE COMMAND	-	-
33	The UE transmits a SECURITY MODE COMPLETE message.	-->	SECURITY MODE COMPLETE	-	-
34	The SS transmits a ROUTING AREA UPDATE ACCEPT message.	<--	ROUTING AREA UPDATE ACCEPT	-	-
35	The UE transmits a ROUTING AREA UPDATE COMPLETE message.	-->	ROUTING AREA UPDATE COMPLETE	-	-
36-37	Void	-	-	-	-

Table 13.4.3.14.3.2-3: Parallel behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Check: Does the UE transmit a ROUTING AREA UPDATE REQUEST message?	-->	ROUTING AREA UPDATE REQUEST	-	-

13.4.3.14.3.3 Specific message contents

Table 13.4.3.14.3.3-1: ATTACH REQUEST (preamble)

Derivation path: 36.508 table 4.7.2-4			
Information Element	**Value/remark**	**Comment**	**Condition**
MS network capability	SRVCC from UTRAN HSPA or E-UTRAN to GERAN/UTRAN supported		
Mobile station classmark 2	Any allowed value		
Supported Codecs	Any allowed value		

Table 13.4.3.14.3.3-2: *RRCConnectionReconfiguration* (step 16, Table 13.4.3.14.3.2-2)

Derivation Path: 36.508 clause 4.6.1 table 4.6.1-8 with condition MEAS

Table 13.4.3.14.3.3-3: *MeasConfig* (step 16, Table 13.4.3.14.3.2-2)

Derivation path: 36.508 clause 4.6.6 table 4.6.6-1 with condition UTRAN			
Information Element	**Value/Remark**	**Comment**	**Condition**
measurementConfiguration ::= SEQUENCE {			
measObjectToAddModifyList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entries		
measObjectId[1]	IdMeasObject-f8		
measObject[1]	MeasObjectUTRA-GENERIC(f8)		
measObjectId[2]	IdMeasObject-f1		
measObject[2]	MeasObjectEUTRA-GENERIC(f1)		
}			
reportConfigToAddModifyList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	1 entry		
reportConfigId[1]	IdReportConfigInterRAT-B2-UTRA		
reportConfig[1]	ReportConfigInterRAT-B2-UTRA (-72, -76)		
}			
measIdToAddModifyList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	1 entry		
measId[1]	1		
measObjectId[1]	IdMeasObject-f8		
reportConfigId[1]	IdReportConfigInterRAT-B2-UTRA		
}			
}			

Table 13.4.3.14.3.3-4: *MeasurementReport* (step 19, Table 13.4.3.14.3.2-2)

Derivation Path: 36.508, table 4.6.1-5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
measurementReport-r8 SEQUENCE {			
measResults SEQUENCE {			
measId	1		
measResultServCell SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListUTRA SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {	1 entry		
physCellId[1]	PhysicalCellIdentity of Cell 5		
cgi-Info[1]	Not present		
measResult[1] SEQUENCE {			
utra-RSCP	(-5..91)		
}			
}			
}			
}			
}			
}			
}			

Table 13.4.3.14.3.3-5: *MobilityFromEUTRACommand* (step 20, Table 13.4.3.14.3.2-2)

Derivation Path: 36.508, Table 4.6.1-6			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityFromEUTRACommand ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
mobilityFromEUTRACommand-r8 SEQUENCE {			
cs-FallbackIndicator	True		
purpose CHOICE{			
handover SEQUENCE {			
targetRAT-Type	Utra		
targetRAT-MessageContainer	HANDOVER TO UTRAN COMMAND(UTRA RRC message)		
nas-SecurityParamFromEUTRA	The 4 least significant bits of the NAS downlink COUNT value		
systemInformation	Not present		
}			
}			
}			
}			
}			
}			

Table 13.4.3.14.3.3-6: HANDOVER TO UTRAN COMMAND (step 20, Table 13.4.3.14.3.3-5)

Derivation Path: 36.508, Table 4.7B.1-1, condition UTRA PS RB + Speech

Table 13.4.3.14.3.3-7: UECapabilityEnquiry (step 21, Table 13.4.3.14.3.2-2)

Derivation path: 36.508 clause 4.6.1 table 4.6.1-22			
Information Element	**Value/Remark**	**Comment**	**Condition**
UECapabilityEnquiry ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
ueCapabilityEnquiry-r8 SEQUENCE {			
ue-CapabilityRequest SEQUENCE (SIZE (1..maxRAT-Capabilities)) OF SEQUENCE {	2 entry		
RAT-Type[1]	eutra		
RAT-Type[2]	utra		
}			
}			
}			
}			
}			

Table 13.4.3.14.3.3-8: SECURITY MODE COMMAND (step 26, Table 13.4.3.14.3.2-2)

Derivation Path: 36.508, Table 4.7B.1-n		
Information Element	**Condition**	**Value/remark**
Ciphering mode info		Not Present

13.4.3.15 Inter-system mobility / E-UTRA PS voice + PS data to UTRA CS voice + PS data / aSRVCC / MO call / SRVCC HO cancelled

13.4.3.15.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_CONNECTED state and an MO IMS PS voice + PS data call is in alerting state
with a SRVCC procedure started over an UTRA cell for which UTRA PS RB + Speech combination is
configured }
ensure that {
  when { the source E-UTRAN decides to terminate the handover procedure before its completion
indicating this to the UE with a NOTIFICATION message }
    then { UE starts a recovery procedure, transmits a SIP UPDATE message and successfully completes
the MO call on the E-UTRA }
            }
```

13.4.3.15.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 23.216, clause 6.2.2.2 and clause 8.1.3, TS 24.301, clause 6.6.2.2, TS 24.237 clauses 12.1, 12.2.3B.1, clause 12.2.4.2.

[TS 23.216, clause 6.2.2.2]

Depicted in figure 6.2.2.2-1 is a call flow for SRVCC from E-UTRAN to UTRAN or GERAN with DTM HO support, including the handling of the non-voice component. The flow requires that eNB can determine that either the target is UTRAN with PS HO or the target is GERAN with DTM support and the UE is supporting DTM.

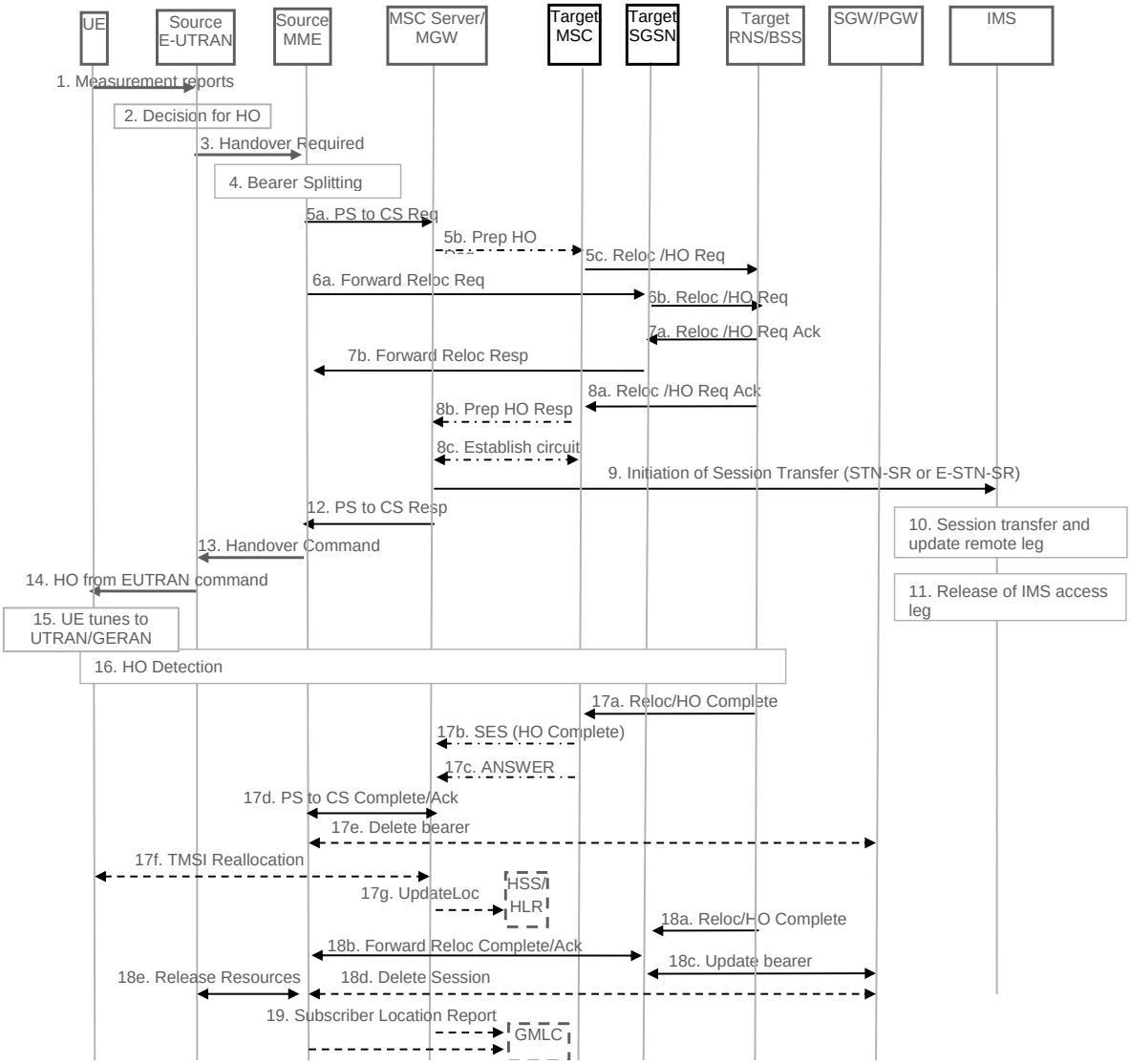

Figure 6.2.2.2-1: SRVCC from E-UTRAN to UTRAN with PS HO or GERAN with DTM HO support

1. UE sends measurement reports to E-UTRAN.
2. Based on UE measurement reports the source E-UTRAN decides to trigger an SRVCC handover to UTRAN/GERAN.

[TS 23.216, clause 8.1.3]

If the source E-UTRAN/UTRAN decides to terminate the handover procedure before its completion, the MME/SGSN shall return to its state before the handover procedure was triggered. The MME/SGSN attempts to trigger, at the MSC Server enhanced for SRVCC, handover cancellation procedures according to TS 23.009 [18]. The MSC Server enhanced for SRVCC shall take no SRVCC-specific action towards IMS.

The MME/SGSN shall also send a session reestablishment trigger notification to UE to start the recovery procedure if it receives notification from the MSC Server that the Session Transfer procedure is in progress. Figure 8.1.3-1 shows the overall procedure for SRVCC handover cancellation.

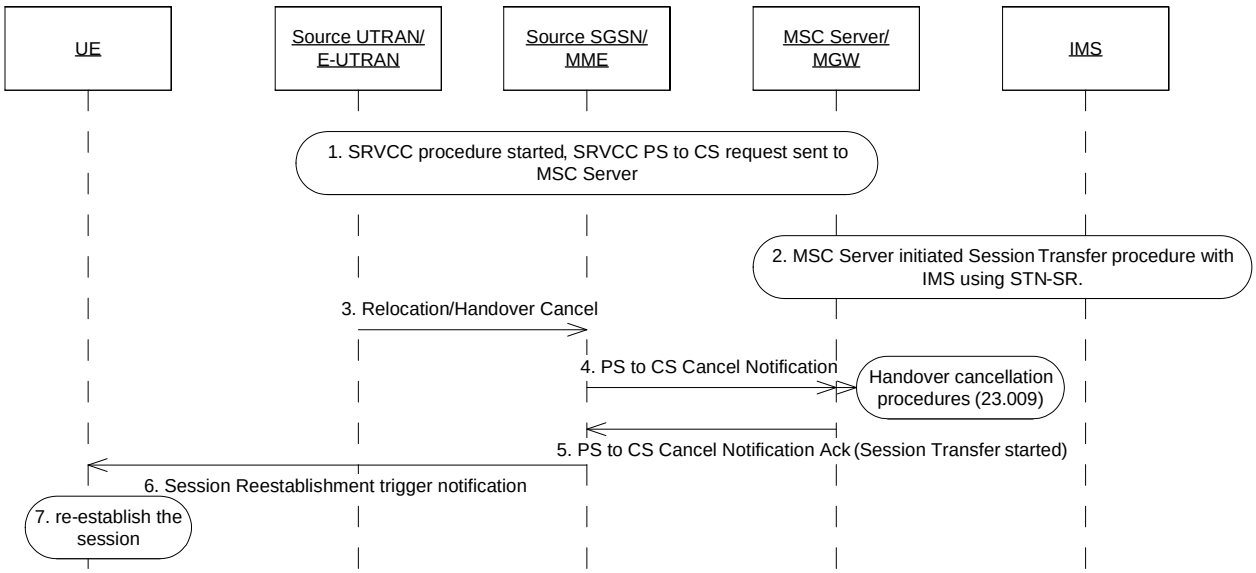

Figure 8.1.3-1: SRVCC Handover Cancellation Procedure

6. Due to the Session Transfer procedure in progress indication, the source SGSN/MME sends a Session Reestablishment trigger notification to UE to start the session re-establishment procedure

7. UE starts the re-establishment procedure, by attempting to return to E-UTRAN/UTRAN by sending a re-INVITE towards IMS for the related session. If the session is no longer active, then this session transfer request shall be rejected by the IMS.

[TS 24.301, clause 6.6.2.2]

The network initiates the notification procedure by sending a NOTIFICATION message to the UE (see example in figure 6.6.2.2.1).

Figure 6.6.2.2.1: Notification procedure

[TS 24.237, clause 12.1]

In order to fulfil the requirements for PS-CS access transfer in SR-VCC for calls in alerting state, the SC UE needs to be engaged in a session with speech media component in early dialog state according to the following conditions before SR-VCC access transfer is performed:

- a SIP 180 (Ringing) response for the initial SIP INVITE request to establish this session has been sent or received; and

- a SIP final response for the initial SIP INVITE request to establish this session has not been sent or received.

[TS 24.237, clause 12.2.3B.1]

The SC UE shall apply the procedures in subclauses 12.2.3B.3 for access transfer for calls in alerting state if:

1) the SC UE supports single radio PS to CS access transfer for calls in alerting state; and

2) there are one or more early dialogs created by the same SIP INVITE request with at least one dialog that is an early dialog supporting a session with active speech media component where the SC UE:

   - has sent a Contact header field in a SIP INVITE request or 180 (Ringing) response containing the g.3gpp.srvcc-alerting media feature tag (as described in annex C); and

   - has received a Feature-Caps header field in a SIP INVITE request or 180 (Ringing) response containing the g.3gpp.srvcc-alerting feature capability indicator (as described in annex C).

[TS 24.237, clause 12.2.4.2]

If the SC UE is engaged in a session in early dialog state and:

- receives a SM NOTIFICATION message containing an "SRVCC handover cancelled, IMS session re-establishment required" as described in 3GPP TS 24.008 [8] or 3GPP TS 24.301 [52] depending on the access in use; or

...

then if the SC UE the SC UE shall send a SIP UPDATE request containing:

1) an SDP offer, including the media characteristics as used in the existing dialog; and

2) a Reason header field containing protocol "SIP" and reason parameter "cause" with value "487" as specified in IETF RFC 3326 [57], and with reason-text set to either "handover cancelled" or "failure to transition to CS domain";

by following the rules of 3GPP TS 24.229 [2] in each transferred session.

13.4.3.15.3 Test description

13.4.3.15.3.1 Pre-test conditions

System Simulator:

- Cell 1 and Cell 5.

- System information combination 4 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cells.

UE:

None.

.

Preamble:

- The UE is in state Registered, Idle mode (state 2) on Cell 1 according to [18].

13.4.3.15.3.2 Test procedure sequence

Table 13.4.3.15.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while columns marked "T1" is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 13.4.3.15.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 5	Remark
T0	Cell-specific RS EPRE	dBm/15kHz	-60	-	The power level values are such that entering conditions for event B2 are not satisfied.
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-88	
	PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-88	
T1	Cell-specific RS EPRE	dBm/15kHz	-84	-	The power level values are such that entering conditions for event B2 are satisfied.
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-64	
	PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-64	

Table 13.4.3.15.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS configures UTRA cell 5 to reference configuration according 36.508 [18] table 4.8.3-1, condition UTRA PS RB + Speech.	-	-	-	-
-	The following messages are to be observed on Cell 1 unless explicitly stated otherwise.	-	-	-	-
2-13	Steps 1 to 12 of the generic test procedure for IMS MO speech call and aSRVCC (TS 36.508 [18] 4.5A.6.3-1).	-	-	-	-
-	EXCEPTION: In parallel to the events described in steps 14 to 15 the steps specified in Table 13.4.3.15.3.2-3 should take place.	-	-	-	-
14	The SS transmits an *RRCConnectionReconfiguration* message to setup inter RAT measurement and reporting for event B2.	<--	*RRCConnectionReconfiguration*	-	-
15	The UE transmits an *RRCConnectionReconfigurationComplete* message.	-->	*RRCConnectionReconfigurationComplete*	-	-
16	The SS changes the power level for Cell 1 and Cell 5 according to the row "T1" in table 13.4.3.15.3.2-1	-	-	-	-
17	The UE transmits a *MeasurementReport* message to report event B2 for Cell 5.	-->	*MeasurementReport*	-	-
18	The SS transmits a NOTIFICATION message.	<--	NOTIFICATION	-	-
19	Check: Does the UE start the procedure for SIP UPDATE after aSRVCC handover is cancelled? Note: Step 1 of the Generic test procedure for SIP UPDATE after aSRVCC handover failure/cancelled defined in annex C.28 of TS 34.229-1 [35] is performed (UE sends UPDATE).	-	-	1	P
20	SS Sends 200 OK message. Note: Step 2 of the Generic test procedure for SIP UPDATE after aSRVCC handover failure/cancelled defined in annex C.28 of TS 34.229-1 [35].	-	-	-	-
21	SS sends 200 OK message. Note: Step 12 of the expected sequence defined in annex C.21 of TS 34.229-1 [35].	-	-	-	-
22	Check: Does the UE send ACK message? Note: Steps 13 of the expected sequence defined in annex C.21 of TS 34.229-1 [35].	-	-	1	P

Table 13.4.3.15.3.2-3: Parallel behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1-7	Steps 5-11 expected sequence defined in annex C.21 of TS 34.229-1 [35]. NOTE: IMS MO speech call establishment gets to alerting phase.	-	-	-	-

13.4.3.15.3.3 Specific message contents

Table 13.4.3.15.3.3-1: ATTACH REQUEST (preamble)

Derivation path: 36.508 [18], table 4.7.2-4			
Information Element	**Value/remark**	**Comment**	**Condition**
MS network capability	SRVCC from UTRAN HSPA or E-UTRAN to GERAN/UTRAN supported		
Mobile station classmark 2	Any allowed value		
Supported Codecs	Any allowed value		

Table 13.4.3.15.3.3-2: *RRCConnectionReconfiguration* (step 14, Table 13.4.3.15.3.2-2)

Derivation Path: 36.508 [18], table 4.6.1-8 with condition MEAS

Table 13.4.3.15.3.3-3: *MeasConfig* (Table 13.4.3.15.3.3-2)

Derivation Path: 36.508 [18], table 4.6.6-1, condition UTRAN			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig ::= SEQUENCE {			
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entries		
measObjectId[1]	IdMeasObject-f1		
measObject[1]	MeasObjectEUTRA-GENERIC(f1)		
measObjectId[2]	IdMeasObject-f8		
measObject[2]	MeasObjectUTRA-f8		
}			
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	1 entry		
reportConfigId[1]	IdReportConfig-B2-UTRA		
reportConfig[1]	ReportConfigInterRAT-B2-UTRA (-72, -76)		
}			
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	1 entry		
measId[1]	1		
measObjectId[1]	IdMeasObject-f8		
reportConfigId[1]	IdReportConfig-B2-UTRA		
}			
}			

Table 13.4.3.15.3.3-4: MeasObjectUTRA-f8 (Table 13.4.3.15.3.3-3)

Derivation Path: 36.508 [18], table 4.6.6-3			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasObjectUTRA ::= SEQUENCE {			
carrierFreq	Same downlink ARFCN as used for Cell 5		
cellsToAddModList CHOICE {			
cellsToAddModListUTRA-FDD SEQUENCE (SIZE (1..maxCellMeas)) OF SEQUENCE {	1 entry		UTRA-FDD
cellIndex[1]	1		
physCellId[1]	PhysicalCellIdentity of Cell 5		
}			
cellsToAddModListUTRA-TDD SEQUENCE (SIZE (1..maxCellMeas)) OF SEQUENCE {			UTRA-TDD
cellIndex[1]	1		
physCellId[1]	PhysicalCellIdentity of Cell 5		
}			
}			
csg-allowedReportingCells-v930	Not present		
}			

Condition	Explanation
UTRA-FDD	UTRA FDD cell environment
UTRA-TDD	UTRA TDD cell environment

Table 13.4.3.15.3.3-5: *MeasurementReport* (step 17, Table 13.4.3.15.3.2-2)

Derivation Path: 36.508 [18], table 4.6.1-5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
measurementReport-r8 SEQUENCE {			
measResults SEQUENCE {			
measId	1		
measResultPCell SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListUTRA SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {	1 entry		
physCellId[1] CHOICE {			
fdd	PhysicalCellIdentity of Cell 5		UTRA-FDD
tdd	PhysicalCellIdentity of Cell 5		UTRA-TDD
}			
cgi-Info[1]	Not present		
measResult[1] SEQUENCE {			
utra-RSCP	(-5..91)		
utra-EcN0	Not present		
additionalSI-Info-r9	Not present		
}			
}			
}			
measResultForECID-r9	Not present		
locationInfo-r10	Not present		
measResultServFreqList-r10	Not present		
}			
}			
}			
}			
}			

Condition	Explanation
UTRA-FDD	UTRA FDD cell environment
UTRA-TDD	UTRA TDD cell environment

Table 13.4.3.15.3.3-6: NOTIFICATION (step18, Table 13.4.3.15.3.2-2)

Derivation Path: 36.508 [18], table 4.7.3-18A, condition SRVCC-HO-CANCELLED

13.4.3.16 Inter-system mobility / E-UTRA PS voice + PS data to UTRA CS voice + PS data / aSRVCC / MT call

13.4.3.16.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_CONNECTED state }
ensure that {
  when { UE receives a MobilityFromEUTRACommand message and an MT IMS voice call is in alerting
state and an UTRA PS RB + Speech combination is configured for an UTRA cell}
    then { UE transmits a HANDOVER TO UTRAN COMPLETE message on the utra cell}
          }
```

(2)

```
with { UE having transmitted a HANDOVER TO UTRAN COMPLETE message }
ensure that {
  when { the voice call is accepted }
    then { UE transmits a CONNECT message on the utra cell}
           }
```

13.4.3.16.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.331, clause 5.4.3.3, TS 24.237 clause 12.2.3B.1 and clause 12.2.3B.3.1.

[TS 36.331, clause 5.4.3.3]

The UE shall be able to receive a *MobilityFromEUTRACommand* message and perform a cell change order to GERAN, even if no prior UE measurements have been performed on the target cell.

The UE shall:

1> stop timer T310, if running;

1> if the *MobilityFromEUTRACommand* message includes the *purpose* set to '*handover*':

2> if the *targetRAT-Type* is set to '*utra*' or '*geran*':

3> consider inter-RAT mobility as initiated towards the RAT indicated by the *targetRAT-Type* included in the *MobilityFromEUTRACommand* message;

3> forward the *nas-SecurityParamFromEUTRA* to the upper layers;

3> access the target cell indicated in the inter-RAT message in accordance with the specifications of the target RAT;

[TS 24.237 clause 12.2.3B.1]

The SC UE shall apply the procedures in subclauses 12.2.3B.3 for access transfer for calls in alerting state if:

1) the SC UE supports single radio PS to CS access transfer for calls in alerting state; and

2) there are one or more early dialogs created by the same SIP INVITE request with at least one dialog that is an early dialog supporting a session with active speech media component where the SC UE:

- has sent a Contact header field in a SIP INVITE request or 180 (Ringing) response containing the g.3gpp.srvcc-alerting media feature tag (as described in annex C); and

- has received a Feature-Caps header field in a SIP INVITE request or 180 (Ringing) response containing the g.3gpp.srvcc-alerting feature capability indicator (as described in annex C).

[TS 24.237 clause 12.2.3B.3.1]

If the SC UE:

- has received a terminating call which is in the early dialog state according to the conditions in subclauses 12.1 and 12.2.3B.1; and

- successfully performs access transfer to the CS domain;

then the UE continues in Ringing state in CS, i.e. UE moves to Call Received (U7) state as described in 3GPP TS 24.008.

13.4.3.16.3 Test description

13.4.3.16.3.1 Pre-test conditions

System Simulator:

- Cell 1 and Cell 5.

- System information combination 4 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cells.

UE:

None.

Preamble:

- The UE is in state Registered, Idle mode (state 2) on Cell 1 according to [18].

13.4.3.16.3.2 Test procedure sequence

Table 13.4.3.16.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while columns marked "T1" is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 13.4.3.16.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 5	Remark
T0	Cell-specific RS EPRE	dBm/15kHz	-60	-	The power level values are such that entering conditions for event B2 are not satisfied.
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-88	
	PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-88	
T1	Cell-specific RS EPRE	dBm/15kHz	-84	-	The power level values are such that entering conditions for event B2 are satisfied.
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-64	
	PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-64	

Table 13.4.3.16.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS configures UTRA cell 5 to reference configuration according 36.508 table 4.8.3-1, condition UTRA PS RB + Speech .	-	-	-	-
2-23	Steps 1 to 22 of the generic test procedure for IMS MT speech call (TS 36.508 4.5A.7.3-1).	-	-	-	-
24	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1 to setup inter RAT measurement and reporting for event B2.	<--	*RRCConnectionReconfiguration*	-	-
25	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1.	-->	*RRCConnectionReconfigurationComplete*	-	-
26	The SS changes the power level for Cell 1 and Cell 5 according to the row "T1" in table 13.4.3.16.3.2-1	-	-	-	-
27	The UE transmits a *MeasurementReport* message on Cell 1 to report event B2 for Cell 5.	-->	*MeasurementReport*	-	-
28	The SS transmits a *UECapabilityEnquiry* message to request UE radio access capability information for E-UTRA and UTRA.	<--	*UECapabilityEnquiry*	-	-
29	The UE transmit a *UECapabilityInformation* message on Cell 1. NOTE: The start-PS and start-CS values received, should be used to configure ciphering on cell 5.	-->	*UECapabilityInformation*	-	-
30	The SS transmits a *MobilityFromEUTRACommand* message on Cell 1.	<--	*MobilityFromEUTRACommand*	-	-
31	Check: Does the UE transmit a HANDOVER TO UTRAN COMPLETE message on cell 5?	-->	HANDOVER TO UTRAN COMPLETE	1	P
-	EXCEPTION: In parallel to the events described in step 32 to 39 the step specified in table 13.4.3.16.3.2-3 takes place.	-	-	-	-
32	The SS transmits a SECURITY MODE COMMAND message for the CS domain.	<--	SECURITY MODE COMMAND	-	-
33	The UE transmits a SECURITY MODE COMPLETE message.	-->	SECURITY MODE COMPLETE	-	-
34	The SS transmits an UTRAN MOBILITY INFORMATION message to notify CN information.	<--	UTRAN MOBILITY INFORMATION	-	-
35	The UE transmits an UTRAN MOBILITY INFORMATION CONFIRM message.	-->	UTRAN MOBILITY INFORMATION CONFIRM	-	-
36	The SS transmits a TMSI REALLOCATION COMMAND message.	<--	TMSI REALLOCATION COMMAND	-	-
37	The UE transmits a TMSI REALLOCATION COMPLETE message.	-->	TMSI REALLOCATION COMPLETE	-	-
38	Step 23A of the generic test procedure for IMS MT speech call (TS 36.508 4.5A.7.3-1). Accept the call.	-->	CONNECT	2	P
39		<--	CONNECT ACKNOWLEDGE	-	-
40	The SS transmits a SECURITY MODE COMMAND message for the PS domain.	<--	SECURITY MODE COMMAND	-	-
41	The UE transmits a SECURITY MODE COMPLETE message.	-->	SECURITY MODE COMPLETE	-	-
42	The SS transmits a ROUTING AREA UPDATE ACCEPT message.	<--	ROUTING AREA UPDATE ACCEPT	-	-
43	The UE transmits a ROUTING AREA UPDATE COMPLETE message.	-->	ROUTING AREA UPDATE COMPLETE	-	-
44-47	Void				

Table 13.4.3.16.3.2-3: Parallel behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Check: Does the UE transmit a ROUTING AREA UPDATE REQUEST message?	-->	ROUTING AREA UPDATE REQUEST	-	-

13.4.3.16.3.3 Specific message contents

Table 13.4.3.16.3.3-1: ATTACH REQUEST (preamble)

Derivation path: 36.508 table 4.7.2-4			
Information Element	**Value/remark**	**Comment**	**Condition**
MS network capability	SRVCC from UTRAN HSPA or E-UTRAN to GERAN/UTRAN supported		
Mobile station classmark 2	Any allowed value		
Supported Codecs	Any allowed value		

Table 13.4.3.16.3.3-2: *RRCConnectionReconfiguration* (step 24, Table 13.4.3.16.3.2-2)

Derivation Path: 36.508 clause 4.6.1 table 4.6.1-8 with condition MEAS

Table 13.4.3.16.3.3-3: *MeasConfig* (step 24, Table 13.4.3.16.3.2-2)

Derivation path: 36.508 clause 4.6.6 table 4.6.6-1 with condition UTRAN			
Information Element	**Value/Remark**	**Comment**	**Condition**
measurementConfiguration ::= SEQUENCE {			
measObjectToAddModifyList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entries		
measObjectId[1]	IdMeasObject-f8		
measObject[1]	MeasObjectUTRA-GENERIC(f8)		
measObjectId[2]	IdMeasObject-f1		
measObject[2]	MeasObjectEUTRA-GENERIC(f1)		
}			
reportConfigToAddModifyList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	1 entry		
reportConfigId[1]	IdReportConfigInterRAT-B2-UTRA		
reportConfig[1]	ReportConfigInterRAT-B2-UTRA (-72, -76)		
}			
measIdToAddModifyList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	1 entry		
measId[1]	1		
measObjectId[1]	IdMeasObject-f8		
reportConfigId[1]	IdReportConfigInterRAT-B2-UTRA		
}			
}			

Table 13.4.3.16.3.3-4: *MeasurementReport* (step 27, Table 13.4.3.16.3.2-2)

Derivation Path: 36.508, table 4.6.1-5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
measurementReport-r8 SEQUENCE {			
measResults SEQUENCE {			
measId	1		
measResultServCell SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListUTRA SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {	1 entry		
physCellId[1]	PhysicalCellIdentity of Cell 5		
cgi-Info[1]	Not present		
measResult[1] SEQUENCE {			
utra-RSCP	(-5..91)		
}			
}			
}			
}			
}			
}			
}			

Table 13.4.3.16.3.3-5: *MobilityFromEUTRACommand* (step 28, Table 13.4.3.16.3.2-2)

Derivation Path: 36.508, Table 4.6.1-6			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityFromEUTRACommand ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
mobilityFromEUTRACommand-r8 SEQUENCE {			
cs-FallbackIndicator	True		
purpose CHOICE{			
handover SEQUENCE {			
targetRAT-Type	Utra		
targetRAT-MessageContainer	HANDOVER TO UTRAN COMMAND(UTRA RRC message)		
nas-SecurityParamFromEUTRA	The 4 least significant bits of the NAS downlink COUNT value		
systemInformation	Not present		
}			
}			
}			
}			
}			
}			

Table 13.4.3.16.3.3-6: HANDOVER TO UTRAN COMMAND (step 28, Table 13.4.3.16.3.3-5)

Derivation Path: 36.508, Table 4.7B.1-1, condition UTRA PS RB + Speech

Table 13.4.3.16.3.3-7: UECapabilityEnquiry (step 29, Table 13.4.3.16.3.2-2)

Derivation path: 36.508 clause 4.6.1 table 4.6.1-22			
Information Element	**Value/Remark**	**Comment**	**Condition**
UECapabilityEnquiry ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
ueCapabilityEnquiry-r8 SEQUENCE {			
ue-CapabilityRequest SEQUENCE (SIZE (1..maxRAT-Capabilities)) OF SEQUENCE {	2 entry		
RAT-Type[1]	eutra		
RAT-Type[2]	utra		
}			
}			
}			
}			
}			

Table 13.4.3.16.3.3-8: SECURITY MODE COMMAND (step 34, Table 13.4.3.16.3.2-2)

Derivation Path: 36.508, Table 4.7B.1-n		
Information Element	**Condition**	**Value/remark**
Ciphering mode info		Not Present

13.4.3.17 Inter-system mobility / E-UTRA PS voice + PS data to UTRA CS voice + PS data / aSRVCC / MT call / SRVCC HO cancelled

13.4.3.17.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_CONNECTED state and an MT IMS PS voice + PS data call is in alerting state
with a SRVCC procedure started over an UTRA cell for which UTRA PS RB + Speech combination is
configured }
ensure that {
  when { the source E-UTRAN decides to terminate the handover procedure before its completion
indicating this to the UE with a NOTIFICATION message }
    then { UE starts a recovery procedure, transmits a SIP UPDATE message and successfully completes
the MT call on the E-UTRA }
            }
```

13.4.3.17.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 23.216, clause 6.2.2.2 and clause 8.1.3, TS 24.301, clause 6.6.2.2, TS 24.237 clauses 12.1, 12.2.3B.1, clause 12.2.4.2.

[TS 23.216, clause 6.2.2.2]

Depicted in figure 6.2.2.2-1 is a call flow for SRVCC from E-UTRAN to UTRAN or GERAN with DTM HO support, including the handling of the non-voice component. The flow requires that eNB can determine that either the target is UTRAN with PS HO or the target is GERAN with DTM support and the UE is supporting DTM.

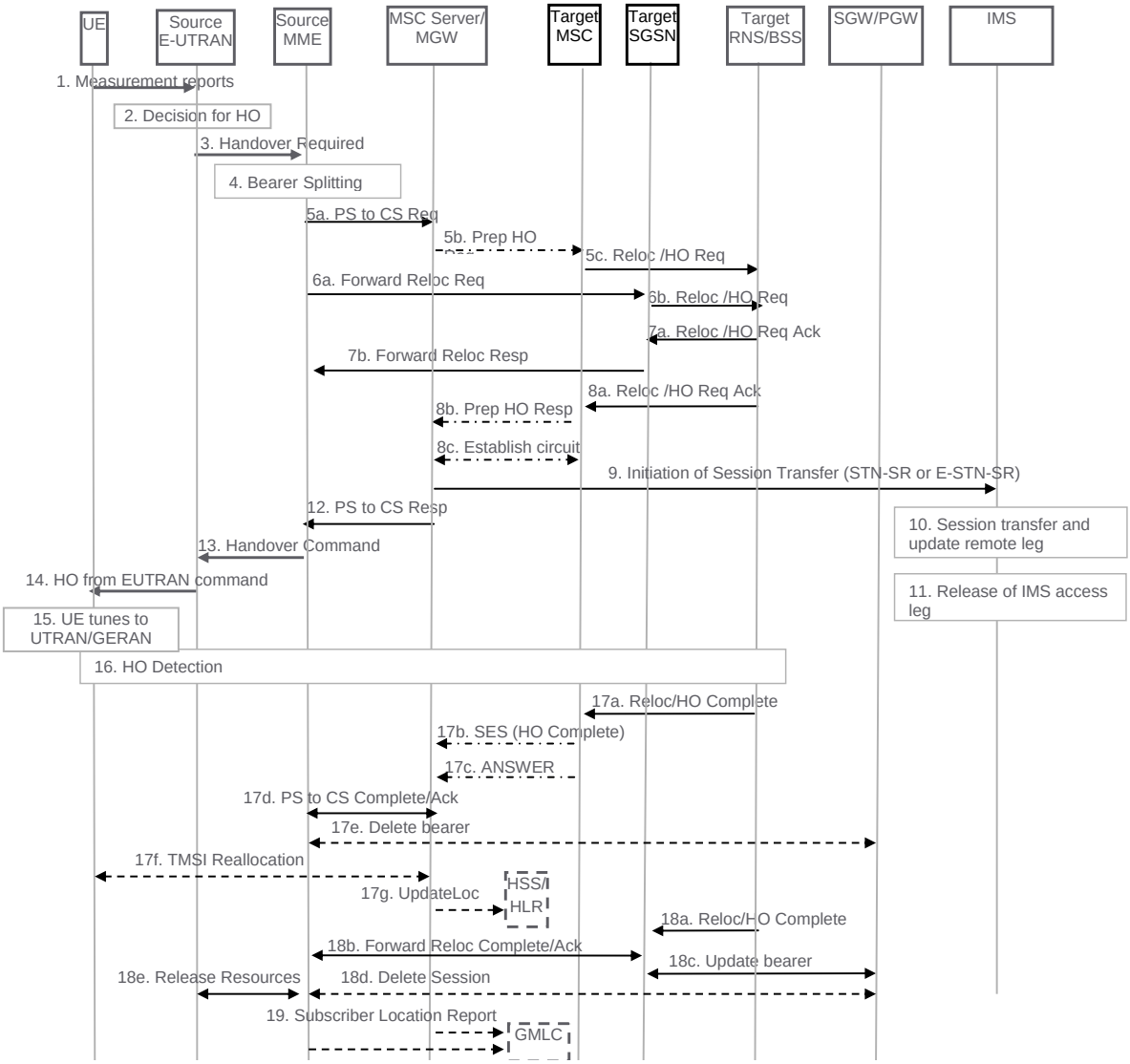

Figure 6.2.2.2-1: SRVCC from E-UTRAN to UTRAN with PS HO or GERAN with DTM HO support

1. UE sends measurement reports to E-UTRAN.
2. Based on UE measurement reports the source E-UTRAN decides to trigger an SRVCC handover to UTRAN/GERAN.

[TS 23.216, clause 8.1.3]

If the source E-UTRAN/UTRAN decides to terminate the handover procedure before its completion, the MME/SGSN shall return to its state before the handover procedure was triggered. The MME/SGSN attempts to trigger, at the MSC Server enhanced for SRVCC, handover cancellation procedures according to TS 23.009 [18]. The MSC Server enhanced for SRVCC shall take no SRVCC-specific action towards IMS.

The MME/SGSN shall also send a session reestablishment trigger notification to UE to start the recovery procedure if it receives notification from the MSC Server that the Session Transfer procedure is in progress. Figure 8.1.3-1 shows the overall procedure for SRVCC handover cancellation.

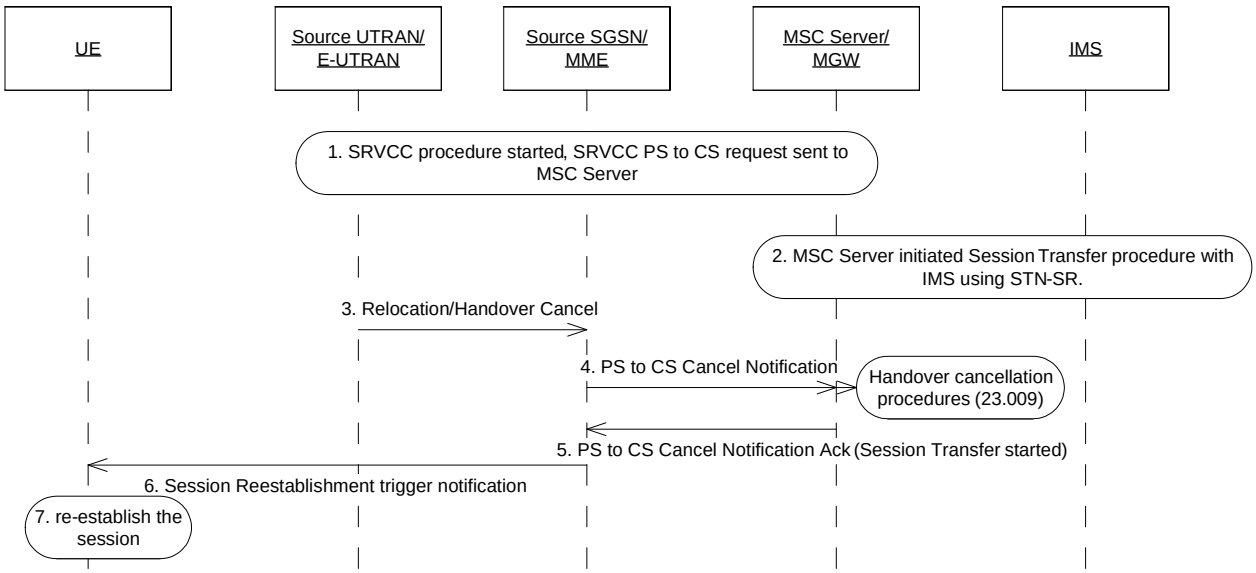

Figure 8.1.3-1: SRVCC Handover Cancellation Procedure

6. Due to the Session Transfer procedure in progress indication, the source SGSN/MME sends a Session Reestablishment trigger notification to UE to start the session re-establishment procedure

7. UE starts the re-establishment procedure, by attempting to return to E-UTRAN/UTRAN by sending a re-INVITE towards IMS for the related session. If the session is no longer active, then this session transfer request shall be rejected by the IMS.

[TS 24.301, clause 6.6.2.2]

The network initiates the notification procedure by sending a NOTIFICATION message to the UE (see example in figure 6.6.2.2.1).

Figure 6.6.2.2.1: Notification procedure

[TS 24.237, clause 12.1]

In order to fulfil the requirements for PS-CS access transfer in SR-VCC for calls in alerting state, the SC UE needs to be engaged in a session with speech media component in early dialog state according to the following conditions before SR-VCC access transfer is performed:

- a SIP 180 (Ringing) response for the initial SIP INVITE request to establish this session has been sent or received; and

- a SIP final response for the initial SIP INVITE request to establish this session has not been sent or received.

[TS 24.237, clause 12.2.3B.1]

The SC UE shall apply the procedures in subclauses 12.2.3B.3 for access transfer for calls in alerting state if:

1) the SC UE supports single radio PS to CS access transfer for calls in alerting state; and

2) there are one or more early dialogs created by the same SIP INVITE request with at least one dialog that is an early dialog supporting a session with active speech media component where the SC UE:

   - has sent a Contact header field in a SIP INVITE request or 180 (Ringing) response containing the g.3gpp.srvcc-alerting media feature tag (as described in annex C); and

   - has received a Feature-Caps header field in a SIP INVITE request or 180 (Ringing) response containing the g.3gpp.srvcc-alerting feature capability indicator (as described in annex C).

[TS 24.237, clause 12.2.4.2]

If the SC UE is engaged in a session in early dialog state and:

- receives a SM NOTIFICATION message containing an "SRVCC handover cancelled, IMS session re-establishment required" as described in 3GPP TS 24.008 [8] or 3GPP TS 24.301 [52] depending on the access in use; or

...

then if the SC UE the SC UE shall send a SIP UPDATE request containing:

1) an SDP offer, including the media characteristics as used in the existing dialog; and

2) a Reason header field containing protocol "SIP" and reason parameter "cause" with value "487" as specified in IETF RFC 3326 [57], and with reason-text set to either "handover cancelled" or "failure to transition to CS domain";

by following the rules of 3GPP TS 24.229 [2] in each transferred session.

13.4.3.17.3 Test description

13.4.3.17.3.1 Pre-test conditions

System Simulator:

- Cell 1 and Cell 5.

- System information combination 4 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cells.

UE:

None.

Preamble:

- The UE is in state Registered, Idle mode (state 2) on Cell 1 according to [18].

13.4.3.17.3.2 Test procedure sequence

Table 13.4.3.17.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while columns marked "T1" is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 13.4.3.17.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 5	Remark
T0	Cell-specific RS EPRE	dBm/15kHz	-60	-	The power level values are such that entering conditions for event B2 are not satisfied.
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-88	
	PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-88	
T1	Cell-specific RS EPRE	dBm/15kHz	-84	-	The power level values are such that entering conditions for event B2 are satisfied.
	CPICH_Ec (UTRA FDD)	dBm/3.84 MHz	-	-64	
	PCCPCH_Ec (UTRA LCR TDD)	dBm/1.28 MHz	-	-64	

Table 13.4.3.17.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS configures UTRA cell 5 to reference configuration according 36.508 [18] table 4.8.3-1, condition UTRA PS RB + Speech .	-	-	-	-
-	The following messages are sent and shall be observed on Cell 1 unless explicitly stated otherwise.	-	-	-	-
2-16	Steps 1 to 15 of the generic test procedure for IMS MT speech call (TS 36.508 [18] 4.5A.7.3-1).	-	-	-	-
-	EXCEPTION: In parallel to the events described in steps 17 to 18 the steps specified in Table 13.4.3.17.3.2-3 should take place.	-	-	-	-
17	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1 to setup inter RAT measurement and reporting for event B2.	<--	*RRCConnectionReconfiguration*	-	-
18	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1.	-->	*RRCConnectionReconfigurationComplete*	-	-
19	The SS changes the power level for Cell 1 and Cell 5 according to the row "T1" in table 13.4.3.17.3.2-1	-	-	-	-
20	The UE transmits a *MeasurementReport* message to report event B2 for Cell 5.	-->	*MeasurementReport*	-	-
21	The SS transmits a NOTIFICATION message.	<--	NOTIFICATION	-	-
22	Check: Does the UE start the procedure for SIP UPDATE after aSRVCC handover is cancelled? Note: Step 1 of the Generic test procedure for SIP UPDATE after aSRVCC handover failure/cancelled defined in annex C.28 of TS 34.229-1 [35] is performed (UE sends UPDATE).	-	-	1	P
23	SS sends 200 OK message Note: Step 2 of the Generic test procedure for SIP UPDATE after aSRVCC handover failure/cancelled defined in annex C.28 of TS 34.229-1 [35].	-	-	-	-
24	Make UE accept the speech AMR offer Step 12A of the expected sequence defined in annex C.11 of TS 34.229-1 [35].				
25	Check: Does the UE send 200 OK message? Note: Steps 12 of the expected sequence defined in annex C.11 of TS 34.229-1 [35].	-	-	1	P
26	SS Sends ACK message. Note: Step 13 of the expected sequence defined in annex C.11 of TS 34.229-1 [35].	-	-	-	-

Table 13.4.3.17.3.2-3: Parallel behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1-7	Steps 5-11 expected sequence defined in annex C.11 of TS 34.229-1 [35]. MTSI MT speech. NOTE: IMS MT speech call establishment gets to alerting phase.	-	-	-	-

13.4.3.17.3.3 Specific message contents

Table 13.4.3.17.3.3-1: ATTACH REQUEST (preamble)

Derivation path: 36.508 [18], Table 4.7.2-4			
Information Element	**Value/remark**	**Comment**	**Condition**
MS network capability	SRVCC from UTRAN HSPA or E-UTRAN to GERAN/UTRAN supported		
Mobile station classmark 2	Any allowed value		
Supported Codecs	Any allowed value		
Old GUTI type	Any allowed value		

Table 13.4.3.17.3.3-2: *RRCConnectionReconfiguration* (step 17, Table 13.4.3.17.3.2-2)

Derivation Path: 36.508 [18], Table 4.6.1-8, condition MEAS

Table 13.4.3.17.3.3-3: *MeasConfig* (Table 13.4.3.17.3.3-2)

Derivation Path: 36.508 [18], Table 4.6.6-1, condition UTRAN			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig ::= SEQUENCE {			
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entries		
measObjectId[1]	IdMeasObject-f1		
measObject[1]	MeasObjectEUTRA-GENERIC(f1)		
measObjectId[2]	IdMeasObject-f8		
measObject[2]	MeasObjectUTRA-f8		
}			
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	1 entry		
reportConfigId[1]	IdReportConfig-B2-UTRA		
reportConfig[1]	ReportConfigInterRAT-B2-UTRA (-72, -76)		
}			
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	1 entry		
measId[1]	1		
measObjectId[1]	IdMeasObject-f8		
reportConfigId[1]	IdReportConfig-B2-UTRA		
}			
}			

Table 13.4.3.17.3.3-4: MeasObjectUTRA-f8 (Table 13.4.3.17.3.3-3)

Derivation Path: 36.508 [18], Table 4.6.6-3			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasObjectUTRA ::= SEQUENCE {			
carrierFreq	Same downlink ARFCN as used for Cell 5		
cellsToAddModList CHOICE {			
cellsToAddModListUTRA-FDD SEQUENCE (SIZE (1..maxCellMeas)) OF SEQUENCE {	1 entry		UTRA-FDD
cellIndex[1]	1		
physCellId[1]	PhysicalCellIdentity of Cell 5		
}			
cellsToAddModListUTRA-TDD SEQUENCE (SIZE (1..maxCellMeas)) OF SEQUENCE {			UTRA-TDD
cellIndex[1]	1		
physCellId[1]	PhysicalCellIdentity of Cell 5		
}			
}			
csg-allowedReportingCells-v930	Not present		
}			

Condition	Explanation
UTRA-FDD	UTRA FDD cell environment
UTRA-TDD	UTRA TDD cell environment

Table 13.4.3.17.3.3-5: *MeasurementReport* (step 20, Table 13.4.3.17.3.2-2)

Derivation Path: 36.508 [18], Table 4.6.1-5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
measurementReport-r8 SEQUENCE {			
measResults SEQUENCE {			
measId	1		
measResultPCell SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListUTRA SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {	1 entry		
physCellId[1] CHOICE {			
fdd	PhysicalCellIdentity of Cell 5		UTRA-FDD
tdd	PhysicalCellIdentity of Cell 5		UTRA-TDD
}			
cgi-Info[1]	Not present		
measResult[1] SEQUENCE {			
utra-RSCP	(-5..91)		
utra-EcN0	Not present		
additionalSI-Info-r9	Not present		
}			
}			
}			
measResultForECID-r9	Not present		
locationInfo-r10	Not present		
measResultServFreqList-r10	Not present		
}			
}			
}			
}			
}			

Condition	Explanation
UTRA-FDD	UTRA FDD cell environment
UTRA-TDD	UTRA TDD cell environment

Table 13.4.3.17.3.3-6: NOTIFICATION (step 21, Table 13.4.3.17.3.2-2)

Derivation Path: 36.508 [18], table 4.7.3-18A, condition SRVCC-HO-CANCELLED

13.4.4 Inter-system session management

13.4.4.1 Pre-registration at 1xRTT and Cell reselection / 1x Zone Registration

13.4.4.1.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_IDLE state having completed the 1xRTT CS pre-registration procedure and
having detecting the cell ranked as the best cell}
  then {selecting the new cell }
ensure that {
  when { SIB 8 includes a 1x registration zone ID that is different from the source cell }
    then { UE transmits an ULInformationTransfer message containing a tunnelled 1xRTT GCSNA
Encapsulated Registration message}
            }
```

13.4.4.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 23.272, clause B.2.1.1

[TS 23.272, clause B.2.1.1]

This clause describes how the UE in an E-UTRAN system establishes and maintains pre-registration in the 1xCS system.

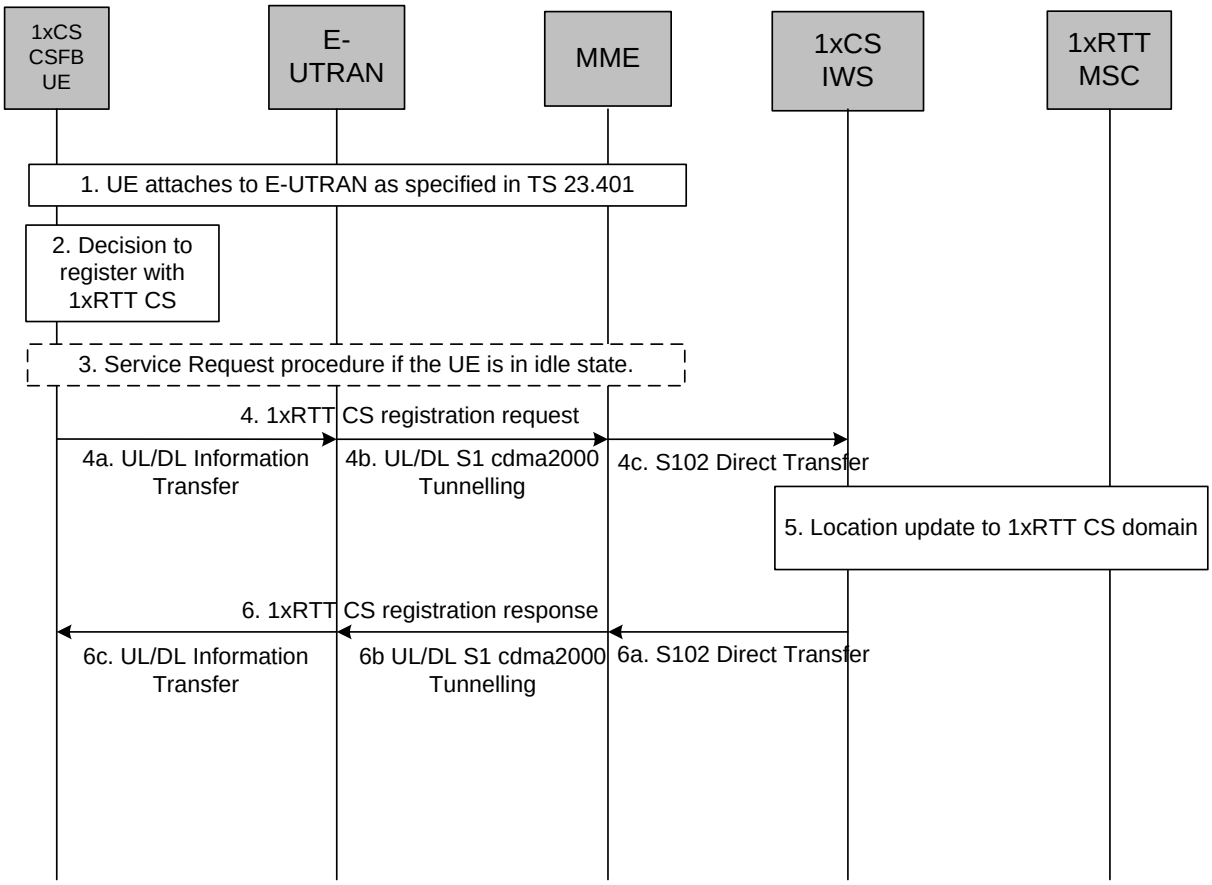

Figure B.2.1.1-1: 1xRTT CS registration procedure

1. The UE attaches to E-UTRAN as specified in TS 23.401 [2]. The UE includes an indication of enhanced CS fallback to 1xRTT and may also include concurrent 1xRTT and HRPD PS session handling capabilities as part of the UE radio capabilities.

2. Based on a radio layer trigger (e.g. an indication from the E-UTRAN when the UE is in connected state or an indication over the broadcast channel), the UE decides to register with the 1xRTT CS domain.

3. If the UE is in idle state, in order to create a signalling connection with the MME, it performs the Service Request procedure.

4. The UE generates a 1xRTT CS registration request.

4a. The 1xRTT CS message is transferred from the UE to E-UTRAN.

4b. E-UTRAN forwards the 1xRTT CS message to the MME including the CDMA2000 Reference Cell ID.

4c. The MME selects a 1xCS IWS node based on the CDMA2000 Reference Cell ID. The IMSI is used to distinguish S102 signalling transactions belonging to different UEs. The MME sends a S102 Direct Transfer message (IMSI, 1xCS message) to the 1xCS IWS node.

5. 1xRTT CS registration is then performed by the 1xCS IWS node based on 3GPP2 A.S0008-C v4.0 [16].

6a. 1xRTT CS registration response is tunnelled back to the MME in a S102 Direct Transfer message (IMSI, 1xCS message).

6b. The MME forwards the 1xRTT CS message to the E-UTRAN.

6c. The E-UTRAN forwards the 1xRTT CS message to the UE.

If the triggers for 1xCS registration change over time, the UE (both in idle or connected state), uses this information to update the 1xCS registration via the tunnel.

13.4.4.1.3 Test description

13.4.4.1.3.1 Pre-test conditions

System Simulator:

- Cell 1 and Cell 2.
- System information combination 6 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cells.
- Cell 1 and Cell2 have the different Registration Zone ID in SIB8.

UE:

None.

Preamble:

- The UE is in state Registered, Idle mode pre-registered on 1xRTT (state 2C) on Cell 1 according to [18].

13.4.4.1.3.2 Test procedure sequence

Table 13.4.4.1.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution.

Table 13.4.4.1.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 2	Remark
T1	Cell-specific RS EPRE	dBm/15kHz	-85	-79	The power level values are assigned to satisfy $R_{Cell\ 1} < R_{Cell\ 2}$.

Table 13.4.4.1.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS changes Cell 2 level according to the row "T1" in table 13.4.4.1.3.2-1.	-	-	-	-
2	The UE is camped on E-UTRAN Cell 2.	-	-	-	-
3-9	Steps 3 to 9 of the generic radio bearer establishment procedure (TS 36.508 4.5.3.3-1) are executed to successfully complete the service request procedure.				
9A-9B	Steps 16A and 16B of generic procedure (TS 36.508 4.5.2C.3-2) are executed	-	-	-	-
10	Check: Does the UE transmit an *ULInformationTransfer* containing a tunnelled *1xRTT GCSNA encapsulated Registration* message on Cell 2.	-->	*ULInformationTransfer*	1	P
11-12	Steps 17A to 18 of the UE Registration, pre-registration on 1xRTT (TS 36.508 4.5.2C.3-2) on Cell 2.				

Table 13.4.4.1.3.2-3: Void

13.4.4.1.3.3 Specific message contents

Table 13.4.4.1.3.3-1: *SystemInformationBlockType8* for cell 2 (Step 2, Table 13.4.4.1.3.2-2)

Derivation Path: 36.508 Table 4.4.3.3-7, condition 1XRTT			
Information Element	**Value/remark**	**Comment**	**Condition**
SystemInformationBlockType8 ::= SEQUENCE {			
parameters1XRTT SEQUENCE {			
csfb-RegistrationParam1XRTT SEQUENCE {			
Sid	Same as cell 1	BIT STRING (SIZE (15))	
Nid	Same as cell 1	BIT STRING (SIZE (16))	
multipleSID	TRUE	BOOLEAN	
multipleNID	TRUE	BOOLEAN	
homeReg	TRUE	BOOLEAN	
foreignSIDReg	TRUE	BOOLEAN	
foreignNIDReg	TRUE	BOOLEAN	
parameterReg	TRUE	BOOLEAN	
powerUpReg	TRUE	BOOLEAN	
registrationPeriod	TRUE	BIT STRING (SIZE (7))	
registrationZone	A valid value different from cell 1	BIT STRING (SIZE (12))	
totalZone	'001'B	BIT STRING (SIZE (3))	
zoneTimer	'000'B or '001'B	BIT STRING (SIZE (3))	
}			
longCodeState1XRTT	A valid value, calculated and updated by the SS	BIT STRING (SIZE (42)) OPTIONAL	
cellReselectionParameters1XRTT SEQUENCE {			
bandClassList SEQUENCE (SIZE (1..maxCDMA-BandClass)) OF SEQUENCE {	1 entry		
bandClass	Band class of Cell 19	ENUMERATED {bc0, bc1, bc2, bc3, bc4, bc5, bc6, bc7, bc8, bc9, bc10, bc11, bc12, bc13, bc14, bc15, bc16, bc17, spare14, spare13, spare12, spare11, spare10, spare9, spare8, spare7, spare6, spare5, spare4, spare3, spare2, spare1, ...}	
cellReselectionPriority	3		
threshX-High	30(-30)	INTEGER (0..63)	
threshX-Low	32(-32)	INTEGER (0..63)	
}			
}			
csfb-RegistrationParam1XRTT-v920{			
powerDownReg-r9	TRUE		
}			
}			
}			

Table 13.4.4.1.3.3-2: *mobilityParameters* (Step 2, Table 13.4.4.1.3.2-3)

Information Element	Value/remark	Comment	Condition
RecordType	'00000000'B		
SIDIncluded	'1'B		
SID	The same as SIB8 on cell 2		
NIDIncluded	'1'B		
NID	The same as SIB8 on cell 2		
REG_ZONEIncluded	'1'B		
REG_ZONE	The same as SIB8 on cell 2		
TOTAL_ZONESIncluded	'1'B		
TOTAL_ZONES	The same as SIB8 on cell 2		
ZONE_TIMERIncluded	'1'B		
ZONE_TIMER	The same as SIB8 on cell 2		
PACKET_ZONE_IDIncluded	'0'B		
PACKET_ZONE_ID	Not present		
PZIDHystParametersIncluded	'0'B		
PZ_HYST_ENABLED	Not present		
PZ_HYST_INFO_INCL	Not present		
PZ_HYST_LIST_LEN	Not present		
PZ_HYST_ACT_TIMER	Not present		
PZ_HYST_TIMER_MUL	Not present		
PZ_HYST_TIMER_EXP	Not present		
P_REVIncluded	'1'B		
P_REV	'00000110'B		
MIN_P_REVIncluded	'1'B		
MIN_P_REV	'00000110'B		
'0'B NEG_SLOT_CYCLE_INDEX_SUPIncluded			
NEG_SLOT_CYCLE_INDEX_SUP	Not present		
ENCRYPT_MODEIncluded	'0'B		
ENCRYPT_MODE	Not present		
ENC_SUPPORTEDIncluded	'0'B		
ENC_SUPPORTED	Not present		
SIG_ENCRYPT_SUPIncluded	'0'B		
SIG_ENCRYPT_SUP	Not present		
MSG_INTEGRITY_SUPIncluded	'0'B		
MSG_INTEGRITY_SUP	Not present		
SIG_INTEGRITY_SUP_INCLIncluded	'0'B		
SIG_INTEGRITY_SUP_INCL	Not present		
SIG_INTEGRITY_SUPIncluded	'0'B		
SIG_INTEGRITY_SUP	Not present		
AUTHIncluded	'1'B		
AUTH	'00'B		
MAX_NUM_ALT_SOIncluded	'1'B		
MAX_NUM_ALT_SO	'000'B		
USE_SYNC_IDIncluded	'0'B		
USE_SYNC_ID	Not present		
MS_INIT_POS_LOC_SUP_INDIncluded	'0'B		
MS_INIT_POS_LOC_SUP_IND	Not present		
MOB_QOSIncluded	'0'B		
MOB_QOS	Not present		
BAND_CLASS_INFO_REQIncluded	'0'B		
BAND_CLASS_INFO_REQ	Not present		
BAND_CLASSIncluded	'1'B		
BAND_CLASS	'00000'B		
BYPASS_REG_INDIncluded	'0'B		
BYPASS_REG_IND	Not present		
'0'B ALT_BAND_CLASSIncluded			
ALT_BAND_CLASS	Not present		
MAX_ADD_SERV_INSTANCEIncluded	'0'B		
MAX_ADD_SERV_INSTANCE	Not present		

HOME_REGIncluded	‘1’B		
HOME_REG	The same as SIB8 on cell 2		
FOR_SID_REGIncluded	‘1’B		
FOR_SID_REG	The same as SIB8 on cell 2		
FOR_NID_REGIncluded	‘1’B		
FOR_NID_REG	The same as SIB8 on cell 2		
POWER_UP_REGIncluded	‘1’B		
POWER_UP_REG	The same as SIB8 on cell 2		
POWER_DOWN_REGIncluded	‘1’B		
POWER_DOWN_REG	The same as SIB8 on cell 2		
PARAMETER_REGIncluded	‘1’B		
PARAMETER_REG	The same as SIB8 on cell 2		
REG_PRDIncluded	‘1’B		
REG_PRD	The same as SIB8 on cell 2		
REG_DISTIncluded	‘0’B		
REG_DIST	Not present		
PREF_MSID_TYPEIncluded	‘1’B		
PREF_MSID_TYPE	’11’B		
EXT_PREF_MSID_TYPEIncluded	‘0’B		
EXT_PREF_MSID_TYPE	Not present		
MEID_REQDIncluded	‘0’B		
MEID_REQD	Not present		
MCCIncluded	‘1’B		
MCC	See the Table 4.4.2-4 Note 1, Note 2 in [18]		
IMSI_11_12Included	‘1’B		
IMSI_11_12	See the Table 4.4.2-4 Note 1, Note 2 in [18]		
IMSI_T_SUPPORTEDIncluded	‘1’B		
IMSI_T_SUPPORTED	’0’B		
RECONNECT_MSG_INDIncluded	‘0’B		
RECONNECT_MSG_IND	Not present		
RER_MODE_SUPPORTEDIncluded	‘0’B		
RER_MODE_SUPPORTED	Not present		
TKZ_MODE_SUPPORTEDIncluded	‘0’B		
TKZ_MODE_SUPPORTED	Not present		
TKZ_IDIncluded	‘0’B		
TKZ_ID	Not present		
PILOT_REPORTIncluded PILOT_REPORT	‘0’B		
PILOT_REPORT	Not present		
SDB_SUPPORTEDIncluded	‘0’B		
SDB_SUPPORTED	Not present		
AUTO_FCSO_ALLOWEDIncluded	‘0’B		
AUTO_FCSO_ALLOWED	Not present		
SDB_IN_RCNM_INDIncluded	‘0’B		
SDB_IN_RCNM_IND	Not present		
FPC_FCH_Included	‘1’B		
FPC_FCH_INIT_SETPT_RC3	’00011000’B		
FPC_FCH_INIT_SETPT_RC4	’00011000’B		
FPC_FCH_INIT_SETPT_RC5	’00011000’B		
FPC_FCH_INIT_SETPT_RC11	’00000000’B		
FPC_FCH_INIT_SETPT_RC12	’00000000’B		
T_ADD_Included	‘0’B		
T_ADD	Not present		
PILOT_INC_Included	‘1’B		
PILOT_INC	’0010’B		
RAND_Included	‘0’B		
RAND	Not present		
LP_SEC_Included	‘1’B		

LP_SEC	'00000000'B		
LTM_OFF_Included	'1'B		
LTM_OFF	'000000'B		
DAYLT_Included	'1'B		
DAYLT	'0'B		
GCSNAL2AckTimer_Included	'1'B		
GCSNAL2AckTimer	'00000001'B		
GCSNASequenceContextTimer_Included	'1'B		
GCSNASequenceContextTimer	'00000101'B		

Table 13.4.4.1.3.3-3: *ULInformationTransfer* (Step 3, Table 13.4.4.1.3.2-2)

Derivation Path: 36.508 Table 4.6.1-25			
Information Element	**Value/remark**	**Comment**	**Condition**
ULInformationTransfer ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
ulInformationTransfer-r8 SEQUENCE {			
dedicatedInformationType CHOICE {			
dedicatedInfoCDMA2000-1XRTT	Set according to Table 13.4.4.1.3.3-4		
}			
}			
}			
}			
}			

Table 13.4.4.1.3.3-4: 1xRTT GCSNA Encapsulated Registration message (Step 10, Table 13.4.4.1.3.2-2)

Information Element			
MessageID	**'00000001'B**	**GCSNA1xCircuit Service message**	
GCSNAOption	'00000001'B		
AlternativeGCSNAOption_INCL	'0'B		
IWSIDIncl	'0'B		
AckRequired	'1'B		
StopDupDetect	'0'B		
MessageSequence	Set by UE		
NumTLACEncapsulated1xL3PDU	'00'B		
Reserved	'0000'B		
1xLogicalChannel	'0'B		
1xProtocolRevision	'00000110'B		
MsgType	'00000001'B	Registration message	this value shall be verified by TTCN
NumTLACHeaderRecords	'0001'B		
TLACHeaderRecordType	'0000'B		
TLACHeaderRecordLength	8 bits, Set by UE		
MSID_TYPE	'011'B		
MSID_LEN	4 bits, Set by UE		
MSID	Variable, Set by UE		
Reserved	'0000000'B		
1xL3PDULength	16 bits, Set by UE		
REG_TYPE	'0010'B	Zone-based Registration	this value shall be verified by TTCN
SLOT_CYCLE_INDEX	'010'B		
MOB_P_REV	8 bits, Set by UE		
SCM	8 bits, Set by UE		
MOB_TERM	'1'B		
RETURN_CAUSE	'1'B		
QPCH_SUPPORTED	'1'B		
ENHANCED_RC	'1'B		
UZID_INCL	'0'B		

13.4.4.2 Pre-registration at 1xRTT and Cell reselection / 1x Ordered Registration

13.4.4.2.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_IDLE state having completed the 1xRTT CS pre-registration and having
detecting the cell ranked as the best cell}
  then {selecting the new cell }
ensure that {
  when { UE receives an DLInformationTranfer message containing a tunnelled 1xRTT GCSNA Encapsulated
Registration Request Order }
    then { UE transmits an ULInformationTranfer message containing a tunnelled 1xRTT GCSNA
Encapsulated Registration message}
            }
```

13.4.4.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 23.272, clause B.2.1.1.

[TS 23.272, clause B.2.1.1]

This clause describes how the UE in an E-UTRAN system establishes and maintains pre-registration in the 1xCS system.

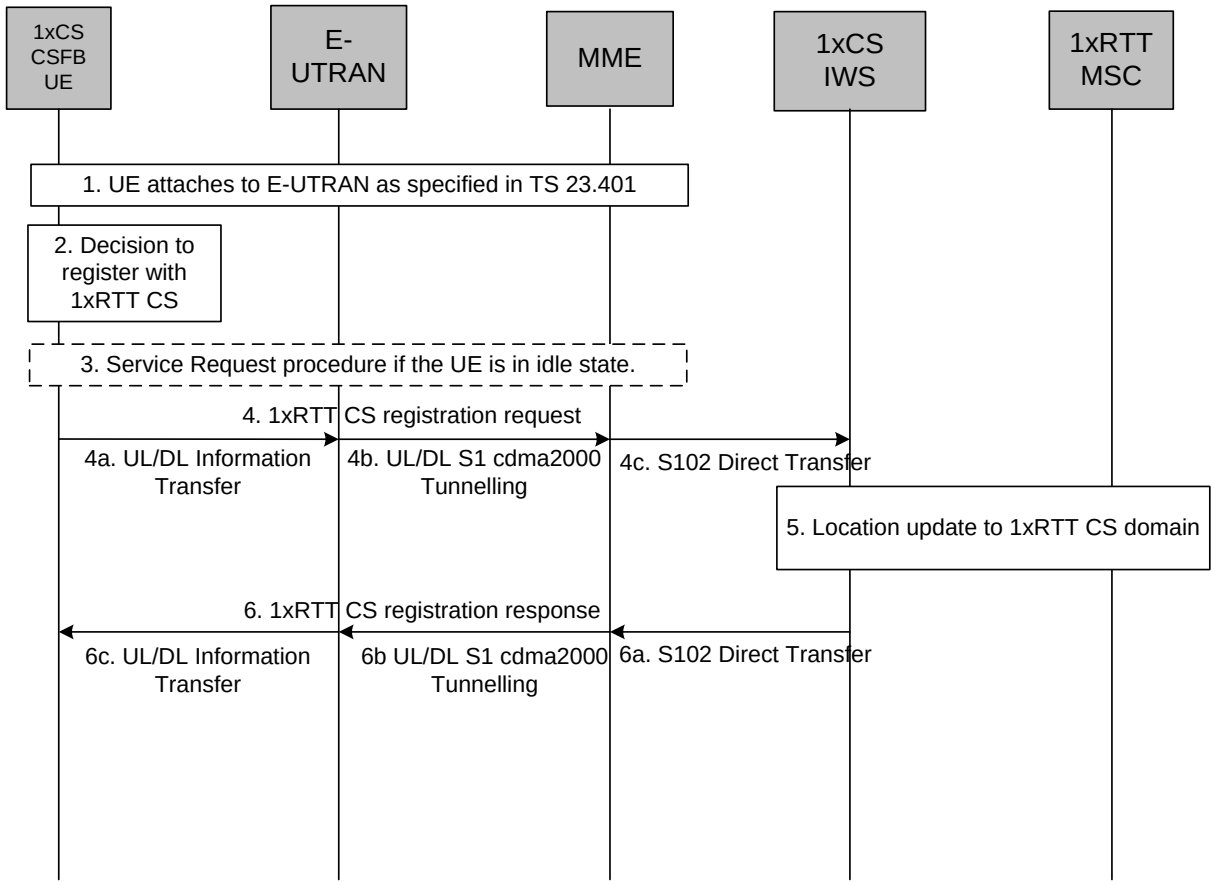

Figure B.2.1.1-1: 1xRTT CS registration procedure

1. The UE attaches to E-UTRAN as specified in TS 23.401 [2]. The UE includes an indication of enhanced CS fallback to 1xRTT and may also include concurrent 1xRTT and HRPD PS session handling capabilities as part of the UE radio capabilities.

2. Based on a radio layer trigger (e.g. an indication from the E-UTRAN when the UE is in connected state or an indication over the broadcast channel), the UE decides to register with the 1xRTT CS domain.

3. If the UE is in idle state, in order to create a signalling connection with the MME, it performs the Service Request procedure.

4. The UE generates a 1xRTT CS registration request.

4a. The 1xRTT CS message is transferred from the UE to E-UTRAN.

4b. E-UTRAN forwards the 1xRTT CS message to the MME including the CDMA2000 Reference Cell ID.

4c. The MME selects a 1xCS IWS node based on the CDMA2000 Reference Cell ID. The IMSI is used to distinguish S102 signalling transactions belonging to different UEs. The MME sends a S102 Direct Transfer message (IMSI, 1xCS message) to the 1xCS IWS node.

5. 1xRTT CS registration is then performed by the 1xCS IWS node based on 3GPP2 A.S0008-C v4.0 [16].

6a. 1xRTT CS registration response is tunnelled back to the MME in a S102 Direct Transfer message (IMSI, 1xCS message).

6b. The MME forwards the 1xRTT CS message to the E-UTRAN.

6c. The E-UTRAN forwards the 1xRTT CS message to the UE.

If the triggers for 1xCS registration change over time, the UE (both in idle or connected state), uses this information to update the 1xCS registration via the tunnel.

13.4.4.2.3 Test description

13.4.4.2.3.1 Pre-test conditions

System Simulator:

- Cell 1 and Cell 2.
- System information combination 6 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cells.
- Cell 1 and Cell2 have the same SIB8 configuration.

UE:

None.

Preamble:

- The UE is in state Registered, Idle mode pre-registered on 1xRTT (state 2C) on Cell 1 according to [18].

13.4.4.2.3.2 Test procedure sequence

Table 13.4.4.2.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution.

Table 13.4.4.2.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 2	Remark
T1	Cell-specific RS EPRE	dBm/15kHz	-85	-79	The power level values are assigned to satisfy $R_{Cell\ 1} < R_{Cell\ 2.}$

Table 13.4.4.2.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U – S	Message		
1	The SS changes Cell 2 level according to the row “T1” in table 13.4.4.2.3.2-1.	-	-	-	-
2	The UE is camped on E-UTRAN Cell 2.	-	-	-	-
3-10	Steps 2 to 9 of the generic radio bearer establishment procedure (TS 36.508 4.5.3.3-1) are executed to successfully complete the service request procedure.				
10A-10B	Steps 16A and 16B of generic procedure (TS 36.508 4.5.2C.3-2) are executed	-	-	-	-
11	The SS transmits an *DLInformationTransfer* containing a tunnelled *1xRTT GCSNA encapsulated Registration Request order* on Cell 2.	<--	*DLInformationTransfer*		
12	Check: Does the UE transmit an *ULInformationTransfer* containing a tunnelled *1xRTT GCSNA encapsulated Registration* message on Cell 2.	-->	*ULInformationTransfer*	1	P
13-15	Steps 17A to 19 of the UE Registration, pre-registration on 1xRTT (TS 36.508 4.5.2C.3-2) on Cell 2.				

Table 13.4.4.2.3.2-3: Void

13.4.4.2.3.3 Specific message contents

Table 13.4.4.2.3.3-1: *DLInformationTransfer* (step 11, Table 13.4.4.2.3.2-2)

Derivation Path: 36.508 Table 4.6.1-3			
Information Element	**Value/remark**	**Comment**	**Condition**
DLInformationTransfer ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
dlInformationTransfer-r8 SEQUENCE {			
dedicatedInfoType CHOICE {			
dedicatedInfoCDMA2000-1XRTT	Set according to Table 13.4.4.2.3.3-2		
}			
}			
}			
}			
}			

Table 13.4.4.2.3.3-2: *1xRTT GCSNA Encapsulated Registration Request Order* (Step 11, Table 13.4.4.2.3.2-2)

Information Element			
MessageID	'00000001'B		
GCSNAOption	'00000001'B		
AlternativeGCSNAOption_INCL	'0'B		
IWSIDIncl	'0'B		
AckRequired	'0'B		
StopDupDetect	'0'B		
MessageSequence	6 bits, Set by SS		
NumTLACEncapsulated1xL3PDU	'00'B		
Reserved	'0000'B		
1xLogicalChannel	'0'B		
1xProtocolRevision	'00000110'B		
MsgType	'00000111'B	Order message	
NumTLACHeaderRecords	'0000'B		
Reserved	'000'B		
1xL3PDULength	16 bits, Set by SS		
ORDER	'011011'B		
ADD_RECORD_LEN	'001'B		
ORDQ	'00000001'B	Registration Request Order	

Table 13.4.4.2.3.3-3: *ULInformationTransfer* (Step 12, Table 13.4.4.2.3.2-2)

Derivation Path: 36.508 Table 4.6.1-25			
Information Element	**Value/remark**	**Comment**	**Condition**
ULInformationTransfer ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
ulInformationTransfer-r8 SEQUENCE {			
dedicatedInformationType CHOICE {			
dedicatedInfoCDMA2000-1XRTT	Set according to Table 13.4.4.2.3.3-4		
}			
}			
}			
}			
}			

Table 13.4.4.2.3.3-4: 1xRTT GCSNA Encapsulated Registration message (Step 12, Table 13.4.4.2.3.2-2)

Information Element			
MessageID	**'00000001'B**	**GCSNA1xCircuit Service message**	
GCSNAOption	'00000001'B		
AlternativeGCSNAOption_INCL	'0'B		
IWSIDIncl	'0'B		
AckRequired	'1'B		
StopDupDetect	'0'B		
MessageSequence	Set by UE		
NumTLACEncapsulated1xL3PDU	'00'B		
Reserved	'0000'B		
1xLogicalChannel	'0'B		
1xProtocolRevision	'00000110'B		
MsgType	'00000001'B	Registration message	this value shall be verified by TTCN
NumTLACHeaderRecords	'0001'B		
TLACHeaderRecordType	'0000'B		
TLACHeaderRecordLength	8 bits, Set by UE		
MSID_TYPE	'011'B		
MSID_LEN	4 bits, Set by UE		
MSID	Variable, Set by UE		
Reserved	'0000000'B		
1xL3PDULength	16 bits, Set by UE		
REG_TYPE	'0101'B	Ordered Registration	this value shall be verified by TTCN
SLOT_CYCLE_INDEX	'010'B		
MOB_P_REV	8 bits, Set by UE		
SCM	8 bits, Set by UE		
MOB_TERM	'1'B		
RETURN_CAUSE	'1'B		
QPCH_SUPPORTED	'1'B		
ENHANCED_RC	'1'B		
UZID_INCL	'0'B		

13.4.4.3 Inter-system session management / Multiple PDN connection establishment in eHRPD pre-registration state

13.4.4.3.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_CONNECTED state and UE has performed multiple PDN connection setups in E-
UTRA with PDN type = IPv4 }
ensure that {
  when { UE transmits VSNCP Configure Request }
    then { APN name is identical with additional PDN name in EUTRA and  Attach Type at the HRPD side
is 'Handover Attach'}
            }
```

(2)

```
with { UE in E-UTRA RRC_CONNECTED state and UE has performed multiple PDN connection setups in E-
UTRA with PDN type = IPv4 and the UE originated VSNCP Configure Request procedure is finished }
ensure that {
  when { SS transmits VSNCP Configure Request with APN-AMBR }
    then { UE acknowledges the received APN-AMBR values }
            }
```

13.4.4.3.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.331, clauses 5.2.2.15, 5.6.1.3 and 5.6.2.3; TS 23.401, clause 4.4.3.3; TS 23.402, clause 9.1.2.2; TS 24.302 , clause 6.4.4; TS 33.402, clause 10.2.1 and 3GPP2 X.S0057-0-B v1.0, clause 13.1.2.

[TS 36.331, clause 5.2.2.15]

Upon receiving *SystemInformationBlockType8*, the UE shall:

1> if the *systemTimeInfo* is included:

2> forward the *systemTimeInfo* to CDMA2000 upper layers;

1> if the UE is in RRC_IDLE and if *searchWindowSize* is included:

2> forward the *searchWindowSize* to CDMA2000 upper layers;

1> if *parametersHRPD* is included;

2> forward the *preRegistrationInfoHRPD* to CDMA2000 upper layers only if the UE has not received the *preRegistrationInfoHRPD* within an *RRCConnectionReconfiguration* message after entering this cell;

2> if the *cellReselectionParametersHRPD* is included:

3> forward the *neighCellList* to the CDMA2000 upper layers;

…

[TS 36.331, clause 5.6.1.3]

Upon receiving *DLInformationTransfer* message, the UE shall:

1> if the *dedicatedInfoType* is set to '*dedicatedInfoNAS*':

2> forward the *dedicatedInfoNAS* to the NAS upper layers.

1> if the *dedicatedInfoType* is set to '*dedicatedInfoCDMA2000-1XRTT*' or to '*dedicatedInfoCDMA2000-HRPD*:

2> forward the *dedicatedInfoCDMA2000* to the CDMA2000 upper layers;

[TS 36.331, clause 5.6.2.3]

The UE shall set the contents of the *ULInformationTransfer* message as follows:

1> if there is a need to transfer NAS information:

2> set the *dedicatedInfoType* to include the '*dedicatedInfoNAS*';

1> if there is a need to transfer CDMA2000 1XRTT information:

2> set the *dedicatedInfoType* to include the '*dedicatedInfoCDMA2000-1XRTT*';

1> if there is a need to transfer CDMA2000 HRPD information:

2> set the *dedicatedInfoType* to include the '*dedicatedInfoCDMA2000-HRPD*';

1> submit the *ULInformationTransfer* message to lower layers for transmission, upon which the procedure ends;

[TS 23.401, clause 4.4.3.3]

The PDN GW is the gateway which terminates the SGi interface towards the PDN.

If a UE is accessing multiple PDNs, there may be more than one PDN GW for that UE, however a mix of S5/S8 connectivity and Gn/Gp connectivity is not supported for that UE simultaneously.

PDN GW functions include for both the GTP-based and the PMIP-based S5/S8:

- Per-user based packet filtering (by e.g. deep packet inspection);

- Lawful Interception;
- UE IP address allocation;
- Transport level packet marking in the uplink and downlink, e.g. setting the DiffServ Code Point, based on the QCI of the associated EPS bearer;
- Accounting for inter-operator charging;
- UL and DL service level charging as defined in TS 23.203 [6] (e.g. based on SDFs defined by the PCRF, or based on deep packet inspection defined by local policy);
- Interfacing OFCS through according to charging principles and through reference points specified in TS 32.240 [51].
- UL and DL service level gating control as defined in TS 23.203 [6];
- UL and DL service level rate enforcement as defined in TS 23.203 [6] (e.g. by rate policing/shaping per SDF);
- UL and DL rate enforcement based on APN-AMBR (e.g. by rate policing/shaping per aggregate of traffic of all SDFs of the same APN that are associated with Non-GBR QCIs);
- DL rate enforcement based on the accumulated MBRs of the aggregate of SDFs with the same GBR QCI (e.g. by rate policing/shaping);
- DHCPv4 (server and client) and DHCPv6 (client and server) functions;
- The network does not support PPP bearer type in this version of the specification. Pre-Release 8 PPP functionality of a GGSN may be implemented in the PDN GW;
- packet screening.

Additionally the PDN GW includes the following functions for the GTP-based S5/S8:

- UL and DL bearer binding as defined in TS 23.203 [6];
- UL bearer binding verification as defined in TS 23.203 [6];
- Functionality as defined in RFC 4861 [32];
- Accounting per UE and bearer.

The P-GW provides PDN connectivity to both GERAN/UTRAN only UEs and E-UTRAN capable UEs using any of E-UTRAN, GERAN or UTRAN. The P-GW provides PDN connectivity to E-UTRAN capable UEs using E-UTRAN only over the S5/S8 interface.

[TS 23.402, clause 9.1.2.2]

The S101 interface supports procedures for Pre-Registration, Session Maintenance and Active handovers between E-UTRAN and HRPD networks. This is based on tunnelling over S101 signalling of one technology while the UE is in the other technology. The HRPD air interface messages tunnelled over S101 in E-UTRAN to HRPD mobility are defined in 3GPP2 C.S0087-0-A v2.0 [49].

The S101 reference point shall support the following requirements:

- HRPD and E-UTRAN/EPS messages shall be transported as opaque containers without modifications by the MME or HRPD AN.
- Messages may carry separate information IEs to indicate status, message types (e.g. handover command) forwarding addresses etc. as required by signalling procedures.
- Provide identifiers (i.e. S101 Session ID) to distinguish messages belonging to different UEs in order to allow responses originating from the target system to an UE to be appropriately forwarded to the UE by the source system.

- Reliable transport for S101 messages should be provided at the application layer and will not require transport layer reliability mechanism.

[TS 24.302, clause 6.4.4]

Connectivity to multiple PDNs via trusted non-3GPP access is supported in the EPS when the network policies, the non-3GPP access and user subscription allow it. If the UE supports dynamic mobility management selection the UE shall use the same mobility protocol when multiple connections are established, see 3GPP TS 23.402 [6].

When using the S2a interface to establish connections to additional PDNs the UE shall send a trigger for additional PDN connectivity specific to the non-3GPP access. The UE shall include an APN in this trigger to connect to the desired PDN. The UE shall also indicate the Attach Type to the trusted non-3GPP access during additional PDN connectivity. The Attach Type shall distinguish between Initial Attach and Handover Attach.

NOTE 1: The indication about Attach Type is non-3GPP access network specific and its coding is out of scope of this specification.

NOTE 2: The trigger for additional PDN connectivity is non-3GPP access network specific and its coding is out of scope of this specification.

When using the S2c interface, the UE shall follow the procedures described in 3GPP TS 24.303 [11] to connect to multiple PDNs.

If the UE is handing over from a source access network to a target non-3GPP access using PMIP-based S2a and the UE has more than one PDN connection to a given APN in the source access network, and if multiple PDN connections to a single APN are not supported over the target trusted non-3GPP access network, only one PDN connection to the given APN shall be established in the target non-3GPP access as specified in 3GPP TS 23.402 [6]. If multiple PDN connection requests to the same APN are received but the target trusted non-3GPP access network does not support multiple PDN connections to the same APN, the network shall reject the additional PDN connection requests to the same APN received from the UE when one PDN connection to the same APN has already been established. The UE shall determine which PDN connection is re-established in the non-3GPP access based on the home address information (i.e. IPv4 address or IPv6 prefix or both) provided by the network.

NOTE 3: The protocol details of the PDN connection reject procedure is non-3GPP access network specific and its coding is outside the scope of this specification.

NOTE 4: When UE supporting IP address preservation for NBM with multiple PDN connections to the same APN hands over to the non-3GPP access network, the UE can, as an implementation option, prioritise the re-establishment for a particular PDN connection before re-establishing the remaining PDN connections. The way a UE prioritizes a particular PDN connection is non-3GPP access network specific and its coding is out of scope of this specification. Another implementation option can be to send multiple re-establishment requests concurrently.

NOTE 5: Any unsuccessful re-establishment of any of the multiple PDN connections to the same APN can be managed in an implementation specific manner avoiding UE making repeated re-establishment attempts to the network.

[TS 33.402, clause 10.2.1]

For pre-registration, the UE interacts directly with HRPD system to perform authentication through the HS-GW and establish security association with this system directly. The procedures are the same as in the case when the UE connects directly to the HRPD access network except that it is tunnelled over the E-UTRAN/EPS. In these procedures, the UE follows the authentication and key agreement procedure described in subclause 6.2. Tunnelled signalling is exchanged over S101 interface which shall be secured as described in clause 11.

NOTE 6: Network domain security as specified in TS 33.210 [6] and TS 33.310 [12] applies to secure signalling between eAN/PCF in the HRPD access network and MME in the serving network.

In the case when the UE is not aware of its movement from E-UTRAN to HRPD, the UE may access the HRPD system directly without performing a pre-registration through E-UTRAN/EPS system.

For UEs with an established emergency call the authentication is subject to the requirements in clause 13.

13.4.4.3.3 Test description

13.4.4.3.3.1 Pre-test conditions

System Simulator:

- Cell 1.
- System information combination 6 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cells.

UE:

None.

Preamble:

- The UE is in state Generic RB Established (state 3B) on Cell 1 according to [18].
- The UE has performed HRPD pre-registration.

13.4.4.3.3.2 Test procedure sequence

Table 13.4.4.3.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U – S	Message		
1	Cause the UE to request connectivity to an additional PDN (see Note 1)	-	-	-	-
2	The UE transmits a PDN CONNECTIVITY REQUEST message as specified to request an additional PDN (= PDN-2)	-->	*ULInformationTransfer* (PDN CONNECTIVITY REQUEST)	-	-
3	The SS transmits an RRCConnectionReconfiguration message on Cell 1 to activate a second Default EPS Bearer Context.	<--	*RRCConnectionReconfiguration* (ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST)	-	-
4	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1.	-->	*RRCConnectionReconfigurationComplete*	-	-
5	The UE transmits an ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT message.	-->	*ULInformationTransfer* (ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT)	-	-
6	Check: Does the UE transmit a VSNCP CONFIGURE REQUEST message including PDN identifier = '0', Access Point Name with the same value as PDN-2 via EUTRA, PDN type = '1' ("IPv4"), PDN address with PDN address information set to the IP address(es) assigned over EUTRA, and Attach Type = '3' ("handover attach"), and the Address Allocation Cause = '00'? See Note 2	-->	*ULInformationTransfer* (VSNCP: CONFIGURE REQUEST)	1	P
7	The SS transmits a VSNCP CONFIGURE ACK message on Cell 1 to confirm APN parameters PDN identifier, Access Point Name, PDN type, PDN address with PDN address information from "UE IPv4 address", Attach Type and the Address Allocation Cause = '255' ("Success"). See Note 2.	<--	*DLInformationTransfer* (VSNCP: CONFIGURE ACK)	-	-
8	The SS transmits a VSNCP CONFIGURE REQUEST message on Cell 1 including the PDN-ID to configure APN-AMBR for DL and UL. See Note 2	<--	*DLInformationTransfer* (VSNCP: CONFIGURE REQUEST)	-	-
9	Check: Does the UE transmit a VSNCP CONFIGURE ACK message as specified to confirm the previously APN-AMBR values received. See Note 2	-->	*ULInformationTransfer* (VSNCP: CONFIGURE ACK)	2	P

Note 1: The request of connectivity to an additional PDN may be performed by MMI or AT command.

Note 2: It is assumed that the dedicatedInfoCDMA2000-HRPD which is embedded in the RRC UL/DL Information Transfer messages is an ASN.1 charstring and therefore cannot be provided in table format. This is why the dedicatedInfoCDMA2000-HRPD IEs have been defined in the procedure column of the Test Procedure Sequence above.

13.4.4.3.3.3 Specific message contents

Table 13.4.4.3.3.3-1: PDN CONNECTIVITY REQUEST (Step 2, Table 13.4.4.3.3.2-1)

Derivation Path: TS 36.508 Table 4.7.3-20			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS bearer identity	0000	No EPS bearer identity assigned	
Procedure transaction identity	PTI-1	UE assigns a particular PTI not yet used between 1 and 254	
PDN type	'001'B	IPv4	
ESM information transfer flag	Not present	This IE is only used during an attach procedure.	
Access point name	APN-1(New PDN name)	The requested PDN is different from default PDN	
Protocol configuration options			
Configuration protocol 1	'8021'H	IPCP	
Length of configuration protocol 1 contents		As per RFC 1661	
Configuration protocol 1 contents		As per RFC 1661	
Configuration protocol 2	'C223'H	IPCP	
Length of configuration protocol 2 contents		As per RFC 1661	
Configuration protocol 2 contents		As per RFC 1661 (CHAP-Response)	
Container ID 1	'000A'H	IP Address allocation via NAS signalling	
Length of container ID 1 contents	0		
Container ID 1 contents	Not present		

Table 13.4.4.3.3.3-2: ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST (Step 3, Table 13.4.4.3.3.2-1)

Derivation Path: TS 36.508 Table 4.7.3-6			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS bearer identity	6		
Procedure transaction identity	PTI-1	SS re-uses the particular PTI defined by UE for this present additional PDN connectivity request procedure.	
EPS QoS	See Reference default EPS bearer context #1 in table 6.6.1-1		
Access point name	APN-1	SS re-uses the particular APN defined by UE for this present additional PDN connectivity request procedure	
PDN address			
Length of PDN address contents	5 octets		
PDN type value	'001'B	IPv4	
PDN address information	0.0.0.0	DHCPv4 is to be used to allocate the IPv4 address	

Table 13.4.4.3.3.3-3: ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT (Step 5, Table 13.4.4.3.3.2-1)

Derivation Path: TS 36.508 Table 4.7.3-4			
Information Element	**Value/remark**	**Comment**	**Condition**
EPS bearer identity	6		
Procedure transaction identity	0	No procedure transaction identity assigned	
Protocol configuration options	Not present or any allowed value	Assumption: As in PDNConnectivity Request.	

Table 13.4.4.3.3.3-4: VSNCP CONFIGURE REQUEST (Step 6, Table 13.4.4.3.3.2-1)

Derivation Path: 3GPP2 X.S0057-0 Table 2			
Information Element	**Value/remark**	**Comment**	**Condition**
Code	1	VSNCP Configure Request this value shall be verified by TTCN	
…			

Table 13.4.4.3.3.3-5: VSNCP CONFIGURE ACK (Step 9, Table 13.4.4.3.3.2-1)

Derivation Path: 3GPP2 X.S0057-0 Table 2			
Information Element	**Value/remark**	**Comment**	**Condition**
Code	2	VSNCP Configure Ack this value shall be verified by TTCN	
…			

13.4.4.4 Inter-system session management / Pre-registration at HRPD and Cell reselection / HRPD Zone Registration

13.4.4.4.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_IDLE state and UE has performed pre-registration on HRPD neighbour cell }
ensure that {
  when { UE detects preRegistrationZoneId on SystemInformationBlock8 has been changed.}
    then { UE establishes the RRC connection and performs UATI re-assignment and alternate link
establishment procedure }
           }
```

(2)

```
with { UE has been complete alternate link establishment procedure }
ensure that {
 when { UE receives DLInformation Transfer followed by dedicatedInfoCDMA2000-HRPD containing a LCP
Configure Request for PDN re-establishment }
    then { UE transmit ULInformation Transfer containing a tunnelled LCP Configure Ack message, and
continues to LCP negotiation}
           }
```

(3)

```
with { UE in EAP-Authentication phase }
ensure that {
 when { UE receives EAP-Success message}
    then { UE transmit ULInformation Transfer containing a tunnelled VSNCP Configure Request message
including a PDN-ID, PDN Type, APN, PDN Address with the same value as last PDN setup when UE
performed pre-registration }
```

}

13.4.4.4.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 23.401, clause 9.3.1.

[TS 23.401, clause 9.3.1]

Figure 9.3.1-1 illustrates a high-level call flow for the optimised E-UTRAN to HRPD handover procedure, Pre-registration phase.

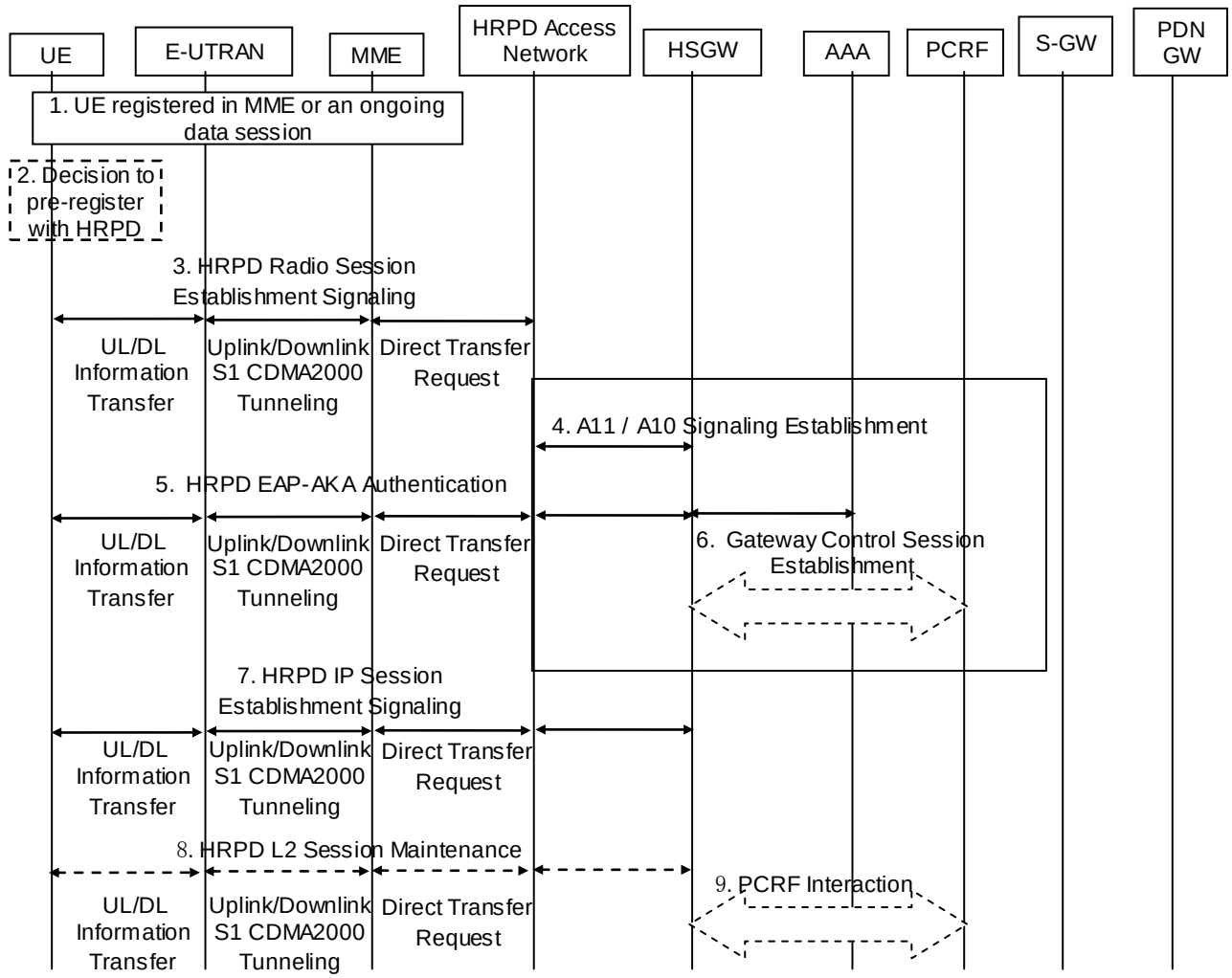

Figure 9.3.1-1: HRPD registration via LTE/SAE tunnel

1. The UE is registered with E-UTRAN/MME. It may have an ongoing data session established over EPS/E-UTRAN access.

2. Based on a Radio Layer trigger (e.g., an indication from the E-UTRAN when the UE is in connected state or an indication over the broadcast channel), the UE decides to initiate a pre-registration procedure with potential target HRPD access. The pre-registration procedure allows the UE to establish and maintain a dormant session in the target HRPD access, while attached to the E-UTRAN/MME.

3. Registration to the HRPD is achieved by exchanging a series of HRPD messages between the UE and the HRPD Access Network. The HRPD signalling that is tunnelled transparently over the E-UTRAN and EPC creates an HRPD session context between the UE and the HRPD Access Network. The procedures described below are used in steps 3, 5, 8 and 9.

The UE generates an UL Information Transfer message (UL HRPD message). The UL HRPD message is transferred from the UE to the eNodeB as a parameter in the UL Information Transfer.

The eNodeB sends Uplink S1 CDMA2000 Tunnelling message (UL HRPD message, Sector ID) to the MME. The SectorID is statically configured in the eNodeB.

The MME selects an HRPD access node address. In order to be able to distinguish S101 signalling transactions belonging to different UEs, an S101 Session ID is used to identify signalling related to that UE on S101. The MME sends a Direct Transfer Request message (S101 Session ID, SectorID, UL HRPD message) to the HRPD access node. The MME determines the correct HRPD access node entity and address from the SectorID.

NOTE 1: There is an unambiguous mapping from the SectorID to the HRPD access node address.

The HRPD Access Network sends signalling in the DL direction to the MME using Direct Transfer Request message (S101 Session ID, DL HRPD message). The S101 Session ID is used to associate the signalling to a particular UE.

The MME sends the information on to the eNodeB using the Downlink S1 CDMA2000 Tunnelling message (DL HRPD message).

The eNodeB uses the DL information transfer message (DL HRPD message) to transport the signalling the UE.

If UE is handing over emergency sessions to HRPD access, the UE informs the HRPD access that it is an emergency handover. In case the UE is in limited service state and does not have an IMSI or its IMSI is unauthenticated, IMEI is used as a Session ID. If the IMSI is unauthenticated, the IMSI is also provided on the S101 tunnel to the HRPD access with an indication that it is unauthenticated.

4. The HRPD Access Network creates a signalling relationship with the HS-GW for the UE with interactions in HRPD network A10 / A11 interfaces.

   If the HRPD Access Node is not configured to support emergency handovers, then it shall reject any handover request that indicates Emergency Handover.

5. The UE, HS-GW, and 3GPP AAA exchange EAP-AKA' signalling to authenticate the UE on the HRPD system. The HS-GW receives the APN(s) and PDN GW identity(es) information from AAA during authentication.

   If the UE is performing an Emergency handover to HRPD access for emergency service and the HRPD access supports Emergency handover, the HPRD access skips the authentication procedure or the HRPD access accepts that the authentication may fail and continues the handover procedure. A statically configured PDN GW is selected by the HRPD access for the UE for unauthenticated UEs.

6. The HS-GW initiates a Gateway Control Session Establishment Procedure with the PCRF as specified in TS 23.203 [19]. If the HS-GW supports UE/NW bearer control mode, the PCRF provides the rules required for the HS-GW to perform the bearer binding for all the active sessions the UE may establish as a result of the handover procedure.

7. The UE and HS-GW exchange signalling to establish context to support the bearer traffic environment in use over the E-UTRAN.

8. At any time prior to the Handover Phase, if session maintenance activity is required, the UE or HRPD access network shall perform session maintenance signalling by tunnelling the HRPD session maintenance messages over the S101. If QoS parameters require updating, then this step includes the PCRF interaction. The MME uses the S101 Session ID to identify the UE context over the S101 interface.

NOTE 2: Between Step 7 and Step 8 the UE may enter ECM-IDLE state. To execute the session maintenance procedures at Step 8 it is necessary for the UE to enter ECM-CONNECTED state.

9. PCRF interactions due to session maintenance can be initiated by the PCRF or the HS-GW. The PCRF initiates the Gateway Control and QoS Rules Provision Procedure specified in TS 23.203 [19]. The HS-GW initiates the Gateway Control and QoS Policy Rules Request Procedure as specified in TS 23.203 [19].

[3GPP2 C.S0057-0-E v1.0, clause 13.1.1]

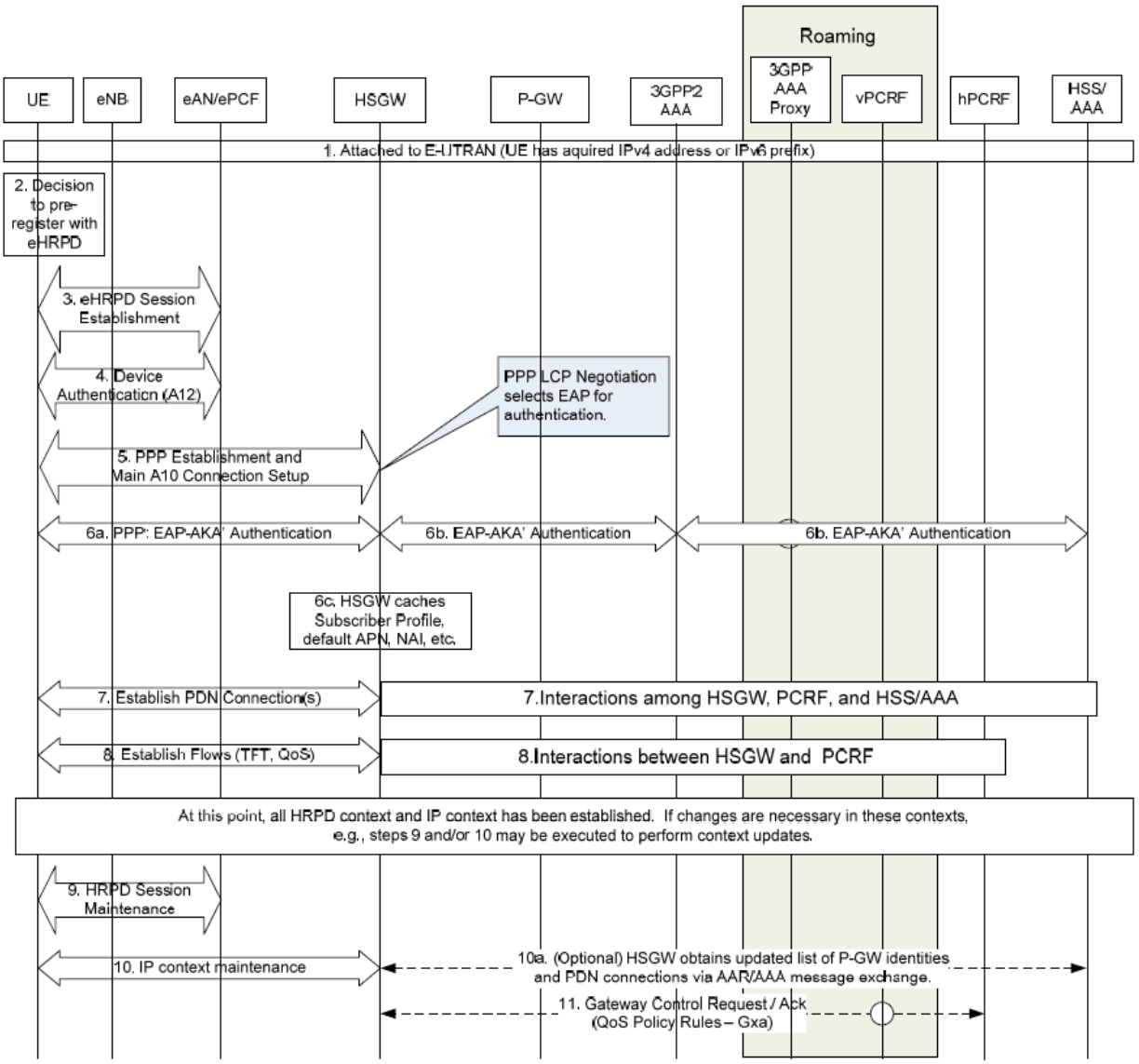

Figure 42 **eHRPD Pre-registration via E-UTRAN**

13.4.4.4.3 Test description

13.4.4.4.3.1 Pre-test conditions

System Simulator:

- cell 1, and cell 2.
- cell 1 is “Serving cell” and cell 2 is “Suitable cell”.
- System information combination 6 as defined in TS 36.508[18] clause 4.4.3.1 is used in E-UTRA cells.
- Cell 1 and Cell 2 have the different Registration Zone ID in SIB8.

UE:

None.

Preamble:

- The UE is in state Registered, Idle mode pre-registered on HRPD (state 2B) on Cell 1 according to [18].

13.4.4.4.3.2 Test procedure sequence

Table 13.4.4.4.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution.

Table 13.4.4.4.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 2	Remark
T1	Cell-specific RS EPRE	dBm/15kHz	-85	-79	The power level values are assigned to satisfy $R_{Cell\ 1} < R_{Cell\ 2}$.

Table 13.4.4.4.3.2-2: Main behaviour

Step	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS changes Cell 2 level according to the row "T1" in table 13.4.4.4.3.2-1.	-	-	-	-
2	The UE is camped on E-UTRAN Cell 2.	-	-	-	-
3-9	Steps 3 to 9 of the generic radio bearer establishment procedure (TS 36.508 4.5.3.3-1) are executed to successfully complete the service request procedure.	-	-	-	-
10	Check: Does the UE transmit an *ULInformationTransfer* containing a tunnelled *UATIRequest* message Cell 2?	-->	*ULInformationTransfer*	1	P
11	The SS transmits a *DLInformationTransfer* containing a tunnelled *UATIAssignment* message	<--	*DLInformationTransfer*	-	-
12	Check: Does the UE transmit an *ULInformationTransfer* containing a tunnelled *UATIComplete* message on Cell 2?	-->	*ULInformationTransfer*	-	-
13	The UE transmits an *ULInformationTransfer* containing a tunnelled *AlternateLinkOpenReq*message on Cell 2.	-->	*ULInformationTransfer*	1	P
14	The SS transmits a *DLInformationTransfer* containing a tunnelled *AlternateLinkOpenConf*message	<--	*DLInformationTransfer*	-	-
15	Check: Does the UE transmit an *ULInformationTransfer* containing a tunnelled *AlternateLinkOpenComplete*on Cell 2?	-->	*ULInformationTransfer*	-	-
16	Check: Does the UE perform Tunnelled PPP LCP negotiation to the SS on Cell 2? And is the EAP-AKA selected as the authentication protocol?	<-->	-	2	P
17	After entering PPP LCP Open State, optionally tunnelled PPP Version Capability Indication and/or Max PPP Inactivity Timer negotiation may take place.	<->	-	-	-
18	Tunnelled EAP-AKA is performed between the UE and the SS.	<-->	-	-	-
19	Check: Does the UE transmits an *ULInformationTransfer* containing a tunnelled *VSNCP Configure-Request* message, including a PDN-ID, PDN Type, APN, PDN Address with the same as initial PDN setup, Protocol Configuration Options, and Attach Type = “handover”? The Address Allocation Preference option contained in the Protocol Configuration Options indicates whether the UE wants to perform the IP address allocation during the attach procedure or deferred IPv4 address allocation. PDN Type indicates the UE’s IP capability (IPv4, IPv6 or IPv4/v6)	-->	*ULInformationTransfer*	3	P
20	The SS transmits a *DLInformationTransfer* containing a tunnelled *VSNCP Configure-Ack* message.	<--	*DLInformationTransfer*	-	-
21	The SS transmits a *DLInformationTransfer* containing a tunnelled *VSNCP Configure-Request* message including the PDN-ID configuration option.	<--	*DLInformationTransfer*	-	-
22	The UE transmits an *ULInformationTransfer* containing a tunnelled *VSNCP Configure-Ack* message on Cell 2.	-->	*ULInformationTransfer*	-	-
23	Optionally UE may transmit an *ULInformationTransfer* containing a tunnelled *DHCPv4 DISCOVER* (depending on the Address Allocation Preference indicated by the UE at Step 19).	-->	*ULInformationTransfer*	-	-

24	The UE transmits an *ULInformationTransfer* containing a tunnelled *AlternateLinkCloseReq* message on Cell 2.	-->	*ULInformationTransfer*	-	-
25	The SS transmits a *DLInformationTransfer* containing a tunnelled *AlternateLinkCloseConf* message.	<--	*DLInformationTransfer*	-	-
26	Optionally the UE may transmit an *ULInformationTransfer* containing a tunnelled *Router solicitation* message on Cell 2.	-->	*ULInformationTransfer*	-	-
27	The SS transmits an *RRCConnectionRelease* message	<--	*RRCConnectionRelease*	-	-
28	The UE transmits an *RRCConnectionReleaseComplete* message on Cell 2.	-->	*RRCConnectionReleaseComplete*	-	-

Table 13.4.4.4.3.2-3: *SystemInformationBlockType1* for cell 1

Derivation Path: 36.508 Table 4.4.3.2-3			
Information Element	**Value/remark**	**Comment**	**Condition**
SystemInformationBlockType1 ::= SEQUENCE {			
schedulingInformation ::= SEQUENCE (SIZE (1..maxSI-Message)) OF SEQUENCE {}	Combination 6 in TS 36.508 section 4.4.3.1	SIB2, SIB3 and SIB 8 are transmitted	
}			

Table 13.4.4.4.3.2-4: *SystemInformationBlockType8* for cell 1

Derivation Path: 36.508 Table 4.4.3.3-7, condition HRPD			
Information Element	**Value/remark**	**Comment**	**Condition**
SystemInformationBlockType8 ::= SEQUENCE {			
parametersHRPD SEQUENCE {			
preRegistrationInfoHRPD SEQUENCE {			
preRegistrationAllowed	TRUE		
preRegistrationZoneId	A valid value	INTEGER (0..255)	
secondaryPreRegistrationZoneIdList SEQUENCE (SIZE (1..2)) OF SEQUENCE {	Not present		
PreRegistrationZoneIdHRPD	Not present		
}			
}			
cellReselectionParametersHRPD SEQUENCE {			
bandClassList SEQUENCE (SIZE (1..maxCDMA-BandClass)) OF SEQUENCE {	1 entry		
bandClass	Band class of frequency under test	ENUMERATED {bc0, bc1, bc2, bc3, bc4, bc5, bc6, bc7, bc8, bc9, bc10, bc11, bc12, bc13, bc14, bc15, bc16, bc17, spare14, spare13, spare12, spare11, spare10, spare9, spare8, spare7, spare6, spare5, spare4, spare3, spare2, spare1, ...}	
cellReselectionPriority	3		
threshX-High	30(-30)	INTEGER (0..63)	
threshX-Low	32(-32)	INTEGER (0..63)	
}			

Table 13.4.4.4.3.2-5: *SystemInformationBlockType8* for cell 2

Derivation Path: 36.508 Table 4.4.3.3-7, condition HRPD			
Information Element	**Value/remark**	**Comment**	**Condition**
SystemInformationBlockType8 ::= SEQUENCE {			
parametersHRPD SEQUENCE {			
preRegistrationInfoHRPD SEQUENCE {			
preRegistrationAllowed	TRUE		
preRegistrationZoneId	A valid value different from cell 1	INTEGER (0..255)	
secondaryPreRegistrationZoneIdList SEQUENCE (SIZE (1..2)) OF SEQUENCE {	Not present		
PreRegistrationZoneIdHRPD	Not present		
}			
}			
cellReselectionParametersHRPD SEQUENCE {			
bandClassList SEQUENCE (SIZE (1..maxCDMA-BandClass)) OF SEQUENCE {	1 entry		
bandClass	Band class of frequency under test	ENUMERATED {bc0, bc1, bc2, bc3, bc4, bc5, bc6, bc7, bc8, bc9, bc10, bc11, bc12, bc13, bc14, bc15, bc16, bc17, spare14, spare13, spare12, spare11, spare10, spare9, spare8, spare7, spare6, spare5, spare4, spare3, spare2, spare1, ...}	
cellReselectionPriority	3		
threshX-High	30(-30)	INTEGER (0..63)	
threshX-Low	32(-32)	INTEGER (0..63)	
}			

13.4.4.4.3.3 Specific message contents

Table 13.4.4.4.3.3-1: *UATI Request* message (Step 10, Table 13.4.4.4.3.2-2)

Field	Value/remark	Comment	Condition
SAPState	'0'B	SAP Header	
SessionConfigurationToken	16 bits, Set by UE		
ConnectionLayerFormat	1 bit, Set by UE		
ATI Record	34 bits, RATI set by UE		
Reserved	'0000'B		
MessageID	'00000000'B	UATI Request	this value shall be verified by TTCN
TransactionID	8 bits, Set by UE		

Table 13.4.4.4.3.3-2: *UATI Assignment* message (Step 11, Table 13.4.4.4.3.2-2)

Field	Value/remark	Comment	Condition
SAPState	'1'B	SAP Header	
SessionConfigurationToken	'0'		
ConnectionLayerFormat	1 bit, Set by SS		
ATI Record	34 bits, RATI set in UATI Request		
Reserved	'0000'B		
MessageID	'00000001'B	UATI Assignment	
MessageSequence	8 bits, Set by SS		
Reserved1	'0000000'B		
SubnetIncluded	'1'B		
UATISubnetMask	'1101000'B		
UATI104	104 bits, Set by SS		
UATIColorCode	8 bits, Set to ColorCode of Cell 15		
UATI024	24 bits, Set by SS		
UpperOldUATILength	'0000'B		
Reserved2	'0000'B		

13.4.4.5 Pre-Registration at 1xRTT / Power Down Registration

13.4.4.5.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_IDLE having completed the 1xRTT CS pre-registration procedure and having
detecting the cell ranked as the best cell and having received SIB 8 including powerDownReg-r9 on
the source cell }
ensure that {
  when { UE is switched off }
    then { UE transmits an ULInformationTranfer message containing a tunnelled 1xRTT GCSNA
Encapsulated Power-Down Registration message}
```

13.4.4.5.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 23.272, clause B.2.1.1 and B.2.1.3 and C.S0005-F v1.0, clause 2.6.5.1.2.

[TS 23.272, clause B.2.1.1 and B.2.1.3]

This clause describes how the UE in an E-UTRAN system establishes and maintains pre-registration in the 1xCS system.

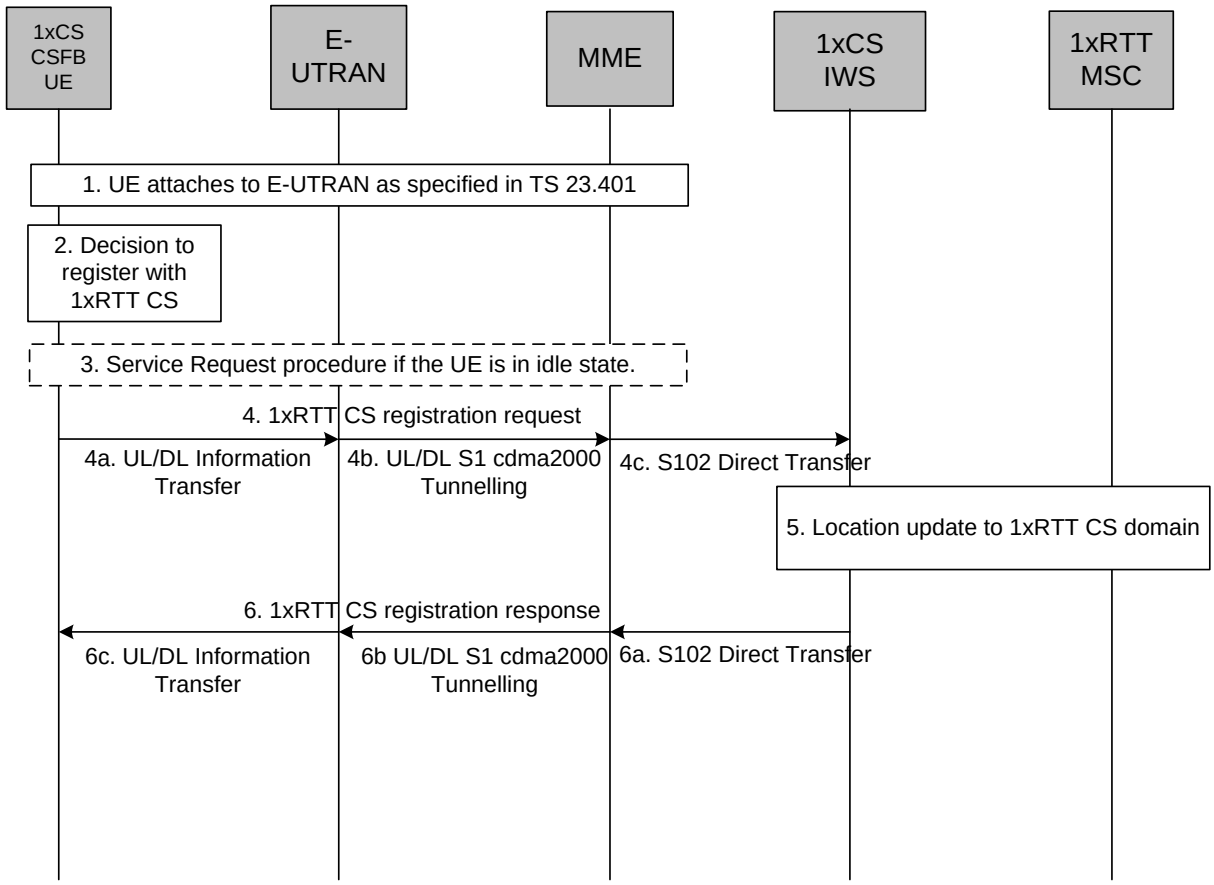

Figure B.2.1.1-1: 1xRTT CS registration procedure

1. The UE attaches to E-UTRAN as specified in TS 23.401 [2]. The UE includes an indication of enhanced CS fallback to 1xRTT and may also include concurrent 1xRTT and HRPD PS session handling capabilities as part of the UE radio capabilities.

2. Based on a radio layer trigger (e.g. an indication from the E-UTRAN when the UE is in connected state or an indication over the broadcast channel), the UE decides to register with the 1xRTT CS domain.

3. If the UE is in idle state, in order to create a signalling connection with the MME, it performs the Service Request procedure.

4. The UE generates a 1xRTT CS registration request.

4a. The 1xRTT CS message is transferred from the UE to E-UTRAN.

4b. E-UTRAN forwards the 1xRTT CS message to the MME including the CDMA2000 Reference Cell ID.

4c. The MME selects a 1xCS IWS node based on the CDMA2000 Reference Cell ID. The IMSI is used to distinguish S102 signalling transactions belonging to different UEs. The MME sends a S102 Direct Transfer message (IMSI, 1xCS message) to the 1xCS IWS node.

5. 1xRTT CS registration is then performed by the 1xCS IWS node based on 3GPP2 A.S0008-C v4.0 [16].

6a. 1xRTT CS registration response is tunnelled back to the MME in a S102 Direct Transfer message (IMSI, 1xCS message).

6b. The MME forwards the 1xRTT CS message to the E-UTRAN.

6c. The E-UTRAN forwards the 1xRTT CS message to the UE.

If the triggers for 1xCS registration change over time, the UE (both in idle or connected state), uses this information to update the 1xCS registration via the tunnel.

If a 1xRTT CS Fallback UE, pre-registered to the 1xRTT CS system, initiates the detach procedure in E-UTRAN access due to switch off and the UE is required to perform a "power-down registration" in the 1xRTT CS system (see C.S0005-F 1.0 [32]), the UE shall first perform the "power-down registration" procedure with the 1xRTT CS system via the S102 tunnel, before initiating the detach procedure in E-UTRAN access as specified in TS 23.401 [2]. A 1xCSF UE, pre-registered to the 1xCS system, performing detach due to reasons other than switch off is not required to perform "power-down registration" with the 1xCS system prior to performing the detach procedure in E-UTRAN.

[C.S0005-F v1.0, clause 2.6.5.1.2]

Power-down registration is performed when the user directs the mobile station to power off.

Power-down registration is performed, the mobile station does not power off until after completing the registration attempt.

13.4.4.5.3 Test description

13.4.4.5.3.1 Pre-test conditions

System Simulator:

- Cell 1.
- System information combination 6 as defined in TS 36.508 [18] clause 4.4.3.1 is used in E-UTRA cells.

UE:

None.

Preamble:

- the UE is in state Switched OFF (state 1) according to TS 36.508 [18].

13.4.4.5.3.2 Test procedure sequence

Table 13.4.4.5.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 13.4.4.5.3.2-1: Cell configuration changes over time

	Parameter	Unit	Cell 1	Remark
T0	Cell-specific RS EPRE	dBm/15kHz	-75	$Srxlev_{Cell\ 1} > 0$ such that camping on Cell 1 is guaranteed.
	Ior/Ioc	dB	-	
	Pilot Ec/Ior	dB	-	
	Ioc	dBm/1.23 MHz	-	
	Pilot Ec/Io (Note 1)	dB	-	

Table 13.4.4.5.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1-20	Steps 0 to 19 of the generic UE Registration, pre-registration on 1xRTT radio bearer establishment procedure (TS 36.508 4.5.2C.3-2) are executed to successfully complete the attach and pre-registration on 1xRTT procedure.				
21	If possible (see ICS) switch off is performed.	-	-	-	-
22-28	Steps 3 to 9 of the generic radio bearer establishment procedure (TS 36.508 4.5.3.3-1) are executed to successfully complete the service request procedure.	-	-	-	-
29	Check: Does the UE transmit an *ULInformationTransfer* containing a tunnelled *1xRTT GCSNA encapsulated Power-Down Registration* message on Cell 1.	-->	*ULInformationTransfer*	1	P
30	UE sends DETACH REQUEST message.	-->	DETACH REQUEST	-	-

13.4.4.5.3.3 Specific message contents

Table 13.4.4.5.3.3-1: *SystemInformationBlockType8* for cell 1 (Step 2, Table 13.4.4.5.3.2-2)

Derivation Path: 36.508 Table 4.4.3.3-7, condition 1XRTT			
Information Element	**Value/remark**	**Comment**	**Condition**
SystemInformationBlockType8 ::= SEQUENCE {			
parameters1XRTT SEQUENCE {			
csfb-RegistrationParam1XRTT SEQUENCE {			
Sid	Same as cell 1	BIT STRING (SIZE (15))	
Nid	Same as cell 1	BIT STRING (SIZE (16))	
multipleSID	TRUE	BOOLEAN	
multipleNID	TRUE	BOOLEAN	
homeReg	TRUE	BOOLEAN	
foreignSIDReg	TRUE	BOOLEAN	
foreignNIDReg	TRUE	BOOLEAN	
parameterReg	TRUE	BOOLEAN	
powerUpReg	TRUE	BOOLEAN	
registrationPeriod	TRUE	BIT STRING (SIZE (7))	
registrationZone	A valid value different from cell 1	BIT STRING (SIZE (12))	
totalZone	'001'B	BIT STRING (SIZE (3))	
zoneTimer	'000'B or '001'B	BIT STRING (SIZE (3))	
}			
longCodeState1XRTT	A valid value, calculated and updated by the SS	BIT STRING (SIZE (42)) OPTIONAL	
cellReselectionParameters1XRTT SEQUENCE {			
bandClassList SEQUENCE (SIZE (1..maxCDMA -BandClass)) OF SEQUENCE {	1 entry		
bandClass	Band class of Cell 19	ENUMERATED {bc0, bc1, bc2, bc3, bc4, bc5, bc6, bc7, bc8, bc9, bc10, bc11, bc12, bc13, bc14, bc15, bc16, bc17, spare14, spare13, spare12, spare11, spare10, spare9, spare8, spare7, spare6, spare5, spare4, spare3, spare2, spare1, ...}	
cellReselectionPriority	3		
threshX-High	30(-30)	INTEGER (0..63)	
threshX-Low	32(-32)	INTEGER (0..63)	
}			
}			
csfb-RegistrationParam1XRTT-v920{			
powerDownReg-r9	TRUE		
}			
}			
}			

Table 13.4.4.5.3.3-2: *ULInformationTransfer* (Step 3, Table 13.4.4.5.3.2-2)

Derivation Path: 36.508 Table 4.6.1-25			
Information Element	**Value/remark**	**Comment**	**Condition**
ULInformationTransfer ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
ulInformationTransfer-r8 SEQUENCE {			
dedicatedInformationType CHOICE {			
dedicatedInfoCDMA2000-1XRTT	Set according to Table 8.4.7.7.3.3-4		
}			
}			
}			
}			
}			

Table 13.4.4.5.3.3-3: 1xRTT GCSNA Encapsulated Registration message (Step 11, Table 13.4.4.5.3.2-2)

Information Element			
MessageID	**'00000001'B**	**GCSNA1xCircuit Service message**	
GCSNAOption	'00000001'B		
AlternativeGCSNAOption_INCL	'0'B		
IWSIDIncl	'0'B		
AckRequired	'1'B		
StopDupDetect	'0'B		
MessageSequence	Set by UE		
NumTLACEncapsulated1xL3PDU	'00'B		
Reserved	'0000'B		
1xLogicalChannel	'0'B		
1xProtocolRevision	'00000110'B		
MsgType	'00000001'B	Registration message	this value shall be verified by TTCN
NumTLACHeaderRecords	'0001'B		
TLACHeaderRecordType	'0000'B		
TLACHeaderRecordLength	8 bits, Set by UE		
MSID_TYPE	'011'B		
MSID_LEN	4 bits, Set by UE		
MSID	Variable, Set by UE		
Reserved	'0000000'B		
1xL3PDULength	16 bits, Set by UE		
REG_TYPE	'0011'B	Power-Down Registration	this value shall be verified by TTCN
SLOT_CYCLE_INDEX	'010'B		
MOB_P_REV	8 bits, Set by UE		
SCM	8 bits, Set by UE		
MOB_TERM	'1'B		
RETURN_CAUSE	'1'B		
QPCH_SUPPORTED	'1'B		
ENHANCED_RC	'1'B		
UZID_INCL	'0'B		

14 ETWS

14.1 ETWS reception in RRC_IDLE state / Duplicate detection

14.1.1 Test Purpose (TP)

(1)

```
with { UE in RRC_IDLE state and follow the reception of Paging message with etws-Indication }
ensure that {
  when { UE start to acquire ETWS message from SIB10 and SIB11 }
    then { UE successfully received the ETWS message and activated the "User Alerting" popup display
}
             }
```

14.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.331, clauses 5.2.2.4, 5.2.2.17, 5.2.2.18, 5.3.2.3; TS 23.041 clause 9.1.2.

[TS 36.331, clause 5.2.2.4]

The UE shall:

…

1> if the UE is ETWS capable:

2> upon entering a cell during RRC_IDLE, following successful handover or upon connection re-establishment:

3> discard any previously buffered *warningMessageSegment*;

3> clear, if any, the current values of *messageIdentifier* and *serialNumber* for *SystemInformationBlockType11*;

2> when the UE acquires *SystemInformationBlockType1* following ETWS indication, upon entering a cell during RRC_IDLE, following successful handover or upon connection re-establishment:

3> if *schedulingInfoList* indicates that *SystemInformationBlockType10* is present:

4> start acquiring *SystemInformationBlockType10* immediately;

3> if *schedulingInfoList* indicates that *SystemInformationBlockType11* is present:

4> start acquiring *SystemInformationBlockType11* immediately;

NOTE 2: UEs shall start acquiring SystemInformationBlockType10 and SystemInformationBlockType11 as described above even when systemInfoValueTag in SystemInformationBlockType1 has not changed.

[TS 36.331, clause 5.2.2.17]

Upon receiving *SystemInformationBlockType10*, the UE shall:

1> forward the received *warningType*, *warningSecurityInfo* (if present), *messageIdentifier* and *serialNumber* to upper layers;

[TS 36.331, clause 5.2.2.18]

Upon receiving *SystemInformationBlockType11*, the UE shall:

1> if there is no current value for *messageIdentifier* and *serialNumber* for *SystemInformationBlockType11*; or

1> if either the received value of *messageIdentifier* or of *serialNumber* or of both are different from the current values of *messageIdentifier* and *serialNumber* for *SystemInformationBlockType11*:

2> use the received values of *messageIdentifier* and *serialNumber* for *SystemInformationBlockType11* as the current values of *messageIdentifier* and *serialNumber* for *SystemInformationBlockType11*;

2> discard any previously buffered *warningMessageSegment*;

2> if all segments of a warning message have been received:

3> assemble the *warningMessage* from the received *warningMessageSegment*;

3> forward the received *warningMessage*, *messageIdentifier*, *serialNumber* and *dataCodingScheme* to upper layers;

3> stop reception of SystemInformationBlockType11;

3> discard the current values of messageIdentifier and serialNumber for SystemInformationBlockType11;

2> else:

3> store the received *warningMessageSegment*;

3> continue reception of *SystemInformationBlockType11*;

1> else if all segments of a warning message have been received:

2> assemble the *warningMessage* from the received *warningMessageSegment*;

2> forward the received complete *warningMessage*, *messageIdentifier*, *serialNumber* and *dataCodingScheme* to upper layers;

2> stop reception of *SystemInformationBlockType11*;

2> discard the current values of messageIdentifier and serialNumber for SystemInformationBlockType11;

1> else:

2> store the received *warningMessageSegment*;

2> continue reception of SystemInformationBlockType11;

[TS 36.331, clause 5.3.2.3]

Upon receiving the *Paging* message, the UE shall:

…

1> if the *etws-Indication* is included and the UE is ETWS capable:

2> re-acquire *SystemInformationBlockType1* immediately, i.e., without waiting until the next system information modification period boundary;

2> if the *schedulingInfoList* indicates that *SystemInformationBlockType10* is present:

3> acquire *SystemInformationBlockType10*;

2> if the *schedulingInfoList* indicates that *SystemInformationBlockType11* is present:

3> acquire SystemInformationBlockType11;

[TS 23.041, clause 9.1.2]

...

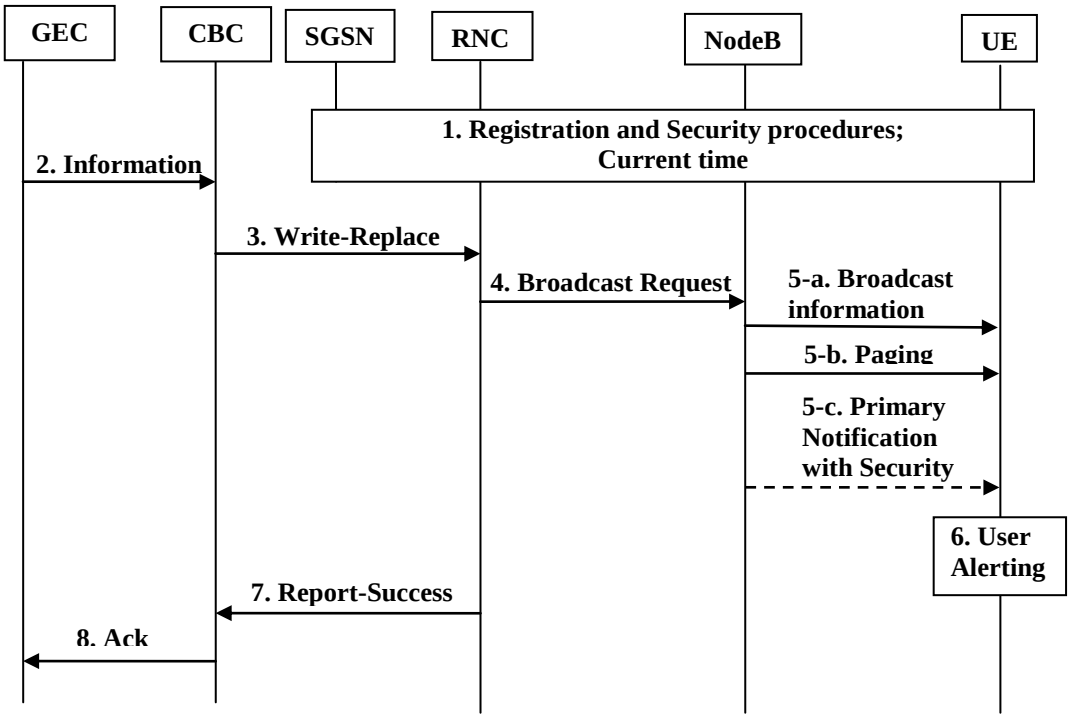

Figure 4b

...

6. The UE alert the user immediately, using "warning type" value,

   - upon the reception of the paging message, if the UE has been configured to receive ETWS warnings over the paging message, and the UE has authenticated the core network of the NodeB it is camped on, or

   - if the UE has not been configured to receive ETWS warnings over the paging message, and it received the optional primary notification and security checks based on "timestamp" and "digital signature" for this notification passed.

NOTE: If the UE received the ETWS warnings over the paging and also received the optional primary notification, it will silently discard the optional primary notification.

NOTE: When the "warning type" is 'test', the UE silently discards the paging message, and the optional primary notification, and do not perform the reception of the broadcast message described below. However, the UE specially designed for testing purposes may perform user alerting described above and proceed to the reception of the broadcast message described below

NOTE: If the UE has been configured to receive ETWS warnings over paging message but it has not authenticated the core network of the NodeB it is camped on, the UE does not receive the paging message and the optional primary notification, and do not perform the reception of the broadcast message described below.

Upon the reception of the paging message, whether the UE is configured to receive ETWS warnings over paging message or not, the UE activates the reception of the broadcast messages containing the "warning message" as the secondary notification, as follows:

- If both the "digital signature" and "timestamp" are present in the "warning message" and security checks fail, then the UE notifies the user of this fact and stops the user alerting.

- If both the "digital signature" and "timestamp" are present and security checks pass, then the UE indicates the contents of the "warning message" to the user along with an indication that the message has been authenticated.

- In other cases, the UE indicates the contents of the "warning message" to the user along with an indication that the message has not been authenticated.

Unless both the "digital signature" and "timestamp" are present and the security checks pass, the UE shall ignore the message, return to normal idle mode, and ignore paging messages with the "ETWS indication" for the next [X] seconds.

NOTE: Repetition period [X] is subject to regulatory requirements.

The UE shall consider a message duplicated if the combination of "message identifier" and "serial number" matches that of the previous message received from the same PLMN. The UE shall ignore messages detected as duplicated. If both the "digital signature" and "timestamp" are present, the UE shall perform security check before duplicate message detection. Duplicate message detection shall be performed independently for primary and secondary notifications.

7. The RNC node sends a BMC REPORT-SUCCESS to the CBC in response to Write-Replace.

8. CBC sends acknowledgement message to CBE.

14.1.3 Test description

14.1.3.1 Pre-test conditions

System Simulator:

- Cell 1

UE:

None.

Preamble:

- The UE is in state Registered, Idle mode (state 2) according to [18].

14.1.3.2 Test procedure sequence

Table 14.1.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message	-	-
1	The SS include an ETWS message with new *messageIdentifier* and *serialNumber* in *SystemInformationBlockType10* and *SystemInformationBlockType11* and transmit a *Paging* message including *etws-Indication* on Cell 1 (NOTE1).	<--	*Paging*	-	-
2	Check: Does the UE indicate the contents of the "warning message" to the user, and alert or activate alerting the user (NOTE2)?	-	-	1	P
3	The SS wait for 10s.	-	-	-	-
4	The SS include an ETWS message with same *messageIdentifier* and *serialNumber* in *SystemInformationBlockType10* and *SystemInformationBlockType11* and transmit a *Paging* message including *etws-Indication* on Cell 1 (NOTE1).	<--	*Paging*	-	-
5	Check: Does the UE indicate the contents of the "warning message" to the user, or alert or activate alerting the user. (NOTE2)?	-	-	1	F
NOTE1: *SystemInformationBlockType11* contain 3 segments. NOTE2: The data indication and user alerting are the UE implementation issues.					

14.1.3.3 Specific message contents

Table 14.1.3.3-1: *SystemInformationBlockType1* for Cell 1 (all steps, Table 14.1.3.2-1)

Derivation Path: 36.508 table 4.4.3.2-3			
Information Element	**Value/remark**	**Comment**	**Condition**
SystemInformationBlockType1 ::= SEQUENCE {			
schedulingInformation ::= SEQUENCE (SIZE (1..maxSI-Message)) OF SEQUENCE {}	Combination 8 in TS 36.508 section 4.4.3.1	SIB2, SIB3, SIB10 and SIB11 are transmitted	
}			

Table 14.1.3.3-2: Void

Table 14.1.3.3-3: Void

Table 14.1.3.3-4: Void

Table 14.1.3.3-5: Void

Table 14.1.3.3-6: *Paging* (step 1 and step 4, Table 14.1.3.2-1)

Derivation Path: 36.508 Table 4.6.1-7			
Information Element	**Value/remark**	**Comment**	**Condition**
Paging ::= SEQUENCE {			
pagingRecordList	Not present		
systemInfoModification	Not present		
etws-Indication	true		
nonCriticalExtension SEQUENCE {}	Not present		
}			

14.2 ETWS reception in RRC_CONNECTED state / Duplicate detection

14.2.1 Test Purpose (TP)

(1)

```
with { UE in RRC_CONNECTED state and follow the reception of Paging message with etws-Indication }
ensure that {
  when { UE start to acquire ETWS message from SIB10 and SIB11 }
    then { UE successfully received the ETWS message and activated the "User Alerting" popup display
}
            }
```

14.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.331, clauses 5.2.2.4, 5.2.2.17, 5.2.2.18, 5.3.2.3; TS 23.041 clause 9.1.2.

[TS 36.331, clause 5.2.2.4]

The UE shall:

…

1> if the UE is ETWS capable:

2> upon entering a cell during RRC_IDLE, following successful handover or upon connection re-establishment:

3> discard any previously buffered *warningMessageSegment*;

3> clear, if any, the current values of *messageIdentifier* and *serialNumber* for *SystemInformationBlockType11*;

2> when the UE acquires *SystemInformationBlockType1* following ETWS indication, upon entering a cell during RRC_IDLE, following successful handover or upon connection re-establishment:

3> if *schedulingInfoList* indicates that *SystemInformationBlockType10* is present:

4> start acquiring *SystemInformationBlockType10* immediately;

3> if *schedulingInfoList* indicates that *SystemInformationBlockType11* is present:

4> start acquiring *SystemInformationBlockType11* immediately;

NOTE 2: UEs shall start acquiring SystemInformationBlockType10 and SystemInformationBlockType11 as described above even when systemInfoValueTag in SystemInformationBlockType1 has not changed.

[TS 36.331, clause 5.2.2.17]

Upon receiving *SystemInformationBlockType10*, the UE shall:

1> forward the received *warningType*, *warningSecurityInfo* (if present), *messageIdentifier* and *serialNumber* to upper layers;

[TS 36.331, clause 5.2.2.18]

Upon receiving *SystemInformationBlockType11*, the UE shall:

1> if there is no current value for *messageIdentifier* and *serialNumber* for *SystemInformationBlockType11*; or

1> if either the received value of *messageIdentifier* or of *serialNumber* or of both is different from the current values of *messageIdentifier* and *serialNumber* for *SystemInformationBlockType11*:

2> use the received values of *messageIdentifier* and *serialNumber* for *SystemInformationBlockType11* as the current values of messageIdentifier and *serialNumber* for *SystemInformationBlockType11*;

2> discard any previously buffered *warningMessageSegment*;

2> if all segments of a warning message have been received:

3> assemble the *warningMessage* from the received *warningMessageSegment*;

3> forward the received *warningMessage*, *messageIdentifier*, *serialNumber* and *dataCodingScheme* to upper layers;

3> stop reception of SystemInformationBlockType11;

3> discard the current values of messageIdentifier and serialNumber for SystemInformationBlockType11;

2> else:

3> store the received *warningMessageSegment*;

3> continue reception of *SystemInformationBlockType11*;

1> else if all segments of a warning message have been received:

2> assemble the *warningMessage* from the received *warningMessageSegment*;

2> forward the received complete *warningMessage*, *messageIdentifier*, *serialNumber* and *dataCodingScheme* to upper layers;

2> stop reception of *SystemInformationBlockType11*;

2> discard the current values of messageIdentifier and serialNumber for SystemInformationBlockType11;

1> else:

2> store the received *warningMessageSegment*;

2> continue reception of SystemInformationBlockType11;

[TS 36.331, clause 5.3.2.3]

Upon receiving the *Paging* message, the UE shall:

…

1> if the *etws-Indication* is included and the UE is ETWS capable:

2> re-acquire *SystemInformationBlockType1* immediately, i.e., without waiting until the next system information modification period boundary;

2> if the *schedulingInfoList* indicates that *SystemInformationBlockType10* is present:

3> acquire *SystemInformationBlockType10*;

2> if the *schedulingInfoList* indicates that *SystemInformationBlockType11* is present:

3> acquire SystemInformationBlockType11;

[TS 23.041, clause 9.1.2]

...

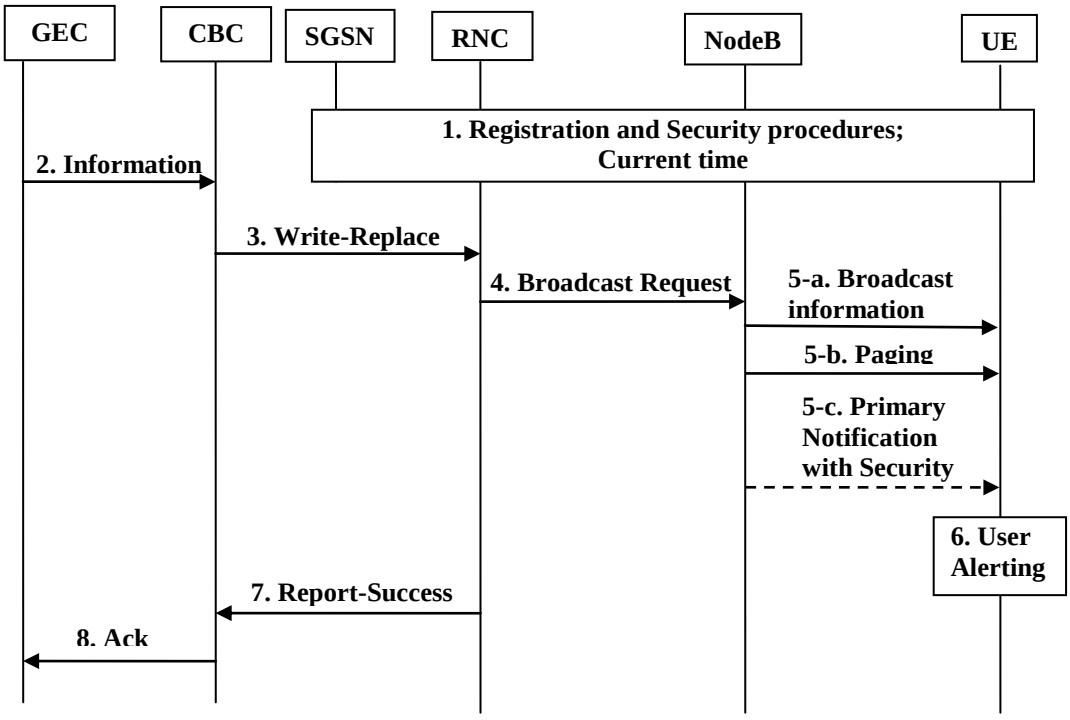

Figure 4b

...

6. The UE alert the user immediately, using "warning type" value,

- upon the reception of the paging message, if the UE has been configured to receive ETWS warnings over the paging message, and the UE has authenticated the core network of the NodeB it is camped on, or

- if the UE has not been configured to receive ETWS warnings over the paging message, and it received the optional primary notification and security checks based on "timestamp" and "digital signature" for this notification passed.

NOTE: If the UE received the ETWS warnings over the paging and also received the optional primary notification, it will silently discard the optional primary notification.

NOTE: When the "warning type" is 'test', the UE silently discards the paging message, and the optional primary notification, and do not perform the reception of the broadcast message described below. However, the UE specially designed for testing purposes may perform user alerting described above and proceed to the reception of the broadcast message described below

NOTE: If the UE has been configured to receive ETWS warnings over paging message but it has not authenticated the core network of the NodeB it is camped on, the UE does not receive the paging message and the optional primary notification, and do not perform the reception of the broadcast message described below.

Upon the reception of the paging message, whether the UE is configured to receive ETWS warnings over paging message or not, the UE activates the reception of the broadcast messages containing the "warning message" as the secondary notification, as follows:

- If both the "digital signature" and "timestamp" are present in the "warning message" and security checks fail, then the UE notifies the user of this fact and stops the user alerting.

- If both the "digital signature" and "timestamp" are present and security checks pass, then the UE indicates the contents of the "warning message" to the user along with an indication that the message has been authenticated.

- In other cases, the UE indicates the contents of the "warning message" to the user along with an indication that the message has not been authenticated.

Unless both the "digital signature" and "timestamp" are present and the security checks pass, the UE shall ignore the message, return to normal idle mode, and ignore paging messages with the "ETWS indication" for the next [X] seconds.

NOTE: Repetition period [X] is subject to regulatory requirements.

The UE shall consider a message duplicated if the combination of "message identifier" and "serial number" matches that of the previous message received from the same PLMN. The UE shall ignore messages detected as duplicated. If both the "digital signature" and "timestamp" are present, the UE shall perform security check before duplicate message detection. Duplicate message detection shall be performed independently for primary and secondary notifications.

7. The RNC node sends a BMC REPORT-SUCCESS to the CBC in response to Write-Replace.

8. CBC sends acknowledgement message to CBE.

14.2.3 Test description

14.2.3.1 Pre-test conditions

System Simulator:

- Cell 1

UE:

None.

Preamble:

- The UE is in state Generic RB Established (state 3) according to [18].

14.2.3.2 Test procedure sequence

Table 14.2.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message	-	-
1	The SS include an ETWS message with new *messageIdentifier* and *serialNumber* in *SystemInformationBlockType10* and *SystemInformationBlockType11* and transmit a *Paging* message including *etws-Indication* on Cell 1 (NOTE1).	<--	*Paging*	-	-
2	Check: Does the UE indicate the contents of the "warning message" to the user, and alert or activate alerting the user (NOTE2)?	-	-	1	P
3	The SS wait for 10s.	-	-	-	-
4	The SS include an ETWS message with same *messageIdentifier* and *serialNumber* in *SystemInformationBlockType10* and *SystemInformationBlockType11* and transmit a *Paging* message including *etws-Indication* on Cell 1 (NOTE1).	<--	*Paging*	-	-
5	Check: Does the UE indicate the contents of the "warning message" to the user, or alert or activate alerting the user (NOTE2)?	-	-	1	F
NOTE1: *SystemInformationBlockType11* contain 3 segments. NOTE2: The data indication and user alerting are the UE implementation issues.					

14.2.3.3 Specific message contents

Table 14.2.3.3-1: *SystemInformationBlockType1* for Cell 1 (all steps, Table 14.2.3.2-1)

Derivation Path: 36.508 table 4.4.3.2-3			
Information Element	**Value/remark**	**Comment**	**Condition**
SystemInformationBlockType1 ::= SEQUENCE {			
schedulingInformation ::= SEQUENCE (SIZE (1..maxSI-Message)) OF SEQUENCE {}	Combination 8 in TS 36.508 section 4.4.3.1	SIB2, SIB3, SIB10 and SIB11 are transmitted	
}			

Table 14.2.3.3-2: Void

Table 14.2.3.3-3: Void

Table 14.2.3.3-4: Void

Table 14.2.3.3-5: Void

Table 14.2.3.3-6: *Paging* (step 1 and step 4, Table 14.2.3.2-1)

Derivation Path: 36.508 Table 4.6.1-7			
Information Element	**Value/remark**	**Comment**	**Condition**
Paging ::= SEQUENCE {			
pagingRecordList	Not present		
systemInfoModification	Not present		
etws-Indication	true		
nonCriticalExtension SEQUENCE {}	Not present		
}			

14.3 Void

15 Mobility management based on DSMIPv6 (Dual-Stack Mobile IPv6)

15.1 Discovery of the home agent via DNS

15.1.1 Test Purpose (TP)

(1)

```
with { UE has acquired an IP address and UE is configured with a DNS server address and UE is
configured with the HA-APN Network Identifier }
ensure that {
  when { UE is configured to discover IP address of Home Agent via DNS }
    then { UE transmits a DNS Query with QNAME set to FQDN of the Home Agent }
           }
```

15.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.303, clauses 5.1.2.1.1 and 5.1.2.1.2.

[TS 24.303, clause 5.1.2.1.1]

The first procedure the UE needs to perform for DSMIPv6 initial attach is the discovery of the node acting as the HA.

The UE can discover the IP addresses of the HA in one of the four following ways:

- via DNS;
- via attach procedure for 3GPP access or trusted non-3GPP access (if supported) based on protocol configuration options;
- via IKEv2 during tunnel setup to ePDG for untrusted non-3GPP accesses;
- via DHCPv6.

If the UE does not obtain the IP addresses of the HA via PCO during the 3GPP or trusted non-3GPP (if supported) attach or via IKEv2 signalling, it shall follow either the procedures described in subclause 5.1.2.1.5 or the procedures described in subclause 5.1.2.1.2. The UE may be configured to perform both procedures in parallel or one of the two procedures only in case the other failed.

[TS 24.303, clause 5.1.2.1.2]

A UE performing Home Agent discovery based on DNS shall support the implementation of standard DNS mechanisms.

The UE shall perform DNS Lookup by Home Agent Name as specified in IETF RFC 5026 [10].The QNAME shall be set to the requested HA-APN. The HA-APN shall be constructed as specified in 3GPP TS 23.003 [17]. If a HA has both an IPv4 and an IPv6 address, the corresponding DNS record should be configured with both 'AAAA' and 'A' records.

Accordingly the UE should perform one DNS lookup procedure to retrieve both 'AAAA' and 'A' records. The DNS server replies with one 'AAAA' and one 'A' record.

15.1.3 Test description

15.1.3.1 Pre-test conditions

System Simulator:

- Cell 1.

UE:

- The UE is configured to discover the Home Agent address via DNS.
- The UE is configured with a DNS server address.
- The UE is configured with the HA-APN Network Identifier.

Preamble:

- The UE is in state Registered, Idle Mode (state 2) on Cell 1 according to [18].
- The UE has acquired an IP address.

15.1.3.2 Test procedure sequence

Table 15.1.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The UE transmits a DNS Query message with QNAME set to FQDN of the Home Agent (derived from HA-APN Network Identifier and PLMN information).	-->	DNS Query	1	P
2	The SS transmits a DNS Response message with the IPv6 and IPv4 addresses of the Home Agent.	<--	DNS Response	-	-

15.1.3.3 Specific message contents

Table 15.1.3.3-1: Message DNS Query (step 1, Table 15.1.3.2-1)

Field	Value/remark	Comment	Condition
QR=	'0'	query	
OPCODE=	'0000'	QUERY	
QNAME=	Fully Qualified Domain Name of the Home Agent	Derived from HA-APN Network Identifier and PLMN information as per TS 23.003 clause 21.2	
QTYPE=	A	This is the query for the IPv4 address	
QCLASS=	IN		
QNAME=	Fully Qualified Domain Name of the Home Agent	Derived from HA-APN Network Identifier and PLMN information as per TS 23.003 clause 21.2	
QTYPE=	AAAA	This is the query for the IPv6 address	
QCLASS=	IN		

Table 15.1.3.3-2: Message DNS Response (step 2, Table 15.1.3.2-1)

Information Element	Value/remark	Comment	Condition
QR=	'1'	response	
OPCODE=	'0000'	QUERY	
QNAME=	Same as received in DNS Query		
QTYPE=	A		
QCLASS=	IN		
QNAME=	Same as received in DNS Query		
QTYPE=	AAAA		
QCLASS=	IN		
RR {			
NAME	Same as received in DNS Query		
TYPE	A		
CLASS	IN		
RDATA	IPv4 address of HA		
}			
RR {			
NAME	Same as received in DNS Query		
TYPE	AAAA		
CLASS	IN		
RDATA	IPv6 address of HA		
}			

15.2 Discovery of the Home Agent via DHCP

15.2.1 Test Purpose (TP)

(1)

```
with { UE has acquired an IP address and UE is configured with the HA-APN Network Identifier }
ensure that {
  when { UE is configured to discover IP address of Home Agent via DHCP }
    then { UE transmits a DHCP Information-Request with Home Network Identifier Option containing
the FQDN of the Home Agent}
            }
```

15.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.303, clauses 5.1.2.1.1 and 5.1.2.1.5.

[TS 24.303, clause 5.1.2.1.1]

The first procedure the UE needs to perform for DSMIPv6 initial attach is the discovery of the node acting as the HA.

The UE can discover the IP addresses of the HA in one of the four following ways:

- via DNS;
- via attach procedure for 3GPP access or trusted non-3GPP access (if supported) based on protocol configuration options;
- via IKEv2 during tunnel setup to ePDG for untrusted non-3GPP accesses;
- via DHCPv6.

If the UE does not obtain the IP addresses of the HA via PCO during the 3GPP or trusted non-3GPP (if supported) attach or via IKEv2 signalling, it shall follow either the procedures described in subclause 5.1.2.1.5 or the procedures described in subclause 5.1.2.1.2. The UE may be configured to perform both procedures in parallel or one of the two procedures only in case the other failed.

[TS 24.303, clause 5.1.2.1.5]

The HA address discovery via DHCPv6 is possible in the following cases:

- in 3GPP access, or
- in trusted non-3GPP access, when a DHCPv6 relay exists in the trusted non-3GPP access and the PDN GW is the DHCPv6 server, or
- in trusted non-3GPP access, when the DHCPv6 server is in the trusted non-3GPP access and it has the HA addressee information from static configuration, or received via STa reference point as specified in 3GPP TS 29.273 [20].

A UE performing HA discovery based on DHCPv6 shall support the implementation of stateless DHCPv6 as specified in IETF RFC 3736 [13] and the DHCPv6 options as specified in draft-ietf-mip6-hiopt [12].

In order to discover the address of the HA the UE shall send an Information-Request message including the Home Network Identifier Option.

In order to connect to a HA for a specific target PDN, the UE shall set the id-type to 1 and include the desired HA-APN in the Home Network Identifier field.

The HA information is provided to the UE within a Home Network Information Option as described in draft-ietf-mip6-hiopt [12]. This option shall include either the available HA addresses (both the IPv6 address and the IPv4 address of the HA, if available) or the HA FQDN. In the latter case the UE shall perform a DNS Lookup by Home Agent Name as specified in IETF RFC 5026 [10]. The QNAME shall be set to the received HA FQDN.

If a HA has both an IPv4 and an IPv6 address, the corresponding DNS record should be configured with both 'AAAA' and 'A' records. Accordingly the UE should perform one DNS lookup procedure to retrieve both 'AAAA' and 'A' records. The DNS server replies with one 'AAAA' and one 'A' record.

15.2.3 Test description

15.2.3.1 Pre-test conditions

System Simulator:

- Cell 1.

UE:

- The UE is configured to discover the address of the Home Agent via DHCPv6.
- The UE is configured with the HA-APN Network Identifier.

Preamble:

- The UE is in state Registered, Idle Mode (state 2) on Cell 1 according to [18].
- The UE has acquired an IPv6 address.

15.2.3.2 Test procedure sequence

Table 15.2.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Check: Does the UE transmit a DHCP Information-Request including a Home Network Information Option?	-->	DHCP Information-Request	1	P
2	The SS transmits a DHCP Reply message including a Home Network Information Option.	<--	DHCP Reply message	-	-

15.2.3.3 Specific message contents

Table 15.2.3.3-1: DHCP Information-Request (step 1, Table 15.2.3.2-1)

Field	Value/remark	Comment	Condition
msg-type	'00001011'B	Information-Request	
Transaction- id	Set by UE		
option-code	'0000000000000001'B	Option Client ID	
DUID	Set by UE		
option-code	'0000000000000110'B	Option ORO	
Requested-option-code-1	FFS	Home Network Identifier Option	
Id-type	'00000001'B	Target network identity present	
Sub-opt-code	'00000001'B	Home network identifier	
Home Network Parameter	Fully Qualified Domain Name	Derived from HA-APN Network Identifier and PLMN information as per TS 23.003 clause 21.2	

Table 15.2.3.3-2: DHCP Reply message (step 2, Table 15.2.3.2-2)

Field	Value/remark	Comment	Condition
msg-type	'00000111'B	Reply	
Transaction- id	Set as the same value of Transaction-id in step 1		
option-code	'0000000000000001'B	Option Client ID	
DUID	Set as the DUID of the client received in step 1		
option-code	'0000000000000010'B	Option Server ID	
DUID	Set by SS		
Home Network Identifier Option	FFS	Home Network Identifier Option	
Id-type	'00000001'B	Target network identity present	
Sub-opt-code	'00000001'B	Home network identifier	
Home Network Parameter	Fully Qualified Domain Name	Derived from HA-APN Network Identifier and PLMN information as per TS 23.003 clause 21.2	
Sub-opt-code	'00000011'B	IPv6 address	
Home Network Parameter	IPv6 address of the Home Agent		
Sub-opt-code	'00000100'B	IPv4 address (optional value)	
Home Network Parameter	IPv4 address of the Home Agent		

15.3 Void

15.4 Security association establishment with Home Agent reallocation procedure

15.4.1 Test Purpose (TP)

(1)

```
with { UE has acquired an IP address }
ensure that {
  when { UE has acquired the IP address of the Home Agent }
    then { UE transmits an IKE_SA_INIT message addressed to the Home Agent to initiate security
association establishment }
            }
```

(2)

```
with { UE has transmitted an IKE_SA_INIT message addressed to the Home Agent to initiate security
association establishment }
ensure that {
  when { UE receives an IKE_SA_INIT response message }
    then { UE transmits an IKE_AUTH Request message containing the configuration payload
MIP6_HOME_PREFIX to receive the prefix to use for Home Address configuration }
            }
```

(3)

```
with { UE has transmitted an IKE_AUTH Request message containing the configuration payload
MIP6_HOME_PREFIX to receive the prefix to use for Home Address configuration }
ensure that {
  when { UE receives an IKE_AUTH Response message including an EAP-Request/AKA Challenge }
    then { UE transmits an IKE_AUTH Request message containing the correct EAP-Response/AKA-
Challenge }
            }
```

(4)

```
with { UE has transmitted an IKE_AUTH Request message containing an EAP-Response/AKA-Challenge }
ensure that {
  when { UE receives an IKE_AUTH Response message including EAP-Success }
    then { UE transmits an IKE_AUTH Request message with Authentication payload }
            }
```

(5)

```
with { UE has transmitted an IKE_AUTH Request message with Authentication payload }
ensure that {
  when { UE receives an IKE_AUTH Response message with Notify payload with a  REDIRECT attribute
containing the HOME AGENT address to connect to }
    then { UE transmits an IKE_SA_INIT message addressed to the Home Agent whose address was
received in the Notify Payload to initiate security association establishment }
            }
```

15.4.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.303, clauses 5.1.2.2 and 5.1.3.1.

[TS 24.303, clause 5.1.2.2]

The UE shall support the IKEv2 protocol (see IETF RFC 4306 [14]) for negotiating the IPsec security association to secure DSMIPv6 signalling and shall support EAP over IKEv2 as described in IETF RFC 4306 [14] to perform authentication with an AAA server. In a case an additional authentication and authorization of the IPSec security association is needed with an external AAA server, then the additional authentication steps during the IKEv2 exchange shall be supported as specified in IETF RFC 4739 [23] and described in 3GPP TS 33.234 [24].

The UE shall support IPsec ESP (see IETF RFC 4303 [11]) in order to provide authentication of Binding Update and Binding Acknowledgement messages as specified in IETF RFC 4877 [4]. The UE shall support multiple authentication exchanges in the IKEv2 protocol as specified in IETF RFC 4739 [23] in order to support authentication with an external AAA server. The UE shall support the redirect mechanism as defined in draft-ietf-ipsecme-ikev2-redirect [30].

The UE shall initiate the security association establishment procedure by sending the IKE_SA_INIT request message defined in IETF RFC 4306 [14] to the HA. The UE shall indicate support for the HA reallocation by including a REDIRECT_SUPPORTED payload in the IKE_SA_INIT request as specified in draft-ietf-ipsecme-ikev2-redirect [30]. On receipt of an IKE_SA_INIT response, the UE shall send an IKE_AUTH request message including the MN-NAI in the IDi payload and the Access Point Name (APN) of the target PDN the UE wants to connect to in the IDr payload. The APN shall be formatted as defined in 3GPP TS 23.003 [17]. The username part of the MN-NAI included in "IDi" payload may be an IMSI, pseudonym or re-authentication ID. The UE shall include in the IDi payload the same MN-NAI it includes in the EAP-Response/Identity within the EAP-AKA exchange.

In the very first EAP-Response/Identity within the IKEv2 exchange the UE shall include a NAI whose username is derived from IMSI. In subsequent exchanges the UE should use pseudonyms and re-authentication identities provided by the 3GPP AAA server as specified in IETF RFC 4187 [26].

NOTE: Fast re-authentication mechanism is optional, and therefore is an implementation option in the UE and operator configuration issue (i.e. it also depends on whether the AAA server sent a re-authentication ID during previous EAP authentication) whether to use it during security association establishment.

EAP-AKA over IKEv2 shall be used to authenticate UE in the IKE_AUTH exchange, while public key signature based authentication with certificates shall be used to authenticate the HA.

…

During the IKEv2 exchange, the UE shall request the allocation of an IPv6 home prefix through the Configuration Payload in the IKE_AUTH. Since in EPS a unique IPv6 prefix is assigned to the UE, the UE shall include a MIP6_HOME_PREFIX attribute in the CFG_REQUEST message as described in IETF RFC 5026 [10]. In addition the UE may include the INTERNAL_IP6_DNS attribute in the CFG_REQUEST as described in IETF RFC 4306 [14] to request the DNS server IPv6 address of the PLMN it is connecting to via DSMIPv6. In the same way the UE may include the INTERNAL_IP4_DNS attribute in the CFG_REQUEST to request the IPv4 address of the DNS server.

The UE shall then auto-configure a Home Address from the IPv6 prefix received from the HA and shall run a CREATE_CHILD_SA exchange to create the security association for the new Home Address. In the CREATE_CHILD_SA exchange the UE shall include the Home Address and the appropriate selectors in the TSi (Traffic Selector-initiator) payload to negotiate the IPsec security association for protecting the Binding Update and Binding Acknowledgement messages as specified in IETF RFC 4877 [4].

[TS 24.303, clause 5.1.3.1]

The HA shall support the IKEv2 protocol (see IETF RFC 4306 [14]) for negotiating the IPsec security association to secure DSMIPv6 signalling and shall support EAP over IKEv2 as described in IETF RFC 4306 [14] to perform UE authentication with an AAA server. If an additional authentication and authorization of the IPSec security association were needed with an external AAA server, then the additional authentication steps during the IKEv2 exchange shall be supported as specified in IETF RFC 4739 [23] and defined in 3GPP TS 33.234 [24]. The HA shall support IPsec ESP (see IETF RFC 4303 [11]) in order to provide authentication of Binding Update and Binding Acknowledgement messages as specified in IETF RFC 4877 [4]. The HA shall support multiple authentication exchanges in the IKEv2 protocol as specified in IETF RFC 4739 [23] in order to support authentication with an external AAA server.

The HA shall complete the IKE_SA_INIT exchange as specified in IETF RFC 4306 [14]. The HA shall include in the IDr the same value included by the UE in the IDr payload of the request.

Upon successful authorization and authentication, the HA shall accept the security association establishment request by sending the IKE_AUTH response message with the CFG_REPLY payload including the IPv6 Home Network Prefix allocated to the UE in the MIP6_HOME_PREFIX attribute. This prefix information shall include the prefix length as specified in IETF RFC 5026 [10]. If the UE included the INTERNAL_IP6_DNS or the INTERNAL_IP4_DNS in the CFG_REQUEST, the HA shall include the same attribute in the CFG_REPLY including zero or more DNS server addresses as specified in IETF RFC 4306 [14]

If the 3GPP AAA server triggers the HA to perform a HA reallocation procedure as specified in 3GPP TS 33.402 [18], the HA learns the IP address of the target HA as specified in 3GPP TS 29.273 [20]. The HA shall provide to the UE the target HA IP address in the REDIRECT payload during IKE_AUTH exchange as specified in 3GPP TS 33.402 [18]. The encoding of the REDIRECT payload in the IKE_AUTH response message is specified in draft-ietf-ipsecme-ikev2-redirect [30]. The HA shall not assign an IPv6 prefix to the UE in the IKE_AUTH exchange. The HA shall remove the states of the IKEv2 security association with the UE after receiving an IKEv2 Informational message with a DELETE payload from the UE.

15.4.3 Test description

15.4.3.1 Pre-test conditions

System Simulator:

- Cell 1.

UE:

None.

Preamble:

- The UE is in state Registered, Idle Mode (state 2) on Cell 1 according to [18].
- The UE has acquired an IP address.
- The UE has discovered the IP address of the Home Agent (either via DNS, DHCPv6, IKEv2 signalling or during Attach Procedure via PCO).

15.4.3.2 Test procedure sequence

Table 15.4.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Check: Does the UE transmit an IKE_SA_INIT message addressed to the Home Agent?	-->	IKE_SA_INIT	1	P
2	The SS transmits an IKE_SA_INIT message.	<--	IKE_SA_INIT	-	-
3	Check: Does the UE transmit an IKE_AUTH Request message containing the configuration payload MIP6_HOME_PREFIX, a MN-NAI derived from UE IMSI in the IDi field and an APN in the IDr field?	-->	IKE_AUTH Request	2	P
4	The SS transmits an IKE_AUTH Response message including an EAP-Request/AKA-Challenge.	<--	IKE_AUTH Response	-	-
5	Check: Does the UE transmit an IKE_AUTH Request message including the EAP-Response/AKA-Challenge?	-->	IKE_AUTH Request	3	P
6	The SS transmits an IKE_AUTH Response message including EAP-Success.	<--	IKE_AUTH Response	-	-
7	Check: Does the UE transmit an IKE_AUTH Request message with Authentication payload?	-->	IKE_AUTH Request	4	P
8	The SS transmits an IKE_AUTH Response message with Notify payload containing REDIRECT attribute with the Home Agent to be used	<--	IKE_AUTH Response	-	-
9	Check: Does the UE transmit an IKE_SA_INIT message addressed to the Home Agent whose address was provided in the REDIRECT Notify payload?	-->	IKE_SA_INIT	5	P

15.4.3.3 Specific message contents

Table 15.4.3.3-1: Message IKE_SA_INIT (step 1, Table 15.4.3.2-1)

Field	Value/remark	Comment	Condition
IKE Header			
Initiator's IKE_SA SPI	Set by the UE		
Responder's IKE_SA SPI	0	First message in IKE_SA_INIT exchange	
Next Payload	'00100001'B	SA	
Exchange Type	'00100010'B	IKE_SA_INIT	
Security Association Payload			
Next Payload	'00100010'B	KE	
More proposal	'00000010'B		
Proposal #	'00000001'B	First cryptographic suite (section 6.5 of TS 33.234)	
Protocol ID	'00000001'B	IKE	
SPI size	'00000000'B		
Number of transforms	'00000010'B		
More transform	'00000011'B	This is the transform for confidentiality	
Transform type	'00000001'B	Encryption	
Transform ID	'00000011'B	3DES in CBC mode (ENCR_3DES)	
More transform	'00000011'B	This is the transform for prf	
Transform type	'00000010'B	PRF	
Transform ID	'00000010'B	PRF_HMAC_SHA 1 (HMAC-SHA1)	
More transform	'00000011'B	This is the transform for integrity	
Transform type	'00000011'B	Integrity	
Transform ID	'00000010'B	HMAC-SHA1-96 (AUTH_HMAC_S HA1_96)	
Last transform	'00000000'B	This is the transform for DH	
Transform type	'00000100'B	DH	
Transform ID	'00000010'B	Diffie-Hellman group 2 (1024-bit MODP)	
Last proposal	'00000000'B		
Proposal #	'00000010'B	Second cryptographic suite (section 6.5 of TS 33.234)	
Protocol ID	'00000001'B	IKE	
SPI size	'00000000'B		
Number of transforms	'00000010'B		
More transform	'00000011'B	This is the transform for confidentiality	
Transform type	'00000001'B	Encryption	
Transform ID	'00001011'B	AES with 128-bit keys in CBC mode (ENCR_AES_CB C)	
More transform	'00000011'B	This is the transform for prf	
Transform type	'00000010'B	PRF	
Transform ID	'00000100'B	PRF_AES128_XC	

		BC_ AES-XCBC-PRF-128	
More transform	'00000011'B	This is the transform for integrity	
Transform type	'00000011'B	Integrity	
Transform ID	'00000101'B	AES-XCBC-MAC-96 (AUTH_ AES-XCBC -96)	
Last transform	'00000000'B	This is the transform for DH	
Transform type	'00000100'B	DH	
Transform ID	'00000010'B	Diffie-Hellman group 2 (1024-bit MODP)	
Key Exchange Payload			
Next Payload	'00101000'B	Nonce	
DH Group #	'0000000000000010'B	DH group 2	
Key Exchange data	Set by the UE		
Nonce Payload			
Next Payload	'00101001'B	Notify (REDIRECT_SUPPORTED)	
Nonce data	Random number set by the UE		
REDIRECT_SUPPORTED Notify Payload			
Next Payload	'00000000'B	No Next Payload	
Protocol ID	'00000000'B	Notification is not specific to a particular security association	
SPI size	'00000000'B	SPI field not present	
Notify Message Type	'0100000000010110'B	REDIRECT_SUPPORTED	

Table 15.4.3.3-2: Message IKE_SA_INIT (step 2, Table 15.4.3.2-1)

Information Element	Value/remark	Comment	Condition
IKE Header			
Initiator's IKE_SA SPI	Same as that set by the UE in IKE_SA_INIT as Step 1		
Responder's IKE_SA SPI	Set by the SS		
Next Payload	'00100001'B	SA	
Exchange Type	'00100010'B	IKE_SA_INIT	
Security Association Payload			
Next Payload	'00100010'B	KE	
Proposal	One of the 2 proposals included in IKE_SA_INIT at Step 1		
Key Exchange Payload			
Next payload	'00 101000'B	Nonce	
DH Group #	'0000000000000010'B	DH group 2	
Key Exchange data	Set by the SS		
Nonce Payload			
Next t payload	'00000000'B	No Next Payload	
Nonce data	Set by the SS		

Table 15.4.3.3-3: Message IKE_AUTH Request (step 3, Table 15.4.3.2-1)

Field	Value/remark	Comment	Condition
IKE Header			
Initiator's IKE_SA SPI	Same as that set by the UE at Step 1		
Responder's IKE_SA SPI	Same as that set by the SS at Step 2		
Next Payload	'00101110'B	E	
Exchange Type	'00100011'B	IKE_AUTH	
Encrypted Payload			
Next Payload	'00100011'B	IDi	
Initialization Vector	Random value set by the UE		
Encrypted IKE Payloads			
Identification – Initiator Payload			
Next Payload	'00101111'B	CP	
ID Type	00000010B		
ID	Set to MN-NAI		
Configuration Payload			
Next Payload	'00100001'B	SA	
CFG Type	'00000001'B	Request	
Configuration Attribute	'00010000'B	MIP6_HOME_PREFIX attribute	
Length	'0000000000000000'B		
Security Association Payload			
Next Payload	'00101100'B	TSi	
Proposals	Any set of allowed values		
Traffic Selector – Initiator Payload			
Next Payload	'00101100'B	TSr	
Traffic selector data	Any allowed set of values		
Traffic Selector – Responder Payload			
Next Payload	'00100100'B	IDr	
Traffic selector data	Any allowed set of values		
Identification – Responder Payload			
Next Payload	'00000000'B	No Next Payload	
ID Type	'00000010'B		
ID	APN		
Padding	Set by the UE	Fields from Encrypted payload	
Pad Length	Set by the UE	Fields from Encrypted payload	
Integrity checksum data	Set by the UE	Fields from Encrypted payload	

Table 15.4.3.3-4: Message IKE_AUTH Response (step 4, Table 15.4.3.2-1)

Field	Value/remark	Comment	Condition
IKE Header			
Initiator's IKE_SA SPI	Same as that set by the UE at Step 1		
Responder's IKE_SA SPI	Same as that set by the SS at Step 2		
Next Payload	'00101110'B	E	
Exchange Type	'00100011'B	IKE_AUTH	
Encrypted Payload			
Next Payload	'00100100'B	IDr	
Initialization Vector	Set by the SS		
Encrypted IKE Payloads			
Identification – Responder Payload			
Next Payload	'00100101'B	CERT	
ID Type	'00000010'B		
ID	APN		
Certificate Payload			
Next Payload	'00110000'B	EAP	
Cert encoding	'00000100'B	X.509 certificate - signature	
Certificate data	Set by the SS	DER encoded X.509 certificate	
Extensible Authentication Payload			
Next Payload	'00000000'B	No Next Payload	
Code	'00000001'B	Request	
Type	'00010111'B	AKA	
Subtype		AKA-Challenge	
Attribute type	'00000001'B	AT_RAND	
AT_RAND	An arbitrarily selected 128 bits value		
Attribute Type	'00000010'B	AT_AUTN	
AT_AUTN	See TS 24.301 [28] subclause 9.9.3.2		
Padding	Set by the SS	Fields from Encryption payload	
Pad Length	Set by the SS	Fields from Encryption payload	
Integrity checksum data	Set by the SS	Fields from Encryption payload	

Table 15.4.3.3-5: Message IKE_AUTH Request (step 5, Table 15.4.3.2-1)

Field	Value/remark	Comment	Condition
IKE Header			
Initiator's IKE_SA SPI	Same as that set by UE at Step 1		
Responder's IKE_SA SPI	Same as that set by the SS at Step 2		
Next Payload	'00101110'B	E	
Exchange Type	'00100011'B	IKE_AUTH	
Encrypted Payload			
Next Payload	'00110000'B	EAP	
Initialization Vector	Random value set by the UE		
Encrypted IKE Payloads			
Extensible Authentication Payload			
Next Payload	'00000000'B	No Next Payload	
Code	'00000010'B	Response	
Type	'00010111'B	AKA	
Subtype		AKA-Challenge	
Attribute type	'00000011'B	AT_RES	
AT_RES	See TS 24.301 [28] subclause 9.9.3.4		
Padding	Set by the UE	Fields from Encryption payload	
Pad Length	Set by the UE	Fields from Encryption payload	
Integrity checksum data	Set by the UE	Fields from Encryption payload	

Table 15.4.3.3-6: Message IKE_AUTH Response (step 6, Table 15.4.3.2-1)

Field	Value/remark	Comment	Condition
IKE Header			
Initiator's IKE_SA SPI	Same as that set by the UE at Step 1		
Responder's IKE_SA SPI	Same as that set by the SS at Step 2		
Next Payload	'00101110'B	E	
Exchange Type	'00100011'B	IKE_AUTH	
Encrypted Payload			
Next Payload	'00110000'B	EAP	
Initialization Vector	Set by the SS		
Encrypted IKE Payloads			
Extensible Authentication Payload			
Next Payload	'00000000'B	No Next Payload	
Code	'00000011'B	Success	
Padding	Set by the SS	Fields from Encryption payload	
Pad Length	Set by the SS	Fields from Encryption payload	
Integrity checksum data	Set by the SS	Fields from Encryption payload	

Table 15.4.3.3-7: Message IKE_AUTH Request (step 7, Table 15.4.3.2-1)

Field	Value/remark	Comment	Condition
IKE Header			
Initiator's IKE_SA SPI	Same as that set by the UE at Step 1		
Responder's IKE_SA SPI	Same as that set by the SS at Step 2		
Next Payload	'00101110'B	E	
Exchange Type	'00100011'	IKE_AUTH	
Encrypted Payload			
Next Payload	'00100111'B	AUTH	
Initialization Vector	Random value set by the UE		
Encrypted IKE Payloads			
Authentication Payload			
Next Payload	'00000000'B	No Next Payload	
Auth Method	'00000010'B	Shared Key Integrity code	
Auth Data	derived from the MSK obtained from AKA exchange	RFC 4306 defines the function to derive this key (section 2.15)	
Padding	Set by the UE	Fields from Encryption payload	
Pad Length	Set by the UE	Fields from Encryption payload	
Integrity checksum data	Set by the UE	Fields from Encryption payload	

Table 15.4.3.3-8: Message IKE_AUTH Response (step 8, Table 15.4.3.2-1)

Field	Value/remark	Comment	Condition
IKE Header			
Initiator's IKE_SA SPI	Same as that set by the UE at Step 1		
Responder's IKE_SA SPI	Same as that set by the SS at Step 2		
Next Payload	'00101110'B	E	
Exchange Type	'00100011'B	IKE_AUTH	
Encrypted Payload			
Next Payload	'00100111'B	AUTH	
Initialization Vector	Set by the SS		
Encrypted IKE Payloads			
Authentication Payload			
Next Payload	'00101001'B	Notify	
Auth Method	'00000010'B	Shared Key Integrity code	
Auth Data	derived from the MSK obtained from AKA exchange	RFC 4306 defines the function to derive this key (section 2.15)	
Notify Payload			
Next Payload	'00100001'B	SA	
Protocol ID	'00000000'B	Notification is not specific to a particular security association	
SPI Size	'00000000'B	SPI field not present	
Notify Message Type Length	'0100000000010111'B	REDIRECT	
GW Ident Type	'00000101'B		
New Responder GW Identity	IPv6 address of the HA to relocate		
GW Ident Type	'00000001'B		
New Responder GW Identity	IPv4 address of the HA to relocate	Optional	
Security Association Payload			
Next Payload	'00101101'	TSi	
Proposal	One of the 2 proposals included in IKE_AUTH Request at Step 3		
Traffic Selector – Initiator Payload			
Next Payload	'00101100'B	TSr	
Traffic Selector data	Any allowed set of values		
Traffic Selector – Responder Payload			
Next Payload	'00000000'B	No Next Payload	
Traffic Selector data	Any allowed set of values		
Padding	Set by the SS	Fields from Encryption payload	
Pad Length	Set by the SS	Fields from Encryption payload	
Integrity checksum data	Set by the SS	Fields from Encryption payload	

Table 15.4.3.3-910: Message IKE_SA_INIT (step 109, Table 15.4.3.2-1)

Field	Value/remark	Comment	Condition
IKE Header			
Initiator's IKE_SA SPI	Set by the UE		
Responder's IKE_SA SPI	0	First message in IKE_SA_INIT exchange	
Next Payload	'00100001'B	SA	
Exchange Type	'00100010'B	IKE_SA_INIT	
Security Association Payload			
Next Payload	'00100010'B	KE	
More proposal	'00000010'B		
Proposal #	'00000001'B	First cryptographic suite (section 6.5 of TS 33.234)	
Protocol ID	'00000001'B	IKE	
SPI size	'00000000'B		
Number of transforms	'00000010'B		
More transform	'00000011'B	This is the transform for confidentiality	
Transform type	'00000001'B	Encryption	
Transform ID	'00000011'B	3DES in CBC mode (ENCR_3DES)	
More transform	'00000011'B	This is the transform for prf	
Transform type	'00000010'B	PRF	
Transform ID	'00000010'B	PRF_HMAC_SHA 1 (HMAC-SHA1)	
More transform	'00000011'B	This is the transform for integrity	
Transform type	'00000011'B	Integrity	
Transform ID	'00000010'B	HMAC-SHA1-96 (AUTH_HMAC_S HA1_96)	
Last transform	'00000000'B	This is the transform for DH	
Transform type	'00000100'B	DH	
Transform ID	'00000010'B	Diffie-Hellman group 2 (1024-bit MODP)	
Last proposal	'00000000'B		
Proposal #	'00000010'B	Second cryptographic suite (section 6.5 of TS 33.234)	
Protocol ID	'00000001'B	IKE	
SPI size	'00000000'B		
Number of transforms	'00000010'B		
More transform	'00000011'B	This is the transform for confidentiality	
Transform type	'00000001'B	Encryption	
Transform ID	'00001011'B	AES with 128-bit keys in CBC mode (ENCR_AES_CB C)	
More transform	'00000011'B	This is the transform for prf	
Transform type	'00000010'B	PRF	
Transform ID	'00000100'B	PRF_AES128_XC BC_ AES-XCBC-PRF-128	

More transform	'00000011'B	This is the transform for integrity	
Transform type	'00000011'B	Integrity	
Transform ID	'00000101'B	AES-XCBC-MAC-96 (AUTH_ AES-XCBC -96)	
Last transform	'00000000'B	This is the transform for DH	
Transform type	'00000100'B	DH	
Transform ID	'00000010'B	Diffie-Hellman group 2 (1024-bit MODP)	
Key Exchange Payload			
Next Payload	'00101000'B	Nonce	
DH Group #	'0000000000000010'B	DH group 2	
Key Exchange data	Set by the UE		
Nonce Payload			
Next Payload	'00101001'B	Notify (REDIRECT_SUPPORTED)	
Nonce data	Random number set by the UE		
REDIRECT_SUPPORTED Notify Payload			
Next Payload	'00101001'B	Notify (REDIRECT_FROM)	
Protocol ID	'00000000'B	Notification is not specific to a particular security association	
SPI size	'00000000'B	SPI field not present	
Notify Message Type	'0100000000010110'B	REDIRECT_SUPPORTED	
Notify Payload			
Next Payload	'00000000'B	No next payload	
Protocol ID	'00000000'B	Notification is not specific to a particular security association	
SPI Size	'00000000'B	SPI field not present	
Notify Message Type	'0100000000011000'B	REDIRECT_From	
GW Ident Type	Any allowed value (IPv6 or IPv4 or HA FQDN)	Set depending on how the UE has discovered the HA in the preamble	
New Responder GW Identity	Depends on GW Ident type		

15.5 Security association establishment without home agent reallocation procedure

15.5.1 Test Purpose (TP)

(1)

```
with { UE has acquired an IP address }
ensure that {
  when { UE has acquired the IP address of the Home Agent }
    then { UE transmits an IKE_SA_INIT message addressed to the Home Agent to initiate security
association establishment }
            }
```

(2)

```
with { UE has transmitted an IKE_SA_INIT message addressed to the Home Agent to initiate security
association establishment }
ensure that {
  when { UE receives an IKE_SA_INIT response message }
    then { UE transmits an IKE_AUTH Request message containing the configuration payload
MIP6_HOME_PREFIX to receive the prefix to use for Home Address configuration }
            }
```

(3)

```
with { UE has transmitted an IKE_AUTH Request message containing the configuration payload
MIP6_HOME_PREFIX to receive the prefix to use for Home Address configuration }
ensure that {
  when { UE receives an IKE_AUTH Response message including an EAP-Request/AKA Challenge }
    then { UE transmits an IKE_AUTH Request message containing the correct EAP-Response/AKA-
Challenge }
            }
```

(4)

```
with { UE has transmitted an IKE_AUTH Request message containing an EAP-Response/AKA-Challenge }
ensure that {
  when { UE receives an IKE_AUTH Response message including EAP-Success }
    then { UE transmits an IKE_AUTH Request message with Authentication payload }
            }
```

(5)

```
with { UE has transmitted an IKE_AUTH Request message with Authentication payload }
ensure that {
  when { UE receives an IKE_AUTH Response message with configuration payload MIP6_HOME_PREFIX
containing the Home Network Prefix HNP associated to the UE }
    then { UE transmits a CREATE_CHILD_SA  Request  message including traffic selectors fields (TSi
and TSr) that contain the parameters identifying the Binding Update (BU)/Binding Acknowledgments
(BA)  messages }
            }
```

15.5.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.303, clause 5.1.2.2.

[TS 24.303, clause 5.1.2.2]

The UE shall support the IKEv2 protocol (see IETF RFC 4306 [14]) for negotiating the IPsec security association to secure DSMIPv6 signalling and shall support EAP over IKEv2 as described in IETF RFC 4306 [14] to perform authentication with an AAA server. In a case an additional authentication and authorization of the IPSec security association is needed with an external AAA server, then the additional authentication steps during the IKEv2 exchange shall be supported as specified in IETF RFC 4739 [23] and described in 3GPP TS 33.234 [24].

The UE shall support IPsec ESP (see IETF RFC 4303 [11]) in order to provide authentication of Binding Update and Binding Acknowledgement messages as specified in IETF RFC 4877 [4]. The UE shall support multiple authentication exchanges in the IKEv2 protocol as specified in IETF RFC 4739 [23] in order to support authentication with an external AAA server. The UE shall support the redirect mechanism as defined in draft-ietf-ipsecme-ikev2-redirect [30].

The UE shall initiate the security association establishment procedure by sending the IKE_SA_INIT request message defined in IETF RFC 4306 [14] to the HA. The UE shall indicate support for the HA reallocation by including a REDIRECT_SUPPORTED payload in the IKE_SA_INIT request as specified in draft-ietf-ipsecme-ikev2-redirect [30]. On receipt of an IKE_SA_INIT response, the UE shall send an IKE_AUTH request message including the MN-NAI in the IDi payload and the Access Point Name (APN) of the target PDN the UE wants to connect to in the IDr payload. The APN shall be formatted as defined in 3GPP TS 23.003 [17]. The username part of the MN-NAI included in "IDi" payload may be an IMSI, pseudonym or re-authentication ID. The UE shall include in the IDi payload the same MN-NAI it includes in the EAP-Response/Identity within the EAP-AKA exchange.

In the very first EAP-Response/Identity within the IKEv2 exchange the UE shall include a NAI whose username is derived from IMSI. In subsequent exchanges the UE should use pseudonyms and re-authentication identities provided by the 3GPP AAA server as specified in IETF RFC 4187 [26].

NOTE: Fast re-authentication mechanism is optional, and therefore is an implementation option in the UE and operator configuration issue (i.e. it also depends on whether the AAA server sent a re-authentication ID during previous EAP authentication) whether to use it during security association establishment.

EAP-AKA over IKEv2 shall be used to authenticate UE in the IKE_AUTH exchange, while public key signature based authentication with certificates shall be used to authenticate the HA.

…

During the IKEv2 exchange, the UE shall request the allocation of an IPv6 home prefix through the Configuration Payload in the IKE_AUTH. Since in EPS a unique IPv6 prefix is assigned to the UE, the UE shall include a MIP6_HOME_PREFIX attribute in the CFG_REQUEST message as described in IETF RFC 5026 [10]. In addition the UE may include the INTERNAL_IP6_DNS attribute in the CFG_REQUEST as described in IETF RFC 4306 [14] to request the DNS server IPv6 address of the PLMN it is connecting to via DSMIPv6. In the same way the UE may include the INTERNAL_IP4_DNS attribute in the CFG_REQUEST to request the IPv4 address of the DNS server.

The UE shall then auto-configure a Home Address from the IPv6 prefix received from the HA and shall run a CREATE_CHILD_SA exchange to create the security association for the new Home Address. In the CREATE_CHILD_SA exchange the UE shall include the Home Address and the appropriate selectors in the TSi (Traffic Selector-initiator) payload to negotiate the IPsec security association for protecting the Binding Update and Binding Acknowledgement messages as specified in IETF RFC 4877 [4].

15.5.3 Test description

15.5.3.1 Pre-test conditions

System Simulator:

- Cell 1.

UE:

None.

Preamble:

- The UE is in state Registered, Idle Mode (state 2) on Cell 1 according to [18].
- The UE has acquired an IP address.
- The UE has discovered the IP address of the Home Agent (either via DNS, DHCPv6, IKEv2 signalling or during Attach Procedure via PCO).

15.5.3.2 Test procedure sequence

Table 15.5.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Check: Does the UE transmit an IKE_SA_INIT message addressed to the Home Agent?	-->	IKE_SA_INIT	1	P
2	The SS transmits an IKE_SA_INIT message.	<--	IKE_SA_INIT	-	-
3	Check: Does the UE transmit an IKE_AUTH Request message containing the configuration payload MIP6_HOME_PREFIX, a MN-NAI derived from UE IMSI in the IDi field and an APN in the IDr field?	-->	IKE_AUTH Request	2	P
4	The SS transmits an IKE_AUTH Response message including an EAP-Request/AKA-Challenge.	<--	IKE_AUTH Response	-	-
5	Check: Does the UE transmit an IKE_AUTH Request message including the EAP-Response/AKA-Challenge?	-->	IKE_AUTH Request	3	P
6	The SS transmits an IKE_AUTH Response message including EAP-Success.	<--	IKE_AUTH Response	-	-
7	Check: Does the UE transmit an IKE_AUTH Request message with Authentication payload?	-->	IKE_AUTH Request	4	P
8	The SS transmits an IKE_AUTH Response message with configuration payload MIP6_HOME_PREFIX containing the Home Network Prefix HNP associated to the UE.	<--	IKE_AUTH Response	-	-
9	Check: Does the UE transmit a CREATE_CHILD_SA Request message including traffic selectors' fields (TSi and TSr) that contain the parameters identifying the Binding Update (BU) / Binding Acknowledgments (BA) messages?	-->	CREATE_CHILD_SA Request	5	P
10	The SS transmits a CREATE_CHILD_SA Response message.	<--	CREATE_CHILD_SA Response	-	-

15.5.3.3 Specific message contents

Table 15.5.3.3-1: Message IKE_SA_INIT (step 1, Table 15.5.3.2-1)

Field	Value/remark	Comment	Condition
IKE Header			
Initiator's IKE_SA SPI	Set by the UE		
Responder's IKE_SA SPI	0	First message in IKE_SA_INIT exchange	
Next Payload	'00100001'B	SA	
Exchange Type	'00100010'B	IKE_SA_INIT	
Security Association Payload			
Next Payload	'00100010'B	KE	
More proposal	'00000010'B		
Proposal #	'00000001'B	First cryptographic suite (section 6.5 of TS 33.234)	
Protocol ID	'00000001'B	IKE	
SPI size	'00000000'B		
Number of transforms	'00000010'B		
More transform	'00000011'B	This is the transform for confidentiality	
Transform type	'00000001'B	Encryption	
Transform ID	'00000011'B	3DES in CBC mode (ENCR_3DES)	
More transform	'00000011'B	This is the transform for prf	
Transform type	'00000010'B	PRF	
Transform ID	'00000010'B	PRF_HMAC_SHA 1 (HMAC-SHA1)	
More transform	'00000011'B	This is the transform for integrity	
Transform type	'00000011'B	Integrity	
Transform ID	'00000010'B	HMAC-SHA1-96 (AUTH_HMAC_S HA1_96)	
Last transform	'00000000'B	This is the transform for DH	
Transform type	'00000100'B	DH	
Transform ID	'00000010'B	Diffie-Hellman group 2 (1024-bit MODP)	
Last proposal	'00000000'B		
Proposal #	'00000010'B	Second cryptographic suite (section 6.5 of TS 33.234)	
Protocol ID	'00000001'B	IKE	
SPI size	'00000000'B		
Number of transforms	'00000010'B		
More transform	'00000011'B	This is the transform for confidentiality	
Transform type	'00000001'B	Encryption	
Transform ID	'00001011'B	AES with 128-bit keys in CBC mode (ENCR_AES_CB C)	
More transform	'00000011'B	This is the transform for prf	
Transform type	'00000010'B	PRF	
Transform ID	'00000100'B	PRF_AES128_XC	

		BC_ AES-XCBC-PRF-128	
More transform	'00000011'B	This is the transform for integrity	
Transform type	'00000011'B	Integrity	
Transform ID	'00000101'B	AES-XCBC-MAC-96 (AUTH_ AES-XCBC -96)	
Last transform	'00000000'B	This is the transform for DH	
Transform type	'00000100'B	DH	
Transform ID	'00000010'B	Diffie-Hellman group 2 (1024-bit MODP)	
Key Exchange Payload			
Next Payload	'00101000'B	Nonce	
DH Group #	'0000000000000010'B	DH group 2	
Key Exchange data	Set by the UE		
Nonce Payload			
Next Payload	'00101001'B	Notify (REDIRECT_SUPPORTED)	
Nonce data	Random number set by the UE		
REDIRECT_SUPPORTED Notify Payload			
Next Payload	'00000000'B	No Next Payload	
Protocol ID	'00000000'B	Notification is not specific to a particular security association	
SPI size	'00000000'B	SPI field not present	
Notify Message Type	'0100000000010110'B	REDIRECT_SUPPORTED	

Table 15.5.3.3-2: Message IKE_SA_INIT (step 2, Table 15.5.3.2-1)

Information Element	Value/remark	Comment	Condition
IKE Header			
Initiator's IKE_SA SPI	Same as that set by the UE in IKE_SA_INIT as Step 1		
Responder's IKE_SA SPI	Set by the SS		
Next Payload	'00100001'B	SA	
Exchange Type	'00100010'B	IKE_SA_INIT	
Security Association Payload			
Next Payload	'00100010'B	KE	
Proposal	One of the 2 proposals included in IKE_SA_INIT at Step 1		
Key Exchange Payload			
Next payload	'00 101000'B	Nonce	
DH Group #	'0000000000000010'B	DH group 2	
Key Exchange data	Set by the SS		
Nonce Payload			
Next t payload	'00000000'B	No Next Payload	
Nonce data	Set by the SS		

Table 15.5.3.3-3: Message IKE_AUTH Request (step 3, Table 15.5.3.2-1)

Field	Value/remark	Comment	Condition
IKE Header			
Initiator's IKE_SA SPI	Same as that set by the UE at Step 1		
Responder's IKE_SA SPI	Same as that set by the SS at Step 2		
Next Payload	'00101110'B	E	
Exchange Type	'00100011'B	IKE_AUTH	
Encrypted Payload			
Next Payload	'00100011'B	IDi	
Initialization Vector	Random value set by the UE		
Encrypted IKE Payloads			
Identification – Initiator Payload			
Next Payload	'00101111'B	CP	
ID Type	00000010B		
ID	Set to MN-NAI		
Configuration Payload			
Next Payload	'00100001'B	SA	
CFG Type	'00000001'B	Request	
Configuration Attribute	'00010000'B	MIP6_HOME_PREFIX attribute	
Length	'0000000000000000'B		
Security Association Payload			
Next Payload	'00101100'B	TSi	
Proposals	Any set of allowed values		
Traffic Selector – Initiator Payload			
Next Payload	'00101100'B	TSr	
Traffic selector data	Any allowed set of values		
Traffic Selector – Responder Payload			
Next Payload	'00100100'B	IDr	
Traffic selector data	Any allowed set of values		
Identification – Responder Payload			
Next Payload	'00000000'B	No Next Payload	
ID Type	'00000010'B		
ID	APN		
Padding	Set by the UE	Fields from Encrypted payload	
Pad Length	Set by the UE	Fields from Encrypted payload	
Integrity checksum data	Set by the UE	Fields from Encrypted payload	

Table 15.5.3.3-4: Message IKE_AUTH Response (step 4, Table 15.5.3.2-1)

Field	Value/remark	Comment	Condition
IKE Header			
Initiator's IKE_SA SPI	Same as that set by the UE at Step 1		
Responder's IKE_SA SPI	Same as that set by the SS at Step 2		
Next Payload	'00101110'B	E	
Exchange Type	'00100011'B	IKE_AUTH	
Encrypted Payload			
Next Payload	'00100100'B	IDr	
Initialization Vector	Set by the SS		
Encrypted IKE Payloads			
Identification – Responder Payload			
Next Payload	'00100101'B	CERT	
ID Type	'00000010'B		
ID	APN		
Certificate Payload			
Next Payload	'00110000'B	EAP	
Cert encoding	'00000100'B	X.509 certificate - signature	
Certificate data	Set by the SS	DER encoded X.509 certificate	
Extensible Authentication Payload			
Next Payload	'00000000'B	No Next Payload	
Code	'00000001'B	Request	
Type	'00010111'B	AKA	
Subtype		AKA-Challenge	
Attribute type	'00000001'B	AT_RAND	
AT_RAND	An arbitrarily selected 128 bits value		
Attribute Type	'00000010'B	AT_AUTN	
AT_AUTN	See TS 24.301 [28] subclause 9.9.3.2		
Padding	Set by the SS	Fields from Encryption payload	
Pad Length	Set by the SS	Fields from Encryption payload	
Integrity checksum data	Set by the SS	Fields from Encryption payload	

Table 15.5.3.3-5: Message IKE_AUTH Request (step 5, Table 15.5.3.2-1)

Field	Value/remark	Comment	Condition
IKE Header			
Initiator's IKE_SA SPI	Same as that set by UE at Step 1		
Responder's IKE_SA SPI	Same as that set by the SS at Step 2		
Next Payload	'00101110'B	E	
Exchange Type	'00100011'B	IKE_AUTH	
Encrypted Payload			
Next Payload	'00110000'B	EAP	
Initialization Vector	Random value set by the UE		
Encrypted IKE Payloads			
Extensible Authentication Payload			
Next Payload	'00000000'B	No Next Payload	
Code	'00000010'B	Response	
Type	'00010111'B	AKA	
Subtype		AKA-Challenge	
Attribute type	'00000011'B	AT_RES	
AT_RES	See TS 24.301 [28] subclause 9.9.3.4		
Padding	Set by the UE	Fields from Encryption payload	
Pad Length	Set by the UE	Fields from Encryption payload	
Integrity checksum data	Set by the UE	Fields from Encryption payload	

Table 15.5.3.3-6: Message IKE_AUTH Response (step 6, Table 15.5.3.2-1)

Field	Value/remark	Comment	Condition
IKE Header			
Initiator's IKE_SA SPI	Same as that set by the UE at Step 1		
Responder's IKE_SA SPI	Same as that set by the SS at Step 2		
Next Payload	'00101110'B	E	
Exchange Type	'00100011'B	IKE_AUTH	
Encrypted Payload			
Next Payload	'00110000'B	EAP	
Initialization Vector	Set by the SS		
Encrypted IKE Payloads			
Extensible Authentication Payload			
Next Payload	'00000000'B	No Next Payload	
Code	'00000011'B	Success	
Padding	Set by the SS	Fields from Encryption payload	
Pad Length	Set by the SS	Fields from Encryption payload	
Integrity checksum data	Set by the SS	Fields from Encryption payload	

Table 15.5.3.3-7: Message IKE_AUTH Request (step 7, Table 15.5.3.2-1)

Field	Value/remark	Comment	Condition
IKE Header			
Initiator's IKE_SA SPI	Same as that set by the UE at Step 1		
Responder's IKE_SA SPI	Same as that set by the SS at Step 2		
Next Payload	'00101110'B	E	
Exchange Type	'00100011'	IKE_AUTH	
Encrypted Payload			
Next Payload	'00100111'B	AUTH	
Initialization Vector	Random value set by the UE		
Encrypted IKE Payloads			
Authentication Payload			
Next Payload	'00000000'B	No Next Payload	
Auth Method	'00000010'B	Shared Key Integrity code	
Auth Data	derived from the MSK obtained from AKA exchange	RFC 4306 defines the function to derive this key (section 2.15)	
Padding	Set by the UE	Fields from Encryption payload	
Pad Length	Set by the UE	Fields from Encryption payload	
Integrity checksum data	Set by the UE	Fields from Encryption payload	

Table 15.5.3.3-8: Message IKE_AUTH Response (step 8, Table 15.5.3.2-1)

Field	Value/remark	Comment	Condition
IKE Header			
Initiator's IKE_SA SPI	Same as that set by the UE at Step 1		
Responder's IKE_SA SPI	Same as that set by the SS at Step 2		
Next Payload	'00101110'B	E	
Exchange Type	'00100011'B	IKE_AUTH	
Encrypted Payload			
Next Payload	'00100111'B	AUTH	
Initialization Vector	Set by the SS		
Encrypted IKE Payloads			
Authentication Payload			
Next Payload	'00101111'B	CP	
Auth Method	'00000010'B	Shared Key Integrity code	
Auth Data	derived from the MSK obtained from AKA exchange	RFC 4306 defines the function to derive this key (section 2.15)	
Configuration Payload			
Next Payload	'00100001'B	SA	
CFG Type	'00000010'B	Reply	
Configuration Attribute	'00010000'B	MIP6_HOME_PREFIX attribute	
Length	'0000000000010101'B		
Prefix lifetime	Any allowed value		
Home Prefix	IPv6 prefix – 16 bytes		
Prefix length	'10000000'B	Prefix length must be 64	
Security Association Payload			
Next Payload	'00101101'	TSi	
Proposal	One of the 2 proposals included in IKE_AUTH Request at Step 3		
Traffic Selector – Initiator Payload			
Next Payload	'00101100'B	TSr	
Traffic Selector data	Any allowed set of values		
Traffic Selector – Responder Payload			
Next Payload	'00000000'B	No Next Payload	
Traffic Selector data	Any allowed set of values		
Padding	Set by the SS	Fields from Encryption payload	
Pad Length	Set by the SS	Fields from Encryption payload	
Integrity checksum data	Set by the SS	Fields from Encryption payload	

Table 15.5.3.3-9: Message CREATE_CHILD_SA Request (step 9, Table 15.5.3.2-1)

Field	Value/remark	Comment	Condition
IKE Header			
Initiator's IKE_SA SPI	Same as that set by the UE at Step 1		
Responder's IKE_SA SPI	Same as that set by the SS at Step 2		
Next Payload	'00101110'B	E	
Exchange Type	'00 100100'B	CREATE_CHILD_SA	
Encrypted Payload			
Next Payload	'00100001'B	SA	
Initialization Vector	Random value set by the UE		
Encrypted IKE Payloads			
Security Association Payload			
Next Payload	'00101000'B	Ni	
More proposal	'00000010'B		
Proposal #	'00000001'B	First cryptographic suite (section 6.6 of TS 33.234)	
Protocol ID	'00000011'B	ESP	
SPI size	'00000100'B		
# of transforms	'00000010'B		
SPI	Set by the UE		
More transform	'00000011'B	This is the transform for confidentiality	
Transform type	'00000001'B	Encryption	
Transform ID	'00000011'B	3DES in CBC mode (ENCR_3DES)	
Last transform	'00000000'B	This is the transform for integrity	
Transform type	'00000011'B	Integrity	
Transform attribute ID	'00000010'B	HMAC-SHA1-96 (AUTH_HMAC_SHA1_96)	
Last proposal	'00000000'B		
Proposal #	'00000010'B	Second cryptographic suite (section 6.6 of TS 33.234)	
Protocol ID	'00000011'B	ESP	
SPI size	'00000100'B		
# of transforms	'00000010'B		
SPI	Set by the UE		
More transform	'00000011'B	This is the transform for confidentiality	
Transform type	'00000001'B	Encryption	
Transform ID	'00001011'B	AES with 128-bit keys in CBC mode (ENCR_AES_CBC)	
Last transform	'00000000'B	This is the transform for integrity	
Transform type	'00000011'B	Integrity	
Transform ID	'00000101'B	AES-XCBC-MAC-96 (AUTH_ AES-XCBC -96)	
Nonce Payload			

Next Payload	'00101100'B	TSi	
Nonce data	Random number set by the UE		
Traffic Selector – Initiator Payload			
Next Payload	'00101101'B	TSr	
Traffic Selector data	Any set of values containing the traffic selector of the CREATE_CHILD_SA Response at Step 10		
Traffic Selector – Responder Payload			
Next Payload	'00101001'B	Notify (Use transport mode)	
Traffic Selector data	Any set of values containing the traffic selector of the CREATE_CHILD_SA Response at Step 10		
Use transport mode Notify Payload			
Next payload	'00101001'B	Notify (Use transport mode)	
Protocol ID	'00000011'B	ESP	
SPI size	'00000100'B		
Notify Message Type	'1000000000000111'B	Use transport mode	
SPI	Same as that set by the UE in SA proposal #1		
Use transport mode Notify Payload			
Next payload	'00000000'B	No Next Payload	
Protocol ID	'00000011'B	ESP	
SPI size	'00000100'B		
Notify Message Type	'1000000000000111'B	Use transport mode	
SPI	Same as that set by the UE in SA proposal #1		
Padding	Set by the UE	Fields from Encryption payload	
Pad Length	Set by the UE	Fields from Encryption payload	
Integrity checksum data	Set by the UE	Fields from Encryption payload	

Table 15.5.3.3-10: Message CREATE_CHILD_SA Response (step 10, Table 15.5.3.2-1)

Field	Value/remark	Comment	Condition
IKE Header			
Initiator's IKE_SA SPI	Same as that set by the UE at Step 1		
Responder's IKE_SA SPI	Same as that set by the SS at Step 2		
Next Payload	'00101110'B	E	
Exchange Type	'00 100100'B	CREATE_CHILD_SA	
Encrypted Payload			
Next Payload	'00100001'	SA	
Initialization Vector	Set by the SS		
Encrypted IKE Payloads			
Security Association Payload			
Next Payload	'00101000'B	Nr	
Last proposal	'00000000'B		
Proposal #	One of the 2 proposals included in the CREATE_CHILD_SA Request at Step 9		
Protocol ID	'00000011'B	ESP	
SPI size	'00000100'B		
SPI	Set by the SS		
First transform	'00000011'B	This is the transform for confidentiality	
Transform type	'00000001'B	Encryption	
Transform attribute type	The corresponding value of the chosen proposal		
Last transform	'00000000'B	This is the transform for integrity	
Transform type	'00000011'B	Integrity	
Transform attribute type	The corresponding value of the chosen proposal		
Nonce Payload			
Next Payload	'00101100'B	TSi	
Nonce data	Set by the SS		
Traffic Selector – Initiator Payload			
Next Payload	'00101101'B	TSr	
Number of traffic selectors	'00000010'B		
TS type	'00001000'B	IPv6 range	
IP protocol	'10000111B	Mobility header	
Start port	'0000010100000000'B	BU	
End port	'0000010100000000'B	BU	
Starting-address	HoA address derived from HNP		
Ending address	HoA address derived from HNP		
TS type	'00001000'B	IPv6 range	
IP protocol	'10000111B	Mobility header	
Start port	'0000011000000000'B	BA	
End port	'0000011000000000'B	BA	
Starting-address	HoA address derived from HNP		
Ending address	HoA address derived from HNP		
Traffic Selector – Responder Payload			
Next Payload	'00101001'B	Notify (Use transport mode)	
Number of traffic selectors	'00000010'B		
Ts type	'00001000'B	IPv6 range	
IP protocol	'10000111B	Mobility header	
Start port	'0000010100000000'B	BU	

End port	‘0000010100000000’B	BU	
Starting-address	HA address		
Ending address	HA address		
TS type	‘00001000’B	IPv6 range	
IP protocol	‘10000111’B	Mobility header	
Start port	‘0000011000000000’B	BA	
End port	‘0000011000000000’B	BA	
Starting-address	HA address		
Ending address	HA address		
Use transport mode Notify Payload			
Next Payload	‘00000000’B		
Protocol ID	‘00000011’B	ESP	
SPI size	Set by the SS		
Notify Message Type	‘1000000000000111’B	Use transport mode	
SPI	Same as that set by the SS in the accepted SA proposal		
Padding	Set by the SS	Fields from Encryption payload	
Pad Length	Set by the SS	Fields from Encryption payload	
Integrity checksum data	Set by the SS	Fields from Encryption payload	

15.6 Registration of a new IPv6 CoA (Binding Update/Acknowledgment procedure in IPv6 network)

15.6.1 Test Purpose (TP)

(1)

```
with { UE has established a security association with the Home Agent and received the IPv6 Home
Address }
ensure that {
  when { UE receives a Router Advertisement containing an IPv6 prefix different from the Home
Network Prefix assigned to the UE during the preamble and different from the prefixes contained in
the UE's Prefix list }
    then { UE transmits a Binding Update message in order to register it Home Address and Care-of-
Address at the Home Agent }
           }
```

15.6.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.303, clauses 5.1.2.3, 5.1.2.4, and 5.2.2.3.

[TS 24.303, clause 5.1.2.3]

The DSMIPv6 Home Link Detection Function is used by the UE to detect if an access interface is on the home link for a PDN from a DSMIPv6 perspective. The Home Link Detection function shall be performed before sending DSMIPv6 Binding Update via the same access interface.

To perform the Home Link Detection procedure, the UE shall compare the assigned Home Network Prefix for a PDN with the IPv6 prefix or prefixes included in the Prefix Information Option in the Router Advertisements received on the local link. The Home Network Prefix can be assigned in a 3GPP access via PCO, as specified in 3GPP TS 24.301 [15], or via IKEv2 as specified in subclause 5.1.2.2. If there is a match between the Home Network Prefix and one of the local prefixes, the UE is attached on the home link over the respective access interface and shall not send a Binding Update to the HA unless the UE currently has a valid DSMIPv6 Binding Update list entry. If the UE has a valid DSMIPv6 Binding Update list entry, the UE shall proceed to perform the action specified in subclause 5.2.2.4. If there is not any match, the UE shall proceed as specified in subclause 5.1.2.4.

NOTE: The UE does not need to run IKEv2 for home link detection if the Home Network prefix is dynamically received in a PCO Information Element.

[TS 24.303, clause 5.1.2.4]

After establishing the security association and obtaining the IPv6 Home Address, the UE shall send a Binding Update message as specified in IETF RFC 3775 [6] and IETF RFC 5555 [2] in order to register its Home Address and Care-of Address at the HA, if it detects it is in the foreign network.

If both IPv4 and IPv6 Care-of Address are received at the foreign network, the UE shall first attempt to use the IPv6 Care-of Address for its binding registration. The UE shall not register both IPv4 and IPv6 Care-of Address to it's HA.

If IPv6 Care-of Address is used for initial binding registration, the UE shall send the Binding Update message to the IPv6 address of the HA. In this Binding Update message the H (home registration) and A (acknowledge) bits shall be set. If the UE needs an IPv4 Home Address, the UE shall include the 0.0.0.0 address in the IPv4 Home Address option to request a dynamic IPv4 Home Address.

When IPv6 Care-of Address is used for initial binding registration, the Alternate Care-of Address option shall be used by the UE to carry the Care-of Address inside a Mobility Header which is protected by ESP. If this option is present, the address included in this option is the same address present in the source address of the IPv6 packet.

If IPv4 Care-of Address is used for initial binding registration, the UE shall send the Binding Update as follows (see IETF RFC 5555 [2]):

- The IPv6 packet, with the IPv6 Home Address as the Source Address field of the IPv6 header, shall be encapsulated in UDP.
- The UE shall include the IPv4 Care-of Address as the Source Address field of the IPv4 header and the HA IPv4 address as the Destination Address field of the IPv4 header.
- The UE shall include the IPv4 Care-of Address option containing the IPv4 Care-of Address.
- The UE shall set the H (home registration) and A (acknowledge) flags.
- The UE shall set the F (UDP encapsulation required) flag to 0.
- The UE shall set the R (Mobile Router Flag) flag to 1.
- If the UE needs an IPv4 Home Address, the UE shall include an IPv4 Home Address option with the 0.0.0.0 address in the Binding Update message, as defined in IETF RFC 5555 [2].

When the UE receives the Binding Acknowledgement from the HA, it shall validate it based on the rules described in IETF RFC 3775 [6] and IETF RFC 5555 [2]. If the Binding Acknowledgement contains the successful status code 0 ("Binding Update Accepted"), the UE shall create an entry for the registered Home Address in its Binding Update List and may start sending packets containing its IPv6 Home Address or other IPv6 addresses auto-configured from the assigned home network prefix.

If the Binding Acknowledgement contains a value of 128, the UE may re-send the BU as specified in IETF RFC 3775 [6]. If the Binding Acknowledgement contains a value from 129 to 133 as specified in IETF RFC 3775 [6] or a value from 140 to 143 as specified in IETF RFC 3963 [29], the UE shall not send the BU to the HA and should discover another HA.

If the Binding Acknowledgment contains an IPv4 Address Acknowledgement option with status code value from 0 to 127 (indicating success), the UE shall create two entries in its Binding Update List, one for the IPv6 Home Address and another for the IPv4 Home Address. If the Binding Acknowledgement contains an IPv4 Address Acknowledgment option with status code indicating error (i.e. 128 or higher), the UE shall create an entry only for the IPv6 HoA in its binding update list. Moreover, if the status code is 129 ("Administratively prohibited") or 132 ("Dynamic IPv4 home address assignment not available"), the UE shall not re-send the Binding Update and it shall use only the IPv6 HoA. If the Binding Acknowledgement contains an IPv4 Address Acknowledgement option with status 128 ("Failure, reason unspecified"), 130 ("Incorrect IPv4 home address"), 131 ("Invalid IPv4 address") or 133 ("Prefix allocation unauthorized") it shall re-send the Binding Update including the 0.0.0.0 address in the IPv4 Home Address option. If the Binding Acknowledgement does not contain an IPv4 Address Acknowledgment option, the UE shall create an entry only for the IPv6 HoA in its binding update list.

NOTE: The value to be used to identify the IPv4 address acknowledgement option in the mobility header is 30;

The UE may then send data traffic either with the IPv6 Home Address or with the IPv4 Home Address. If the UE is located on an IP6-enabled link, it shall send IPv6 packets as described in IETF RFC 3775 [6]; IPv4 traffic shall be encapsulated in IPv6 packets as described in IETF RFC 5555 [2]. If the UE is located on an IPv4-only link and the Binding Acknowledgement contains the NAT detection option with the F flag set, the UE shall send IPv6 and IPv4 packets following the vanilla UDP encapsulation rules specified in IETF RFC 5555 [2]. Otherwise the UE shall send IPv6 and IPv4 packets encapsulated in IPv4 as specified in IETF RFC 5555 [2].

Once the DSMIPv6 tunnel is established, the UE may build a DHCPv4 or DHCPv6 message as described in IETF RFC 4039 [26] or IETF RFC 3736 [13] respectively and send it via the DSMIPv6 tunnel as described in IETF RFC 3775 [6] in order to retrieve additional parameters, e.g. Vendor-specific options.

[TS 24.303, clause 5.2.2.3]

If the access network supports IPv6, as soon as the UE has received via a Router Advertisement at least an IPv6 prefix which is not present in its Prefix List, the UE shall perform the Home Link detection as specified in subclause 5.1.2.3.

If the UE detects it is not attached to the home link, the UE shall send a Binding Update to the HA including the newly configured IP address as the Care-of Address in the Source IP address of the packet and optionally in the Alternate Care-of Address Option [6]. The UE build the Binding Update message as specified in IETF RFC 3775 [6].

If the UE has been assigned also an IPv4 Home Address and wants to update also the binding for it, the UE shall include the IPv4 Home Address option including the assigned IPv4 Home Address in the same Binding Update message.

If the UE has been assigned also an IPv4 Home Address and wants to release it, the UE shall not include any IPv4 Home Address option in the same Binding Update.

If the UE does not have an IPv4 Home Address but wants to configure one, the UE shall include the IPv4 Home Address option with the 0.0.0.0 address as specified in subclause 5.1.2.4.

If the access network supports only IPv4, as soon as the UE has configured an IPv4 Care-of Address which is different from the previous Care-of Address, the UE shall send a Binding Update tunnelled in UDP as specified in draft-ietf-mext-nemo-v4traversal [2]. The UE shall set the F flag to "0". The UE shall set the R flag to "1".

Independent of an IPv6 or IPv4 access network the UE shall set the Key Management Capability (K) bit in the Binding Update message.

15.6.3 Test description

15.6.3.1 Pre-test conditions

System Simulator:

- Cell 1.

UE:

- The UE's Prefix List has been cleared.

Preamble:

- The UE is in state Registered, Idle Mode (state 2) on Cell 1 according to [18].
- The UE has acquired an IPv6 address.
- The UE has established a security association with the Home Agent and obtained an IPv6 Home Address, by executing the steps in test case 15.5 with the following exception: the IPv6 home prefix assigned to the UE by the SS shall be the same as the prefix used during IP address acquisition by the UE.

15.6.3.2 Test procedure sequence

Table 15.6.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS broadcasts a Router Advertisement with a Prefix Information Option containing an IPv6 prefix different from the Home Network Prefix assigned to the UE during the preamble.	-	-	-	-
2	Check: Does the UE transmit a Binding Update with its IPv6 CoA in the IP Source Address field of the IP Header and the IPv6 Home Agent address in the IP destination Address field of the IP header?	-->	Binding Update	1	P
3	The SS transmits a Binding Acknowledgement accepting the Binding Update.	<--	Binding Acknowledgement	-	-

15.6.3.3 Specific message contents

Table 15.6.3.3-1: Router Advertisement (step 1, Table 15.6.3.2-1)

Derivation path: 36.508, Table 4.7C.2-1			
Field	**Value/remark**	**Comment**	**Condition**
Prefix	IPv6 prefix different from the Home Network Prefix assigned to the UE during the preamble		

15.7 Registration of a new IPv4 CoA (Binding Update/Acknowledgment procedure in IPv4 network)

15.7.1 Test Purpose (TP)

(1)

```
with { UE has established a security association with the Home Agent and received the IPv6 Home
Address }
ensure that {
  when { UE is connected to a network supporting IPv4 only}
    then { UE transmits a Binding Update message in order to register its Home Address and Care-of-
Address at the Home Agent }
           }
```

15.7.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.303, clauses 5.1.2.3, 5.1.2.4, and 5.2.2.3.

[TS 24.303, clause 5.1.2.3]

The DSMIPv6 Home Link Detection Function is used by the UE to detect if an access interface is on the home link for a PDN from a DSMIPv6 perspective. The Home Link Detection function shall be performed before sending DSMIPv6 Binding Update via the same access interface.

To perform the Home Link Detection procedure, the UE shall compare the assigned Home Network Prefix for a PDN with the IPv6 prefix or prefixes included in the Prefix Information Option in the Router Advertisements received on the local link. The Home Network Prefix can be assigned in a 3GPP access via PCO, as specified in 3GPP TS 24.301 [15], or via IKEv2 as specified in subclause 5.1.2.2. If there is a match between the Home Network Prefix and one of the local prefixes, the UE is attached on the home link over the respective access interface and shall not send a Binding Update to the HA unless the UE currently has a valid DSMIPv6 Binding Update list entry. If the UE has a valid DSMIPv6 Binding Update list entry, the UE shall proceed to perform the action specified in subclause 5.2.2.4. If there is not any match, the UE shall proceed as specified in subclause 5.1.2.4.

NOTE: The UE does not need to run IKEv2 for home link detection if the Home Network prefix is dynamically received in a PCO Information Element.

[TS 24.303, clause 5.1.2.4]

After establishing the security association and obtaining the IPv6 Home Address, the UE shall send a Binding Update message as specified in IETF RFC 3775 [6] and IETF RFC 5555 [2] in order to register its Home Address and Care-of Address at the HA, if it detects it is in the foreign network.

If both IPv4 and IPv6 Care-of Address are received at the foreign network, the UE shall first attempt to use the IPv6 Care-of Address for its binding registration. The UE shall not register both IPv4 and IPv6 Care-of Address to it's HA.

If IPv6 Care-of Address is used for initial binding registration, the UE shall send the Binding Update message to the IPv6 address of the HA. In this Binding Update message the H (home registration) and A (acknowledge) bits shall be set. If the UE needs an IPv4 Home Address, the UE shall include the 0.0.0.0 address in the IPv4 Home Address option to request a dynamic IPv4 Home Address.

When IPv6 Care-of Address is used for initial binding registration, the Alternate Care-of Address option shall be used by the UE to carry the Care-of Address inside a Mobility Header which is protected by ESP. If this option is present, the address included in this option is the same address present in the source address of the IPv6 packet.

If IPv4 Care-of Address is used for initial binding registration, the UE shall send the Binding Update as follows (see IETF RFC 5555 [2]):

- The IPv6 packet, with the IPv6 Home Address as the Source Address field of the IPv6 header, shall be encapsulated in UDP.
- The UE shall include the IPv4 Care-of Address as the Source Address field of the IPv4 header and the HA IPv4 address as the Destination Address field of the IPv4 header.
- The UE shall include the IPv4 Care-of Address option containing the IPv4 Care-of Address.
- The UE shall set the H (home registration) and A (acknowledge) flags.
- The UE shall set the F (UDP encapsulation required) flag to 0.
- The UE shall set the R (Mobile Router Flag) flag to 1.
- If the UE needs an IPv4 Home Address, the UE shall include an IPv4 Home Address option with the 0.0.0.0 address in the Binding Update message, as defined in IETF RFC 5555 [2].

When the UE receives the Binding Acknowledgement from the HA, it shall validate it based on the rules described in IETF RFC 3775 [6] and IETF RFC 5555 [2]. If the Binding Acknowledgement contains the successful status code 0 ("Binding Update Accepted"), the UE shall create an entry for the registered Home Address in its Binding Update List and may start sending packets containing its IPv6 Home Address or other IPv6 addresses auto-configured from the assigned home network prefix.

If the Binding Acknowledgement contains a value of 128, the UE may re-send the BU as specified in IETF RFC 3775 [6]. If the Binding Acknowledgement contains a value from 129 to 133 as specified in IETF RFC 3775 [6] or a value from 140 to 143 as specified in IETF RFC 3963 [29], the UE shall not send the BU to the HA and should discover another HA.

If the Binding Acknowledgment contains an IPv4 Address Acknowledgement option with status code value from 0 to 127 (indicating success), the UE shall create two entries in its Binding Update List, one for the IPv6 Home Address and another for the IPv4 Home Address. If the Binding Acknowledgement contains an IPv4 Address Acknowledgment option with status code indicating error (i.e. 128 or higher), the UE shall create an entry only for the IPv6 HoA in its binding update list. Moreover, if the status code is 129 ("Administratively prohibited") or 132 ("Dynamic IPv4 home address assignment not available"), the UE shall not re-send the Binding Update and it shall use only the IPv6 HoA. If the Binding Acknowledgement contains an IPv4 Address Acknowledgement option with status 128 ("Failure, reason unspecified"), 130 ("Incorrect IPv4 home address"), 131 ("Invalid IPv4 address") or 133 ("Prefix allocation unauthorized") it shall re-send the Binding Update including the 0.0.0.0 address in the IPv4 Home Address option. If the Binding Acknowledgement does not contain an IPv4 Address Acknowledgment option, the UE shall create an entry only for the IPv6 HoA in its binding update list.

NOTE: The value to be used to identify the IPv4 address acknowledgement option in the mobility header is 30;

The UE may then send data traffic either with the IPv6 Home Address or with the IPv4 Home Address. If the UE is located on an IP6-enabled link, it shall send IPv6 packets as described in IETF RFC 3775 [6]; IPv4 traffic shall be encapsulated in IPv6 packets as described in IETF RFC 5555 [2]. If the UE is located on an IPv4-only link and the Binding Acknowledgement contains the NAT detection option with the F flag set, the UE shall send IPv6 and IPv4 packets following the vanilla UDP encapsulation rules specified in IETF RFC 5555 [2]. Otherwise the UE shall send IPv6 and IPv4 packets encapsulated in IPv4 as specified in IETF RFC 5555 [2].

Once the DSMIPv6 tunnel is established, the UE may build a DHCPv4 or DHCPv6 message as described in IETF RFC 4039 [26] or IETF RFC 3736 [13] respectively and send it via the DSMIPv6 tunnel as described in IETF RFC 3775 [6] in order to retrieve additional parameters, e.g. Vendor-specific options.

[TS 24.303, clause 5.2.2.3]

If the access network supports IPv6, as soon as the UE has received via a Router Advertisement at least an IPv6 prefix which is not present in its Prefix List, the UE shall perform the Home Link detection as specified in subclause 5.1.2.3.

If the UE detects it is not attached to the home link, the UE shall send a Binding Update to the HA including the newly configured IP address as the Care-of Address in the Source IP address of the packet and optionally in the Alternate Care-of Address Option [6]. The UE build the Binding Update message as specified in IETF RFC 3775 [6].

If the UE has been assigned also an IPv4 Home Address and wants to update also the binding for it, the UE shall include the IPv4 Home Address option including the assigned IPv4 Home Address in the same Binding Update message.

If the UE has been assigned also an IPv4 Home Address and wants to release it, the UE shall not include any IPv4 Home Address option in the same Binding Update.

If the UE does not have an IPv4 Home Address but wants to configure one, the UE shall include the IPv4 Home Address option with the 0.0.0.0 address as specified in subclause 5.1.2.4.

If the access network supports only IPv4, as soon as the UE has configured an IPv4 Care-of Address which is different from the previous Care-of Address, the UE shall send a Binding Update tunnelled in UDP as specified in draft-ietf-mext-nemo-v4traversal [2]. The UE shall set the F flag to "0". The UE shall set the R flag to "1".

Independent of an IPv6 or IPv4 access network the UE shall set the Key Management Capability (K) bit in the Binding Update message.

15.7.3 Test description

15.7.3.1 Pre-test conditions

System Simulator:

- Cell 1.

Preamble:

- The UE is in state Registered, Idle Mode (state 2) on Cell 1 according to [18].
- The UE has acquired an IPv4 address.
- The UE has established a security association with the Home Agent and obtained an IPv6 Home Address, by executing the steps in test case 15.5.

15.7.3.2 Test procedure sequence

Table 15.7.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Check: Does the UE transmit a Binding Update with its IPv4 CoA in the IP Source Address field of the IP Header and the Binding Update encapsulated in an UDP header?	-->	Binding Update	1	P
2	The SS transmits a Binding Acknowledgement accepting the Binding Update.	<--	Binding Acknowledgement	-	-

15.7.3.3 Specific message contents

None.

15.8 Re-registration of IPv6 CoA

15.8.1 Test Purpose (TP)

(1)

```
with { UE has established a security association with the Home Agent and received the IPv6 Home
Address and registered its IPv6 Home Address and IPv6 Care-of-Address at the Home Agent }
ensure that {
  when { registration of its Care-of-Address is about the expire }
    then { UE initiates the re-registration procedure to extend lifetime of the registration of its
Care-of-Address }
            }
```

15.8.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.303, clause 5.3.2.

[TS 24.303, clause 5.3.2]

As specified in IETF RFC 3775 [6], if the UE wants to extend the validity of an existing binding at the HA, the UE shall send a new Binding Update to the HA before the expiration of the lifetime indicated in the received Binding Acknowledgement, even if it is not changing its primary Care-of Address. This Binding Update is usually referred as periodic Binding Update.

The UE shall follow the rules described in IETF RC 3775 [6], IETF RFC 5555 [2] and in subclause 5.1.2.4 to send a periodic Binding Update and handle the associated Binding Acknowledgement. As the UE has not performed any handover, the UE shall confirm the already registered Care of Address and shall indicate the desired lifetime value. In a periodic Binding Update the UE may request an IPv4 Home Address.

15.8.3 Test description

15.8.3.1 Pre-test conditions

System Simulator:

- Cell 1.

UE:

- The UE's Prefix List has been cleared.

Preamble:

- The UE is in state Registered, Idle Mode (state 2) on Cell 1 according to [18].
- The UE has acquired an IPv6 address.

- The UE has established a security association with the Home Agent and obtained an IPv6 Home Address, by executing the steps in test case 15.5 with the following exception: the IPv6 home prefix assigned to the UE by the SS shall be the same as the prefix used during IP address acquisition by the UE.

15.8.3.2 Test procedure sequence

Table 15.8.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1-3	Steps 1 to 3 of test case 15.6 are performed on Cell 1. NOTE: The UE transmits an initial Binding Update to register its IPv6 Home Address and IPv6 Care-of-Address at the Home Agent. The SS accepts the Binding Update by transmitting a Binding Acknowledgement with a Lifetime set to 10 min.	-	-	-	-
4	Check: Does the UE transmit a Binding Update with its IPv6 CoA in the IP Source Address field of the IP Header and the IPv6 Home Agent address in the IP Destination Address field of the IP header within 10 min of Step 3?	-->	Binding Update	1	P
5	The SS transmits a Binding Acknowledgement accepting the Binding Update.	<--	Binding Acknowledgement	-	-

15.8.3.3 Specific message contents

None.

15.9 Re-registration of IPv4 CoA

15.9.1 Test Purpose (TP)

(1)

```
with { UE has established a security association with the Home Agent and received the IPv6 Home
Address and registered its IPv6 Home Address and IPv4 Care-of-Address at the Home Agent }
ensure that {
  when { registration of its Care-of-Address is about the expire }
    then { UE initiates the re-registration procedure to extend lifetime of the registration of its
Care-of-Address }
            }
```

15.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.303, clause 5.3.2.

[TS 24.303, clause 5.3.2]

As specified in IETF RFC 3775 [6], if the UE wants to extend the validity of an existing binding at the HA, the UE shall send a new Binding Update to the HA before the expiration of the lifetime indicated in the received Binding Acknowledgement, even if it is not changing its primary Care-of Address. This Binding Update is usually referred as periodic Binding Update.

The UE shall follow the rules described in IETF RC 3775 [6], IETF RFC 5555 [2] and in subclause 5.1.2.4 to send a periodic Binding Update and handle the associated Binding Acknowledgement. As the UE has not performed any handover, the UE shall confirm the already registered Care of Address and shall indicate the desired lifetime value. In a periodic Binding Update the UE may request an IPv4 Home Address.

15.9.3 Test description

15.9.3.1 Pre-test conditions

System Simulator:

- Cell 1.

Preamble:

- The UE is in state Registered, Idle Mode (state 2) on Cell 1 according to [18].
- The UE has acquired an IPv4 address.
- The UE has established a security association with the Home Agent and obtained an IPv6 Home Address, by executing the steps in test case 15.5.

15.9.3.2 Test procedure sequence

Table 15.9.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1-2	Steps 1 to 2 of test case 15.7 are performed on Cell 1. NOTE: The UE transmits an initial Binding Update to register its IPv6 Home Address and IPv4 Care-of-Address at the Home Agent. The SS accepts the Binding Update by transmitting a Binding Acknowledgement with a Lifetime set to 10 min.	-	-	-	-
3	Check: Does the UE transmit a Binding Update with its IPv4 CoA in the IP Source Address field of the IP Header and the IPv4 Home Agent address in the IP destination Address field of the IP header within 10 min of Step 2?	-->	Binding Update	1	P
4	The SS transmits a Binding Acknowledgement accepting the Binding Update.	<--	Binding Acknowledgement	-	-

15.9.3.3 Specific message contents

None.

15.10 Return to home link

15.10.1 Test Purpose (TP)

(1)

```
with { UE has established a security association with the Home Agent and received the IPv6 Home
Address and registered its IPv6 Home Address and IPv6 Care-of-Address at the Home Agent }
ensure that {
  when { UE detects it is attached to the home link }
    then { UE transmits a Binding Update message with the lifetime field set to "0" }
           }
```

15.10.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.303, clause 5.2.2.4.

[TS 24.303, clause 5.2.2.4]

If the access network supports IPv6, as soon as the UE has received via a Router Advertisement message at least an IPv6 prefix which is not present in its Prefix List, the UE shall perform the Home Link detection as specified in subclause 5.1.2.3 to detect if the UE is attaching to the home link. If the UE detects it is attached to the home link and there is a valid DSMIPv6 Binding Update list entry at the UE, the UE shall send a Binding Update with the Lifetime

field set to "0" in order to remove the binding at the HA, as specified in IETF RFC 3775 [6]. If an IPv4 home address was assigned to the UE, as an optimization the UE may not include the IPv4 home address option as the binding for the IPv4 home address will be removed by the HA. Independent of an IPv6 or IPv4 access network the UE shall set the Key Management Capability (K) bit in the de-registration Binding Update message. The UE may preserve the IKEv2 session in order to avoid re-establishing the session when the next handover occurs. If there is not a safe assumption that the UE will remain in the home link (e.g. switching off the non-3GPP radio interface in case of a dual radio terminal), the UE should preserve the IKEv2 session.

15.10.3 Test description

15.10.3.1 Pre-test conditions

System Simulator:

- Cell 1.

UE:

None.

Preamble:

- The UE is in state Registered, Idle Mode (state 2) on Cell 1 according to [18].
- The UE has acquired an IPv6 address.
- The UE has established a security association with the Home Agent and obtained an IPv6 Home Address, by executing the steps in test case 15.5 with the following exception: the IPv6 home prefix assigned to the UE by the SS shall be the same as the prefix used during IP address acquisition by the UE.
- The UE has registered its IPv6 Home Address and its Care-of-Address (acquired IPv6 address) at the Home Agent, by executing the steps in test case 15.6.

15.10.3.2 Test procedure sequence

Table 15.10.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS broadcasts a Router Advertisement with a Prefix Information Option containing an IPv6 prefix matching the Home Network Prefix assigned to the UE during the preamble.	-	-	-	-
2	Check: Does the UE transmit a Binding Update message with the lifetime field set to “0”?	-->	Binding Update	1	P
3	The SS transmits a Binding Acknowledgement accepting the Binding Update with the lifetime field set to “0”.	<--	Binding Acknowledgement	-	-

15.10.3.3 Specific message contents

Table 15.10.3.3-1: Router Advertisement (step 1, Table 15.10.3.2-1)

Derivation path: 36.508 table 4.7C.2-1			
Field	**Value/remark**	**Comment**	**Condition**
Prefix	IPv6 prefix equal to Home Network Prefix assigned to the UE during preamble		

Table 15.10.3.3-2: Binding Update (step 2, Table 15.10.3.2-1)

Derivation path: 36.508 table 4.7C.2-2			
Information Element	**Value/remark**	**Comment**	**Condition**
Lifetime	'0000000000000000'B		

Table 15.10.3.3-3: Binding Acknowledgement (step 3, Table 15.10.3.2-1)

Derivation path: 36.508 table 4.7C.2-3			
Information Element	**Value/remark**	**Comment**	**Condition**
Lifetime	'0000000000000000'B		

15.11 Dual-Stack Mobile IPv6 detach in IPv6 network

15.11.1 Test Purpose (TP)

(1)

```
with { UE has established a security association with the Home Agent and received the IPv6 Home
Address and registered its IPv6 Home Address and IPv6 Care-of-Address at the Home Agent }
ensure that {
  when { UE receives a Binding Revocation Indication message from the HA }
    then { UE transmits a Binding Revocation Acknowledgement message with the status field set to
'Success' }
            }
```

(2)

```
with { UE has received a Binding Revocation Indication message from the HA }
ensure that {
  when { UE has transmitted a Binding Revocation Acknowledgement message with the status field set
to 'Success' }
    then { UE transmits an IKEv2 INFORMATIONAL message containing a DELETE payload to remove the
Ipsec security association associated with the DSMIPv6 registration }
            }
```

15.11.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.303, clauses 5.4.2.1 and 5.4.2.2.

[TS 24.303, clauses 5.4.2.1]

Upon receiving a Binding Revocation Indication (BRI) message according to draft-ietf-mext-binding-revocation [19] from the HA, the UE first shall perform the required validity checks on the BRI according to draft-ietf-mext-binding-revocation [19].

The UE shall send a Binding Revocation Acknowledgement (BRA) as specified in draft-ietf-mext-binding-revocation [19]. In this message the UE shall set the status field to 'Success' to reflect that it has received the BRI message. The BRA message may be tunnelled in UDP or IPv4 as specified in subclause 5.1.2.4 for Binding Update messages.

The UE then shall remove the entry identified in the BRI as deregistered from its binding update list and shall use the procedures defined in IETF RFC 4306 [14] to remove the IPsec security associations associated with the DSMIPv6 registration as described in subclause 5.4.2.2.

[TS 24.303, clause 5.4.2.2]

To detach from a specific PDN to which it is connected through a DSMIPv6 session, the UE shall send a Binding Update with the Lifetime field set to 0 as specified in IETF RFC 3775 [6].

The UE shall use the procedures defined in the IKEv2 protocol in IETF RFC 4306 [14] to remove the IPsec security associations associated with the DSMIPv6 registration. The UE shall close the security associations associated with the DSMIPv6 registration and instruct the HA to do the same by sending the INFORMATIONAL request message

including a DELETE payload. The Protocol ID in the DELETE payload shall be set to "1" (IKE) to indicate that all IPsec ESP security associations that were negotiated within the IKEv2 exchange shall be deleted.

15.11.3 Test description

15.11.3.1 Pre-test conditions

System Simulator:

- Cell 1.

UE:

None.

Preamble:

- The UE is in state Registered, Idle Mode (state 2) on Cell 1 according to [18].
- The UE has acquired an IPv6 address.
- The UE has established a security association with the Home Agent and obtained an IPv6 Home Address, by executing the steps in test case 15.5 with the following exception: the IPv6 home prefix assigned to the UE by the SS shall be the same as the prefix used during IP address acquisition by the UE.
- The UE has registered its IPv6 Home Address and its Care-of-Address (acquired IPv6 address) at the Home Agent, by executing the steps in test case 15.6.

15.11.3.2 Test procedure sequence

Table 15.11.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS transmits a Binding Revocation Indication message to the UE.	<--	Binding Revocation Indication	-	-
2	Check: Does the UE transmit a Binding Revocation Acknowledgement message with the status field set to 'Success'?	-->	Binding Revocation Acknowledgement	1	P
3	Check: Does the UE transmit an IKEv2 INFORMATIONAL message containing a DELETE payload?	-->	IKEv2 INFORMATIONAL	2	P
4	The SS transmits an IKEv2 INFORMATIONAL message containing a DELETE payload back to the UE.	<--	IKEv2 INFORMATIONAL	-	-

15.11.3.3 Specific message contents

Table 15.11.3.3-1: IKEv2 INFORMATIONAL (step 3, Table 15.11.3.2-1)

Field	Value/remark	Comment	Condition
IKE Header			
Initiator's IKE_SA SPI	The one identifying the UE in the SA set up during the preamble		
Responder's IKE_SA SPI	The one identifying the HA in the SA set up during the preamble		
Next Payload	'00101110'B	E	
Exchange Type	'00100101'B	INFORMATIONAL	
Encrypted Payload			
Next Payload	'00101010'B	DELETE	
Delete Payload			
Next Payload	'00000000'B	No Next Payload	
Protocol ID	'00000001'B	IKE SA	
Padding	Set by the UE	Fields from Encryption payload	
Pad Length	Set by the UE	Fields from Encryption payload	
Integrity checksum data	Set by the UE	Fields from Encryption payload	

Table 15.11.3.3-2: IKEv2 INFORMATIONAL (step 4, Table 15.11.3.2-1)

Field	Value/remark	Comment	Condition
IKE Header			
Initiator's IKE_SA SPI	Same as that set by the UE at Step 3		
Responder's IKE_SA SPI	Same as that set by the SS at Step 3		
Next Payload	'00101110'B	E	
Exchange Type	'00100101'B	INFORMATIONAL	
Encrypted Payload			
Next Payload	'00101010'B	DELETE	
Delete Payload			
Next Payload	'00000000'B	No Next Payload	
Protocol ID	'00000001'B	IKE SA	
Padding	Set by the SS	Fields from Encryption payload	
Pad Length	Set by the SS	Fields from Encryption payload	
Integrity checksum data	Set by the SS	Fields from Encryption payload	

15.12 Dual-Stack Mobile IPv6 detach in IPv4 network

15.12.1 Test Purpose (TP)

(1)

```
with { UE has established a security association with the Home Agent and received the IPv6 Home
Address and registered its IPv6 Home Address and IPv4 Care-of-Address at the Home Agent }
ensure that {
  when { UE receives a Binding Revocation Indication message from the HA with the A flag set }
```

```
    then { UE transmits a Binding Revocation Acknowledgement message with the status field set to
'Success' }
            }
```

(2)

```
with { UE has received a Binding Revocation Indication message from the HA with the A flag set }
ensure that {
  when { UE has transmitted a Binding Revocation Acknowledgement message with the status field set
to 'Success' }
    then { UE transmits an IKEv2 INFORMATIONAL message containing a DELETE payload to remove the
Ipsec security association associated with the DSMIPv6 registration }
            }
```

15.12.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.303, clauses 5.4.2.1 and 5.4.2.2.

[TS 24.303, clauses 5.4.2.1]

Upon receiving a Binding Revocation Indication (BRI) message according to draft-ietf-mext-binding-revocation [19] from the HA, the UE first shall perform the required validity checks on the BRI according to draft-ietf-mext-binding-revocation [19].

If the A (Acknowledge) flag is set in the BRI message, the UE shall send a Binding Revocation Acknowledgement (BRA) as specified in draft-ietf-mext-binding-revocation [19]. In this message the UE shall set the status field to 'Success' to reflect that it has received the BRI message. The BRA message may be tunnelled in UDP or IPv4 as specified in subclause 5.1.2.4 for Binding Update messages.

The UE then shall remove the entry identified in the BRI as deregistered from its binding update list and shall use the procedures defined in IETF RFC 4306 [14] to remove the IPsec security associations associated with the DSMIPv6 registration as described in subclause 5.4.2.2.

[TS 24.303, clause 5.4.2.2]

The UE shall use the procedures defined in the IKEv2 protocol in IETF RFC 4306 [14] to remove the IPsec security associations associated with the DSMIPv6 registration. The UE shall close the security associations associated with the DSMIPv6 registration and instruct the HA to do the same by sending the INFORMATIONAL request message including a DELETE payload. The Protocol ID in the DELETE payload shall be set to "1" (IKE) to indicate that all IPsec ESP security associations that were negotiated within the IKEv2 exchange shall be deleted.

15.12.3 Test description

15.12.3.1 Pre-test conditions

System Simulator:

- Cell 1.

UE:

None.

Preamble:

- The UE is in state Registered, Idle Mode (state 2) on Cell 1 according to [18].
- The UE has acquired an IPv4 address.
- The UE has established a security association with the Home Agent and obtained an IPv6 Home Address, by executing the steps in test case 15.5.
- The UE has registered its IPv6 Home Address and its Care-of-Address (acquired IPv4 address) at the Home Agent, by executing the steps in test case 15.7.

15.12.3.2 Test procedure sequence

Table 15.12.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS transmits a Binding Revocation Indication message with the A flag set to the UE.	<--	Binding Revocation Indication	-	-
2	Check: Does the UE transmit a Binding Revocation Acknowledgement message with the status field set to 'Success'?	-->	Binding Revocation Acknowledgement	1	P
3	Check: Does the UE transmit an IKEv2 INFORMATIONAL message containing a DELETE payload?	-->	IKEv2 INFORMATIONAL	2	P
4	The SS transmits an IKEv2 INFORMATIONAL message containing a DELETE payload back to the UE.	<--	IKEv2 INFORMATIONAL	-	-

15.12.3.3 Specific message contents

Table 15.12.3.3-1: IKE_INFORMATIONAL (step 3, Table 15.12.3.2-1)

Field	Value/remark	Comment	Condition
IKE Header			
Initiator's IKE_SA SPI	The one identifying UE in the SA set up during the preamble		
Responder's IKE_SA SPI	The one identifying the HA in the SA set up during the preamble		
Next Payload	'00101110'B	E	
Exchange Type	'00100101'B	INFORMATIONAL	
Encrypted Payload			
Next Payload	'00101010'B	DELETE	
Delete Payload			
Next Payload	'00000000'B	No next payload	
Protocol ID	'00000001'B	IKE SA	
Padding	Set by UE	Fields from Encryption payload	
Pad Length	Set by UE	Fields from Encryption payload	
Integrity checksum data	Set by UE	Fields from Encryption payload	

Table 15.12.3.3-2: IKE_INFORMATIONAL (step 4, Table 15.12.3.2-1)

Field	Value/remark	Comment	Condition
IKE Header			
Initiator's IKE_SA SPI	Same as that set by the UE at Step 3		
Responder's IKE_SA SPI	Same as that set by the SS at Step 3		
Next Payload	'00101110'B	E	
Exchange Type	'00100101'B	INFORMATIONAL	
Encrypted Payload			
Next Payload	'00101010'B	DELETE	
Delete Payload			
Next Payload	'00000000'B	No next payload	
Protocol ID	'00000001'B	IKE SA	
Padding	Set by the SS	Fields from Encryption payload	
Pad Length	Set by the SS	Fields from Encryption payload	
Integrity checksum data	Set by the SS	Fields from Encryption payload	

16 Home (e)NB related

16.1 UE Idle Mode Operations

16.1.1 Cell Selection and Reselection

16.1.1.1 Void

16.1.1.2 Void

17 MBMS in LTE

17.1 MCCH Information Acquisition

17.1.1 MCCH information acquisition/ UE is switched on

17.1.1.1 Test Purpose (TP)

(1)

```
with { UE in switched off state }
ensure that {
  when { UE is switched on }
    then { acquire the MBSFNAreaConfiguration message at the next repetition period }
          }
```

17.1.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.331, clause 5.8.2.2 and 5.8.2.3.

[TS 36.331, clause 5.8.2.2]

A UE interested to receive MBMS services shall apply the MCCH information acquisition procedure upon entering the corresponding MBSFN area (e.g. upon power on, following UE mobility) and upon receiving a notification that the MCCH information has changed. A UE that is receiving an MBMS service shall apply the MCCH information

acquisition procedure to acquire the MCCH, that corresponds with the service that is being received, at the start of each modification period.

Unless explicitly stated otherwise in the procedural specification, the MCCH information acquisition procedure overwrites any stored MCCH information, i.e. delta configuration is not applicable for MCCH information and the UE discontinues using a field if it is absent in MCCH information unless explicitly specified otherwise.

[TS 36.331, clause 5.5.2.3]

An MBMS capable UE shall:

1> if the procedure is triggered by a MCCH information change notification:

2> start acquiring the *MBSFNAreaConfiguration* message from the beginning of the modification period following the one in which the change notification was received;

NOTE 1: The UE continues using the previously received MCCH information until the new MCCH information has been acquired.

1> if the UE enters an MBSFN area:

2> acquire the *MBSFNAreaConfiguration* message at the next repetition period;

1> if the UE is receiving an MBMS service:

2> start acquiring the *MBSFNAreaConfiguration* message, that corresponds with the service that is being received, from the beginning of each modification period;

17.1.1.3 Test description

17.1.1.3.1 Pre-test conditions

System Simulator:

- Cell 1
- System information combination 15 as defined in TS 36.508[18] clause 4.4.3.1 is used in E-UTRA cells

UE:

- E-UTRAN UE supporting MBMS services.

Preamble:

- UE is in state Switched OFF (state 1).

17.1.1.3.2 Test procedure sequence

Table 17.1.1.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The UE is switched on.	-	-	-	-
2	The generic procedure described in TS 36.508 subclause 4.5.2A.3 is performed on Cell 1 to activate the UE test mode.	-		-	-
3	SS transmits *MBSFNAreaConfiguration* message	<--	*MBSFNAreaConfiguration*	-	-
4	Wait for a period equal to the MCCH modification period for the UE to receive *MBSFNAreaConfiguration* message	-	-	-	-
5	The generic procedures described in TS 36.508 subclause 4.5.3A.3 and 4.5.4.3 are performed on Cell 1 activating UE test loop Mode C	-	-	-	-
6	The SS transmits a valid MAC PDU including 'MCH Scheduling Information MAC Control Element with LCID='00001', Stop MTCH= '10000000000'	<--	MAC PDU (MCH Scheduling Information MAC Control Element: LCID='00001', Stop MTCH= '10000000000')	-	-
7	The SS transmits 10 MBMS Packets on the MTCH.	<--	MBMS Packets.	-	-
8	The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message.	<--	UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST	-	-
9	UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE.	-->	UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE	-	-
10	Check: Does the number of reported MBMS Packets received on the MTCH is greater than zero?	-	-	1	P

17.1.1.3.3 Specific message contents

Table 17.1.1.3.3-1: *SystemInformationBlockType2* for Cell 1 (preamble and all steps, Table 17.1.1.3.2-1)

Derivation Path: 36.508 table 4.4.3.3-1, condition MBMS.

Table 17.1.1.3.3-2: ACTIVATE TEST MODE **(step 2, Table 17.1.1.3.2-1)**

Derivation Path: 36.508, Table 4.7A-1, condition UE TEST LOOP MODE C

Table 17.1.1.3.3-3: CLOSE UE TEST LOOP (step 5, Table 17.1.1.3.2-1)

Derivation Path: 36.508, Table 4.7A-3, condition UE TEST LOOP MODE C

17.1.2 MCCH information acquisition/ cell reselection to a cell in a new MBSFN area

17.1.2.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRAN RRC IDLE state }
ensure that {
  when { UE cell reselection to a cell in a new MBSFN area }
    then { UE shall acquire the MBSFNAreaConfiguration message at the next repetition period }
          }
```

17.1.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.331, clause 5.8.2.2 and 5.8.2.3.

[TS 36.331, clause 5.8.2.2]

A UE interested to receive MBMS services shall apply the MCCH information acquisition procedure upon entering the corresponding MBSFN area (e.g. upon power on, following UE mobility) and upon receiving a notification that the MCCH information has changed. A UE that is receiving an MBMS service shall apply the MCCH information acquisition procedure to acquire the MCCH, that corresponds with the service that is being received, at the start of each modification period.

Unless explicitly stated otherwise in the procedural specification, the MCCH information acquisition procedure overwrites any stored MCCH information, i.e. delta configuration is not applicable for MCCH information and the UE discontinues using a field if it is absent in MCCH information unless explicitly specified otherwise.

[TS 36.331, clause 5.5.2.3]

An MBMS capable UE shall:

1> if the procedure is triggered by a MCCH information change notification:

2> start acquiring the *MBSFNAreaConfiguration* message from the beginning of the modification period following the one in which the change notification was received;

NOTE 1: The UE continues using the previously received MCCH information until the new MCCH information has been acquired.

1> if the UE enters an MBSFN area:

2> acquire the *MBSFNAreaConfiguration* message at the next repetition period;

1> if the UE is receiving an MBMS service:

2> start acquiring the *MBSFNAreaConfiguration* message, that corresponds with the service that is being received, from the beginning of each modification period;

17.1.2.3 Test description

17.1.2.3.1 Pre-test conditions

System Simulator:

- Cell 1 and cell2 which belong to different MBSFN areas.
- System information combination 16 as defined in TS 36.508[18] clause 4.4.3.1 is used in E-UTRA cells

UE:

- E-UTRAN UE supporting MBMS services

Preamble:

- UE is in Registered, Idle mode, Test Mode Activated (State 2A) according to [18] in Cell 1(serving cell) with the UE TEST LOOP MODE C.

17.1.2.3.2 Test procedure sequence

Table 17.1.2.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while columns marked "T1", and "T2" are to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 17.1.2.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 2	Remark
T0	Cell-specific RS EPRE	dBm/15k Hz	-85	-91	
T1	Cell-specific RS EPRE	dBm/15k Hz	-85	-79	The power level values are assigned to satisfy $R_{Cell\ 1} < R_{Cell\ 2}$.

Table 17.1.2.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS changes Cell 2 level according to the row "T1" in table 17.1.2.3.2-1.	-	-	-	-
2	The UE executes the generic test procedure described in TS 36.508 subclause 6.4.2.7 and UE should camp on E-UTRA Cell 2. NOTE: The UE performs a TAU procedure and the RRC connection is released.	-	-	-	-
3	SS transmits *MBSFNAreaConfiguration* message	<--	*MBSFNAreaConfiguration*	-	-
4	Wait for a period equal to the MCCH modification period for the UE to receive *MBSFNAreaConfiguration* message		-	-	-
5	The generic procedures described in TS 36.508 subclause 4.5.3A.3 and 4.5.4.3 are performed on Cell 1 activating UE test loop Mode C.	-	-	-	-
6	The SS transmits a valid MAC PDU including 'MCH Scheduling Information MAC Control Element with LCID='00001', Stop MTCH= '10000000000'	<--	MAC PDU (MCH Scheduling Information MAC Control Element: LCID='00001', Stop MTCH= '10000000000')	-	-
7	The SS transmits 10 MBMS Packets on the MTCH.	<--	MBMS Packets.	-	-
8	The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message to set UE to Mode C.	<--	UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST	-	-
9	UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE.	-->	UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE	-	-
10	Check: Does the number of reported MBMS Packets received on the MTCH is greater than zero?	-	-	1	P

17.1.2.3.3 Specific message contents

Table 17.1.2.3.3-1: *SystemInformationBlockType2* for Cells 1 and 2 (preamble and all steps, Table 17.1.2.3.2-2)

Derivation Path: 36.508 table 4.4.3.3-1, condition MBMS.

Table 17.1.2.3.3-1a: ACTIVATE TEST MODE **(preamble)**

Derivation Path: 36.508, Table 4.7A-1, condition UE TEST LOOP MODE C.

Table 17.1.2.3.3-2: CLOSE UE TEST LOOP (step 5, Table 17.1.2.3.2-2)

Derivation Path: 36.508, Table 4.7A-3, condition UE TEST LOOP MODE C

17.1.3 MCCH information acquisition/ UE handover to a cell in a new MBSFN area

17.1.3.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRAN RRC CONNECTED state }
ensure that {
  when { UE handovers to a cell in a new MBSFN area }
    then { UE should acquire the MBSFNAreaConfiguration message at the next repetition period }
          }
```

17.1.3.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.331, clause 5.8.2.2 and 5.8.2.3.

[TS 36.331, clause 5.8.2.2]

A UE interested to receive MBMS services shall apply the MCCH information acquisition procedure upon entering the corresponding MBSFN area (e.g. upon power on, following UE mobility) and upon receiving a notification that the MCCH information has changed. A UE that is receiving an MBMS service shall apply the MCCH information acquisition procedure to acquire the MCCH that corresponds with the service that is being received, at the start of each modification period.

Unless explicitly stated otherwise in the procedural specification, the MCCH information acquisition procedure overwrites any stored MCCH information, i.e. delta configuration is not applicable for MCCH information and the UE discontinues using a field if it is absent in MCCH information unless explicitly specified otherwise.

[TS 36.331, clause 5.5.2.3]

An MBMS capable UE shall:

1> if the procedure is triggered by a MCCH information change notification:

2> start acquiring the *MBSFNAreaConfiguration* message from the beginning of the modification period following the one in which the change notification was received;

NOTE 1: The UE continues using the previously received MCCH information until the new MCCH information has been acquired.

1> if the UE enters an MBSFN area:

2> acquire the *MBSFNAreaConfiguration* message at the next repetition period;

1> if the UE is receiving an MBMS service:

2> start acquiring the *MBSFNAreaConfiguration* message, that corresponds with the service that is being received, from the beginning of each modification period;

17.1.3.3 Test description

17.1.3.3.1 Pre-test conditions

System Simulator:

- Cell 1 and cell 2 which belong to different MBSFN areas.
- System information combination 16 as defined in TS 36.508[18] clause 4.4.3.1 is used in E-UTRA cells.

UE:

- E-UTRAN UE supporting MBMS services

Preamble:

- UE is in state Loopback Activated (state 4) according to [18] in Cell 1(serving cell) with the UE TEST LOOP MODE C.

17.1.3.3.2 Test procedure sequence

Table 17.1.3.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while columns marked "T1", and "T2" are to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 17.1.3.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 2	Remark
T0	Cell-specific RS EPRE	dBm/15kHz	-85	-91	The power level values are such that measurement results for Cell 1 (M1) and Cell 4 (M4) satisfy exit condition for event A3 (M4 < M1) (NOTE 1).
T1	Cell-specific RS EPRE	dBm/15kHz	-85	-79	The power level values are such that measurement results for Cell 1 (M1) and Cell 4 (M4) satisfy entry condition for event A3 (M4 > M1) (NOTE 1).

Table 17.1.3.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS transmits an *RRCConnectionReconfiguration* message to setup intra frequency measurement on Cell 1.	<--	*RRCConnectionReconfiguration*	-	-
2	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1 to confirm the setup of intra frequency measurement.	-->	*RRCConnectionReconfigurationComplete*	-	-
3	The SS changes Cell 1, Cell 2 parameters according to the row "T1" in table 17.1.3.3.2-1.	-	-	-	-
4	The UE transmits a *MeasurementReport* message to report event A3 on Cell 1 with the measured RSRP, RSRQ value for Cell 2.	-->	*MeasurementReport*	-	-
5	The SS transmits an *RRCConnectionReconfiguration* message to order the UE to perform intra frequency handover to Cell 2.	<--	*RRCConnectionReconfiguration*	-	-
6	UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 2	-->	*RRCConnectionReconfigurationComplete*	-	-
7	SS transmits *MBSFNAreaConfiguration* message	<--	*MBSFNAreaConfiguration*		
8	Wait for a period equal to the MCCH modification period for the UE to receive *MBSFNAreaConfiguration* message		-		
9	The SS transmits a valid MAC PDU including 'MCH Scheduling Information MAC Control Element with LCID='00001', Stop MTCH= '10000000000'	<--	MAC PDU (MCH Scheduling Information MAC Control Element: LCID='00001', Stop MTCH= '10000000000')	-	-
10	The SS transmits 10 MBMS Packets on the MTCH.	<--	MBMS Packets.	-	-
11	The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message to set UE to Mode C.	<--	UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST	-	-
12	UE responds with UE TEST LOOP MODE 3 MBMS PACKET COUNTER RESPONSE.	-->	UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE	-	-
13	Check: Does the number of reported MBMS Packets received on the MTCH is greater than zero?	-	-	1	P

17.1.3.3.3 Specific message contents

Table 17.1.3.3.3-1: *SystemInformationBlockType2* for Cells 1 and 2 (preamble and all steps, Table 17.1.3.3.2-2)

Derivation Path: 36.508 table 4.4.3.3-1, condition MBMS.

Table 17.1.3.3.3-1a: ACTIVATE TEST MODE **(preamble)**

Derivation Path: 36.508, Table 4.7A-1, condition UE TEST LOOP MODE C.

Table 17.1.3.3.3-1b: CLOSE UE TEST LOOP (step 8a, Table 17.1.3.3.2-2)

Derivation Path: 36.508, Table 4.7A-3, condition UE TEST LOOP MODE C.

Table 17.1.3.3.3-2: *RRCConnectionReconfiguration* (step 1, Table 17.1.3.3.2-2)

Derivation Path: 36.508, Table 4.6.1-8, condition MEAS

Table 17.1.3.3.3-3: *MeasConfig* (Table 17.1.3.3.3-2)

Derivation Path: 36.508, Table 4.6.6-1			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig SEQUENCE {			
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	1 entry		
measObjectId[1]	IdMeasObject-f1		
measObject[1]	MeasObjectEUTRA-GENERIC(f1)		
}			
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	1 entry		
reportConfigId[1]	IdReportConfig-A3		
reportConfig[1]	ReportConfigEUTRA-A3		
}			
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	1 entry		
measId[1]	1		
measObjectId[1]	IdMeasObject-f1		
reportConfigId[1]	IdReportConfig-A3		
}			
}			

Table 17.1.3.3.3-4: *MeasurementReport* (step 4, Table 17.1.3.3.2-2)

Derivation Path: 36.508, Table 4.6.1-5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
measurementReport-r8 SEQUENCE {			
measResults SEQUENCE {			
measId	1		
measResultServCell SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListEUTRA SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {	1 entry		
physCellId[1]	PhysicalCellIdentity of Cell 2		
cgi-Info[1]	Not present		
measResult[1] SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
}			
}			
}			
}			
}			
}			
}			

Table 17.1.3.3.3-5: *RRCConnectionReconfiguration* (step 5, Table 17.1.3.3.2-2)

Derivation Path: 36.508, Table 4.6.1-8, condition HO

Table 17.1.3.3.3-6: *MobilityControlInfo* (Table 17.1.3.3.2-2)

Derivation Path: 36.508, Table 4.6.5-1			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityControlInfo ::= SEQUENCE {			
targetPhysCellId	PhysicalCellIdentity of Cell 2		
carrierFreq	Not present		
}			

17.1.4 MCCH information acquisition/ UE is receiving an MBMS service

17.1.4.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRAN RRC IDLE state }
ensure that {
  when { UE is receiving an MBMS service }
    then { UE shall start acquiring the MBSFNAreaConfiguration message that corresponds with the
service that is being received, from the beginning of each modification period }
            }
```

17.1.4.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.331, clause 5.8.2.2 and 5.8.2.3.

[TS 36.331, clause 5.8.2.2]

A UE interested to receive MBMS services shall apply the MCCH information acquisition procedure upon entering the corresponding MBSFN area (e.g. upon power on, following UE mobility) and upon receiving a notification that the MCCH information has changed. A UE that is receiving an MBMS service shall apply the MCCH information acquisition procedure to acquire the MCCH that corresponds with the service that is being received, at the start of each modification period.

Unless explicitly stated otherwise in the procedural specification, the MCCH information acquisition procedure overwrites any stored MCCH information, i.e. delta configuration is not applicable for MCCH information and the UE discontinues using a field if it is absent in MCCH information unless explicitly specified otherwise.

[TS 36.331, clause 5.5.2.3]

An MBMS capable UE shall:

1> if the procedure is triggered by a MCCH information change notification:

2> start acquiring the *MBSFNAreaConfiguration* message from the beginning of the modification period following the one in which the change notification was received;

NOTE 1: The UE continues using the previously received MCCH information until the new MCCH information has been acquired.

1> if the UE enters an MBSFN area:

2> acquire the *MBSFNAreaConfiguration* message at the next repetition period;

1> if the UE is receiving an MBMS service:

2> start acquiring the *MBSFNAreaConfiguration* message, that corresponds with the service that is being received, from the beginning of each modification period;

17.1.4.3 Test description

17.1.4.3.1 Pre-test conditions

System Simulator:

- Cell 1
- System information combination 15 as defined in TS 36.508[18] clause 4.4.3.1 is used in E-UTRA cells

UE:

- E-UTRAN UE supporting MBMS services.

Preamble:

- UE is in Registered, Idle mode, Test Mode Activated (State 2A) according to [18] in Cell 1(serving cell) with the UE TEST LOOP MODE C.

17.1.4.3.2 Test procedure sequence

Table 17.1.4.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	SS transmits *MBSFNAreaConfiguration* message	<--	*MBSFNAreaConfiguration*	-	-
2	Wait for a period equal to the MCCH modification period for the UE to receive *MBSFNAreaConfiguration* message	-	-	-	-
3	The SS transmits a valid MAC PDU including 'MCH Scheduling Information MAC Control Element with LCID='00001', Stop MTCH= '00000001010'	<--	MAC PDU (MCH Scheduling Information MAC Control Element: LCID='00001', Stop MTCH= '00000001010')	-	-
4	The SS transmits 10 MBMS Packets on the MTCH.	<--	MBMS Packets.	-	-
5	SS transmits an updated system information [contents different from in preamble]	-	-	-	-
6	SS transmits *MBSFNAreaConfiguration* message at the beginning of next modification period.	<--	*MBSFNAreaConfiguration*	-	-
7	Wait for a period equal to the MCCH modification period for the UE to receive *MBSFNAreaConfiguration* message	-	-	-	-
8	The generic procedures described in TS 36.508 subclause 4.5.3A.3 and 4.5.4.3 are performed on Cell 1 to close UE test loop	-	-	-	-
9	The SS transmits a valid MAC PDU including 'MCH Scheduling Information MAC Control Element with LCID='00001', Stop MTCH= '00000001010'	<--	MAC PDU (MCH Scheduling Information MAC Control Element: LCID='00001', Stop MTCH= '00000001010')	-	-
10	The SS transmits 10 MBMS Packets on the MTCH.	<--	MBMS Packets.	-	-
11	The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message.	<--	UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST	-	-
12	UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE.	-->	UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE	-	-
13	Check: Does the number of reported MBMS Packets received on the MTCH is greater than zero?	-	-	1	P
Note: In steps 4 and 10 to guarantee that SS should transmit MBMS Packets in the subframes indicated in steps 3 and 9 separately.					

17.1.4.3.3 Specific message contents

Table 17.1.4.3.3-1: *SystemInformationBlockType2* for Cell 1 (preamble)

Derivation Path: 36.508 table 4.4.3.3-1			
Information Element	**Value/remark**	**Comment**	**Condition**
SystemInformationBlockType2 ::= SEQUENCE {			
mbsfn-SubframeConfiguration SEQUENCE {			
radioframeAllocationPeriod	n4		
radioframeAllocationOffset	0		
subframeAllocation CHOICE{			
oneFrame	'110000'		
}			
}			
}			

Table 17.1.4.3.3-1a: ACTIVATE TEST MODE **(preamble)**

Derivation Path: 36.508, Table 4.7A-1, condition UE TEST LOOP MODE C.

Table 17.1.4.3.3-2: *SystemInformationBlockType2* for Cell 1 (step 5, Table 17.1.4.3.2-1)

Derivation Path: 36.508 table 4.4.3.3-1, condition MBMS.			
Information Element	**Value/remark**	**Comment**	**Condition**

Table 17.1.4.3.3-3: *MBSFNAreaConfiguration* (steps 5, 6 and 9, Table 17.1.4.3.2-1)

Derivation Path: 36.508 table 4.6.1-4A			
Information Element	**Value/remark**	**Comment**	**Condition**
MBSFNAreaConfiguration-r9 ::= SEQUENCE {			
commonSF-Alloc-r9 SEQUENCE (SIZE (1..maxMBSFN-Allocations)) OF SEQUENCE {			
commonSF-AllocPeriod-r9	rf32		
pmch-InfoList-r9 SEQUENCE (SIZE (0..maxPMCH-PerMBSFN)) OF SEQUENCE {			
pmch-Config-r9 SEQUENCE {			
sf-AllocEnd-r9	7		
dataMCS-r9	0		
mch-SchedulingPeriod-r9	rf256		
}			
}			
}			
}			

Table 17.1.4.3.3-4: CLOSE UE TEST LOOP (step 8, Table 17.1.4.3.2-1)

Derivation Path: 36.508, Table 4.7A-3, condition UE TEST LOOP MODE C

17.1.5 MCCH information acquisition/ UE is not receiving MBMS data

17.1.5.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRAN RRC IDLE state }
ensure that {
  when { UE is not receiving an MBMS service and receives MCCH information change notification }
    then { UE shall start acquiring the MBSFNAreaConfiguration message from the beginning of the
modification period following the one in which the change notification was received }
           }
```

(2)

```
with { UE in E-UTRAN RRC IDLE state }
ensure that {
  when { UE is not in MBSFN area service and enters another cell in MBSFN area }
    then { UE shall start acquiring the MBSFNAreaConfiguration message from the beginning of the
repetition period }
           }
```

17.1.5.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.331, clause 5.8.2.2 and 5.8.2.3.

[TS 36.331, clause 5.8.2.2]

A UE interested to receive MBMS services shall apply the MCCH information acquisition procedure upon entering the corresponding MBSFN area (e.g. upon power on, following UE mobility) and upon receiving a notification that the MCCH information has changed. A UE that is receiving an MBMS service shall apply the MCCH information acquisition procedure to acquire the MCCH that corresponds with the service that is being received, at the start of each modification period.

Unless explicitly stated otherwise in the procedural specification, the MCCH information acquisition procedure overwrites any stored MCCH information, i.e. delta configuration is not applicable for MCCH information and the UE discontinues using a field if it is absent in MCCH information unless explicitly specified otherwise.

[TS 36.331, clause 5.5.2.3]

An MBMS capable UE shall:

1> if the procedure is triggered by a MCCH information change notification:

2> start acquiring the *MBSFNAreaConfiguration* message from the beginning of the modification period following the one in which the change notification was received;

NOTE 1: The UE continues using the previously received MCCH information until the new MCCH information has been acquired.

1> if the UE enters an MBSFN area:

2> acquire the *MBSFNAreaConfiguration* message at the next repetition period;

1> if the UE is receiving an MBMS service:

2> start acquiring the *MBSFNAreaConfiguration* message, that corresponds with the service that is being received, from the beginning of each modification period;

17.1.5.3 Test description

17.1.5.3.1 Pre-test conditions

System Simulator:

- Cell 1 belongs to MBSFN area
- Cell 2 does not belong to any MBSFN areas
- System information combination 15 as defined in TS 36.508[18] clause 4.4.3.1 is used in E-UTRA Cell 1
- System information combination 1 as defined in TS 36.508[18] clause 4.4.3.1 is used in E-UTRA Cell 2

UE:

- E-UTRAN UE supporting MBMS services.
- the UE is configured to receive MBMS services

Preamble:

- UE is in Registered, Idle mode, Test Mode Activated (State 2A) according to [18] in Cell 1(serving cell) with the UE TEST LOOP MODE C.

17.1.5.3.2 Test procedure sequence

Table 17.1.2.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while columns marked "T1", and "T2" are to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 17.1.5.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 2	Remark
T0	Cell-specific RS EPRE	dBm/15kHz	-85	-91	
T1	Cell-specific RS EPRE	dBm/15kHz	-91	-85	The power level values are assigned to satisfy $R_{Cell\ 1} < R_{Cell\ 2}$.
T2	Cell-specific RS EPRE	dBm/15kHz	-85	-91	The power level values are assigned to satisfy $R_{Cell\ 1} > R_{Cell\ 2}$.

Table 17.1.5.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	SS transmits MCCH information change notification	-	(MCCH information change notification)	-	-
2	Wait for a period equal to the MCCH modification period for the UE to receive *MBSFNAreaConfiguration* message from the beginning of the modification period following the one in which the change notification was received	-	-	-	-
3	The generic procedures described in TS 36.508 subclause 4.5.3A.3 and 4.5.4.3 are performed on Cell 1 to close UE test loop	-	-	-	-
4	The SS transmits a valid MAC PDU including 'MCH Scheduling Information MAC Control Element with LCID='00001', Stop MTCH= '00000001010'	<--	MAC PDU (MCH Scheduling Information MAC Control Element: LCID='00001', Stop MTCH= '00000001010')	-	-
5	The SS transmits 10 MBMS Packets on the MTCH.	<--	MBMS Packets	-	-
6	The SS waits for [1] sec to allow UE to receive MBMS Packets	-	-	-	-
7	The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message.	<--	UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST	-	-
8	UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE.	-->	UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE	-	-
9	Check: Does the number of reported MBMS Packets received on the MTCH is greater than zero?	-	-	1	P
10	The SS changes Cell 1 and Cell 2 level according to the row "T1" in table 17.1.5.3.2-1.	-	-	-	-
11	The UE executes the generic test procedure described in TS 36.508 subclause 6.4.2.7 and UE should camp on E-UTRA Cell 2. NOTE: The UE performs a TAU procedure and the RRC connection is released.	-	-	-	-
12	The SS changes Cell 1 and Cell2 level according to the row "T2" in table 17.1.5.3.2-1.	-	-	-	-
13	The UE performs Cell Reselection from Cell2 to Cell1.	-	-	-	-
14	The UE executes the generic test procedure described in TS 36.508 subclause 6.4.2.7 and UE should camp on E-UTRA Cell 1. NOTE: The UE performs a TAU procedure and the RRC connection is released.	-	-	-	-
15	Wait for a period equal to the MCCH repetition period for the UE to receive *MBSFNAreaConfiguration* message	-	-	-	-
16	The SS transmits a valid MAC PDU including 'MCH Scheduling Information MAC Control Element with LCID='00001', Stop MTCH= '00000001010'	<--	MAC PDU (MCH Scheduling Information MAC Control Element: LCID='00001', Stop MTCH= '00000001010')	-	-
17	The SS transmits 10 MBMS Packets on the MTCH.	<--	MBMS Packets	-	-
18	The SS waits for [1] sec to allow UE to receive MBMS Packets	-	-	-	-
19	The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message.	<--	UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST	-	-
20	UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE.	-->	UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE	-	-
21	Check: Does the number of reported MBMS Packets received on the MTCH is greater than the number of MBMS Packets reported in step9?	-	-	2	P

Note: In steps 5 and 17, to guarantee that SS should transmit MBMS Packets in the subframes indicated in steps 4 and 16 separately.

17.1.5.3.3 Specific message contents

Table 17.1.5.3.3-1: *SystemInformationBlockType2* for Cell 1 (preamble and all steps, Table 17.1.5.3.2-2)

Derivation Path: 36.508 table 4.4.3.3-1, condition MBMS.

Table 17.1.5.3.3-1a: ACTIVATE TEST MODE (preamble)

Derivation Path: 36.508, Table 4.7A-1, condition UE TEST LOOP MODE C.

Table 17.1.5.3.3-2: *MBSFNAreaConfiguration* (steps 2, 4 15 and 16, Table 17.1.5.3.2-2)

Derivation Path: 36.508 table 4.6.1-4A			
Information Element	**Value/remark**	**Comment**	**Condition**
MBSFNAreaConfiguration-r9 ::= SEQUENCE {			
commonSF-Alloc-r9 SEQUENCE (SIZE (1..maxMBSFN-Allocations)) OF SEQUENCE {			
commonSF-AllocPeriod-r9	rf32		
pmch-InfoList-r9 SEQUENCE (SIZE (0..maxPMCH-PerMBSFN)) OF SEQUENCE {			
pmch-Config-r9 SEQUENCE {			
sf-AllocEnd-r9	7		
dataMCS-r9	0		
mch-SchedulingPeriod-r9	rf256		
}			
}			
}			
}			

Table 17.1.5.3.3-3: CLOSE UE TEST LOOP (step 3, Table 17.1.5.3.2-2)

Derivation Path: 36.508, Table 4.7A-3, condition UE TEST LOOP MODE C

17.2 MBMS Data Reception

17.2.1 UE Acquire the MBMS data based on the SIB13 and MCCH message /MCCH and MTCH are on the same MCH

17.2.1.1 Test Purpose (TP)

(1)

```
with { UE receiving an MBMS service }
ensure that {
  when { UE receives a MAC PDU on MCH, multiplexing both MCCH and MTCH RLC PDU's }
    then { UE successfully de-multiplexes the MCCH and MTCH data}
          }
```

17.2.1.2 Conformance requirements

References:

The conformance requirements covered in the present TC are specified in: TS 36.321, clause 5, 12, 6.1.2, 6.1.3.7 and 6.2.1.

[TS 36.321, clause 5.12]

MCH transmission may occur in subframes configured by upper layer for MCCH or MTCH transmission. For each such subframe, upper layer indicates if *signallingMCS* or *dataMCS* applies. The transmission of an MCH occurs in a set of subframes known as the MCH subframe allocation (MSA), defined by *PMCH-Config*. An MCH Scheduling Information MAC control element is included at the beginning of the MCH scheduling period in the first subframe of each MSA to indicate the position of each MTCH and unused subframes on the MCH. The UE shall assume that the first scheduled MTCH starts immediately after the MCCH or the MCH Scheduling Information MAC control element if the MCCH is not present, and the other scheduled MTCH(s) start at the earliest in the subframe where the previous MTCH stops. When the UE needs to receive MCH, the UE shall:

- attempt to decode the TB on the MCH;
- if a TB on the MCH has been successfully decoded:
  - demultiplex the MAC PDU and deliver the MAC SDU(s) to upper layers.

[TS 36.321, clause 6.1.2]

A MAC PDU consists of a MAC header, zero or more MAC Service Data Units (MAC SDU), zero, or more MAC control elements, and optionally padding; as described in Figure 6.1.2-3.

Both the MAC header and the MAC SDUs are of variable sizes.

A MAC PDU header consists of one or more MAC PDU subheaders; each subheader corresponds to either a MAC SDU, a MAC control element or padding.

A MAC PDU subheader consists of the six header fields R/R/E/LCID/F/L but for the last subheader in the MAC PDU and for fixed sized MAC control elements. The last subheader in the MAC PDU and subheaders for fixed sized MAC control elements consist solely of the four header fields R/R/E/LCID. A MAC PDU subheader corresponding to padding consists of the four header fields R/R/E/LCID.

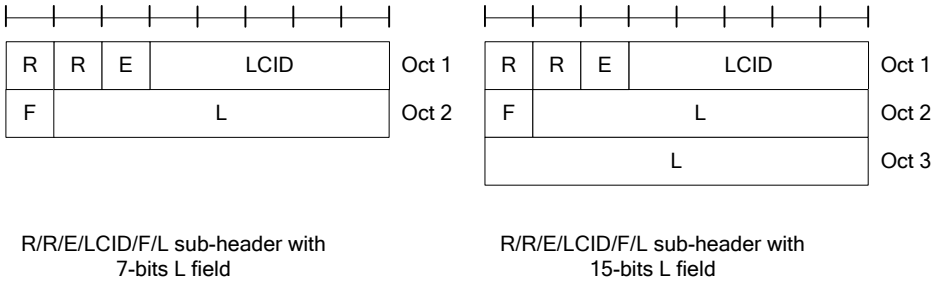

Figure 6.1.2-1: R/R/E/LCID/F/L MAC subheader

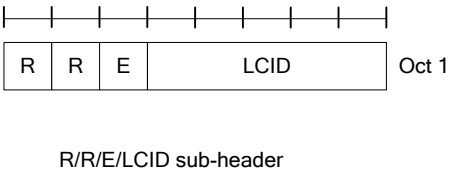

Figure 6.1.2-2: R/R/E/LCID MAC subheader

MAC PDU subheaders have the same order as the corresponding MAC SDUs, MAC control elements and padding.

MAC control elements are always placed before any MAC SDU.

Padding occurs at the end of the MAC PDU, except when single-byte or two-byte padding is required. Padding may have any value and the UE shall ignore it. When padding is performed at the end of the MAC PDU, zero or more padding bytes are allowed.

When single-byte or two-byte padding is required, one or two MAC PDU subheaders corresponding to padding are placed at the beginning of the MAC PDU before any other MAC PDU subheader.

A maximum of one MAC PDU can be transmitted per TB per UE. A maximum of one MCH MAC PDU can be transmitted per TTI.

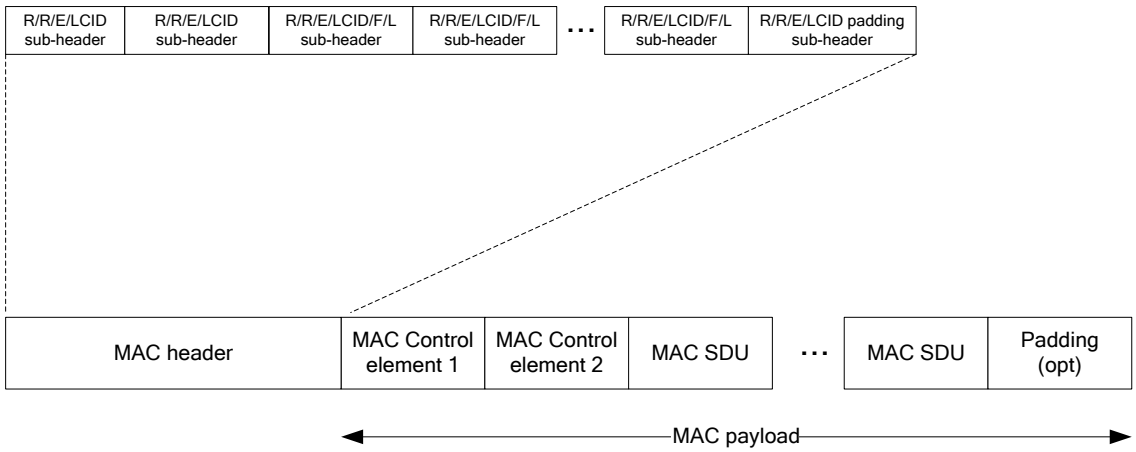

Figure 6.1.2-3: Example of MAC PDU consisting of MAC header, MAC control elements, MAC SDUs and padding

[TS 36.321, clause 6.1.3.7]

The MCH Scheduling Information MAC Control Element illustrated in Figure 6.1.3.7-1 is identified by a MAC PDU subheader with LCID as specified in Table 6.2.1-4. This control element has a variable size. For each MTCH the fields below are included:

- LCID: this field indicates the Logical Channel ID of the MTCH. The length of the field is 5 bits;
- Stop MTCH: this field indicates the ordinal number of the subframe within the MCH scheduling period where the corresponding MTCH stops. The length of the field is 11 bits. The special Stop MTCH value 2047 indicates that the corresponding MTCH is not scheduled. The value range 2043 to 2046 is reserved.

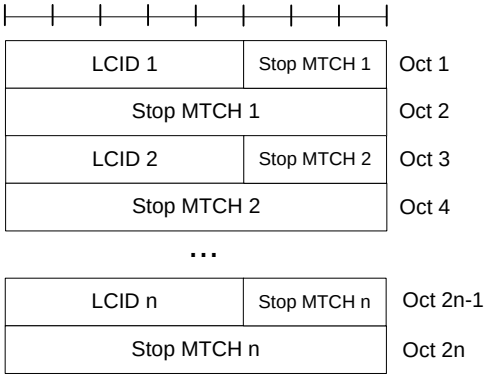

Figure 6.1.3.7-1: MCH Scheduling Information MAC control element

[TS 36.321, clause 6.2.1]

The MAC header is of variable size and consists of the following fields:

- LCID: The Logical Channel ID field identifies the logical channel instance of the corresponding MAC SDU or the type of the corresponding MAC control element or padding as described in tables 6.2.1-1, 6.2.1-2 and 6.2.1-4 for the DL-SCH, UL-SCH and MCH respectively. There is one LCID field for each MAC SDU, MAC control element or padding included in the MAC PDU. In addition to that, one or two additional LCID fields are included in the MAC PDU, when single-byte or two-byte padding is required but cannot be achieved by padding at the end of the MAC PDU. The LCID field size is 5 bits;

- L: The Length field indicates the length of the corresponding MAC SDU or variable-sized MAC control element in bytes. There is one L field per MAC PDU subheader except for the last subheader and subheaders corresponding to fixed-sized MAC control elements. The size of the L field is indicated by the F field;

- F: The Format field indicates the size of the Length field as indicated in table 6.2.1-3. There is one F field per MAC PDU subheader except for the last subheader and subheaders corresponding to fixed-sized MAC control elements. The size of the F field is 1 bit. If the size of the MAC SDU or variable-sized MAC control element is less than 128 bytes, the value of the F field is set to 0, otherwise it is set to 1;

- E: The Extension field is a flag indicating if more fields are present in the MAC header or not. The E field is set to "1" to indicate another set of at least R/R/E/LCID fields. The E field is set to "0" to indicate that either a MAC SDU, a MAC control element or padding starts at the next byte;

- R: Reserved bit, set to "0".

The MAC header and subheaders are octet aligned.

...

Table 6.2.1-4 Values of LCID for MCH

Index	LCID values
00000	MCCH (see note)
00001-11100	MTCH
11101	Reserved
11110	MCH Scheduling Information
11111	Padding
NOTE: If there is no MCCH on MCH, an MTCH could use this value.	

17.2.1.3 Test description

17.2.1.3.1 Pre-test conditions

System Simulator:

- Cell 1

- System information combination 15 as defined in TS 36.508[18] clause 4.4.3.1 is used

UE:

- none

Preamble:

- The UE is in state Loopback Activated (state 4) according to [18], with the UE TEST LOOP MODE C.

17.2.1.3.2 Test procedure sequence

Table 17.2.1.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	In the current MCCH modification period SS transmits MCCH Modification notification for notification indicator 0	-	MCCH Modification notification	-	-
2	In frame number SFN Mod 512 =0 ; i.e. start of next MCCH modification period, the SS transmits a valid MAC PDU including 'MCH Scheduling Information MAC Control Element with LCID='00001', Stop MTCH= '00000001111' and MCCH RLC PDU(carrying *MBSFNAreaConfiguration)*	<--	MAC PDU (MCH Scheduling Information MAC Control Element: LCID='00001', Stop MTCH= '00000001111', MCCH RLC PDU)	-	-
-	Exception; Step 3 is repeated 15 times	-	-	-	-
3	In frame with SFN Mod 32 =0, the SS transmits MCH MAC PDU containing MCCH RLC PDU (carrying *MBSFNAreaConfiguration)* and MTCH RLC PDU carrying 1 MBMS packet.	<--	MAC PDU (MCCH RLC PDU and MTCH RLC PDU)	-	-
4	The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message.	<--	UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST	-	-
5	Check: Does the UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE with number of reported MBMS Packets received on the MTCH is greater than zero?	-->	UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE	1	P
Note 1: The Imcs used in steps 2 and 3 is signallingMCS-r9. Note 2: The subframe number for steps 2 and 3 is determined by subframeAllocation which is 1 (FDD)/ 3(TDD).					

17.2.1.3.3 Specific message contents

Table 17.2.1.3.3-1: *SystemInformationBlockType2* for Cell 1 (preamble)

Derivation Path: 36.508 table 4.4.3.3-1, condition MBMS.

Table 17.2.1.3.3-1a: ACTIVATE TEST MODE (preamble)

Derivation Path: 36.508, Table 4.7A-1, condition UE TEST LOOP MODE C

Table 17.2.1.3.3-1b: CLOSE UE TEST LOOP (preamble)

Derivation Path: 36.508, Table 4.7A-3, condition UE TEST LOOP MODE C

Table 17.2.1.3.3-3: *MBSFNAreaConfiguration* (steps 2 and 3, Table 17.2.1.3.2-1)

Derivation Path: 36.508 table 4.6.1-4A			
Information Element	**Value/remark**	**Comment**	**Condition**
MBSFNAreaConfiguration-r9 ::= SEQUENCE {			
commonSF-Alloc-r9 SEQUENCE (SIZE (1..maxMBSFN-Allocations)) OF SEQUENCE {			
commonSF-AllocPeriod-r9	rf32		
pmch-InfoList-r9 SEQUENCE (SIZE (0..maxPMCH-PerMBSFN)) OF SEQUENCE {			
pmch-Config-r9 SEQUENCE {			
sf-AllocEnd-r9	7		
dataMCS-r9	0		
mch-SchedulingPeriod-r9	rf256		
}			
}			
}			
}			

17.2.2 UE Acquire the MBMS data based on the SIB13 and MCCH message /MCCH and MTCH are on different MCHs

17.2.2.1 Test Purpose (TP)

(1)

```
with { UE receiving an MBMS service }
ensure that {
  when { UE receives a MAC PDU on MCH, containing  MCCH PDU's }
    then { UE succesfully de-multiplexes the MCCH data}
  when { UE receives a MAC PDU on MCH, containing  MTCH PDU's }
    then { UE succesfully de-multiplexes the MTCH data}

           }
```

17.2.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.321, clause 5. 12, 6.1.2, 6.1.3.7 and 6.2.1.

[TS 36.321, clause 5.12]

MCH transmission may occur in subframes configured by upper layer for MCCH or MTCH transmission. For each such subframe, upper layer indicates if *signallingMCS* or *dataMCS* applies. The transmission of an MCH occurs in a set of subframes known as the MCH subframe allocation (MSA), defined by *PMCH-Config*. An MCH Scheduling Information MAC control element is included at the beginning of the MCH scheduling period in the first subframe of each MSA to indicate the position of each MTCH and unused subframes on the MCH. The UE shall assume that the first scheduled MTCH starts immediately after the MCCH or the MCH Scheduling Information MAC control element if the MCCH is not present, and the other scheduled MTCH(s) start at the earliest in the subframe where the previous MTCH stops. When the UE needs to receive MCH, the UE shall:

- attempt to decode the TB on the MCH;
- if a TB on the MCH has been successfully decoded:
  - demultiplex the MAC PDU and deliver the MAC SDU(s) to upper layers.

[TS 36.321, clause 6.1.2]

A MAC PDU consists of a MAC header, zero or more MAC Service Data Units (MAC SDU), zero, or more MAC control elements, and optionally padding; as described in Figure 6.1.2-3.

Both the MAC header and the MAC SDUs are of variable sizes.

A MAC PDU header consists of one or more MAC PDU subheaders; each subheader corresponds to either a MAC SDU, a MAC control element or padding.

A MAC PDU subheader consists of the six header fields R/R/E/LCID/F/L but for the last subheader in the MAC PDU and for fixed sized MAC control elements. The last subheader in the MAC PDU and subheaders for fixed sized MAC control elements consist solely of the four header fields R/R/E/LCID. A MAC PDU subheader corresponding to padding consists of the four header fields R/R/E/LCID.

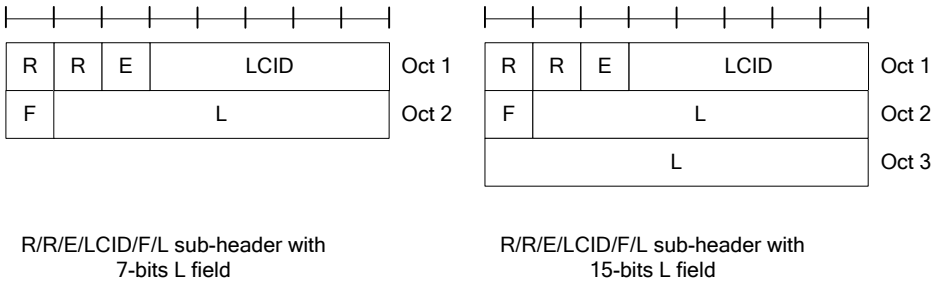

Figure 6.1.2-1: R/R/E/LCID/F/L MAC subheader

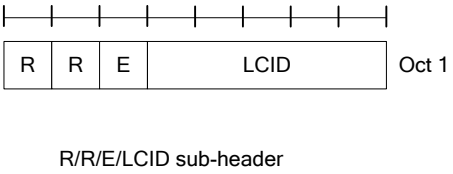

Figure 6.1.2-2: R/R/E/LCID MAC subheader

MAC PDU subheaders have the same order as the corresponding MAC SDUs, MAC control elements and padding.

MAC control elements are always placed before any MAC SDU.

Padding occurs at the end of the MAC PDU, except when single-byte or two-byte padding is required. Padding may have any value and the UE shall ignore it. When padding is performed at the end of the MAC PDU, zero or more padding bytes are allowed.

When single-byte or two-byte padding is required, one or two MAC PDU subheaders corresponding to padding are placed at the beginning of the MAC PDU before any other MAC PDU subheader.

A maximum of one MAC PDU can be transmitted per TB per UE. A maximum of one MCH MAC PDU can be transmitted per TTI.

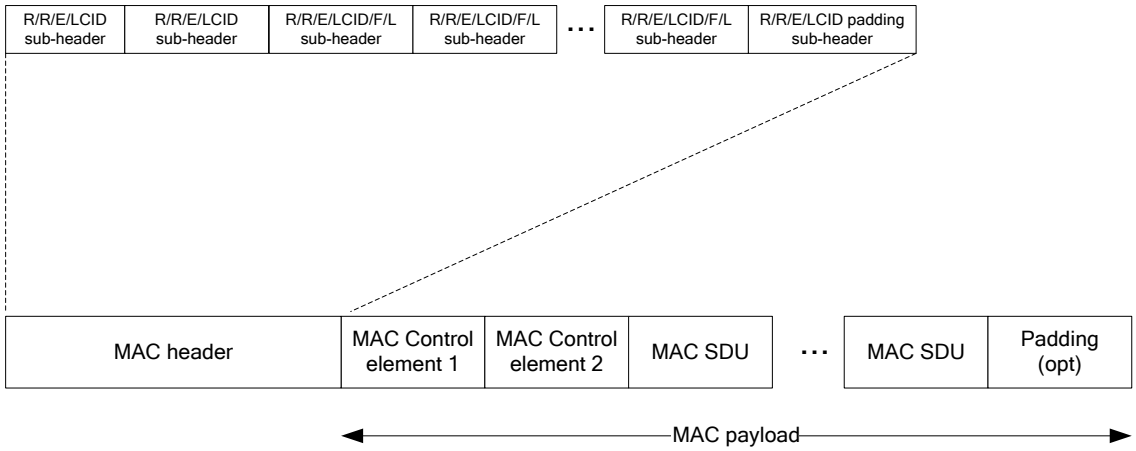

Figure 6.1.2-3: Example of MAC PDU consisting of MAC header, MAC control elements, MAC SDUs and padding

[TS 36.321, clause 6.1.3.7]

The MCH Scheduling Information MAC Control Element illustrated in Figure 6.1.3.7-1 is identified by a MAC PDU subheader with LCID as specified in Table 6.2.1-4. This control element has a variable size. For each MTCH the fields below are included:

- LCID: this field indicates the Logical Channel ID of the MTCH. The length of the field is 5 bits;
- Stop MTCH: this field indicates the ordinal number of the subframe within the MCH scheduling period where the corresponding MTCH stops. The length of the field is 11 bits. The special Stop MTCH value 2047 indicates that the corresponding MTCH is not scheduled. The value range 2043 to 2046 is reserved.

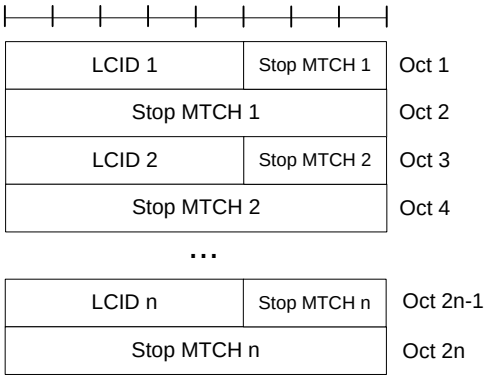

Figure 6.1.3.7-1: MCH Scheduling Information MAC control element

[TS 36.321, clause 6.2.1]

The MAC header is of variable size and consists of the following fields:

- LCID: The Logical Channel ID field identifies the logical channel instance of the corresponding MAC SDU or the type of the corresponding MAC control element or padding as described in tables 6.2.1-1, 6.2.1-2 and 6.2.1-4 for the DL-SCH, UL-SCH and MCH respectively. There is one LCID field for each MAC SDU, MAC control element or padding included in the MAC PDU. In addition to that, one or two additional LCID fields are included in the MAC PDU, when single-byte or two-byte padding is required but cannot be achieved by padding at the end of the MAC PDU. The LCID field size is 5 bits;

- L: The Length field indicates the length of the corresponding MAC SDU or variable-sized MAC control element in bytes. There is one L field per MAC PDU subheader except for the last subheader and subheaders corresponding to fixed-sized MAC control elements. The size of the L field is indicated by the F field;

- F: The Format field indicates the size of the Length field as indicated in table 6.2.1-3. There is one F field per MAC PDU subheader except for the last subheader and subheaders corresponding to fixed-sized MAC control elements. The size of the F field is 1 bit. If the size of the MAC SDU or variable-sized MAC control element is less than 128 bytes, the value of the F field is set to 0, otherwise it is set to 1;

- E: The Extension field is a flag indicating if more fields are present in the MAC header or not. The E field is set to "1" to indicate another set of at least R/R/E/LCID fields. The E field is set to "0" to indicate that either a MAC SDU, a MAC control element or padding starts at the next byte;

- R: Reserved bit, set to "0".

The MAC header and subheaders are octet aligned.

...

Table 6.2.1-4 Values of LCID for MCH

Index	LCID values
00000	MCCH (see note)
00001-11100	MTCH
11101	Reserved
11110	MCH Scheduling Information
11111	Padding
NOTE: If there is no MCCH on MCH, an MTCH could use this value.	

17.2.2.3 Test description

17.2.2.3.1 Pre-test conditions

System Simulator:

- Cell 1

- System information combination 15 as defined in TS 36.508[18] clause 4.4.3.1 is used

UE:

- none

Preamble:

- The UE is in state Loopback Activated (state 4) according to [18], with the UE TEST LOOP MODE C.

17.2.2.3.2 Test procedure sequence

Table 17.2.2.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	In the current MCCH modification period SS transmits MCCH Modification notification for notification indicator 0	-	MCCH Modification notification	-	-
2	I n frame number SFN Mod 512 =0 ; i.e. start of next MCCH modification period, the SS transmits a valid MAC PDU including 'MCH Scheduling Information MAC Control Element with LCID='00001', Stop MTCH= '00000001111' and MCCH RLC PDU(carrying *MBSFNAreaConfiguration)*	<--	MAC PDU (MCH Scheduling Information MAC Control Element: LCID='00001', Stop MTCH= '00000001111', MCCH RLC PDU)	-	-
-	Exception; Steps 3 and 4 are repeated 15 times	-	-	-	-
3	In frame with SFN MOD 32 is not =0 and SFN MOD 16 =0, the SS transmits MCH MAC PDU containing MTCH RLC PDU carrying 1 MBMS packet	<--	MAC PDU (MTCH RLC PDU)	-	-
4	In frame with SFN MOD 32 =0 the SS transmits MCH MCCH PDU containing MCCH RLC PDU(carrying *MBSFNAreaConfiguration)*	<--	MAC PDU (MCCH RLC PDU)	-	-
5	The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message.	<--	UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST	-	-
6	Check: Does the UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE with number of reported MBMS Packets received on the MTCH is greater than zero?	-->	UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE	1	P
Note 1: The Imcs used in steps 2 and 4 is signallingMCS-r9 and that in step 3 is dataMCS-r9. Note 2: The subframe number for steps 2,3 and 4 is determined by subframeAllocation which is 1 (FDD)/ 3(TDD).					

17.2.2.3.3 Specific message contents

Table 17.2.2.3.3-1: *SystemInformationBlockType2* for Cell 1 (preamble)

Derivation Path: 36.508 table 4.4.3.3-1, condition MBMS

Table 17.2.2.3.3-1a: ACTIVATE TEST MODE (preamble)

Derivation Path: 36.508, Table 4.7A-1, condition UE TEST LOOP MODE C.

Table 17.2.2.3.3-1b: CLOSE UE TEST LOOP (preamble)

Derivation Path: 36.508, Table 4.7A-3, condition UE TEST LOOP MODE C

Table 17.2.2.3.3-3: *MBSFNAreaConfiguration* (steps 2 and 4, Table 17.2.2.3.2-1)

Derivation Path: 36.508 table 4.6.1-4A			
Information Element	**Value/remark**	**Comment**	**Condition**
MBSFNAreaConfiguration-r9 ::= SEQUENCE {			
commonSF-Alloc-r9 SEQUENCE (SIZE (1..maxMBSFN-Allocations)) OF SEQUENCE {			
commonSF-AllocPeriod-r9	rf16		
pmch-InfoList-r9 SEQUENCE (SIZE (0..maxPMCH-PerMBSFN)) OF SEQUENCE {			
pmch-Config-r9 SEQUENCE {			
sf-AllocEnd-r9	3		
dataMCS-r9	0		
mch-SchedulingPeriod-r9	rf256		
}			
}			
}			
}			

17.2.3 UE receives the MBMS data when this data is in the beginning of the MSP

17.2.3.1 Test Purpose (TP)

(1)

```
with { UE receiving an MBMS service }
ensure that {
  when { UE receives a MAC PDU on MCH, containing  MTCH PDU's at the start of MCH scheduling period}
    then { UE succesfully de-multiplexes the MTCH data}
            }
```

17.2.3.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.321, clause 5. 12, 6.1.2, 6.1.3.7 and 6.2.1.

[TS 36.321, clause 5.12]

MCH transmission may occur in subframes configured by upper layer for MCCH or MTCH transmission. For each such subframe, upper layer indicates if *signallingMCS* or *dataMCS* applies. The transmission of an MCH occurs in a set of subframes known as the MCH subframe allocation (MSA), defined by *PMCH-Config*. An MCH Scheduling Information MAC control element is included at the beginning of the MCH scheduling period in the first subframe of each MSA to indicate the position of each MTCH and unused subframes on the MCH. The UE shall assume that the first scheduled MTCH starts immediately after the MCCH or the MCH Scheduling Information MAC control element if the MCCH is not present, and the other scheduled MTCH(s) start at the earliest in the subframe where the previous MTCH stops. When the UE needs to receive MCH, the UE shall:

- attempt to decode the TB on the MCH;
- if a TB on the MCH has been successfully decoded:
  - demultiplex the MAC PDU and deliver the MAC SDU(s) to upper layers.

[TS 36.321, clause 6.1.2]

A MAC PDU consists of a MAC header, zero or more MAC Service Data Units (MAC SDU), zero, or more MAC control elements, and optionally padding; as described in Figure 6.1.2-3.

Both the MAC header and the MAC SDUs are of variable sizes.

A MAC PDU header consists of one or more MAC PDU subheaders; each subheader corresponds to either a MAC SDU, a MAC control element or padding.

A MAC PDU subheader consists of the six header fields R/R/E/LCID/F/L but for the last subheader in the MAC PDU and for fixed sized MAC control elements. The last subheader in the MAC PDU and subheaders for fixed sized MAC control elements consist solely of the four header fields R/R/E/LCID. A MAC PDU subheader corresponding to padding consists of the four header fields R/R/E/LCID.

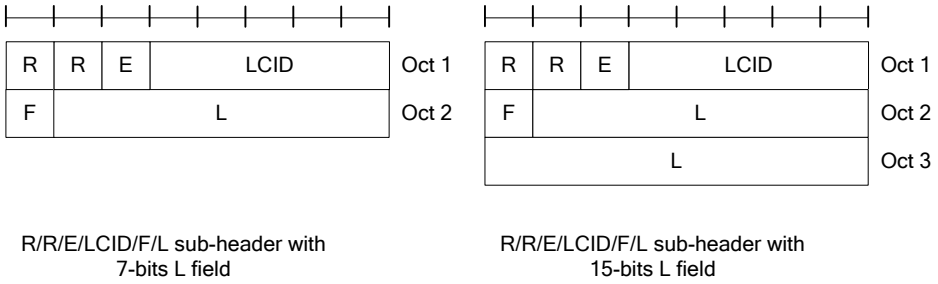

Figure 6.1.2-1: R/R/E/LCID/F/L MAC subheader

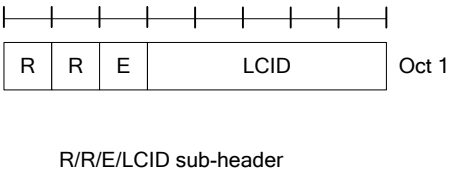

Figure 6.1.2-2: R/R/E/LCID MAC subheader

MAC PDU subheaders have the same order as the corresponding MAC SDUs, MAC control elements and padding.

MAC control elements are always placed before any MAC SDU.

Padding occurs at the end of the MAC PDU, except when single-byte or two-byte padding is required. Padding may have any value and the UE shall ignore it. When padding is performed at the end of the MAC PDU, zero or more padding bytes are allowed.

When single-byte or two-byte padding is required, one or two MAC PDU subheaders corresponding to padding are placed at the beginning of the MAC PDU before any other MAC PDU subheader.

A maximum of one MAC PDU can be transmitted per TB per UE. A maximum of one MCH MAC PDU can be transmitted per TTI.

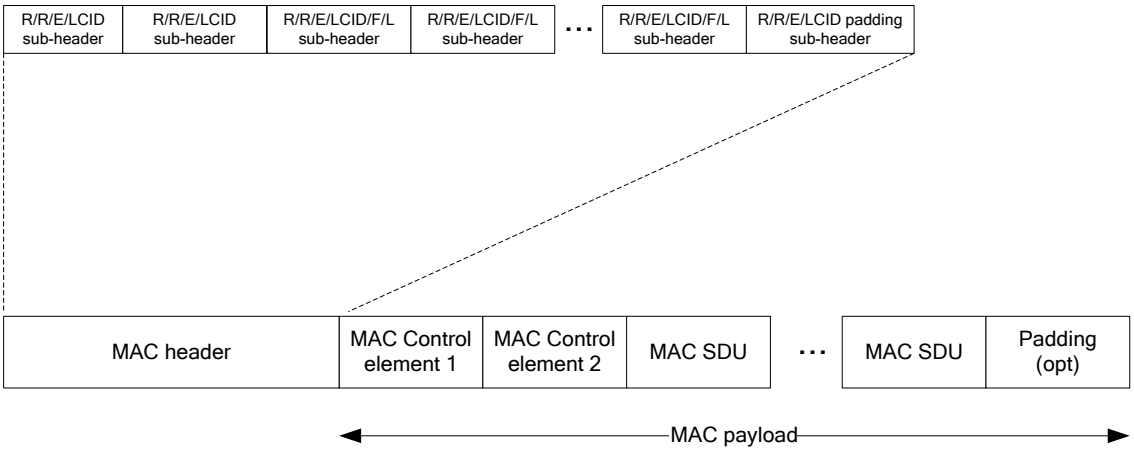

Figure 6.1.2-3: Example of MAC PDU consisting of MAC header, MAC control elements, MAC SDUs and padding

[TS 36.321, clause 6.1.3.7]

The MCH Scheduling Information MAC Control Element illustrated in Figure 6.1.3.7-1 is identified by a MAC PDU subheader with LCID as specified in Table 6.2.1-4. This control element has a variable size. For each MTCH the fields below are included:

- LCID: this field indicates the Logical Channel ID of the MTCH. The length of the field is 5 bits;
- Stop MTCH: this field indicates the ordinal number of the subframe within the MCH scheduling period where the corresponding MTCH stops. The length of the field is 11 bits. The special Stop MTCH value 2047 indicates that the corresponding MTCH is not scheduled. The value range 2043 to 2046 is reserved.

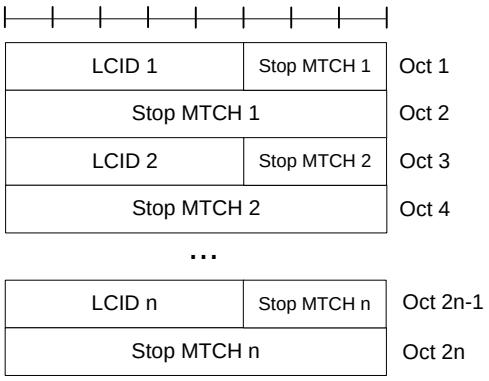

Figure 6.1.3.7-1: MCH Scheduling Information MAC control element

[TS 36.321, clause 6.2.1]

The MAC header is of variable size and consists of the following fields:

- LCID: The Logical Channel ID field identifies the logical channel instance of the corresponding MAC SDU or the type of the corresponding MAC control element or padding as described in tables 6.2.1-1, 6.2.1-2 and 6.2.1-4 for the DL-SCH, UL-SCH and MCH respectively. There is one LCID field for each MAC SDU, MAC control element or padding included in the MAC PDU. In addition to that, one or two additional LCID fields are included in the MAC PDU, when single-byte or two-byte padding is required but cannot be achieved by padding at the end of the MAC PDU. The LCID field size is 5 bits;
- L: The Length field indicates the length of the corresponding MAC SDU or variable-sized MAC control element in bytes. There is one L field per MAC PDU subheader except for the last subheader and subheaders corresponding to fixed-sized MAC control elements. The size of the L field is indicated by the F field;
- F: The Format field indicates the size of the Length field as indicated in table 6.2.1-3. There is one F field per MAC PDU subheader except for the last subheader and subheaders corresponding to fixed-sized MAC control elements. The size of the F field is 1 bit. If the size of the MAC SDU or variable-sized MAC control element is less than 128 bytes, the value of the F field is set to 0, otherwise it is set to 1;
- E: The Extension field is a flag indicating if more fields are present in the MAC header or not. The E field is set to "1" to indicate another set of at least R/R/E/LCID fields. The E field is set to "0" to indicate that either a MAC SDU, a MAC control element or padding starts at the next byte;
- R: Reserved bit, set to "0".

The MAC header and subheaders are octet aligned.

...

Table 6.2.1-4: Values of LCID for MCH

Index	LCID values
00000	MCCH (see note)
00001-11100	MTCH
11101	Reserved
11110	MCH Scheduling Information
11111	Padding
NOTE: If there is no MCCH on MCH, an MTCH could use this value.	

17.2.3.3 Test description

17.2.3.3.1 Pre-test conditions

System Simulator:

- Cell 1
- System information combination 15 as defined in TS 36.508[18] clause 4.4.3.1 is used.

UE:

- none

Preamble:

- The UE is in state Loopback Activated (state 4) according to [18], with the UE TEST LOOP MODE C.

17.2.3.3.2 Test procedure sequence

Table 17.2.3.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	In the current MCCH modification period SS transmits MCCH Modification notification for notification indicator 0	-	MCCH Modification notification	-	-
2	In frame number SFN Mod 512 =0 ; i.e. start of next MCCH modification period, the SS transmits a valid MAC PDU including 'MCH Scheduling Information MAC Control Element with LCID='00001', Stop MTCH= '00000001111' , MCCH RLC PDU(carrying *MBSFNAreaConfiguration)* and MTCH RLC PDU carrying 1 MBMS packet	<--	MAC PDU (MCH Scheduling Information MAC Control Element: LCID='00001', Stop MTCH= '00000001111', MCCH RLC PDU, MTCH RLC PDU)	-	-
-	Exception; Steps 3 and 4 are repeated 8 times	-	-	-	-
3	In frame with SFN MOD 32 is not =0 and SFN MOD 16 =0, the SS transmits MCH MAC PDU containing 'MCH Scheduling Information MAC Control Element with LCID='00001', Stop MTCH= '00000001111' and MTCH RLC PDU carrying 1 MBMS packet	<--	MAC PDU (MCH Scheduling Information MAC Control Element: LCID='00001', Stop MTCH= '00000001111', MTCH RLC PDU)	-	-
4	In frame with SFN MOD 32 =0 the SS transmits MCH MCCH PDU containing 'MCH Scheduling Information MAC Control Element with LCID='00001', Stop MTCH= '00000001111' , MCCH RLC PDU(carrying *MBSFNAreaConfiguration)* and MTCH RLC PDU carrying 1 MBMS packet	<--	MAC PDU (MCH Scheduling Information MAC Control Element: LCID='00001', Stop MTCH= '00000001111', MCCH RLC PDU, MTCH RLC PDU)	-	-
5	The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message.	<--	UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST	-	-
6	Check: Does the UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE with number of reported MBMS Packets received on the MTCH is greater than zero?	-->	UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE	1	P
Note 1: The Imcs used in steps 2 ,3 and 4 is signallingMCS-r9. Note 2: The subframe number for steps 2,3 and 4 is determined by subframeAllocation which is 1 (FDD)/ 3(TDD).					

17.2.3.3.3 Specific message contents

Table 17.2.3.3.3-1: *SystemInformationBlockType2* for Cell 1 (preamble)

Derivation Path: 36.508 table 4.4.3.3-1, condition MBMS

Table 17.2.3.3.3-1a: ACTIVATE TEST MODE (preamble)

Derivation Path: 36.508, Table 4.7A-1, condition UE TEST LOOP MODE C

Table 17.2.3.3.3-1b: CLOSE UE TEST LOOP (preamble)

Derivation Path: 36.508, Table 4.7A-3, condition UE TEST LOOP MODE C

Table 17.2.3.3.3-3: *MBSFNAreaConfiguration* (steps 2 and 4, Table 17.2.3.3.2-1)

Derivation Path: 36.508 table 4.6.1-4A			
Information Element	**Value/remark**	**Comment**	**Condition**
MBSFNAreaConfiguration-r9 ::= SEQUENCE {			
commonSF-Alloc-r9 SEQUENCE (SIZE (1..maxMBSFN-Allocations)) OF SEQUENCE {			
commonSF-AllocPeriod-r9	rf16		
pmch-InfoList-r9 SEQUENCE (SIZE (0..maxPMCH-PerMBSFN)) OF SEQUENCE {			
pmch-Config-r9 SEQUENCE {			
sf-AllocEnd-r9	3		
dataMCS-r9	0		
mch-SchedulingPeriod-r9	rf16		
}			
}			
}			
}			

17.2.4 Reception of PDCCH DCI format 0 and PHICH in MBSFN subframes

17.2.4.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRAN RRC_CONNECTED state and in a subframe configured as MBSFN subframe}
ensure that {
  when { UE receives a PDCCH DCI format 0 }
    then { UE performs uplink data transmission as per DCI format 0 received }
            }
```

(2)

```
with { UE in E-UTRAN RRC_CONNECTED state and in a subframe configured as MBSFN subframe}
ensure that {
  when { UE receives a PHICH for an uplink data transmission made}
    then { UE acts upon the PHICH information }
            }
```

17.2.4.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.211 clause 6.1.1, 6.7, TS 36.331 clause 5.2.2.9 and TS 36.213 clause 8.3.

[TS 36.211, clause 6.1.1]

A subset of the downlink subframes in a radio frame on a carrier supporting PDSCH transmission can be configured as MBSFN subframes by higher layers. Each MBSFN subframe is divided into a non-MBSFN region and an MBSFN region.

- The non-MBSFN region spans the first one or two OFDM symbols in an MBSFN subframe where the length of the non-MBSFN region is given by Table 6.7-1. Transmission in the non-MBSFN region shall use the same cyclic prefix length as used for subframe 0.
- The MBSFN region in an MBSFN subframe is defined as the OFDM symbols not used for the non-MBSFN region.

[TS 36.211, clause 6.7]

The physical control format indicator channel carries information about the number of OFDM symbols used for transmission of PDCCHs in a subframe. The set of OFDM symbols possible to use for PDCCH in a subframe is given by Table 6.7-1.

Table 6.7-1: Number of OFDM symbols used for PDCCH

Subframe	Number of OFDM symbols for PDCCH when $N_{RB}^{DL} > 10$	Number of OFDM symbols for PDCCH when $N_{RB}^{DL} \leq 10$
Subframe 1 and 6 for frame structure type 2	1, 2	2
MBSFN subframes on a carrier supporting PDSCH, configured with 1 or 2 cell-specific antenna ports	1, 2	2
MBSFN subframes on a carrier supporting PDSCH, configured with 4 cell-specific antenna ports	2	2
Subframes on a carrier not supporting PDSCH	0	0
Non-MBSFN subframes (except subframe 6 for frame structure type 2) configured with positioning reference signals	1, 2, 3	2, 3
All other cases	1, 2, 3	2, 3, 4

The PCFICH shall be transmitted when the number of OFDM symbols for PDCCH is greater than zero.

[TS 36.331, clause 5.2.2.9]

Upon receiving *SystemInformationBlockType2*, the UE shall:

...

1> if the *mbsfn-SubframeConfigList* is included:

2> consider that no other DL assignments occur in the MBSFN subframes indicated in the *mbsfn-SubframeConfigList*:

[TS 36.213, clause 8.3]

For Frame Structure type 1, an ACK/NACK received on the PHICH assigned to a UE in subframe *i* is associated with the PUSCH transmission in subframe *i*-4.

For Frame Structure type 2 UL/DL configuration 1-6, an ACK/NACK received on the PHICH assigned to a UE in subframe *i* is associated with the PUSCH transmission in the subframe *i-k* as indicated by the following table 8.3-1.

For Frame Structure type 2 UL/DL configuration 0, an ACK/NACK received on the PHICH in the resource corresponding to $I_{PHICH} = 0$, as defined in Section 9.1.2, assigned to a UE in subframe *i* is associated with the PUSCH transmission in the subframe *i-k* as indicated by the following table 8.3-1. If, for Frame Structure type 2 UL/DL configuration 0, an ACK/NACK received on the PHICH in the resource corresponding to $I_{PHICH} = 1$, as defined in Section 9.1.2, assigned to a UE in subframe *i* is associated with the PUSCH transmission in the subframe *i*-6.

Table 8.3-1: *k* for TDD configurations 0-6

TDD UL/DL Configuration	DL subframe number *i*									
	0	1	2	3	4	5	6	7	8	9
0	7	4				7	4			
1		4			6		4			6
2				6					6	
3	6								6	6
4									6	6
5									6	
6	6	4				7	4			6

The physical layer in the UE shall deliver indications to the higher layers as follows:

For downlink subframe *i*, if a transport block was transmitted in the associated PUSCH subframe then:

- if ACK is decoded on the PHICH in subframe *i*, ACK shall be delivered to the higher layers;
- else NACK shall be delivered to the higher layers.

17.2.4.3 Test description

17.2.4.3.1 Pre-test conditions

System Simulator:

- Cell 1
- System information combination 15 as defined in TS 36.508[18] clause 4.4.3.1 is used.

UE:

None.

Preamble:

- The UE is in state Loopback Activated (state 4) according to [18].
- The loop back size is set in such a way that one RLC SDU in DL shall result in 1 RLC SDU's in UL.
- No UL Grant is allocated; PUCCH is in synchronised state for sending Scheduling Requests.

17.2.4.3.2 Test procedure sequence

Table 17.2.4.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS transmits a Paging message in a paging occasion including a *systemInfoModification.*	<--	Paging	-	-
2	From the beginning of the next modification period the SS transmits a modified *SystemInformationBlockType2* as specified.	-	-	-	-
3	The SS Transmits a valid MAC PDU containing RLC PDU	<--	MAC PDU	-	-
4	The SS is configured for Uplink Grant Allocation Type 3. The SS allocates an UL Grant (DCI format 0) in SFN x, sub frame 3(FDD)/4(TDD).	<--	Uplink Grant	-	-
5	Check: Does the UE transmit a MAC PDU including one RLC SDU, as per grant in step 2 ?	-->	MAC PDU	1	P
6	The SS transmits a NACK corresponding to MAC PDU in step 5 in SFN x+1, sub frame 1(FDD)/4(TDD).	<--	HARQ NACK	-	-
7	Check: Does the UE retransmit the MAC PDU?	-->	MAC PDU	2	P
8	The SS transmits a NACK corresponding to MAC PDU in step 7 in SFN x+1, sub frame 9(FDD)/ SFN x+2, sub frame 4(TDD).	<--	HARQ NACK	-	-
9	The UE retransmit the MAC PDU.	-->	MAC PDU	-	-
10	The SS transmits an ACK corresponding to MAC PDU in step 9 in SFN x+2, sub frame 7(FDD)/ SFN x+3, sub frame 4(TDD).	<--	HARQ ACK	-	-
11	Check: Does the UE retransmit the MAC PDU ?	-->	MAC PDU	2	F
12	The SS transmits a Paging message in a paging occasion including a *systemInfoModification.*	<--	Paging	-	-
13	From the beginning of the next modification period the SS transmits a default*SystemInformationBlockType2* as in TS 36.508, table 4.4.3.3-1.	-	-	-	-

17.2.4.3.3 Specific message contents

Table 17.2.4.3.3-1: *SystemInformationBlockType2* for Cell 1 (preamble)

Derivation Path: 36.508 table 4.4.3.3-1, condition MBMS

Table 17.2.4.3.3-2: ACTIVATE TEST MODE (preamble)

Derivation Path: 36.508, Table 4.7A-1, condition UE TEST LOOP MODE C.

Table 17.2.4.3.3-3: CLOSE UE TEST LOOP (preamble)

Derivation Path: 36.508, Table 4.7A-3, condition UE TEST LOOP MODE C

Table 17.2.4.3.3-4: *SystemInformationBlockType2* for Cell 1 (step 2, Table 17.2.4.3.2-3)

Derivation Path: 36.508 table 4.4.3.3-1			
Information Element	**Value/remark**	**Comment**	**Condition**
SystemInformationBlockType2 ::= SEQUENCE {			
mbsfn-SubframeConfiguration SEQUENCE {			
radioframeAllocationPeriod	n1		
radioframeAllocationOffset	0		
subframeAllocation CHOICE{			
oneFrame	'101010'	corresponds to subframes 1, 3 and 7	FDD
oneFrame	'010000'	corresponds to subframe 4	TDD
}			
}			
}			

17.3 MBMS Counting Procedure

17.3.1 MBMS Counting / UE not receiving MBMS service

17.3.1.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_Connected state}
ensure that {
  when { UE is not in MBSFN area, enters another cell in MBSFN area, SS sends MBMSCountingRequest
message and UE is interested to receive at least one of the services received in
MBMSCountingResponse message }
    then { UE shall start acquiring the MBMSCountingRequest message from the beginning of the
repetition period and send MBMSCountingResponse message }
           }
```

(2)

```
with { UE in E-UTRA RRC_Connected state }
ensure that {
  when { UE is not receiving an MBMS service,receives MCCH information change notification, SS sends
MBMSCountingRequest message and UE is interested to receive at least one of the services received in
the MBMSCountingRequest message }
    then { UE shall start acquiring the MBMSCountingRequest message from the beginning of the
modification period following the one in which the change notification was received and send
MBMSCountingResponse message }
           }
```

17.3.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.331 clause 5.8.2.3, 5.8.4.1, 5.8.4.2 and 5.8.4.3.

[TS 36.331 clause 5.8.2.3]

An MBMS capable UE shall:

1> if the procedure is triggered by an MCCH information change notification:

2> start acquiring the *MBSFNAreaConfiguration* message and the *MBMSCountingRequest* message if present, from the beginning of the modification period following the one in which the change notification was received;

NOTE 1: The UE continues using the previously received MCCH information until the new MCCH information has been acquired.

1> if the UE enters an MBSFN area:

2> acquire the *MBSFNAreaConfiguration* message and the *MBMSCountingRequest* message if present, at the next repetition period;

1> if the UE is receiving an MBMS service:

2> start acquiring the *MBSFNAreaConfiguration* message and the *MBMSCountingRequest* message if present, that both concern the MBSFN area of the service that is being received, from the beginning of each modification period;

[TS 36.331 clause 5.8.4.1]

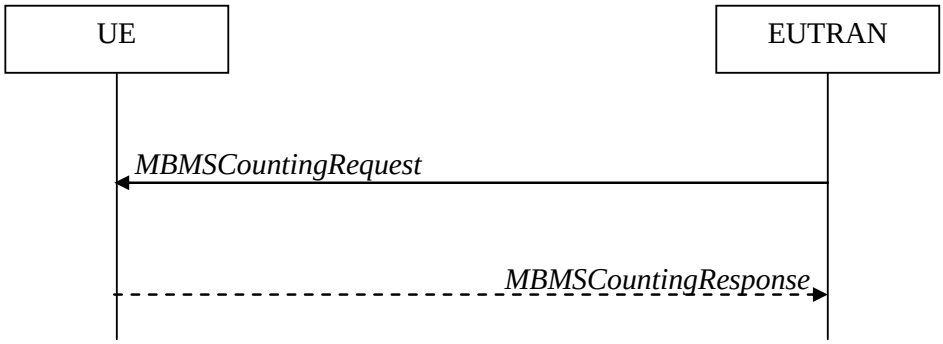

Figure 5.8.4.1-1: MBMS Counting procedure

The MBMS Counting procedure is used by the E-UTRAN to count the number of RRC_CONNECTED mode UEs which are receiving via an MRB or interested to receive via an MRB the specified MBMS services.

The UE determines interest in an MBMS service, that is identified by the TMGI, by interaction with upper layers.

[TS 36.331 clause 5.8.4.2]

E-UTRAN initiates the procedure by sending an *MBMSCountingRequest* message.

[TS 36.331 clause 5.8.4.3]

Upon receiving the *MBMSCountingRequest* message, the UE in RRC_CONNECTED mode shall:

1> if the UE is receiving via an MRB or interested to receive via an MRB at least one of the services in the received *countingRequestList:*

2> if more than one entry is included in the *mbsfn-AreaInfoList* received in *SystemInformationBlockType13:*

3> include the *mbsfn-AreaIndex* in the *MBMSCountingResponse* message and set it to the index of the entry in the *mbsfn-AreaInfoList* within the received *SystemInformationBlockType13* that corresponds with the MBSFN area used to transfer the received *MBMSCountingRequest* message;

2> for each MBMS service included in the received *countingRequestList*:

3> if the UE is receiving via an MRB or interested to receive via an MRB this MBMS service:

4> include an entry in the *countingResponseList* within the *MBMSCountingResponse* message with *countingResponseService* set it to the index of the entry in the *countingRequestList* within the received *MBMSCountingRequest* that corresponds with the MBMS service the UE is receiving or interested to receive;

2> submit the *MBMSCountingResponse* message to lower layers for transmission upon which the procedure ends;

NOTE 1: UEs that are receiving an MBMS User Service [56] by means of a Unicast Bearer Service [57] (i.e. via a DRB), but are interested to receive the concerned MBMS User Service [56] via an MBMS Bearer Service (i.e. via an MRB), respond to the counting request.

NOTE 2: The UE treats the *MBMSCountingRequest* messages received in each modification period independently. In the unlikely case E-UTRAN would repeat an *MBMSCountingRequest* (i.e. including the same services) in a subsequent modification period, the UE responds again.

17.3.1.3 Test description

17.3.1.3.1 Pre-test conditions

System Simulator:

- Cell 1 does not belong to any MBSFN areas
- Cell 2 belongs to an MBSFN area
- System information combination 1 as defined in TS 36.508[18] clause 4.4.3.1 is used in E-UTRA Cell 1
- System information combination 16 as defined in TS 36.508[18] clause 4.4.3.1 is used in E-UTRA Cell 2

UE:

- None.

Preamble:

- The UE is in state Generic RB Established (state 3) according to [18] on Cell 1.
- The UE is made interested in receiving MBMS service in the PLMN of Cell 2 with MBMS Service ID ‘000’H.

NOTE: This test case use the default message for MBMSCountingRequest in [18] which includes MBMS service with MBMS Service ID ‘000’H in the CountingRequestList.

17.3.1.3.2 Test procedure sequence

Table 17.3.1.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while column marked "T1"is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 17.3.1.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 2	Remark
T0	Cell-specific RS EPRE	dBm/15kHz	-85	-91	
T1	Cell-specific RS EPRE	dBm/15kHz	-91	-85	The power level values are assigned to satisfy $R_{Cell\ 1} < R_{Cell\ 2}$.

Table 17.3.1.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS changes Cell 1 and Cell 2 level according to the row "T1" in table 17.3.1.3.2-1.	-	-	-	-
2	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1 to order the UE to perform handover to Cell 2.	<--	*RRCConnectionReconfiguration*	-	-
3	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 2	-->	*RRCConnectionReconfigurationComplete*	-	-
4	The SS sends *MBSFNAreaConfiguration* message and *MBMSCountingRequest* message	<--	*MBSFNAreaConfiguration* *MBMSCountingRequest*	-	-
5	Wait for a period equal to the MCCH repetition period for the UE to receive *MBSFNAreaConfiguration* message and *MBMSCountingRequest* message	-	-	-	-
6	The UE is interested to receive at least one of the services received in *MBMSCountingResponse* message.	-	-	-	-
7	Check: Does the UE send *MBMSCountingResponse* message?	-->	*MBMSCountingResponse*	1	P
8	The SS transmits MCCH information change notification	-	-	-	-
9	The SS transmits *MBSFNAreaConfiguration* message and *MBMSCountingRequest* message	<--	*MBSFNAreaConfiguration* *MBMSCountingRequest*	-	-
10	Wait for a period equal to the MCCH modification period for the UE to receive *MBSFNAreaConfiguration* message and *MBMSCountingRequest* message from the beginning of the modification period following the one in which the change notification was received	-	-	-	-
11	The UE is interested to receive at least one of the services received in *MBMSCountingResponse* message.	-	-	-	-
12	Check: Does the UE send *MBMSCountingResponse* message?	-->	*MBMSCountingResponse*	2	P

17.3.1.3.3 Specific message contents

Table 17.3.1.3.3-1: *SystemInformationBlockType2* for Cell 1 (preamble and all steps, Table 17.3.1.3.2-2)

Derivation Path: 36.508 table 4.4.3.3-1, condition MBMS.

Table 17.3.1.3.3-2: *RRCConnectionReconfiguration* (step 2, Table 17.3.1.3.2-2)

Derivation Path: 36.508, Table 4.6.1-8, condition HO

Table 17.3.1.3.3-3: *MobilityControlInfo* (Table 17.3.1.3.3-2)

Derivation Path: 36.508, Table 4.6.5-1			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityControlInfo ::= SEQUENCE {			
targetPhysCellId	PhysicalCellIdentity of Cell 2		
carrierFreq SEQUENCE {			
dl-CarrierFreq	Same downlink EARFCN as used for Cell 2		
ul-CarrierFreq	Not present		
}			
}			

Table 17.3.1.3.3-4: *MBSFNAreaConfiguration* (steps 4 and 9, Table 17.3.1.3.2-2)

Derivation Path: 36.508 table 4.6.1-4A			
Information Element	**Value/remark**	**Comment**	**Condition**
MBSFNAreaConfiguration-r9 ::= SEQUENCE {			
commonSF-Alloc-r9 SEQUENCE (SIZE (1..maxMBSFN-Allocations)) OF SEQUENCE {			
commonSF-AllocPeriod-r9	rf32		
pmch-InfoList-r9 SEQUENCE (SIZE (0..maxPMCH-PerMBSFN)) OF SEQUENCE {			
pmch-Config-r9 SEQUENCE {			
sf-AllocEnd-r9	7		
dataMCS-r9	0		
mch-SchedulingPeriod-r9	rf256		
}			
}			
}			
}			

17.3.2 MBMS Counting / UE receiving MBMS service

17.3.2.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_Connected state}
ensure that {
  when { UE is in MBSFN area, enters another cell in MBSFN area, SS sends MBMSCountingRequest
message and UE is interested to receive at least one of the services received in
MBMSCountingResponse message }
    then { UE shall start acquiring the MBMSCountingRequest message from the beginning of the
repetition period and send MBMSCountingResponse message }
            }
```

(2)

```
with { UE in E-UTRA RRC_Connected state }
ensure that {
  when { UE is receiving an MBMS service,receives MCCH information change notification, SS sends
MBMSCountingRequest message and UE is interested to receive at least one of the services received in
the MBMSCountingRequest message }
    then { UE shall start acquiring the MBMSCountingRequest message from the beginning of the
modification period following the one in which the change notification was received and send
MBMSCountingResponse message }
            }
```

17.3.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.331 clause 5.8.2.3, 5.8.4.1, 5.8.4.2 and 5.8.4.3.

[TS 36.331 clause 5.8.2.3]

An MBMS capable UE shall:

1> if the procedure is triggered by an MCCH information change notification:

2> start acquiring the *MBSFNAreaConfiguration* message and the *MBMSCountingRequest* message if present, from the beginning of the modification period following the one in which the change notification was received;

NOTE 1: The UE continues using the previously received MCCH information until the new MCCH information has been acquired.

1> if the UE enters an MBSFN area:

2> acquire the *MBSFNAreaConfiguration* message and the *MBMSCountingRequest* message if present, at the next repetition period;

1> if the UE is receiving an MBMS service:

2> start acquiring the *MBSFNAreaConfiguration* message and the *MBMSCountingRequest* message if present, that both concern the MBSFN area of the service that is being received, from the beginning of each modification period;

[TS 36.331 clause 5.8.4.1]

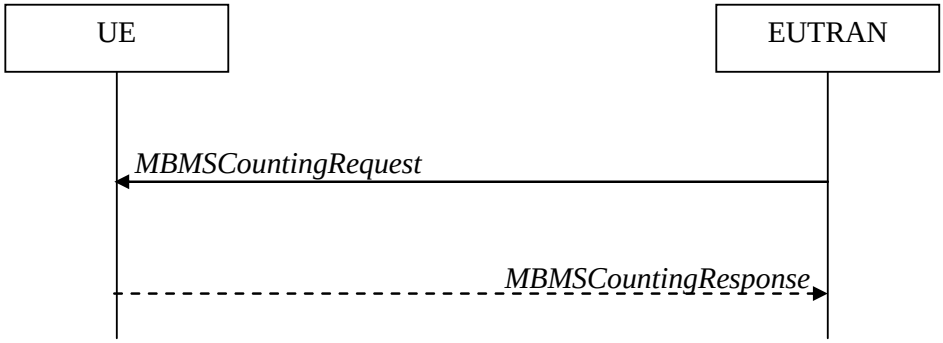

Figure 5.8.4.1-1: MBMS Counting procedure

The MBMS Counting procedure is used by the E-UTRAN to count the number of RRC_CONNECTED mode UEs which are receiving via an MRB or interested to receive via an MRB the specified MBMS services.

The UE determines interest in an MBMS service, that is identified by the TMGI, by interaction with upper layers.

[TS 36.331 clause 5.8.4.2]

E-UTRAN initiates the procedure by sending an *MBMSCountingRequest* message.

[TS 36.331 clause 5.8.4.3]

Upon receiving the *MBMSCountingRequest* message, the UE in RRC_CONNECTED mode shall:

1> if the UE is receiving via an MRB or interested to receive via an MRB at least one of the services in the received *countingRequestList:*

2> if more than one entry is included in the *mbsfn-AreaInfoList* received in *SystemInformationBlockType13:*

3> include the *mbsfn-AreaIndex* in the *MBMSCountingResponse* message and set it to the index of the entry in the *mbsfn-AreaInfoList* within the received *SystemInformationBlockType13* that corresponds with the MBSFN area used to transfer the received *MBMSCountingRequest* message;

2> for each MBMS service included in the received *countingRequestList*:

3> if the UE is receiving via an MRB or interested to receive via an MRB this MBMS service:

4> include an entry in the *countingResponseList* within the *MBMSCountingResponse* message with *countingResponseService* set it to the index of the entry in the *countingRequestList* within the received *MBMSCountingRequest* that corresponds with the MBMS service the UE is receiving or interested to receive;

2> submit the *MBMSCountingResponse* message to lower layers for transmission upon which the procedure ends;

NOTE 1: UEs that are receiving an MBMS User Service [56] by means of a Unicast Bearer Service [57] (i.e. via a DRB), but are interested to receive the concerned MBMS User Service [56] via an MBMS Bearer Service (i.e. via an MRB), respond to the counting request.

NOTE 2: The UE treats the *MBMSCountingRequest* messages received in each modification period independently. In the unlikely case E-UTRAN would repeat an *MBMSCountingRequest* (i.e. including the same services) in a subsequent modification period, the UE responds again.

17.3.2.3 Test description

17.3.2.3.1 Pre-test conditions

System Simulator:

- Cell 1 belongs to an MBSFN area
- Cell 2 belongs to another MBSFN area
- System information combination 1 as defined in TS 36.508[18] clause 4.4.3.1 is used in E-UTRA Cell 1
- System information combination 16 as defined in TS 36.508[18] clause 4.4.3.1 is used in E-UTRA Cell 2

UE:

- None.

Preamble:

- The UE is in state Generic RB Established (state 3) on Cell 1 according to [18].
- The UE is made interested in receiving MBMS service in the PLMN of Cell 2 with MBMS Service ID ‘000’H.

NOTE: This test case use the default message for MBMSCountingRequest in [18] which includes MBMS service with MBMS Service ID ‘000’H in the CountingRequestList.17.3.2.3.2 Test procedure sequence

Table 17.3.2.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while columns marked "T1", and "T2" are to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 17.3.2.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 2	Remark
T0	Cell-specific RS EPRE	dBm/15k Hz	-85	-91	
T1	Cell-specific RS EPRE	dBm/15k Hz	-91	-85	The power level values are assigned to satisfy $R_{Cell\ 1} < R_{Cell\ 2}$.

Table 17.3.2.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS changes Cell 1 and Cell 2 level according to the row "T1" in table 17.3.1.3.2-1.	-	-	-	-
2	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1 to order the UE to perform handover to Cell 2.	<--	*RRCConnectionReconfiguration*	-	-
3	The UE transmit an *RRCConnectionReconfigurationComplete* message on Cell 2?	-->	*RRCConnectionReconfigurationComplete*	-	-
4	SS sends *MBSFNAreaConfiguration* message and *MBMSCountingRequest* message	<--	*MBSFNAreaConfiguration MBMSCountingRequest*	-	-
5	Wait for a period equal to the MCCH repetition period for the UE to receive *MBSFNAreaConfiguration* message and *MBMSCountingRequest* message	-	-	-	-
6	UE is interested to receive at least one of the services received in *MBMSCountingResponse* message.	-	-	-	-
7	Check: Does UE send *MBMSCountingResponse* message?	-->	*MBMSCountingResponse*	1	P
7a	The generic procedures described in TS 36.508 subclause 4.5.3A.3 and 4.5.4.3 are performed on Cell 1 activating UE test loop Mode C	-	-	-	-
7b	The SS transmits a valid MAC PDU including 'MCH Scheduling Information MAC Control Element with LCID='00001', Stop MTCH= '10000000000'	<--	MAC PDU (MCH Scheduling Information MAC Control Element: LCID='00001', Stop MTCH= '10000000000')	-	-
7c	The SS transmits 10 MBMS Packets on the MTCH.	<--	MBMS Packets.	-	-
7d	The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message.	<--	UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST	-	-
7e	UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE.	-->	UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE	-	-
7f	Check: Is the number of reported MBMS Packets received on the MTCH greater than zero? Note: This verifies that UE is receiving the MBMS data	-	-	2	P
8	SS transmits MCCH information change notification	-	-	-	-
9	SS transmits *MBSFNAreaConfiguration* message and *MBMSCountingRequest* message	<--	*MBSFNAreaConfiguration MBMSCountingRequest*	-	-
10	Wait for a period equal to the MCCH modification period for the UE to receive *MBSFNAreaConfiguration* message and *MBMSCountingRequest* message from the beginning of the modification period following the one in which the change notification was received	-	-	-	-
11	UE is interested to receive at least one of the services received in *MBMSCountingResponse* message.	-	-	-	-
12	Check: Does UE send *MBMSCountingResponse* message?	-->	*MBMSCountingResponse*	2	P

17.3.2.3.3 Specific message contents

Table 17.3.2.3.3-1: *SystemInformationBlockType2* for Cell 1 (preamble and all steps, Table 17.3.2.3.2-2)

Derivation Path: 36.508 table 4.4.3.3-1, condition MBMS.

Table 17.3.2.3.3-2: *MBSFNAreaConfiguration* (steps 4 and 9, Table 17.3.2.3.2-2)

Derivation Path: 36.508 table 4.6.1-4A			
Information Element	**Value/remark**	**Comment**	**Condition**
MBSFNAreaConfiguration-r9 ::= SEQUENCE {			
commonSF-Alloc-r9 SEQUENCE (SIZE (1..maxMBSFN-Allocations)) OF SEQUENCE {			
commonSF-AllocPeriod-r9	rf32		
pmch-InfoList-r9 SEQUENCE (SIZE (0..maxPMCH-PerMBSFN)) OF SEQUENCE {			
pmch-Config-r9 SEQUENCE {			
sf-AllocEnd-r9	7		
dataMCS-r9	0		
mch-SchedulingPeriod-r9	rf256		
}			
}			
}			
}			

17.4 MBMS Service Continuity

17.4.1 Cell reselection to intra-frequency cell to continue MBMS service reception

17.4.1.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRAN RRC IDLE state with ongoing MBMS reception on a cell broadcasting SIB15
indicating the MBMS SAI associated with the ongoing MBMS service for the frequency of the cell}
ensure that {
  when { an intra-frequency neighbour cell providing the MBMS service and an inter-frequency
neighbour cell not providing the MBMS service becomes better than the serving cell }
    then { UE performs cell reselection to the intra-frequency cell even if the inter-frequency cell
is better and continues MBMS reception }
           }
```

17.4.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.304, clause 5.2.4.1 and TS 36.331, clause 5.2.2.4. Unless otherwise stated these are Rel-11 requirements.

[TS 36.304 clause 5.2.4.1]

Absolute priorities of different E-UTRAN frequencies or inter-RAT frequencies may be provided to the UE in the system information, in the *RRCConnectionRelease* message, or by inheriting from another RAT at inter-RAT cell (re)selection. In the case of system information, an E-UTRAN frequency or inter-RAT frequency may be listed without providing a priority (i.e. the field *cellReselectionPriority* is absent for that frequency). If priorities are provided in dedicated signalling, the UE shall ignore all the priorities provided in system information. If UE is in *camped on any cell* state, UE shall only apply the priorities provided by system information from current cell, and the UE preserves priorities provided by dedicated signalling and *deprioritisationReq* received in *RRCConnectionReject* unless specified otherwise. When the UE in *camped normally* state, has only dedicated priorities other than for the current frequency, the UE shall consider the current frequency to be the lowest priority frequency (i.e. lower than the eight network configured values). While the UE is camped on a suitable CSG cell, the UE shall always consider the current frequency to be the highest priority frequency (i.e. higher than the eight network configured values), irrespective of any other priority value allocated to this frequency. If the UE is capable of MBMS Service Continuity and receiving or interested to receive an

MBMS service and can only receive this MBMS service while camping on a frequency on which it is provided, the UE may consider that frequency to be the highest priority during the MBMS session [2] as long as the reselected cell is broadcasting SIB13 and as long as:

- SIB15 of the serving cell indicates for that frequency one or more MBMS SAIs included in the MBMS User Service Description (USD) [22] of this service; or
- SIB15 is not broadcast in the serving cell and that frequency is included in the USD of this service.

If the UE is not capable of MBMS Service Continuity but has knowledge on which frequency an MBMS service of interest is provided, it may consider that frequency to be the highest priority during the MBMS session [2] as long as the reselected cell is broadcasting SIB13.

NOTE: The UE considers that the MBMS session is ongoing using the session start and end times as provided by upper layers in the USD i.e. the UE does not verify if the session is indicated on MCCH.

….

[TS 36.331 clause 5.2.2.4]

The UE shall:

….

1> if the UE is interested to receive MBMS services:

2> if *schedulingInfoList* indicates that *SystemInformationBlockType13* is present and the UE does not have stored a valid version of this system information block:

3> acquire *SystemInformationBlockType13*;

2> if the UE is capable of MBMS Service Continuity:

3> if *schedulingInfoList* indicates that *SystemInformationBlockType15* is present and the UE does not have stored a valid version of this system information block:

4> acquire SystemInformationBlockType15;

….

17.4.1.3 Test description

17.4.1.3.1 Pre-test conditions

System Simulator:

- 3 E-UTRA cells with the same PLMN. Cell 1 and Cell 2 are intra-frequency cells. Cell 3 is inter-frequency cell to Cell 1 and Cell 2. Cell 1 "Serving cell", Cell 2 and Cell 3 are "Non-suitable cell" as defined in TS36.508 Table 6.2.2.1-1.
- Cell 1 and Cell 2 are part of the same MBSFN area
- *MBSFNAreaConfiguration* message as defined in TS 36.508 [18] Table 4.6.1-4A is transmitted on Cell 1 and Cell 2.
- System information combination 19 as defined in TS 36.508[18] clause 4.4.3.1 is used in Cell 1 and Cell 2 with addition to transmitting SIB5 with Cell 3 as inter-frequency cell.
- System information combination 3 as defined in TS 36.508[18] clause 4.4.3.1 is used in Cell 3.

UE:

- The UE is configured to receive MBMS services.

Preamble:

- The UE is in state Loopback Activated (state 4) according to [18] in Cell 1(serving cell), with the UE TEST LOOP MODE C.

- The UE is made interested in receiving a MBMS service associated with the MBMS SAI broadcasted in SIB15 mbms-SAI-IntraFreq list on Cell 1 and Cell 2.

17.4.1.3.2 Test procedure sequence

Table 17.4.1.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while row marked "T1" is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 17.4.1.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 2	Cell 3	Remark
T0	Cell-specific RS EPRE	dBm/15k Hz	-85	-91	-91	
T1	Cell-specific RS EPRE	dBm/15k Hz	-91	-85	-79	The power level values are assigned to satisfy $R_{Cell\ 1} < R_{Cell\ 2} < R_{Cell\ 3.}$

Table 17.4.1.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS transmits an *RRCConnectionRelease* message to release RRC connection and move to RRC_IDLE.	<--	RRC: *RRCConnectionRelease*		
2	The SS transmits a valid MAC PDU including 'MCH Scheduling Information MAC Control Element with LCID='00001', Stop MTCH= '10000000000'	<--	MAC PDU (MCH Scheduling Information MAC Control Element: LCID='00001', Stop MTCH= '10000000000')	-	-
3	The SS transmits 10 MBMS Packets on the MTCH.	<--	MBMS Packets.	-	-
4	The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message to set UE to Mode C.	<--	UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST	-	-
5	UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE.	-->	UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE	-	-
6	Check: Is the number of reported MBMS Packets received on the MTCH in step 5 greater than zero? (Note: This verifies that MBMS reception is active in the UE in RRC_IDLE mode on Cell 1 before the cell re-selection to Cell 2)	-	-	1	P
7	The SS changes Cell 2 level according to the row "T1" in table 17.4.1.3.2-1.	-	-	-	-
8	The UE executes the generic test procedure described in TS 36.508 subclause 6.4.2.7 and UE should camp on E-UTRA Cell 2. NOTE: The UE performs a TAU procedure and the RRC connection is released.	-	-	-	-
9	SS transmits *MBSFNAreaConfiguration* message	<--	*MBSFNAreaConfiguration*	-	-
10	Wait for a period equal to the MCCH modification period for the UE to receive *MBSFNAreaConfiguration* message		-	-	-
11	The SS transmits a valid MAC PDU including 'MCH Scheduling Information MAC Control Element with LCID='00001', Stop MTCH= '10000000000'	<--	MAC PDU (MCH Scheduling Information MAC Control Element: LCID='00001', Stop MTCH= '10000000000')	-	-
12	The SS transmits 10 MBMS Packets on the MTCH.	<--	MBMS Packets.	-	-
13	The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message to set UE to Mode C.	<--	UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST	-	-
14	UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE.	-->	UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE	-	-
15	Check: Is the number of reported MBMS Packets received on the MTCH in step 14 greater than the number of reported in step 5? (Note: This verifies that UE has selected Cell 2 providing the MBMS service and continue MBMS reception)	-	-	1	P

17.4.1.3.3 Specific message contents

Table 17.4.1.3.3-1: *SystemInformationBlockType2* for Cells 1 and 2 (preamble and all steps, Table 17.4.1.3.2-2)

Derivation Path: 36.508 table 4.4.3.3-1, condition MBMS.

Table 17.4.2.3.3-2: *SystemInformationBlockType15* for Cells 1 and 2 (preamble and all steps, Table 17.4.2.3.2-2)

Derivation Path: 36.508 table 4.4.3.3-14, condition MBMS_intraFreq.

Table 17.4.1.3.3-3: ACTIVATE TEST MODE **(preamble)**

Derivation Path: 36.508, Table 4.7A-1, condition UE TEST LOOP MODE C.

Table 17.4.1.3.3-2: CLOSE UE TEST LOOP (preamble)

Derivation Path: 36.508, Table 4.7A-3, condition UE TEST LOOP MODE C

17.4.2 Cell reselection to inter- frequency cell to start MBMS service reception

17.4.2.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRAN RRC IDLE state on a cell broadcasting SIB15 and interested to receive a MBMS
service}
ensure that {
  when { SIB15 indicates that the MBMS service is available on a frequency of an inter-frequency
neighbour cell }
    then { UE performs cell reselection to the inter-frequency neighbour cell even if the serving
cell is better and starts MBMS reception }
            }
```

17.4.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.304, clause 5.2.4.1 and TS 36.331, clause 5.2.2.4. Unless otherwise stated these are Rel-11 requirements.

[TS 36.304 clause 5.2.4.1]

Absolute priorities of different E-UTRAN frequencies or inter-RAT frequencies may be provided to the UE in the system information, in the *RRCConnectionRelease* message, or by inheriting from another RAT at inter-RAT cell (re)selection. In the case of system information, an E-UTRAN frequency or inter-RAT frequency may be listed without providing a priority (i.e. the field *cellReselectionPriority* is absent for that frequency). If priorities are provided in dedicated signalling, the UE shall ignore all the priorities provided in system information. If UE is in *camped on any cell* state, UE shall only apply the priorities provided by system information from current cell, and the UE preserves priorities provided by dedicated signalling and *deprioritisationReq* received in *RRCConnectionReject* unless specified otherwise. When the UE in *camped normally* state, has only dedicated priorities other than for the current frequency, the UE shall consider the current frequency to be the lowest priority frequency (i.e. lower than the eight network configured values). While the UE is camped on a suitable CSG cell, the UE shall always consider the current frequency to be the highest priority frequency (i.e. higher than the eight network configured values), irrespective of any other priority value allocated to this frequency. If the UE is capable of MBMS Service Continuity and receiving or interested to receive an MBMS service and can only receive this MBMS service while camping on a frequency on which it is provided, the UE may consider that frequency to be the highest priority during the MBMS session [2] as long as the reselected cell is broadcasting SIB13 and as long as:

- SIB15 of the serving cell indicates for that frequency one or more MBMS SAIs included in the MBMS User Service Description (USD) [22] of this service; or

- SIB15 is not broadcast in the serving cell and that frequency is included in the USD of this service.

If the UE is not capable of MBMS Service Continuity but has knowledge on which frequency an MBMS service of interest is provided, it may consider that frequency to be the highest priority during the MBMS session [2] as long as the reselected cell is broadcasting SIB13.

NOTE: The UE considers that the MBMS session is ongoing using the session start and end times as provided by upper layers in the USD i.e. the UE does not verify if the session is indicated on MCCH.

….

[TS 36.331 clause 5.2.2.4]

The UE shall:

….

1> if the UE is interested to receive MBMS services:

2> if *schedulingInfoList* indicates that *SystemInformationBlockType13* is present and the UE does not have stored a valid version of this system information block:

3> acquire *SystemInformationBlockType13*;

2> if the UE is capable of MBMS Service Continuity:

3> if *schedulingInfoList* indicates that *SystemInformationBlockType15* is present and the UE does not have stored a valid version of this system information block:

4> acquire SystemInformationBlockType15;

….

17.4.2.3 Test description

17.4.2.3.1 Pre-test conditions

System Simulator:

- 2 E-UTRA cells with the same PLMN. Cell 1 and Cell 3 are inter-frequency cells. Cell 1 is "Serving cell" and Cell 3 is "Non-suitable cell" as defined in TS36.508 Table 6.2.2.1-1.
- System information combination 18 as defined in TS 36.508[18] clause 4.4.3.1 is used in Cell 1.
- System information combination 20 as defined in TS 36.508[18] clause 4.4.3.1 is used in Cell 3.

UE:

- The UE is configured to receive MBMS services.

Preamble:

- UE is in Registered, Idle mode, Test Mode Activated (State 2A) according to [18] in Cell 1(serving cell) with the UE TEST LOOP MODE C.
- The UE is made interested in receiving a MBMS service associated with the MBMS SAI broadcasted in SIB15 mbms-SAI-InterFreq list on Cell 1 and Cell 3.

17.4.2.3.2 Test procedure sequence

Table 17.4.2.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble.

Table 17.4.2.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 3	Remark
T0	Cell-specific RS EPRE	dBm/15kHz	-85	-91	The power level values are assigned to satisfy $R_{Cell\ 3} < R_{Cell\ 1}$.

Table 17.4.2.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The UE executes the generic test procedure described in TS 36.508 subclause 6.4.2.7 and UE should camp on E-UTRA Cell 3. NOTE: The UE performs a TAU procedure and the RRC connection is released.	-	-	-	-
2	SS transmits *MBSFNAreaConfiguration* message on Cell 3	<--	*MBSFNAreaConfiguration*	-	-
3	Wait for a period equal to the MCCH modification period for the UE to receive *MBSFNAreaConfiguration* message	-	-	-	-
4	The generic procedures described in TS 36.508 subclause 4.5.3A.3 and 4.5.4.3 are performed on Cell 1 activating UE test loop Mode C.	-	-	-	-
5	The SS transmits a valid MAC PDU including 'MCH Scheduling Information MAC Control Element with LCID='00001', Stop MTCH= '10000000000'	<--	MAC PDU (MCH Scheduling Information MAC Control Element: LCID='00001', Stop MTCH= '10000000000')	-	-
6	The SS transmits 10 MBMS Packets on the MTCH.	<--	MBMS Packets.	-	-
7	The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message to set UE to Mode C.	<--	UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST	-	-
8	UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE.	-->	UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE	-	-
9	Check: Is the number of reported MBMS Packets received on the MTCH in step 8 greater than zero? (Note: This verifies that UE has selected Cell 3 providing the MBMS service and starts MBMS reception)	-	-	1	P

17.4.2.3.3 Specific message contents

Table 17.4.2.3.3-1: *SystemInformationBlockType2* for Cell 3 (preamble and all steps, Table 17.4.2.3.2-2)

Derivation Path: 36.508 table 4.4.3.3-1, condition MBMS.

Table 17.4.2.3.3-2: *SystemInformationBlockType15* for Cell 1 (preamble and all steps, Table 17.4.2.3.2-2)

Derivation Path: 36.508 table 4.4.3.3-14, condition MBMS_interFreq.			
SystemInformationBlockType15 ::= SEQUENCE {			
mbms-SAI-IntraFreq-r11 SEQUENCE (SIZE (1..maxSAI-MBMS-r11)) OF { INTEGER (0..65535) }	Not present		
mbms-SAI-InterFreqList-r11[1] SEQUENCE (SIZE (1..maxFreq)) OF SEQUENCE {		1 entry	
dl-CarrierFreq-r11	Downlink EARFCN for Cell 3, see table 6.3.1.2-1.		
mbms-SAI-List-r11[1] SEQUENCE (SIZE (1..maxSAI-MBMS-r11)) OF { INTEGER (0..65535) }	1	1 entry INTEGER (0..65535)	

Table 17.4.2.3.3-3: *SystemInformationBlockType15* for Cell 3 (preamble and all steps, Table 17.4.2.3.2-2)

Derivation Path: 36.508 table 4.4.3.3-14, condition MBMS_intraFreq.

Table 17.4.2.3.3-4: ACTIVATE TEST MODE **(preamble)**

Derivation Path: 36.508, Table 4.7A-1, condition UE TEST LOOP MODE C.

Table 17.4.2.3.3-4: CLOSE UE TEST LOOP (step 4, Table 17.4.2.3.2-2)

Derivation Path: 36.508, Table 4.7A-3, condition UE TEST LOOP MODE C

17.4.3 17.4.4 Handover to intra-frequency cell to continue MBMS service reception

17.4.4.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_Connected state AND is receiving MBMS service }
ensure that {
  when { UE receives RRCConnectionReconfiguration message including a mobilityControlInfo for intra
frequency neighbour cell providing MBMS service }
    then { UE performs intra frequency handover and continues to receive MBMS service }
          }
```

17.4.4.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.306 clause 4.3.5.2. Unless otherwise stated these are Rel-11 requirements.

[TS 36.306 clause 4.3.5.2]

This field defines the carrier aggregation, MIMO and MBMS reception capabilities supported by the UE for configurations with inter-band, intra-band non-contiguous, intra-band contiguous carrier aggregation and without carrier aggregation. For each band in a band combination the UE provides the supported CA bandwidth classes and the corresponding MIMO capabilities for downlink. The UE also has to provide the supported uplink CA bandwidth class and the corresponding MIMO capability for at least one band in the band combination. A MIMO capability applies to all carriers of a bandwidth class of a band in a band combination.

In all non-CA band combinations the UE shall indicate a bandwidth class supporting the maximum channel bandwidth defined for the band.

In all non-CA band combinations the UE shall indicate at least the number of layers for spatial multiplexing according to the UE's Rel-8/9 category (Cat. 1-5). If the UE provides a Rel-10 category (Cat. 6-8) it shall indicate at least the number of layers according to that category for at least one band combination. In all other band combinations a UE indicating a category between 2 and 8 shall indicate support for at least 2 layers for downlink spatial multiplexing for all bands. The indicated number of layers for spatial multiplexing may exceed the number of layers required according to the category indicated by the UE. The carrier aggregation and MIMO capabilities indicated for at least one band combination shall meet the processing requirements defined by the physical layer parameter values in the UE category (i.e., maximum number of DL-SCH/UL-SCH transport block bits received/transmitted within a TTI, maximum number of bits of a DL-SCH/UL-SCH transport block received/transmitted within a TTI, and total number of soft channel bits for downlink).

The UE supporting MBMS procedures shall support MBMS reception on any serving cell and on any cell that may be additionally configured as serving cell according to this field.

17.4.4.3 Test description

17.4.4.3.1 Pre-test conditions

System Simulator:

- Cell 1 & Cell 2 are on the same E-UTRA frequency and belongs to same MBSFN area.
- System information combination 19 as defined in TS 36.508[18] clause 4.4.3.1 is used in E-UTRA Cell 1.
- System information combination 19 as defined in TS 36.508[18] clause 4.4.3.1 is used in E-UTRA Cell 2.

UE:

- The UE is configured to receive MBMS services.

Preamble:

- UE is in Registered, Idle mode, Test Mode Activated (State 2A) with UE TEST LOOP MODE C on Cell 1 according to [18].
- The UE is made interested in receiving a MBMS service associated with the MBMS SAI broadcasted in SIB15 mbms-SAI-IntraFreq list on Cell 1 and Cell 2.

17.4.4.3.2 Test procedure sequence

Table 17.4.4.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while columns marked "T0", and "T1" are to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 17.4.4.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 2	Remark
T0	Cell-specific RS EPRE	dBm/15kHz	-85	-91	The power level values are such that measurement results for Cell 1 (M1) and Cell 2 (M2) satisfy exit condition for event A3 (M2 < M1).
T1	Cell-specific RS EPRE	dBm/15kHz	-85	-79	The power level values are such that measurement results for Cell 1 (M1) and Cell 2 (M2) satisfy entry condition for event A3 (M2 > M1).

Table 17.4.4.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The generic procedures described in TS 36.508 sub clause 4.5.3A.3 and 4.5.4.3 are performed on Cell 1 activating UE test loop Mode C.	-	-	-	-
2	The SS transmits a valid MAC PDU including 'MCH Scheduling Information MAC Control Element with LCID='00001', Stop MTCH= '10000000000'	<--	MAC PDU (MCH Scheduling Information MAC Control Element: LCID='00001', Stop MTCH= '10000000000')	-	-
3	The SS transmits 10 MBMS Packets on the MTCH.	<--	MBMS Packets.	-	-
4	The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message.	<--	UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST	-	-
5	UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE.	-->	UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE	-	-
6	Check: Is the number of reported MBMS Packets received on the MTCH in step5 greater than zero? (Note1)	-	-	1	P
7	The SS transmits an *RRCConnectionReconfiguration* message to setup intra frequency measurement on Cell 1.	<--	*RRCConnectionReconfiguration*	-	-
8	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 1 to confirm the setup of intra frequency measurement.	-->	*RRCConnectionReconfigurationComplete*	-	-
9	The SS changes Cell 1 and Cell 2 level according to the row "T1" in table 17.4.3.3.2-1.	-	-	-	-
10	The UE transmits a *MeasurementReport* message to report event A3 on Cell 1 with the measured RSRP, RSRQ value for Cell 2.	-->	*MeasurementReport*		
11	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1 to order the UE to perform intra-frequency handover to Cell 2.	<--	*RRCConnectionReconfiguration*	-	-
12	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 2?	-->	*RRCConnectionReconfigurationComplete*	-	-
13	The SS transmits a valid MAC PDU including 'MCH Scheduling Information MAC Control Element with LCID='00001', Stop MTCH= '10000000000'	<--	MAC PDU (MCH Scheduling Information MAC Control Element: LCID='00001', Stop MTCH= '10000000000')	-	-
14	The SS transmits 10 MBMS Packets on the MTCH.	<--	MBMS Packets.	-	-
15	The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message.	<--	UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST	-	-
16	UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE.	-->	UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE	-	-
17	Check: Is the number of reported MBMS Packets received on the MTCH in step16 greater than the number of MBMS Packets reported in step5? (Note2)	-	-	1	P
Note1: This verifies that UE is receiving active MBMS reception on Cell 1 before Intra-frequency handover to Cell 2. Note2: This verifies that UE has performed intra-frequency handover to Cell 2 providing the MBMS service and continue MBMS reception.					

17.4.4.3.3 Specific message contents

Table 17.4.4.3.3-1: *SystemInformationBlockType2* for Cells 1 and 2 (Preamble and all steps, Table 17.4.4.3.2-2)

Derivation Path: 36.508 table 4.4.3.3-1, condition MBMS.

Table 17.4.4.3.3-2: *SystemInformationBlockType15* for Cells 1 and 2 (preamble and all steps, Table 17.4.4.3.2-2)

Derivation Path: 36.508 table 4.4.3.3-14, condition MBMS_intraFreq.

Table 17.4.4.3.3-3: *RRCConnectionReconfiguration* (step 7, Table 17.4.4.3.2-2)

Derivation Path: 36.508, Table 4.6.1-8, condition MEAS

Table 17.4.4.3.3-4: *MeasConfig* (Table 17.4.4.3.3-3)

Derivation Path: 36.508, Table 4.6.6-1			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig SEQUENCE {			
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	1 entry		
measObjectId[1]	IdMeasObject-f1		
measObject[1]	MeasObjectEUTRA-GENERIC(f1)		
}			
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	1 entry		
reportConfigId[1]	IdReportConfig-A3		
reportConfig[1]	ReportConfigEUTRA-A3		
}			
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	1 entry		
measId[1]	1		
measObjectId[1]	IdMeasObject-f1		
reportConfigId[1]	IdReportConfig-A3		
}			
}			

Table 17.4.4.3.3-5: *MeasurementReport* (step 10, Table 17.4.4.3.2-2)

Derivation Path: 36.508, Table 4.6.1-5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
measurementReport-r8 SEQUENCE {			
measResults SEQUENCE {			
measId	1		
measResultServCell SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListEUTRA SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {	1 entry		
physCellId[1]	PhysicalCellIdentity of Cell 2		
cgi-Info[1]	Not present		
measResult[1] SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
}			
}			
}			
}			
}			
}			
}			

Table 17.4.4.3.3-6: *RRCConnectionReconfiguration* (step 12, Table 17.4.4.3.2-2)

Derivation Path: 36.508, Table 4.6.1-8, condition HO

Table 17.4.4.3.3-7: *MobilityControlInfo* (Table 17.4.4.3.3-6)

Derivation Path: 36.508, Table 4.6.5-1			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityControlInfo ::= SEQUENCE {			
targetPhysCellId	PhysicalCellIdentity of Cell 2		
carrierFreq	Not present		
}			

17.4.5

17.4.6 MBMS Interest Indication retransmission after returning from cell not broadcasting SIB15

17.4.6.1 Test Purpose (TP)

(1)

```
with { UE in E-UTRA RRC_Connected state AND is receiving MBMS service and having transmitted a
MBMSInterestIndication message }
ensure that {
  when { UE performs handover to a Pcell not broadcasting SystemInformationBlockType15 followed by a
handover to a Pcell broadcasting SystemInformationBlockType15 }
    then { UE transmits a MBMSInterestIndication message }
          }
```

17.4.6.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.331 clauses 5.8.5.2, 5.8.5.3 and 5.8.5.4. Unless otherwise stated these are Rel-11 requirements.

[TS 36.331 clause 5.8.5.3]

The UE shall:

1> consider a frequency to be part of the MBMS frequencies of interest if the following conditions are met:

2> at least one MBMS session the UE is receiving or interested to receive via an MRB is ongoing or about to start; and

NOTE 1: The UE may determine whether the session is ongoing from the start and stop time indicated in the User Service Description (USD), see 3GPP TS 36.300 [9] or 3GPP TS 26.346 [57].

2> for at least one of these MBMS sessions *SystemInformationBlockType15* acquired from the PCell includes for the concerned frequency one or more MBMS SAIs as indicated in the USD for this session; and

NOTE 2: The UE considers a frequency to be part of the MBMS frequencies of interest even though E-UTRAN may (temporarily) not employ an MRB for the concerned session. I.e. the UE does not verify if the session is indicated on MCCH.

2> the UE is capable of simultaneously receiving the set of MBMS frequencies of interest, regardless of whether a serving cell is configured on each of these frequencies or not; and

2> the *supportedBandCombination* the UE included in *UE-EUTRA-Capability* contains at least one band combination including the set of MBMS frequencies of interest;

NOTE 3: Indicating a frequency implies that the UE supports *SystemInformationBlockType13* acquisition for the concerned frequency i.e. the indication should be independent of whether a serving cell is configured on that frequency.

NOTE 4: When evaluating which frequencies it can receive simultaneously, the UE does not take into account the serving frequencies that are currently configured i.e. it only considers MBMS frequencies it is interested to receive.

[TS 36.331 clause 5.8.5.4]

The UE shall set the contents of the *MBMSInterestIndication* message as follows:

1> if the set of MBMS frequencies of interest, determined in accordance with 5.8.5.3, is not empty:

2> include *mbms-FreqList* and set it to include the MBMS frequencies of interest;

2> include *mbms-Priority* if the UE prioritises reception of all indicated MBMS frequencies above reception of any of the unicast bearers;

NOTE: If the UE prioritises MBMS reception and unicast data cannot be supported because of congestion on the MBMS carrier(s), E-UTRAN may initiate release of unicast bearers. It is up to E-UTRAN implementation whether all bearers or only GBR bearers are released. E-UTRAN does not initiate re-establishment of the released unicast bearers upon alleviation of the congestion.

The UE shall submit the *MBMSInterestIndication* message to lower layers for transmission.

17.4.6.3 Test description

17.4.6.3.1 Pre-test conditions

System Simulator:

- 2 E-UTRA cells with the same PLMN, Cell 1 and Cell 2 are intra-frequency cells. Cell 1 is a MBMS cell and Cell 2 is a non-MBMS cell.

- System information combination 19 as defined in TS 36.508[18] clause 4.4.3.1 is used in E-UTRA Cell 1.

- System information combination 2 as defined in TS 36.508[18] clause 4.4.3.1 is used in E-UTRA Cell 2.

UE:

- The UE is configured to receive MBMS services.
- The UE is configured to be interested in receiving MBMS service associated with the MBMS SAI broadcasted in SIB15 on Cell 1.

Preamble:

- UE is in state Generic RB Established (state 3) on Cell 1 according to [18]. SS does not send any SIB15 on Cell 1.

17.4.6.3.2 Test procedure sequence

Table 17.4.6.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while columns marked "T0","T1" and "T2" are to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 17.4.6.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 2	Remark
T0	Cell-specific RS EPRE	dBm/15k Hz	-85	-91	The power level values are such that measurement results for Cell 1 (M1) and Cell 2 (M2) satisfy exit condition for event A3 (M1 > M2).
T1	Cell-specific RS EPRE	dBm/15k Hz	-91	-85	The power level values are such that measurement results for Cell 1 (M1) and Cell 2 (M2) satisfy entry condition for event A3 (M2 > M1).
T2	Cell-specific RS EPRE	dBm/15k Hz	-85	-91	The power level values are such that measurement results for Cell 1 (M1) and Cell 2 (M2) satisfy entry condition for event A3 (M1 > M2).

Table 17.4.6.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	SS starts broadcast of *SystemInformationBlockType15* on Cell 1	<--	*SystemInformationBlockType15*	-	-
2	Check: Does the UE transmit *MBMSInterestIndication* message.	-->	*MBMSInterestIndication*	1	P
3	The SS transmits an *RRCConnectionReconfiguration* message to setup inter frequency measurement on Cell 2.	<--	*RRCConnectionReconfiguration*	-	-
4	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 2 to confirm the setup of inter frequency measurement.	-->	*RRCConnectionReconfigurationComplete*	-	-
5	The SS changes Cell 1 and Cell 2 level according to the row "T1" in table 17.4.6.3.2-1.	-	-	-	-
6	The UE transmits a *MeasurementReport* message to report event A3 on Cell 1 with the measured RSRP, RSRQ value for Cell 2.	-->	*MeasurementReport*		
7	The SS transmits an *RRCConnectionReconfiguration* message on Cell 1 to order the UE to perform inter-frequency handover to Cell 2.	<--	*RRCConnectionReconfiguration*	-	-
8	The UE transmit an *RRCConnectionReconfigurationComplete* message on Cell 2	-->	*RRCConnectionReconfigurationComplete*	-	-
9	The SS transmits an *RRCConnectionReconfiguration* message to setup intra frequency measurement on Cell 2.	<--	*RRCConnectionReconfiguration*	-	-
10	The UE transmits an *RRCConnectionReconfigurationComplete* message on Cell 2 to confirm the setup of intra frequency measurement.	-->	*RRCConnectionReconfigurationComplete*	-	-
11	The SS changes Cell 1 and Cell 2 levels according to the row "T2" in table 17.4.6.3.2-1.	-	-	-	-
12	The UE transmits a *MeasurementReport* message to report event A3 on Cell 2 with the measured RSRP, RSRQ value for Cell 1.	-->	*MeasurementReport*	-	-
13	The SS transmits an *RRCConnectionReconfiguration* message on Cell 2 to order the UE to perform intra-frequency handover to Cell 1.	<--	*RRCConnectionReconfiguration*	-	-
14	The UE transmit an *RRCConnectionReconfigurationComplete* message on Cell 1?	-->	*RRCConnectionReconfigurationComplete*	-	-
15	Check: Does the UE transmit *MBMSInterestIndication* message.	-->	*MBMSInterestIndication*	2	P

17.4.6.3.3 Specific message contents

Table 17.4.6.3.3-1: *SystemInformationBlockType2* for Cells 1 and 2 (Preamble and all steps, Table 17.4.6.3.2-2)

Derivation Path: 36.508 table 4.4.3.3-1, condition MBMS.

Table 17.4.6.3.3-2: *RRCConnectionReconfiguration* (step 3 and 9, Table 17.4.6.3.2-2)

Derivation Path: 36.508, Table 4.6.1-8, condition MEAS

Table 17.4.6.3.3-3: *MeasConfig* (step 3 and 9, Table 17.4.4.3.3-3)

Derivation Path: 36.508, Table 4.6.6-1			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig SEQUENCE {			
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	1 entry		
measObjectId[1]	IdMeasObject-f1		
measObject[1]	MeasObjectEUTRA-GENERIC(f1)		
}			
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	1 entry		
reportConfigId[1]	IdReportConfig-A3		
reportConfig[1]	ReportConfigEUTRA-A3		
}			
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	1 entry		
measId[1]	1		
measObjectId[1]	IdMeasObject-f1		
reportConfigId[1]	IdReportConfig-A3		
}			
}			

Table 17.4.6.3.3-4: *MeasurementReport* (step 6, Table 17.4.6.3.2-2)

Derivation Path: 36.508, Table 4.6.1-5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
measurementReport-r8 SEQUENCE {			
measResults SEQUENCE {			
measId	1		
measResultServCell SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListEUTRA SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {	1 entry		
physCellId[1]	PhysicalCellIdentity of Cell 2		
cgi-Info[1]	Not present		
measResult[1] SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
}			
}			
}			
}			
}			
}			
}			

Table 17.4.6.3.3-5: *MeasurementReport* (step 12, Table 17.4.6.3.2-2)

Derivation Path: 36.508, Table 4.6.1-5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
measurementReport-r8 SEQUENCE {			
measResults SEQUENCE {			
measId	2		
measResultServCell SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListEUTRA SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {	1 entry		
physCellId[1]	PhysicalCellIdentity of Cell 1		
cgi-Info[1]	Not present		
measResult[1] SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
}			
}			
}			
}			
}			
}			
}			

Table 17.4.6.3.3-6: *MBMSInterestIndication* (step 2 and 15, Table 17.4.6.3.2-2)

Derivation Path: 36.508, Table 4.6.1-4AC			
Information Element	**Value/remark**	**Comment**	**Condition**
criticalExtensions CHOICE {			
c1 CHOICE{			
interestIndication-r11 OF SEQUENCE {			
mbms-FreqList-r11[*1*] SEQUENCE (SIZE (1..maxFreqMBMS-r11)) OF { INTEGER (0..maxEARFCN2) }	EARFCN of Cell 1		
}			
}			
}			

17.4.7 MBMS Interest Indication after Radio Link Failure

17.4.7.1 Test Purpose (TP)

(1)

```
with { UE in RRC_CONNECTED }
ensure that {
  when { the UE detects a radio link failure less than 1 second after the last transmission of an
MBMSInterestIndication message }
   then { the UE transmits a MBMSInterestIndication message }
            }
```

17.4.7.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.331, clauses 5.3.7.5, 5.8.5.3 and 5.8.5.4. Unless otherwise stated these are Rel-11 requirements.

[TS 36.331, clause 5.3.7.5]

1> if *SystemInformationBlockType15* is broadcast by the PCell:

2> if the UE has transmitted an *MBMSInterestIndication* message during the last 1 second preceding detection of radio link failure:

3> ensure having a valid version of *SystemInformationBlockType15* for the PCell;

3> determine the set of MBMS frequencies of interest in accordance with 5.8.5.3;

3> initiate transmission of the *MBMSInterestIndication* message in accordance with 5.8.5.4;

[TS 36.331, clause 5.8.5.3]

The UE shall:

1> consider a frequency to be part of the MBMS frequencies of interest if the following conditions are met:

2> at least one MBMS session the UE is receiving or interested to receive via an MRB is ongoing or about to start; and

NOTE 1: The UE may determine whether the session is ongoing from the start and stop time indicated in the User Service Description (USD), see 3GPP TS 36.300 [9] or 3GPP TS 26.346 [57].

2> for at least one of these MBMS sessions *SystemInformationBlockType15* acquired from the PCell includes for the concerned frequency one or more MBMS SAIs as indicated in the USD for this session; and

NOTE 2: The UE considers a frequency to be part of the MBMS frequencies of interest even though E-UTRAN may (temporarily) not employ an MRB for the concerned session. I.e. the UE does not verify if the session is indicated on MCCH.

2> the UE is capable of simultaneously receiving the set of MBMS frequencies of interest, regardless of whether a serving cell is configured on each of these frequencies or not; and

2> the *supportedBandCombination* the UE included in *UE-EUTRA-Capability* contains at least one band combination including the set of MBMS frequencies of interest;

NOTE 3: Indicating a frequency implies that the UE supports *SystemInformationBlockType13* acquisition for the concerned frequency i.e. the indication should be independent of whether a serving cell is configured on that frequency.

NOTE 4: When evaluating which frequencies it can receive simultaneously, the UE does not take into account the serving frequencies that are currently configured i.e. it only considers MBMS frequencies it is interested to receive.

NOTE 5: Within this section, the term frequency does not indicate a physical frequency but covers the associated band(s), noting that additional bands may be indicated in *SystemInformationBlockType1* (serving frequency) or *SystemInformationBlockType15* (neighbouring frequencies).

[TS 36.331, clause 5.8.5.4]

The UE shall set the contents of the *MBMSInterestIndication* message as follows:

1> if the set of MBMS frequencies of interest, determined in accordance with 5.8.5.3, is not empty:

2> include *mbms-FreqList* and set it to include the MBMS frequencies of interest, using the EARFCN corresponding with *freqBandIndicator* included in *SystemInformationBlockType1*, if applicable, and the EARFCN(s) as included in *SystemInformationBlockType15*;

NOTE 1: The *mbms-FreqList* merely indicates the physical frequencies the UE is interested to receive and does not imply the UE supports the associated band.

2> include *mbms-Priority* if the UE prioritises reception of all indicated MBMS frequencies above reception of any of the unicast bearers;

NOTE 2: If the UE prioritises MBMS reception and unicast data cannot be supported because of congestion on the MBMS carrier(s), E-UTRAN may initiate release of unicast bearers. It is up to E-UTRAN implementation whether all bearers or only GBR bearers are released. E-UTRAN does not initiate re-establishment of the released unicast bearers upon alleviation of the congestion.

The UE shall submit the *MBMSInterestIndication* message to lower layers for transmission.

17.4.7.3 Test description

17.4.7.3.1 Pre-test conditions

System Simulator:

- 2 cells on the same E-UTRA frequency and with the same PLMN. Cell 1 "Serving cell", Cell 2 is "Non-suitable cell" as defined in TS36.508 Table 6.2.2.1-1.
- The 2 cells are part of the same MBSFN area.
- System information combination 19 as defined in TS 36.508[18] clause 4.4.3.1 is used in Cell 1 and Cell 2.

UE:

- The UE is configured to receive MBMS services

Preamble:

- The UE is in state Registered, Idle Mode (state 2) on Cell 1 according to [18].
- The UE is made interested in receiving MBMS service in the PLMN associated with the MBMS SAI broadcasted in SIB15 mbms-SAI-IntraFreq list on Cell 1 and Cell 2.

17.4.7.3.2 Test procedure sequence

Table 17.4.7.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while the row marked "T1" is to be applied subsequently. The exact instants on which these values shall be applied are described in the text of the column "Procedure" in Table 17.4.7.3.2-2.

Table 17.4.7.3.2-1: Time instances of cell power level and parameter changes

	Parameter	Unit	Cell 1	Cell 2
T0	Cell-specific RS EPRE	dBm/15kHz	-85	-115
T1	Cell-specific RS EPRE	dBm/15kHz	-115	-85

Table 17.4.7.3.2-2: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Generic test procedure Generic Radio Bearer Establishment as described in TS 36.508 subclause 4.5.3 is executed.	-	-	-	-
2	UE transmits *MBMSInterestIndication* message.	-->	*MBMSInterestIndication*	-	-
3	SS re-adjusts the cell-specific reference signal level according to row "T1" in table 17.4.7.3.2-1.	-	-	-	-
-	The following messages are to be observed on Cell 2 unless explicitly stated otherwise.	-	-	-	-
4	UE transmits *RRCConnectionReestablishmentRequest* message.	-->	*RRCConnectionReestablishment Request*	-	-
5	SS transmits *RRCConnectionReestablishment* message.	<--	*RRCConnectionReestablishment*	-	-
6	UE transmits *RRCConnectionReestablishmentComplete* message.	-->	*RRCConnectionReestablishment Complete*	-	-
7	SS transmits an *RRCConnectionReconfiguration* message to resume existing radio bearer.	<--	*RRCConnectionReconfiguration*	-	-
8	UE transmits an *RRCConnectionReconfigurationComplete* message.	-->	*RRCConnectionReconfigurationtComplete*	-	-
9	Check: Does the UE transmit *MBMSInterestIndication* message?	-->	*MBMSInterestIndication*	1	P

17.4.7.3.3 Specific message contents

Table 17.4.1.3.3-1: *SystemInformationBlockType2* for Cells 1 and 2 (preamble and all steps, Table 17.4.1.3.2-2)

Derivation Path: 36.508 table 4.4.3.3-1, condition MBMS.

Table 17.4.2.3.3-2: *SystemInformationBlockType15* for Cells 1 and 2 (preamble and all steps, Table 17.4.2.3.2-2)

Derivation Path: 36.508 table 4.4.3.3-14, condition MBMS_intraFreq.

Table 17.4.7.3.3-3: *MBMSInterestIndication* (steps 2 and 9, Table 17.4.7.3.2-2)

Derivation Path: 36.508 Table 4.6.1-4AC			
Information Element	**Value/remark**	**Comment**	**Condition**
criticalExtensions CHOICE {			
c1 CHOICE{			
interestIndication-r11 OF SEQUENCE {			
mbms-FreqList-r11[1] SEQUENCE (SIZE (1..maxFreqMBMS-r11)) OF { INTEGER (0..maxEARFCN2) }	EARFCN of Cell 1	1 entry	
}			
}			
}			

17.4.8 Continued MBMS service reception after E-UTRAN release of unicast bearer

17.4.8.1 Test Purpose (TP)

(1)

```
with { UE prioritising MBMS service over unicast data }
ensure that {
 when { UE enters RRC Connected state on a MBMS cell broadcasting
SystemInformationBlockType15 }
    then { UE transmits a MBMSInterestIndication message including the mbms-Priority IE indicating
that UE prioritises reception of MBMS frequencies above reception of any of the unicast bearers }
            }
```

(2)

```
with { UE in E-UTRA RRC_Connected state with a unicast bearer configured AND is receiving MBMS
service }
ensure that {
 when { UE receives a RRCConnectionReconfiguration message to release the unicast bearer }
    then { UE accepts the release of the unicast bearer and continues to receive MBMS service }
            }
```

17.4.8.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.331 clause 5.8.5.4. Unless otherwise stated these are Rel-11 requirements.

[TS 36.331 clause 5.8.5.4]

The UE shall set the contents of the *MBMSInterestIndication* message as follows:

1> if the set of MBMS frequencies of interest, determined in accordance with 5.8.5.3, is not empty:

2> include *mbms-FreqList* and set it to include the MBMS frequencies of interest, using the EARFCN corresponding with *freqBandIndicator* included in *SystemInformationBlockType1*, if applicable, and the EARFCN(s) as included in *SystemInformationBlockType15*;

NOTE 1: The *mbms-FreqList* merely indicates the physical frequencies the UE is interested to receive and does not imply the UE supports the associated band.

2> include *mbms-Priority* if the UE prioritises reception of all indicated MBMS frequencies above reception of any of the unicast bearers;

NOTE 2: If the UE prioritises MBMS reception and unicast data cannot be supported because of congestion on the MBMS carrier(s), E-UTRAN may initiate release of unicast bearers. It is up to E-UTRAN implementation whether all bearers or only GBR bearers are released. E-UTRAN does not initiate re-establishment of the released unicast bearers upon alleviation of the congestion.

The UE shall submit the *MBMSInterestIndication* message to lower layers for transmission.

17.4.8.3 Test description

17.4.8.3.1 Pre-test conditions

System Simulator:

- Cell 1 "Serving cell", as defined in TS36.508 Table 6.2.2.1-1.
- System information combination 19 as defined in TS 36.508[18] clause 4.4.3.1 is used in E-UTRA Cell 1.

UE:

- The UE is configured to receive MBMS services with priorities above reception of the unicast bearer.
- The UE is made interested in receiving MBMS service in the PLMN associated with the MBMS SAI broadcasted in SIB15 on Cell 1.

Preamble:

- UE is in Registered, Connected mode with a unicast bearer established, e.g. via a DRB, Test Mode Activated (State 2A) with UE TEST LOOP MODE C on Cell 1 according to [18].

17.4.8.3.2 Test procedure sequence

Table 17.4.8.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS transmits a *Paging* message including a *systemInfoModification* for cell1.	<--	*Paging*	-	-
-	EXCEPTION: the behaviour in table 17.4.8.3.2-2 runs in parallel with steps 3 to 7 below.	-	-	-	-
2	From the beginning of the next modification period the SS also transmits *SystemInformationBlockType15*	<--	*SystemInformationBlockType15*	-	-
3	SS transmits *MBSFNAreaConfiguration* message.	<--	*MBSFNAreaConfiguration*	-	-
4	Wait for a period equal to the MCCH modification period for the UE to receive MBSFNAreaConfiguration message.	-	-	-	-
5	The generic procedures described in TS 36.508 sub clause 4.5.3A.3 and 4.5.4.3 are performed on Cell 1 activating UE test loop Mode C.	-	-	-	-
6	The SS transmits a valid MAC PDU including 'MCH Scheduling Information MAC Control Element with LCID='00001', Stop MTCH= '10000000000'	<--	MAC PDU (MCH Scheduling Information MAC Control Element: LCID='00001', Stop MTCH= '10000000000')	-	-
7	The SS transmits 10 MBMS Packets on the MTCH.	<--	MBMS Packets.	-	-
8	The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message.	<--	UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST	-	-
9	UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE.	-->	UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE	-	-
10	Is the number of reported MBMS Packets received on the MTCH in step 9 greater than zero?	-	-	2	P
11	The SS transmits an *RRCConnectionReconfiguration* message to release the unicast bearer due to congestion on the MBMS carrier(s)	<--	*RRCConnectionReconfiguration*	-	-
12	The UE transmits an *RRCConnectionReconfigurationComplete* message to confirm the release.	-->	*RRCConnectionReconfigurationComplete*	-	-
13	The SS transmits a valid MAC PDU including 'MCH Scheduling Information MAC Control Element with LCID='00001', Stop MTCH= '10000000000'	<--	MAC PDU (MCH Scheduling Information MAC Control Element: LCID='00001', Stop MTCH= '10000000000')	-	-
14	The SS transmits 10 MBMS Packets on the MTCH.	<--	MBMS Packets.	-	-
15	The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message.	<--	UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST	-	-
16	UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE.	-->	UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE	-	-
17	Check: Does the number of reported MBMS Packets received on the MTCH is greater than the number of MBMS Packets reported in step10?	-	-	2	P

Table 17.4.8.3.2-2: Parallel behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	UE transmits *MBMSInterestIndication* message including the *mbms-Priority IE* set to True.	-->	*MBMSInterestIndication*	1	P

17.4.8.3.3 Specific message contents

Table 17.4.8.3.3-1: *SystemInformationBlockType2* for Cells 1 (Preamble and all steps, Table 17.4.8.3.2-1)

Derivation Path: 36.508 table 4.4.3.3-1, condition MBMS.

Table 17.4.8.3.3-2: *RRCConnectionReconfiguration* (step 11, Table 17.4.8.3.2-1)

Derivation Path: 36.508, Table 4.6.1-8, condition DRB-REL

Table 17.4.8.3.3-3: *MBMSInterestIndication* (step 1, Table 17.4.8.3.2-2)

Derivation Path: 36.508, Table 4.6.1-4C			
Information Element	**Value/remark**	**Comment**	**Condition**
criticalExtensions CHOICE {			
c1 CHOICE{			
interestIndication-r11 OF SEQUENCE {			
mbms-Priority-r11	true	ENUMERATED {true}	
}			
}			
}			

18 PWS

18.1 CMAS on LTE

18.1.1 PWS reception in RRC_IDLE state / Duplicate detection

18.1.1.1 Test Purpose (TP)

(1)

```
with { UE in RRC_IDLE state }
ensure that {
when  { the UE receives a Paging message with cmas-Indication }
  then { the UE is able to retrieve all the PWS message segments being broadcast, re assemble the
message and alert the user }
}
```

(2)

```
With { UE in RRC_IDLE state and pc_PWS_UpperLayer set to 'TRUE' }
ensure that {
when  { the UE receives a PWS message which is a duplicate of an already received message }
  then { the UE discards the message and does not alert the user }
}
```

18.1.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.331, clauses 5.2.2.4, 5.2.2.19, 5.2.2.20, 5.3.2.3; TS 23.041 clause 9.1. 3.4.2.

[TS 36.331, clause 5.2.2.4]

The UE shall:

…

1> if the UE is CMAS capable:

2> upon entering a cell during RRC_IDLE, following successful handover or upon connection re-establishment:

3> discard any previously buffered *warningMessageSegment*;

3> clear, if any, stored values of *messageIdentifier* and *serialNumber* for *SystemInformationBlockType12* associated with the discarded *warningMessageSegment* ;

2> when the UE acquires *SystemInformationBlockType1* following CMAS indication, upon entering a cell during RRC_IDLE, following successful handover and upon connection re-establishment:

3> if *schedulingInfoList* indicates that *SystemInformationBlockType12* is present:

4> acquire *SystemInformationBlockType12*;

NOTE 3: UEs shall start acquiring *SystemInformationBlockType12* as described above even when *systemInfoValueTag* in *SystemInformationBlockType1* has not changed.

1> if the UE is interested to receive MBMS services; and

1> if *schedulingInfoList* indicates that *SystemInformationBlockType13* is present and the UE does not have stored a valid version of this system information block:

2> acquire *SystemInformationBlockType13*;

The UE may apply the received SIBs immediately, i.e. the UE does not need to delay using a SIB until all SI messages have been received. The UE may delay applying the received SIBs until completing lower layer procedures associated with a received or a UE originated RRC message, e.g. an ongoing random access procedure.

NOTE 4: While attempting to acquire a particular SIB, if the UE detects from *schedulingInfoList* that it is no longer present, the UE should stop trying to acquire the particular SIB.

[TS 36.331, clause 5.2.2.19]

Upon receiving *SystemInformationBlockType12*, the UE shall:

1> if the *SystemInformationBlockType12* contains a complete warning message:

2> forward the received warning message, *messageIdentifier*, *serialNumber* and *dataCodingScheme* to upper layers;

2> continue reception of *SystemInformationBlockType12*;

1> else:

2> if the received values of *messageIdentifier* and *serialNumber* are the same (each value is the same) as a pair for which a warning message is currently being assembled:

3> store the received *warningMessageSegment*;

3> if all segments of a warning message have been received:

4> assemble the warning message from the received *warningMessageSegment*;

4> forward the received warning message, *messageIdentifier*, *serialNumber* and *dataCodingScheme* to upper layers;

4> stop assembling a warning message for this *messageIdentifier* and *serialNumber* and delete all stored information held for it;

3> continue reception of *SystemInformationBlockType12*;

2> else if the received values of *messageIdentifier* and/or *serialNumber* are not the same as any of the pairs for which a warning message is currently being assembled:

3> start assembling a warning message for this *messageIdentifier* and *serialNumber* pair;

3> store the received *warningMessageSegment*;

3> continue reception of *SystemInformationBlockType12*;

The UE should discard *warningMessageSegment* and the associated values of *messageIdentifier* and *serialNumber* for *SystemInformationBlockType12* if the complete warning message has not been assembled within a period of 3 hours.

NOTE: The number of warning messages that a UE can re-assemble simultaneously is a function of UE implementation.

[TS 36.331, clause 5.2.2.20]

No UE requirements related to the contents of this *SystemInformationBlock* apply other than those specified elsewhere e.g. within procedures using the concerned system information, and/ or within the corresponding field descriptions.

[TS 36.331, clause 5.3.2.3]

Upon receiving the *Paging* message, the UE shall:

…

1> if the *cmas-Indication* is included and the UE is CMAS capable:

2> re-acquire *SystemInformationBlockType1* immediately, i.e., without waiting until the next system information modification period boundary as specified in 5.2.1.5;

2> if the *schedulingInfoList* indicates that *SystemInformationBlockType12* is present:

3> acquire *SystemInformationBlockType12*;

[TS 23.041, clause 9.1.3.4.2]

...

The warning message to be broadcast is delivered via MMEs to multiple eNodeBs. The eNodeB(s) are responsible for scheduling the broadcast of the new message and the repetitions in each cell.

The overall warning message delivery procedure is presented in figure 9.1.3.4.2-1:

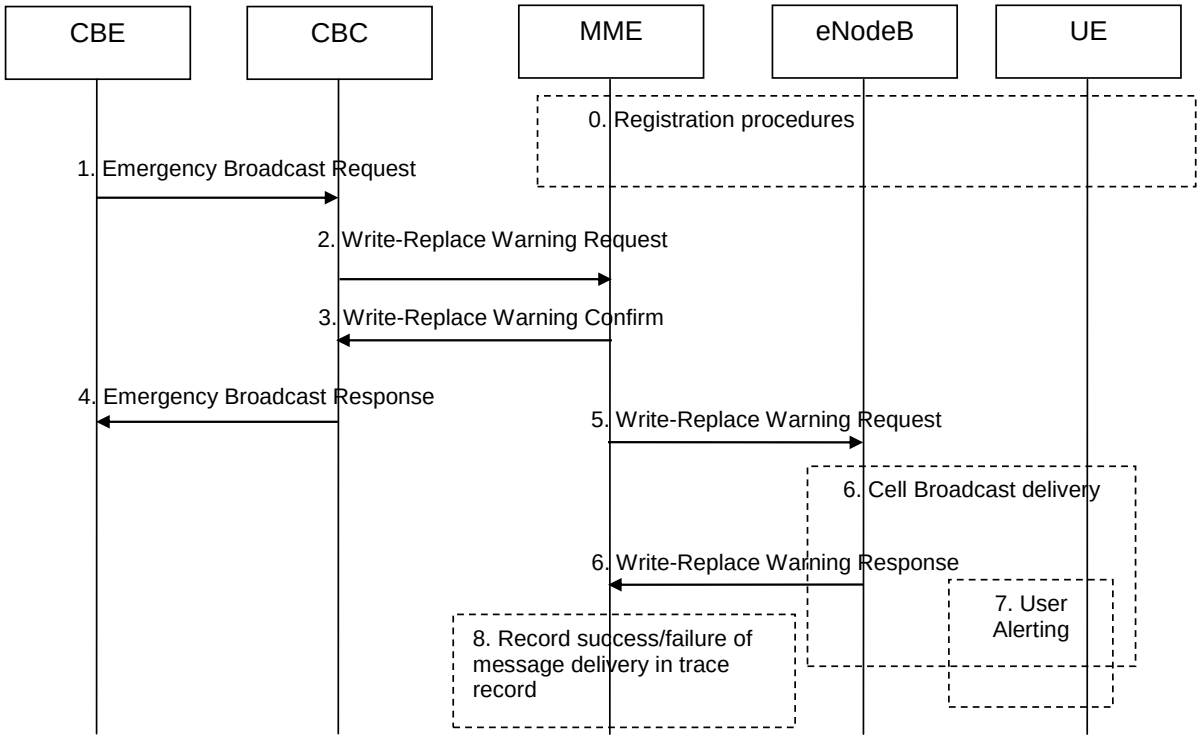

Figure 9.1.3.4.2-1: Warning message delivery procedure in E-UTRAN

0. Network registration and security (e.g. mutual authentication) procedures are performed. The UE stores a flag that indicates whether or not it has authenticated the network.

NOTE 1: This step is performed each time a UE is attached to a network (e.g. after each power on).

1. CBE (e.g. Information Source such as PSAP or Regulator) sends emergency information (e.g. "warning type", "warning message", "impacted area", "time period") to the CBC. The CBC shall authenticate this request.

2. Using the "impacted area" information, the CBC identifies which MMEs need to be contacted and determines the information to be place into the Warning Area Information Element. The CBC sends a Write-Replace Warning Request message containing the warning message to be broadcast and the delivery attributes (Message identifier, Serial Number, Tracking Area ID list, Warning Area, OMC ID, CWM Indicator) to MMEs.
   The warning messages use the coding scheme for CBS data specified in 3GPP TS 23.038 [3].
   The Tracking Area ID list is only used by the MME. The MME uses it for selecting which eNodeBs to forward the Write-Replace Warning Request message to.
   The Warning Area shall be a list of Cell IDs and/or a list of TAIs and/or one or more Emergency Area IDs. The Warning Area is only used by the eNodeB. The eNodeB is configured with the TAI(s) and Cell ID(s) it serves and the Emergency Area ID(s) that it belongs to. The eNodeB checks for any match of the contents of the Warning Area with these IDs to identify the cells where to distribute the warning message. The Warning Area is an optional information element. If the Warning Area is absent, it shall be interpreted as "all cells on the eNodeB". The number of cell IDs will be limited by the message size on SBc and S1-MME. An Emergency Area ID is unique within the PLMN.
   The message may include an OMC ID. If present, it indicates the OMC to which the Trace record generated in step 8 is destined. Co-location of that OMC with the CBC is an operator option.
   CBC shall set the Concurrent Warning Message (CWM) indicator in all Write-Replace Warning Request messages, if the PLMN supports concurrent warning message broadcasts.

NOTE 2: Due to requirements in earlier versions of the specification, it is possible that "digital signature" and "timestamp" information are transmitted within the "warning message".

3. The MME sends a Write-Replace Warning Confirm message that indicates to the CBC that the MME has started to distribute the warning message to eNodeBs.
   If this message is not received by the CBC within an appropriate time period, the CBC can attempt to deliver the warning message via another MME in the same pool area.

4. Upon reception of the Write-Replace Confirm messages from the MMEs, the CBC may confirm to the CBE that it has started to distribute the warning message.
5. The MME forwards Write-Replace Warning Message Request to eNodeBs. The MME shall use the Tracking Area ID list to determine the eNodeBs in the delivery area. If the Tracking Area ID list is empty the message is forwarded to all eNodeBs that are connected to the MME.
6. When S1-flex is used the eNodeB may receive same message from multiple MMEs. The eNodeB detects duplicate messages by checking the message identifier and serial number fields within the warning message. If any redundant messages are detected only the first one received will be broadcasted by the cells. The eNodeB shall use the Warning Area information to determine the cell(s) in which the message is to be broadcast. The eNodeBs return a Distribute Warning Message Response to the MME, even if it was a duplicate.
   If there is a warning broadcast message already ongoing and the CWM Indicator is included in the Write-Replace Warning Message Request, the eNodeB does not stop existing broadcast message but start broadcasting the new message concurrently. Otherwise the eNodeB shall immediately replace the existing broadcast message with the newer one.

NOTE 3: If concurrent warning messages are not supported, this requires the CBE/CBC to take care that 'lower' priority warnings are not sent while a higher priority warning is still being sent.

   The eNodeB broadcasts the message frequently according to the attributes set by the CBC that originated the warning message distribution.

7. If the UE has been configured to receive warning messages , and the UE has authenticated the core network of the eNodeB it is camped on, then the UE proceeds as follows:
   The UE can use "warning type" values, 'earthquake', 'tsunami' or 'earthquake and tsunami', immediately to alert the user. When "warning type" is 'test', the UE silently discards the primary notification, but the UE specially designed for testing purposes may proceed with the following procedures.
   The UE activates reception of the broadcast messages containing the "warning message".
   The UE indicates the contents of the "warning message" to the user.
8. From the Write-Replace Warning Response messages returned by eNodeB's the MME determines the success or failure of the delivery and creates a trace record. Any OMC ID received in step 2 is written to the trace record to permit the O&M system to deliver them to the desired destination.

18.1.1.3 Test description

18.1.1.3.1 Pre-test conditions

System Simulator:

- Cell 1

UE:

None.

Preamble:

- The UE is in state Registered, Idle mode (state 2) according to [18].

18.1.1.3.2 Test procedure sequence

Table 18.1.1.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message	-	-
1	The SS include a CMAS message with new *messageIdentifier* and *serialNumber* in *SystemInformationBlockType12* and transmit a *Paging* message including *cmas-Indication* on Cell 1 (NOTE1).	<--	*Paging*	-	-
2	Check: Does the UE indicate the contents of the "warning message" to the user (NOTE2)?	-	-	1	P
-	EXCEPTION: Steps 3a1 to 3a3 describe behaviour that depends on UE configuration; the "lower case letter" identifies a step sequence that take place if the pc_PWS_UpperLayer is set to TRUE.	-	-	-	-
3 a1	The SS waits for 10s.	-	-	-	-
3a2	The SS include a CMAS message with same *messageIdentifier* and *serialNumber* in *SystemInformationBlockType12* and transmit a *Paging* message including *cmas-Indication* on Cell 1 (NOTE1).	<--	*Paging*	-	-
3a3	Check: Does the UE indicate the contents of the "warning message" to the user (NOTE2)?	-	-	2	F
NOTE1: *SystemInformationBlockType12* contain 3 segments. NOTE2: The data indication and user alerting are the UE implementation issues.					

18.1.1.3.3 Specific message contents

Table 18.1.1.3.3-1: *SystemInformationBlockType1* for Cell 1 (all steps, Table 18.1.1.3.2-1)

Derivation Path: 36.508 table 4.4.3.2-3			
Information Element	**Value/remark**	**Comment**	**Condition**
SystemInformationBlockType1 ::= SEQUENCE {			
schedulingInformation ::= SEQUENCE (SIZE (1..maxSI-Message)) OF SEQUENCE {}	Combination in TS 36.508 section 4.4.3.1		
}			

Table 18.1.1.3.3-2: *Paging* (step 1 and step 3a2, Table 18.1.1.3.2-1)

Derivation Path: 36.508 Table 4.6.1-7			
Information Element	**Value/remark**	**Comment**	**Condition**
Paging ::= SEQUENCE {			
pagingRecordList	Not present		
systemInfoModification	Not present		
etws-Indication	Not Present		
nonCriticalExtension SEQUENCE {}			
lateNonCriticalExtension	Not present		
nonCriticalExtension SEQUENCE {			
cmas-Indication-r9	true		
nonCriticalExtension	Not present		
}			
}			
}			

18.1.2 PWS reception in RRC_CONNECTED state / Duplicate detection

18.1.2.1 Test Purpose (TP)

(1)

```
with { UE in RRC_CONNECTED state }
  ensure that {
    when  { the UE receives a Paging message with cmas-Indication }
    then { the UE is able to retrieve all the PWS message segments being broadcast, re assemble the
message and alert the user }
```

(2)

```
With { UE in RRC_CONNECTED state and pc_PWS_UpperLayer set to 'TRUE' }
  ensure that {
    when  { the UE receives a PWS message which is a duplicate of an already received message }
    then { the UE discards the message and does not alert the user }
```

18.1.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.331, clauses 5.2.2.4, 5.2.2.19, 5.3.2.3; TS 23.041 clause 9.1.3.4.2.

[TS 36.331, clause 5.2.2.4]

The UE shall:

…

1> if the UE is CMAS capable:

2> upon entering a cell during RRC_IDLE, following successful handover or upon connection re-establishment:

3> discard any previously buffered *warningMessageSegment*;

3> clear, if any, stored values of *messageIdentifier* and *serialNumber* for *SystemInformationBlockType12* associated with the discarded *warningMessageSegment* ;

2> when the UE acquires *SystemInformationBlockType1* following CMAS indication, upon entering a cell during RRC_IDLE, following successful handover and upon connection re-establishment:

3> if schedulingInfoList indicates that SystemInformationBlockType12 is present:

4> acquire SystemInformationBlockType12;

NOTE 3: UEs shall start acquiring *SystemInformationBlockType12* as described above even when *systemInfoValueTag* in *SystemInformationBlockType1* has not changed.

[TS 36.331, clause 5.2.2.19]

Upon receiving *SystemInformationBlockType12*, the UE shall:

1> if the *SystemInformationBlockType12* contains a complete warning message:

2> forward the received warning message, *messageIdentifier*, *serialNumber* and *dataCodingScheme* to upper layers;

2> continue reception of *SystemInformationBlockType12*;

1> else:

2> if the received values of *messageIdentifier* and *serialNumber* are the same (each value is the same) as a pair for which a warning message is currently being assembled:

3> store the received *warningMessageSegment*;

3> if all segments of a warning message have been received:

4> assemble the warning message from the received *warningMessageSegment*;

4> forward the received warning message, *messageIdentifier*, *serialNumber* and *dataCodingScheme* to upper layers;

4> stop assembling a warning message for this *messageIdentifier* and *serialNumber* and delete all stored information held for it;

3> continue reception of SystemInformationBlockType12;

2> else if the received values of *messageIdentifier* and/or *serialNumber* are not the same as any of the pairs for which a warning message is currently being assembled:

3> start assembling a warning message for this *messageIdentifier* and *serialNumber* pair;

3> store the received *warningMessageSegment*;

3> continue reception of *SystemInformationBlockType12*;

The UE should discard *warningMessageSegment* and the associated values of *messageIdentifier* and *serialNumber* for *SystemInformationBlockType12* if the complete warning message has not been assembled within a period of 3 hours.

NOTE: The number of warning messages that a UE can re-assemble simultaneously is a function of UE implementation.

[TS 36.331, clause 5.3.2.3]

Upon receiving the *Paging* message, the UE shall:

…

1> if the *cmas-Indication* is included and the UE is CMAS capable:

2> re-acquire *SystemInformationBlockType1* immediately, i.e., without waiting until the next system information modification period boundary as specified in 5.2.1.5;

2> if the *schedulingInfoList* indicates that *SystemInformationBlockType12* is present:

3> acquire SystemInformationBlockType12;

[TS 23.041, clause 9.1.3.4.2]

The warning message to be broadcast is delivered via MMEs to multiple eNodeBs. The eNodeB(s) are responsible for scheduling the broadcast of the new message and the repetitions in each cell.

The overall warning message delivery procedure is presented in figure 9.1.3.4.2-1:

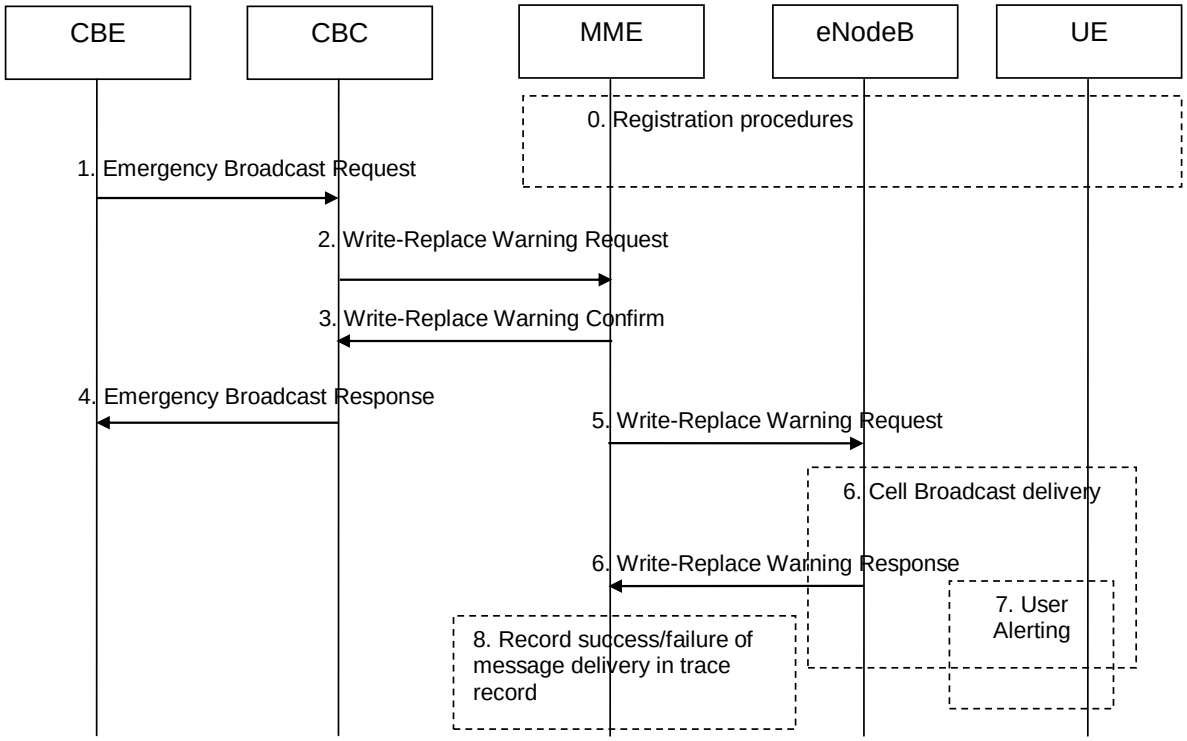

Figure 9.1.3.4.2-1: Warning message delivery procedure in E-UTRAN

0. Network registration and security (e.g. mutual authentication) procedures are performed. The UE stores a flag that indicates whether or not it has authenticated the network.

NOTE 1: This step is performed each time a UE is attached to a network (e.g. after each power on).

1. CBE (e.g. Information Source such as PSAP or Regulator) sends emergency information (e.g. "warning type", "warning message", "impacted area", "time period") to the CBC. The CBC shall authenticate this request.

2. Using the "impacted area" information, the CBC identifies which MMEs need to be contacted and determines the information to be place into the Warning Area Information Element. The CBC sends a Write-Replace Warning Request message containing the warning message to be broadcast and the delivery attributes (Message identifier, Serial Number, Tracking Area ID list, Warning Area, OMC ID, CWM Indicator) to MMEs.

   The warning messages use the coding scheme for CBS data specified in 3GPP TS 23.038 [3].

   The Tracking Area ID list is only used by the MME. The MME uses it for selecting which eNodeBs to forward the Write-Replace Warning Request message to.

   The Warning Area shall be a list of Cell IDs and/or a list of TAIs and/or one or more Emergency Area IDs. The Warning Area is only used by the eNodeB. The eNodeB is configured with the TAI(s) and Cell ID(s) it serves and the Emergency Area ID(s) that it belongs to. The eNodeB checks for any match of the contents of the Warning Area with these IDs to identify the cells where to distribute the warning message. The Warning Area is an optional information element. If the Warning Area is absent, it shall be interpreted as "all cells on the eNodeB". The number of cell IDs will be limited by the message size on SBc and S1-MME. An Emergency Area ID is unique within the PLMN.

   The message may include an OMC ID. If present, it indicates the OMC to which the Trace record generated in step 8 is destined. Co-location of that OMC with the CBC is an operator option.

   CBC shall set the Concurrent Warning Message (CWM) indicator in all Write-Replace Warning Request messages, if the PLMN supports concurrent warning message broadcasts.

NOTE 2: Due to requirements in earlier versions of the specification, it is possible that "digital signature" and "timestamp" information are transmitted within the "warning message".

3. The MME sends a Write-Replace Warning Confirm message that indicates to the CBC that the MME has started to distribute the warning message to eNodeBs.

   If this message is not received by the CBC within an appropriate time period, the CBC can attempt to deliver the warning message via another MME in the same pool area.

4. Upon reception of the Write-Replace Confirm messages from the MMEs, the CBC may confirm to the CBE that it has started to distribute the warning message.

5. The MME forwards Write-Replace Warning Message Request to eNodeBs. The MME shall use the Tracking Area ID list to determine the eNodeBs in the delivery area. If the Tracking Area ID list is empty the message is forwarded to all eNodeBs that are connected to the MME.

6. When S1-flex is used the eNodeB may receive same message from multiple MMEs. The eNodeB detects duplicate messages by checking the message identifier and serial number fields within the warning message. If any redundant messages are detected only the first one received will be broadcasted by the cells. The eNodeB shall use the Warning Area information to determine the cell(s) in which the message is to be broadcast. The eNodeBs return a Distribute Warning Message Response to the MME, even if it was a duplicate.

   If there is a warning broadcast message already ongoing and the CWM Indicator is included in the Write-Replace Warning Message Request, the eNodeB does not stop existing broadcast message but start broadcasting the new message concurrently. Otherwise the eNodeB shall immediately replace the existing broadcast message with the newer one.

NOTE 3: If concurrent warning messages are not supported, this requires the CBE/CBC to take care that 'lower' priority warnings are not sent while a higher priority warning is still being sent.

   The eNodeB broadcasts the message frequently according to the attributes set by the CBC that originated the warning message distribution.

7. If the UE has been configured to receive warning messages and the UE has authenticated the core network of the eNodeB it is camped on, then the UE proceeds as follows:

   The UE can use "warning type" values, 'earthquake', 'tsunami' or 'earthquake and tsunami', immediately to alert the user. When "warning type" is 'test', the UE silently discards the primary notification, but the UE specially designed for testing purposes may proceed with the following procedures.

   The UE activates reception of the broadcast messages containing the "warning message".

   The UE indicates the contents of the "warning message" to the user

   UE shall consider a message duplicated if the combination of "message identifier" and "serial number" matches with those of the previous message that was received from the same PLMN. The UE shall ignore the message detected as a duplicated.

   For ETWS, the UE shall perform duplicate message detection independently for primary and secondary notifications.

8. From the Write-Replace Warning Response messages returned by eNodeBs the MME determines the success or failure of the delivery and creates a trace record. Any OMC ID received in step 2 is written to the trace record to permit the O&M system to deliver them to the desired destination.

18.1.2.3 Test description

18.1.2.3.1 Pre-test conditions

System Simulator:

- Cell 1
- System information combination 17 as defined in TS 36.508[18] clause 4.4.3.1 is used in E-UTRA cell

UE:

None.

Preamble:

- The UE is in state Generic RB Established (state 3) according to [18].

18.1.2.3.2 Test procedure sequence

Table 18.1.2.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message	-	-
1	The SS include a CMAS message with new *messageIdentifier* and *serialNumber* in *SystemInformationBlockType12* and transmit a *Paging* message including *cmas-Indication* on Cell 1 (NOTE1).	<--	*Paging*	-	-
2	Check: Does the UE indicate the contents of the "warning message" to the user (NOTE2)?	-	-	1	P
-	EXCEPTION: Steps 3a1 to 3a3 describe behaviour that depends on UE configuration; the "lower case letter" identifies a step sequence that take place if the pc_PWS_UpperLayer is set to TRUE.	-	-	-	-
3a1	The SS waits for 10s.	-	-	-	-
3a2	The SS include a CMAS message with same *messageIdentifier* and *serialNumber* in *SystemInformationBlockType12* and transmit a *Paging* message including *cmas-Indication* on Cell 1 (NOTE1).	<--	*Paging*	-	-
3a3	Check: Does the UE indicate the contents of the "warning message" to the user (NOTE2)?	-	-	2	F
NOTE1: *SystemInformationBlockType12* contains 3 segments. NOTE2: The data indication and user alerting are the UE implementation issues.					

18.1.2.3.3 Specific message contents

Table 18.1.2.3.3-1: *SystemInformationBlockType1* for Cell 1 (all steps, Table 18.1.2.3.2-1)

Derivation Path: 36.508 table 4.4.3.2-3			
Information Element	**Value/remark**	**Comment**	**Condition**
SystemInformationBlockType1 ::= SEQUENCE {			
schedulingInformation ::= SEQUENCE (SIZE (1..maxSI-Message)) OF SEQUENCE {}	Combination 17 in TS 36.508 section 4.4.3.1		
}			

Table 18.1.2.3.3-2: *Paging* (step 1 and step 3a2, Table 18.1.2.3.2-1)

Derivation Path: 36.508 Table 4.6.1-7			
Information Element	**Value/remark**	**Comment**	**Condition**
Paging ::= SEQUENCE {			
pagingRecordList	Not present		
systemInfoModification	Not present		
etws-Indication	Not present		
nonCriticalExtension SEQUENCE {			
lateNonCriticalExtension	Not present		
nonCriticalExtension SEQUENCE {			
cmas-Indication-r9	true		
nonCriticalExtension	Not present		
}			
}			
}			

18.1.3 PWS reception in RRC_CONNECTED State/Power On

18.1.3.1 Test Purpose (TP)

(1)

with { UE being powered down }

```
ensure that {
when { UE is powered up while CMAS notification is present }
  then { UE successfully receives the PWS message and alerts the user accordingly  }
          }
```

(2)

```
with { UE in RRC_CONNECTED state }
ensure that {
when { the network transmits two consecutive different PWS messages and pages the UE, one paging
message per a defaultPagingCycle, to indicate the presence of each PWS message }
  then { the UE successfully receives each of the messages and alerts the user accordingly }
          }
```

18.1.3.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 36.331, clauses 5.2.2.2, 5.2.2.4, 5.2.2.19, 5.2.1.3, 5.3.2.3; TS 23.041 clause 9.1.3.4.

[TS 36.331, clause 5.2.2.2]

The UE shall apply the system information acquisition procedure upon selecting (e.g. upon power on) and upon re-selecting a cell, after handover completion, after entering E-UTRA from another RAT, upon return from out of coverage, upon receiving a notification that the system information has changed, upon receiving an indication about the presence of an ETWS notification, upon receiving an indication about the presence of a CMAS notification, upon receiving a request from CDMA2000 upper layers and upon exceeding the maximum validity duration. Unless explicitly stated otherwise in the procedural specification, the system information acquisition procedure overwrites any stored system information, i.e. delta configuration is not applicable for system information and the UE discontinues using a field if it is absent in system information unless explicitly specified otherwise.

…

[TS 36.331, clause 5.2.2.4]

The UE shall:

…

1> if the UE is CMAS capable:

2> upon entering a cell during RRC_IDLE, following successful handover or upon connection re-establishment:

3> discard any previously buffered *warningMessageSegment*;

3> clear, if any, stored values of *messageIdentifier* and *serialNumber* for *SystemInformationBlockType12* associated with the discarded *warningMessageSegment* ;

2> when the UE acquires *SystemInformationBlockType1* following CMAS indication, upon entering a cell during RRC_IDLE, following successful handover and upon connection re-establishment:

3> if *schedulingInfoList* indicates that *SystemInformationBlockType12* is present:

4> acquire *SystemInformationBlockType12*;

NOTE 1: UEs shall start acquiring *SystemInformationBlockType12* as described above even when *systemInfoValueTag* in *SystemInformationBlockType1* has not changed.

The UE may apply the received SIBs immediately, i.e. the UE does not need to delay using a SIB until all SI messages have been received. The UE may delay applying the received SIBs until completing lower layer procedures associated with a received or a UE originated RRC message, e.g. an ongoing random access procedure.

NOTE 2: While attempting to acquire a particular SIB, if the UE detects from *schedulingInfoList* that it is no longer present, the UE should stop trying to acquire the particular SIB.

[TS 36.331, clause 5.2.2.19]

Upon receiving *SystemInformationBlockType12*, the UE shall:

1> if the *SystemInformationBlockType12* contains a complete warning message:

2> forward the received warning message, *messageIdentifier, serialNumber* and *dataCodingScheme* to upper layers;

2> continue reception of *SystemInformationBlockType12*;

1> else:

2> if the received values of *messageIdentifier* and *serialNumber* are the same (each value is the same) as a pair for which a warning message is currently being assembled:

3> store the received *warningMessageSegment*;

3> if all segments of a warning message have been received:

4> assemble the warning message from the received *warningMessageSegment*;

4> forward the received warning message, *messageIdentifier, serialNumber* and *dataCodingScheme* to upper layers;

4> stop assembling a warning message for this *messageIdentifier* and *serialNumber* and delete all stored information held for it;

3> continue reception of *SystemInformationBlockType12*;

2> else if the received values of *messageIdentifier* and/or *serialNumber* are not the same as any of the pairs for which a warning message is currently being assembled:

3> start assembling a warning message for this *messageIdentifier* and *serialNumber* pair;

3> store the received *warningMessageSegment*;

3> continue reception of *SystemInformationBlockType12*;

The UE should discard *warningMessageSegment* and the associated values of *messageIdentifier* and *serialNumber* for *SystemInformationBlockType12* if the complete warning message has not been assembled within a period of 3 hours.

NOTE 3: The number of warning messages that a UE can re-assemble simultaneously is a function of UE implementation.

[TS 36.331, clause 5.2.1.3]

E-UTRAN may not update *systemInfoValueTag* upon change of some system information e.g. ETWS information, CMAS information, regularly changing parameters like CDMA2000 system time (see 6.3). Similarly, E-UTRAN may not include the *systemInfoModification* within the *Paging* message upon change of some system information.

The UE verifies that stored system information remains valid by either checking *systemInfoValueTag* in *SystemInformationBlockType1* after the modification period boundary, or attempting to find the *systemInfoModification* indication at least *modificationPeriodCoeff* times during the modification period in case no paging is received, in every modification period. If no paging message is received by the UE during a modification period, the UE may assume that no change of system information will occur at the next modification period boundary. If UE in RRC_CONNECTED, during a modification period, receives one paging message, it may deduce from the presence/ absence of *systemInfoModification* whether a change of system information other than ETWS and CMAS information will occur in the next modification period or not.

ETWS and/or CMAS capable UEs in RRC_CONNECTED shall attempt to read paging at least once every *defaultPagingCycle* to check whether ETWS and/or CMAS notification is present or not.

…

[TS 36.331, clause 5.3.2.3]

Upon receiving the *Paging* message, the UE shall:

…

1> if the *cmas-Indication* is included and the UE is CMAS capable:

2> re-acquire *SystemInformationBlockType1* immediately, i.e., without waiting until the next system information modification period boundary as specified in 5.2.1.5;

2> if the *schedulingInfoList* indicates that *SystemInformationBlockType12* is present:

3> acquire *SystemInformationBlockType12*;

[TS 23.041, clause 9.1.3.4]

…

The warning message to be broadcast is delivered via MMEs to multiple eNodeBs. The eNodeB(s) are responsible for scheduling the broadcast of the new message and the repetitions in each cell.

The overall warning message delivery procedure is presented in figure 9.1.3.4.2-1:

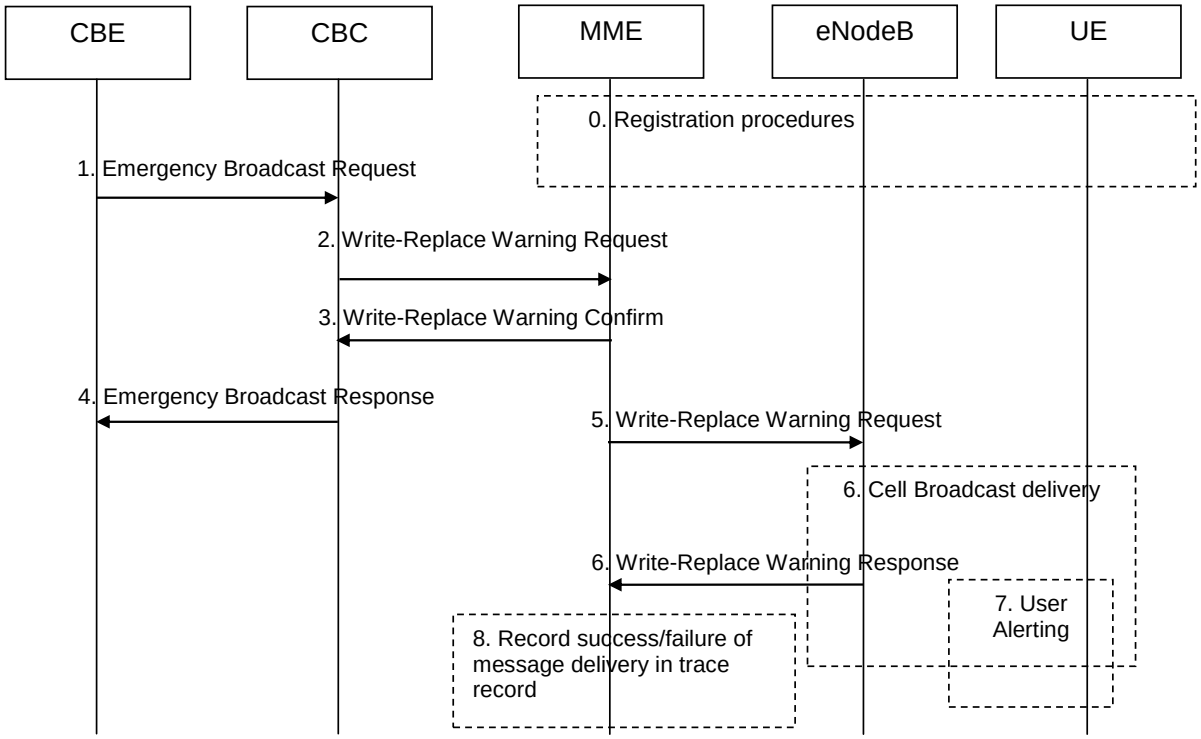

Figure 9.1.3.4.2-1: Warning message delivery procedure in E-UTRAN

0. Network registration and security (e.g. mutual authentication) procedures are performed. The UE stores a flag that indicates whether or not it has authenticated the network.

NOTE 1: This step is performed each time a UE is attached to a network (e.g. after each power on).

1. CBE (e.g. Information Source such as PSAP or Regulator) sends emergency information (e.g. "warning type", "warning message", "impacted area", "time period") to the CBC. The CBC shall authenticate this request.

2. Using the "impacted area" information, the CBC identifies which MMEs need to be contacted and determines the information to be place into the Warning Area Information Element. The CBC sends a Write-Replace Warning Request message containing the warning message to be broadcast and the delivery attributes (Message identifier, Serial Number, Tracking Area ID list, Warning Area, OMC ID, CWM Indicator) to MMEs.

The warning messages use the coding scheme for CBS data specified in 3GPP TS 23.038 [3].

The Tracking Area ID list is only used by the MME. The MME uses it for selecting which eNodeBs to forward the Write-Replace Warning Request message to.

The Warning Area shall be a list of Cell IDs and/or a list of TAIs and/or one or more Emergency Area IDs. The Warning Area is only used by the eNodeB. The eNodeB is configured with the TAI(s) and Cell ID(s) it serves and the Emergency Area ID(s) that it belongs to. The eNodeB checks for any match of the contents of the Warning Area with these IDs to identify the cells where to distribute the warning message. The Warning Area is an optional information element. If the Warning Area is absent, it shall be interpreted as "all cells on the eNodeB". The number of cell IDs will be limited by the message size on SBc and S1-MME. An Emergency Area ID is unique within the PLMN.

The message may include an OMC ID. If present, it indicates the OMC to which the Trace record generated in step 8 is destined. Co-location of that OMC with the CBC is an operator option.

CBC shall set the Concurrent Warning Message (CWM) indicator in all Write-Replace Warning Request messages, if the PLMN supports concurrent warning message broadcasts.

NOTE 2: Due to requirements in earlier versions of the specification, it is possible that "digital signature" and "timestamp" information are transmitted within the "warning message".

3. The MME sends a Write-Replace Warning Confirm message that indicates to the CBC that the MME has started to distribute the warning message to eNodeBs.

   If this message is not received by the CBC within an appropriate time period, the CBC can attempt to deliver the warning message via another MME in the same pool area.

4. Upon reception of the Write-Replace Confirm messages from the MMEs, the CBC may confirm to the CBE that it has started to distribute the warning message.

5. The MME forwards Write-Replace Warning Message Request to eNodeBs. The MME shall use the Tracking Area ID list to determine the eNodeBs in the delivery area. If the Tracking Area ID list is empty the message is forwarded to all eNodeBs that are connected to the MME.

6. When S1-flex is used the eNodeB may receive same message from multiple MMEs. The eNodeB detects duplicate messages by checking the message identifier and serial number fields within the warning message. If any redundant messages are detected only the first one received will be broadcasted by the cells. The eNodeB shall use the Warning Area information to determine the cell(s) in which the message is to be broadcast. The eNodeBs return a Distribute Warning Message Response to the MME, even if it was a duplicate.

   If there is a warning broadcast message already ongoing and the CWM Indicator is included in the Write-Replace Warning Message Request, the eNodeB does not stop existing broadcast message but start broadcasting the new message concurrently. Otherwise the eNodeB shall immediately replace the existing broadcast message with the newer one.

NOTE 3: If concurrent warning messages are not supported, this requires the CBE/CBC to take care that 'lower' priority warnings are not sent while a higher priority warning is still being sent.

   The eNodeB broadcasts the message frequently according to the attributes set by the CBC that originated the warning message distribution.

7. If the UE has been configured to receive warning messages , and the UE has authenticated the core network of the eNodeB it is camped on, then the UE proceeds as follows:

   The UE can use "warning type" values, 'earthquake', 'tsunami' or 'earthquake and tsunami', immediately to alert the user. When "warning type" is 'test', the UE silently discards the primary notification, but the UE specially designed for testing purposes may proceed with the following procedures.

   The UE activates reception of the broadcast messages containing the "warning message".

   The UE indicates the contents of the "warning message" to the user.

8. From the Write-Replace Warning Response messages returned by eNodeB's the MME determines the success or failure of the delivery and creates a trace record. Any OMC ID received in step 2 is written to the trace record to permit the O&M system to deliver them to the desired destination.

18.1.3.3 Test description

18.1.3.3.1 Pre-test conditions

System Simulator:

- Cell 1

UE:

None.

Preamble:

- The UE is SWITCHED OFF according to [18].

18.1.3.3.2 Test procedure sequence

Table 18.1.3.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U – S	Message	-	-
1	The SS include a CMAS message with new *messageIdentifier* and *serialNumber* in *SystemInformationBlockType12* (NOTE1).	-	-	-	-
2	Power/Switch On the UE.				
3-7	The authentication procedure is performed by executing steps 2 to 6 of the UE registration procedure in TS 36.508 sub clause 4.5.2.3				
-	EXCEPTION: the behaviour in table 18.1. 3.3.2-2 runs in parallel with steps 8 to 17 below.	-	-	-	-
8-17	The attach procedure is performed by executing steps 7 to 16 of the UE registration procedure in TS 36.508 sub clause 4.5.2.3				
18	The SS include a CMAS message with different *serialNumber* in *SystemInformationBlockType12* and transmit a *Paging* message including *cmas-Indication* on Cell 1 (NOTE1).	<--	*Paging*	-	-
19	Check: Does the UE indicate the contents of the "warning message" to the user (NOTE2)?	-	-	2	P
20	The SS waits for 10s.	-	-	-	-
21	The SS include a CMAS message with different *serialNumber* in *SystemInformationBlockType12* and transmit a *Paging* message including *cmas-Indication* on Cell 1 (NOTE1).	<--	*Paging*	-	-
22	Check: Does the UE indicate the contents of the "warning message" to the user (NOTE2)?	-	-	2	P
NOTE1: *SystemInformationBlockType12* contains CMAS notification and the PWS message may be segmented in 3 segments. NOTE2: The data indication and user alerting are the UE implementation issues.					

Table 18.1.3.3.2-2: Parallel behaviour

St	Procedure	Message Sequence		TP	Verdict
		U – S	Message	-	-
1	Check: Does the UE indicate the contents of the "warning message" to the user (NOTE2)?	-	-	1	P

18.1.3.3.3 Specific message contents

Table 18.1.3.3.3-1: *SystemInformationBlockType1* for Cell 1 (all steps, Table 18.1.3.3.2-1)

Derivation Path: 36.508 table 4.4.3.2-3			
Information Element	**Value/remark**	**Comment**	**Condition**
SystemInformationBlockType1 ::= SEQUENCE {			
schedulingInformation ::= SEQUENCE (SIZE (1..maxSI-Message)) OF SEQUENCE {}	Combination in TS 36.508 section 4.4.3.1		
}			

Table 18.1.3.3.3-2: SystemInformationBlockType12 (step 18 and 21, Table 18.1.3.3.2-1)

Derivation Path: 36.331 clause 6.3.1			
Information Element	**Value/remark**	**Comment**	**Condition**
SystemInformationBlockType12 ::= SEQUENCE {			
messageIdentifier-r9	'0001 0001 0001 0010'B	CMAS Message Identifier for CMAS Presidential Level Alerts (see TS 23.041])	
serialNumber-r9	Value different for each step		
warningMessageSegmentType	LastSegment		
warningMessageSegmentNumber	0		
warningMessageSegment	Octetstring different for each step	Provided as PIXITs	
dataCodingScheme	'0000 0001'B	English (See TS 23.038)	
lateNonCriticalExtension	Not present		
}			

Table 18.1.3.3.3-3: *Paging* (step 14 and step 17, Table 18.1.3.3.2-1)

Derivation Path: 36.508 Table 4.6.1-7			
Information Element	**Value/remark**	**Comment**	**Condition**
Paging ::= SEQUENCE {			
pagingRecordList	Not present		
systemInfoModification	Not present		
etws-Indication	Not present		
nonCriticalExtension ::= SEQUENCE {	Not present		
lateNonCriticalExtension	Not present		
nonCriticalExtension ::= SEQUENCE {			
cmas-Indication-r9	true		
nonCriticalExtension	Not present		
}			
}			
}			

Annex A (informative): Change history

Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Version Old	Version New
2007-08		R5-072514			Initial version		0.0.1
2007-11					Template updated	0.0.1	0.0.2
2008-02					Addition 6 new RRC test cases	0.0.2	0.1.0
2008-04					Addition of new RRC and PDCP test cases agreed in RAN5#39. Alignment with latest core specifications.	0.1.0	0.2.0
2008-07					Addition of new MAC, RLC, RRC and EMM test cases and corrections agreed in RAN5#39bis. Alignment with latest core specifications.	0.2.0	0.3.0
2008-09					Addition of new MAC, RLC, PDCP and RRC test cases and corrections agreed in RAN5#40.	0.3.0	1.0.0
2008-10					Addition of new test cases agreed by email after RAN5#40 and at RAN5#40bis.	1.0.0	1.1.0
2008-11					Addition of new test cases and test case corrections agreed at RAN5#41.	1.1.0	2.0.0
2008-12	RAN#42	R5-080969			Approval of version 2.0.0 at RAN#42, then put to version 8.0.0.	2.0.0	8.0.0
2008-01					Editorial corrections	8.0.0	8.0.1
2009-03	RAN#43	R5-090102	0060	-	Correction to E-UTRA RLC test case 7.2.3.1	8.0.1	8.1.0
2009-03	RAN#43	R5-090103	0061	-	Correction to E-UTRA RLC test case 7.2.3.2	8.0.1	8.1.0
2009-03	RAN#43	R5-090124	0062	-	Batch 2 -Update to test case 7.2.2.8	8.0.1	8.1.0
2009-03	RAN#43	R5-090125	0063	-	Batch 1B -Update to test case 7.2.2.9	8.0.1	8.1.0
2009-03	RAN#43	R5-090128	0064	-	Batch 1A -Update to test case 8.1.1.1	8.0.1	8.1.0
2009-03	RAN#43	R5-090132	0065	-	Batch 1A - Update to test case 8.2.4.1	8.0.1	8.1.0
2009-03	RAN#43	R5-090133	0066	-	Batch 2 - Update to test case 8.2.4.2	8.0.1	8.1.0
2009-03	RAN#43	R5-090136	0067	-	Batch 2 - Update to test case 8.2.4.6	8.0.1	8.1.0
2009-03	RAN#43	R5-090137	0068	-	Batch 2 - Update to test case 8.2.4.7	8.0.1	8.1.0
2009-03	RAN#43	R5-090138	0069	-	Batch 2 - Update to test case 8.2.4.9	8.0.1	8.1.0
2009-03	RAN#43	R5-090144	0070	-	Batch 2 - Addition of new test case 8.4.1.8	8.0.1	8.1.0
2009-03	RAN#43	R5-090145	0071	-	Batch 2 - Correction to Idle mode test method	8.0.1	8.1.0
2009-03	RAN#43	R5-090146	0072	-	Batch 1A - Update to test case 8.5.4.1	8.0.1	8.1.0
2009-03	RAN#43	R5-090151	0073	-	Batch 2 - Addition of new test case 9.2.3.2.10	8.0.1	8.1.0
2009-03	RAN#43	R5-090153	0074	-	Batch 2 - Addition of new test case 9.2.3.2.15	8.0.1	8.1.0
2009-03	RAN#43	R5-090199	0075	-	Removal of EMM test cases 9.2.2.2.4, 9.2.2.2.6, 9.2.2.2.7 and 9.2.2.2.8.	8.0.1	8.1.0
2009-03	RAN#43	R5-090201	0076	-	Batch 1:Corrections to MAC test case 7.1.2.1	8.0.1	8.1.0
2009-03	RAN#43	R5-090203	0077	-	Batch 1:Corrections to MAC test case 7.1.2.4	8.0.1	8.1.0
2009-03	RAN#43	R5-090230	0078	-	Batch 1:Corrections to MAC test case 7.1.2.5	8.0.1	8.1.0
2009-03	RAN#43	R5-090235	0079	-	Batch 1:Corrections to MAC test case 7.1.3.6	8.0.1	8.1.0
2009-03	RAN#43	R5-090236	0080	-	Batch 1:Corrections to MAC test case 7.1.4.11	8.0.1	8.1.0
2009-03	RAN#43	R5-090347	0081	-	Batch 2 - Update to MAC test case 7.1.4.3	8.0.1	8.1.0
2009-03	RAN#43	R5-090453	0082	-	Batch 1A - Update of E-UTRA RLC (AM) test case 7.2.3.5	8.0.1	8.1.0
2009-03	RAN#43	R5-090455	0083	-	Batch 2 - Update of E-UTRA RLC (AM) test case 7.2.3.16	8.0.1	8.1.0
2009-03	RAN#43	R5-090498	0084	-	Batch 1B: Correction to E-UTRA RLC test case 7.2.2.7	8.0.1	8.1.0
2009-03	RAN#43	R5-090511	0085	-	Addition of a new LTE test case" 7.3.3.2 Correct functionality of EPS UP encryption algorithms (SNOW 3G)"	8.0.1	8.1.0
2009-03	RAN#43	R5-090512	0086	-	Addition of a new LTE test case "7.3.3.1 Correct functionality of EPS AS encryption algorithms (SNOW 3G)"	8.0.1	8.1.0
2009-03	RAN#43	R5-090513	0087	-	Addition of a new LTE test case "7.3.3.3 Correct functionality of EPS AS encryption algorithms (AES)"	8.0.1	8.1.0
2009-03	RAN#43	R5-090514	0088	-	Addition of a new LTE test case "7.3.3.4 Correct functionality of EPS UP encryption algorithms (AES)"	8.0.1	8.1.0
2009-03	RAN#43	R5-090552	0089	-	Batch 1:Corrections to MAC test case 7.1.2.7	8.0.1	8.1.0
2009-03	RAN#43	R5-090553	0090	-	Batch 1:Corrections to MAC test case 7.1.2.8	8.0.1	8.1.0
2009-03	RAN#43	R5-090554	0091	-	.Batch 1:Corrections to MAC test case 7.1.3.4	8.0.1	8.1.0
2009-03	RAN#43	R5-090555	0092	-	Batch 1:Corrections to MAC test case 7.1.3.5	8.0.1	8.1.0
2009-03	RAN#43	R5-090556	0093	-	Batch 1:Corrections to MAC test case 7.1.4.15	8.0.1	8.1.0
2009-03	RAN#43	R5-090557	0094	-	Batch 1:Corrections to MAC test case 7.1.4.16	8.0.1	8.1.0
2009-03	RAN#43	R5-090570	0095	-	Update of 36.523-1 Reference list	8.0.1	8.1.0

Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Version Old	Version New
2009-03	RAN#43	R5-090605	0096	-	Batch 2: Update of LTE TC 8.1.2.3 RRC - RRC Connection Establishment in RRC Idle state: return to idle state after T300 timeout	8.0.1	8.1.0
2009-03	RAN#43	R5-090607	0097	-	Batch 2: Addition of EMM TC 9.2.1.2.4 for Successful combined attach procedure, EPS service only / CS domain not available.	8.0.1	8.1.0
2009-03	RAN#43	R5-090611	0098	-	Batch 1:Corrections to EMM test case 9.1.3.1	8.0.1	8.1.0
2009-03	RAN#43	R5-090631	0099	-	Batch 1B: Correction to E-UTRA RLC test case 7.2.2.3	8.0.1	8.1.0
2009-03	RAN#43	R5-090645	0100	-	Batch 1B: Update of E-UTRAN test case 6.1.1.1	8.0.1	8.1.0
2009-03	RAN#43	R5-090649	0101	-	Batch-1B: Introduction of a new EMM test case, 9.2.3.1.4 Normal tracking area update / list of equivalent PLMNs in the TRACKING AREA UPDATE ACCEPT message	8.0.1	8.1.0
2009-03	RAN#43	R5-090651	0102	-	Batch 1:Corrections to MAC test case 7.1.2.2	8.0.1	8.1.0
2009-03	RAN#43	R5-090653	0103	-	Batch 1: Addition of new MAC test case 7.1.3.9 : MAC reset	8.0.1	8.1.0
2009-03	RAN#43	R5-090654	0104	-	Batch 1: Addition of new MAC test case 7.1.4.12 : MAC reset	8.0.1	8.1.0
2009-03	RAN#43	R5-090655	0105	-	Batch 1A - Update of E-UTRA MAC test case: 7.1.3.3	8.0.1	8.1.0
2009-03	RAN#43	R5-090656	0106	-	Batch 2 - Update of E-UTRA MAC test case: 7.1.2.9	8.0.1	8.1.0
2009-03	RAN#43	R5-090665	0107	-	Batch 1B - New E-UTRA PDCP test case - 7.3.1.2 Maintenance of PDCP sequence numbers (user plane, RLC UM)	8.0.1	8.1.0
2009-03	RAN#43	R5-090666	0108	-	Batch 1B - Correction to E-UTRA PDCP test case 7.3.1.1	8.0.1	8.1.0
2009-03	RAN#43	R5-090667	0109	-	Batch 1B - New E-UTRA PDCP test case - 7.3.1.3 Maintenance of PDCP sequence numbers (user plane, RLC UM, long PDCP SN (12 bits))	8.0.1	8.1.0
2009-03	RAN#43	R5-090669	0110	-	Batch 1B -Update to test case 7.2.2.4	8.0.1	8.1.0
2009-03	RAN#43	R5-090670	0111	-	Batch 1A -Update to test case 7.2.3.3	8.0.1	8.1.0
2009-03	RAN#43	R5-090671	0112	-	Batch 1A -Update to test case 7.2.3.4	8.0.1	8.1.0
2009-03	RAN#43	R5-090672	0113	-	Removal of TC 7.3.5.1	8.0.1	8.1.0
2009-03	RAN#43	R5-090674	0114	-	Batch 1A - Update of E-UTRA RLC (AM) test case 7.2.3.17	8.0.1	8.1.0
2009-03	RAN#43	R5-090675	0115	-	Batch 1A - Update of E-UTRA RLC (AM) test case 7.2.3.15	8.0.1	8.1.0
2009-03	RAN#43	R5-090676	0116	-	Batch 1B - Update of test case 8.2.2.1	8.0.1	8.1.0
2009-03	RAN#43	R5-090677	0117	-	Update of RRC batch 1B test case 8.2.2.2 RRC Connection Reconfiguration / SRB/DRB Reconfiguration: Success	8.0.1	8.1.0
2009-03	RAN#43	R5-090678	0118	-	Batch-1: Update to RRC part 3 test case 8.3.3.1	8.0.1	8.1.0
2009-03	RAN#43	R5-090679	0119	-	Batch 1A - TC 9.1.2.1 Authentication accepted - Update of conformance requirements	8.0.1	8.1.0
2009-03	RAN#43	R5-090680	0120	-	Batch 1A - TC 9.3.2.1 Paging procedure revisited	8.0.1	8.1.0
2009-03	RAN#43	R5-090685	0121	-	Batch 1A -Update to test case 6.1.2.5	8.0.1	8.1.0
2009-03	RAN#43	R5-090688	0122	-	Update of TC 7.3.6.1 PDCP Discard	8.0.1	8.1.0
2009-03	RAN#43	R5-090689	0123	-	Addition of new TC 7.3.5.4	8.0.1	8.1.0
2009-03	RAN#43	R5-090690	0124	-	Batch 2 - Update of LTE TC 8.5.1.3 RRC - RRC Connection Re-establishment: Failure: T311 Expiry	8.0.1	8.1.0
2009-03	RAN#43	R5-090691	0125	-	Batch 2 -Update to test case 8.1.2.5	8.0.1	8.1.0
2009-03	RAN#43	R5-090692	0126	-	Batch 1A -Update to test case 8.1.2.7	8.0.1	8.1.0
2009-03	RAN#43	R5-090693	0127	-	Batch 1A -Update to test case 8.1.3.5	8.0.1	8.1.0
2009-03	RAN#43	R5-090694	0128	-	Batch 2 - Update to test case 8.2.4.3	8.0.1	8.1.0
2009-03	RAN#43	R5-090695	0129	-	Batch 1B - Update to test case 8.2.4.5	8.0.1	8.1.0
2009-03	RAN#43	R5-090707	0130	-	Batch 1A - Update of test case 8.2.4.1	8.0.1	8.1.0
2009-03	RAN#43	R5-090709	0131	-	Batch 2: Update of RRC part1 TC 8.1.3.6 RRC Connection Release: redirection from E-UTRAN to UTRAN	8.0.1	8.1.0
2009-03	RAN#43	R5-090710	0132	-	Batch 2: Update of RRC part3 TC 8.3.1.7 Measurement configuration control and reporting / intra E-UTRAN measurements: blacklisting	8.0.1	8.1.0
2009-03	RAN#43	R5-090711	0133	-	Corrections to LTE idle mode test cases	8.0.1	8.1.0
2009-03	RAN#43	R5-090712	0134	-	Batch 1B: Update of test case 6.1.2.6	8.0.1	8.1.0
2009-03	RAN#43	R5-090713	0135	-	Batch 2: Update of LTE TC 8.1.2.2 RRC, Reject	8.0.1	8.1.0

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					with wait time		
2009-03	RAN#43	R5-090714	0136	-	Update to test case 8.1.3.1	8.0.1	8.1.0
2009-03	RAN#43	R5-090715	0137	-	Batch 1B: update of E-UTRA PDCP test case 7.3.6.1	8.0.1	8.1.0
2009-03	RAN#43	R5-090716	0138	-	Batch 1B: update of E-UTRA PDCP test case 7.3.6.1	8.0.1	8.1.0
2009-03	RAN#43	R5-090717	0139	-	Batch 2 - Update to test case 8.3.1.8	8.0.1	8.1.0
2009-03	RAN#43	R5-090720	0140	-	Batch-2: Update to RRC part 3 test case 8.3.1.3	8.0.1	8.1.0
2009-03	RAN#43	R5-090721	0141	-	Batch-2: Update to RRC part 3 test case 8.3.1.5	8.0.1	8.1.0
2009-03	RAN#43	R5-090722	0142	-	Batch 2: Addition of new EMM TC 9.2.1.2.3: Successful combined attach procedure, EPS service only / MSC temporarily not reachable	8.0.1	8.1.0
2009-03	RAN#43	R5-090730	0143	-	Batch 1:Corrections to MAC test case 7.1.2.3	8.0.1	8.1.0
2009-03	RAN#43	R5-090732	0144	-	Batch 2 - Addition of new test case 9.2.1.2.6	8.0.1	8.1.0
2009-03	RAN#43	R5-090733	0145	-	Batch 2 - Addition of new test case 9.2.3.2.6	8.0.1	8.1.0
2009-03	RAN#43	R5-090734	0146	-	Batch 1:Corrections to MAC test case 7.1.4.2	8.0.1	8.1.0
2009-03	RAN#43	R5-090735	0147	-	Batch 1:Corrections to MAC test case 7.1.3.2	8.0.1	8.1.0
2009-03	RAN#43	R5-090736	0148	-	Batch 2: Update of RRC part1 TC 8.1.3.4 RRC Connection Release: redirection to another E-UTRAN frequency	8.0.1	8.1.0
2009-03	RAN#43	R5-090740	0149	4	Batch 1A - Update of E-UTRA RLC (AM) test case 7.2.3.18	8.0.1	8.1.0
2009-05	RAN#44	R5-092052	0150	-	GCF Priority 1 - Update of 9.1.2.1 test procedure sequence and editorials	8.1.0	8.2.0
2009-05	RAN#44	R5-092053	0151	-	GCF Priority 2 - Update of TC 9.1.2.3 Authentication not accepted by the network, GUTI used, authentication reject and re-authentication	8.1.0	8.2.0
2009-05	RAN#44	R5-092054	0152	-	GCF Priority 2 - Update TC 9.1.2.4 Authentication not accepted by the UE MAC code failure	8.1.0	8.2.0
2009-05	RAN#44	R5-092055	0153	-	GCF Priority 2 - New TC 9.1.2.5 Authentication not accepted by the UE, SQN failure	8.1.0	8.2.0
2009-05	RAN#44	R5-092061	0154	-	GCF Priority 1 - Update of RRC test case 9.3.1.1	8.1.0	8.2.0
2009-05	RAN#44	R5-092076	0155	-	GCF Priority 2: First Iu mode to S1 mode intersystem change after attach: go to E-UTRAN RRC idle: RAU to UTRAN (9.2.3.3.1)	8.1.0	8.2.0
2009-05	RAN#44	R5-092077	0156	-	Batch 2: Addition of 8.1.3.9 RRC Redirection from E-UTRAN to HRPD	8.1.0	8.2.0
2009-05	RAN#44	R5-092078	0157	-	Batch 2: Addition of 8.1.3.10 RRC Redirection from E-UTRAN to CDMA2000-1XRTT	8.1.0	8.2.0
2009-05	RAN#44	R5-092107	0158	-	GCF Priority 1 - Update of E-UTRA MAC test case 7.1.3.1	8.1.0	8.2.0
2009-05	RAN#44	R5-092108	0159	-	GCF Priority 1 - Update of E-UTRA MAC test case 7.1.4.1	8.1.0	8.2.0
2009-05	RAN#44	R5-092109	0160	-	GCF Priority 1 - Update of E-UTRA MAC test case 7.1.4.4	8.1.0	8.2.0
2009-05	RAN#44	R5-092110	0161	-	GCF Priority 1 - Update of E-UTRA MAC test case 7.1.4.5	8.1.0	8.2.0
2009-05	RAN#44	R5-092112	0162	-	GCF Priority 1 - Update of E-UTRA MAC test case 7.1.4.8	8.1.0	8.2.0
2009-05	RAN#44	R5-092113	0163	-	GCF Priority 1 - Update of E-UTRA MAC test case 7.1.4.10	8.1.0	8.2.0
2009-05	RAN#44	R5-092114	0164	-	GCF Priority 1 - Update of E-UTRA MAC test case 7.1.4.13	8.1.0	8.2.0
2009-05	RAN#44	R5-092115	0165	-	GCF Priority 1 - Proposal to remove E-UTRA RLC test case 7.2.3.19	8.1.0	8.2.0
2009-05	RAN#44	R5-092181	0166	-	GCF Priority 2 - Update of test case 8.5.1.5	8.1.0	8.2.0
2009-05	RAN#44	R5-092185	0167	-	GCF Priority 1 - Update of test case 8.2.3.1	8.1.0	8.2.0
2009-05	RAN#44	R5-092190	0168	-	GCF Priority 1 - Update of E-UTRA RLC (AM) test case 7.2.3.1	8.1.0	8.2.0
2009-05	RAN#44	R5-092191	0169	-	GCF Priority 1 - Update of E-UTRA RLC (AM) test case 7.2.3.2	8.1.0	8.2.0
2009-05	RAN#44	R5-092192	0170	-	GCF Priority 1 - Update of E-UTRA RLC (AM) test case 7.2.3.18	8.1.0	8.2.0
2009-05	RAN#44	R5-092200	0171	-	GCF Priority 1 - Update of E-UTRA RLC (AM) test case 7.2.3.18	8.1.0	8.2.0
2009-05	RAN#44	R5-092213	0172	-	Addition of new RRC test case 8.3.2.9	8.1.0	8.2.0
2009-05	RAN#44	R5-092228	0173	-	GCF Priority 2 - Update to test case 6.1.2.15	8.1.0	8.2.0
2009-05	RAN#44	R5-092229	0174	-	GCF Priority 1 - Update to test case 6.1.2.4	8.1.0	8.2.0

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2009-05	RAN#44	R5-092230	0175	-	GCF Priority 2 - Update to test case 6.1.2.5	8.1.0	8.2.0
2009-05	RAN#44	R5-092234	0176	-	GCF Priority 1 - Update to test case 8.1.1.1	8.1.0	8.2.0
2009-05	RAN#44	R5-092242	0177	-	GCF Priority 2 - Update to test case 8.1.3.5	8.1.0	8.2.0
2009-05	RAN#44	R5-092245	0178	-	GCF Priority-2: A new EMM test case, 9.2.3.1.8 UE receives an indication that the RRC connection was released with cause 'load balancing TAU required"	8.1.0	8.2.0
2009-05	RAN#44	R5-092247	0179	-	Introduction of new EMM test cases, 9.2.3.1.10 and 9.2.3.1.11 Normal tracking area update / Rejected	8.1.0	8.2.0
2009-05	RAN#44	R5-092248	0180	-	Introduction of 9.2.3.1.12 ' Normal tracking area update / rejected / EPS service not allowed'	8.1.0	8.2.0
2009-05	RAN#44	R5-092249	0181	-	Introduction of 9.2.3.1.13 'Normal tracking area update / rejected / UE identity cannot be derived by the network'	8.1.0	8.2.0
2009-05	RAN#44	R5-092250	0182	-	GCF Priority 2 - Addition of a new test case 6.1.2.11 Inter-frequency cell reselection	8.1.0	8.2.0
2009-05	RAN#44	R5-092251	0183	-	Introduction of 9.2.3.1.14 ' Normal tracking area update / rejected / UE implicitly detached'	8.1.0	8.2.0
2009-05	RAN#44	R5-092252	0184	-	Introduction of 9.2.3.1.15 ' Normal tracking area update / rejected / PLMN not allowed'	8.1.0	8.2.0
2009-05	RAN#44	R5-092253	0185	-	Introduction of 9.2.3.1.16 ' Normal tracking area update / rejected / Tracking area not allowed'	8.1.0	8.2.0
2009-05	RAN#44	R5-092258	0186	-	GCF Priority 2 - Update of RRC part1 TC 8.1.3.4 RRC Connection Release: redirection to another E-UTRAN frequency	8.1.0	8.2.0
2009-05	RAN#44	R5-092260	0187	-	GCF Priority 2 - Update of RRC part1 TC 8.1.3.6 RRC Connection Release: redirection from E-UTRAN to UTRAN	8.1.0	8.2.0
2009-05	RAN#44	R5-092262	0188	-	GCF Priority 2 - Correction to idle mode test cases 6.1.2.3 and 6.1.2.6	8.1.0	8.2.0
2009-05	RAN#44	R5-092272	0189	-	LTE-SIG:TDD related updates in RRC sections	8.1.0	8.2.0
2009-05	RAN#44	R5-092276	0190	-	"GCF priority 1 - Update of the LTE test cases 7.3.3.1 Correct functionality of EPS AS encryption algorithms (SNOW 3G)ö"	8.1.0	8.2.0
2009-05	RAN#44	R5-092278	0191	-	GCF priority 1 - Update of test cases 7.3.3.2 Correct functionality of EPS UP encryption algorithms (SNOW 3G)ö	8.1.0	8.2.0
2009-05	RAN#44	R5-092280	0192	-	GCF Priority 2 - Update to test case 8.2.4.2	8.1.0	8.2.0
2009-05	RAN#44	R5-092281	0193	-	GCF Priority 2 - Update to test case 8.2.4.3	8.1.0	8.2.0
2009-05	RAN#44	R5-092283	0194	-	GCF Priority 2 - Update to test case 8.2.4.5	8.1.0	8.2.0
2009-05	RAN#44	R5-092284	0195	-	GCF Priority 2 - Update to test case 8.2.4.6	8.1.0	8.2.0
2009-05	RAN#44	R5-092285	0196	-	GCF Priority 2 - Update to test case 8.2.4.7	8.1.0	8.2.0
2009-05	RAN#44	R5-092288	0197	-	GCF Priority 2 - Update to test case 8.3.1.8	8.1.0	8.2.0
2009-05	RAN#44	R5-092295	0198	-	Addition of new test case 9.2.1.2.8	8.1.0	8.2.0
2009-05	RAN#44	R5-092296	0199	-	Addition of new test case 9.2.1.2.9	8.1.0	8.2.0
2009-05	RAN#44	R5-092297	0200	-	Addition of new test case 9.2.1.2.10	8.1.0	8.2.0
2009-05	RAN#44	R5-092299	0201	-	Addition of new test case 9.2.3.2.12	8.1.0	8.2.0
2009-05	RAN#44	R5-092300	0202	-	Addition of new test case 9.3.1.4	8.1.0	8.2.0
2009-05	RAN#44	R5-092301	0203	-	Addition of new test case to test case 10.X.X	8.1.0	8.2.0
2009-05	RAN#44	R5-092327	0204	-	GCF Priority 1: Update E-UTRA PDCP TC 7.3.4.1	8.1.0	8.2.0
2009-05	RAN#44	R5-092328	0205	-	GCF Priority 1: Update E-UTRA PDCP TC 7.3.4.2	8.1.0	8.2.0
2009-05	RAN#44	R5-092329	0206	-	GCF Priority 2: Update E-UTRA PDCP TC 7.3.5.2	8.1.0	8.2.0
2009-05	RAN#44	R5-092330	0207	-	GCF Priority 2: Update E-UTRA PDCP TC 7.3.5.3	8.1.0	8.2.0
2009-05	RAN#44	R5-092331	0208	-	GCF Priority 2: Update E-UTRA PDCP TC 7.3.5.5	8.1.0	8.2.0
2009-05	RAN#44	R5-092367	0209	-	GCF Priority 1 - Update of E-UTRA MAC test case 7.1.4.6	8.1.0	8.2.0
2009-05	RAN#44	R5-092396	0210	-	GCF Priority 2 - Addition of new test case 6.2.2.3	8.1.0	8.2.0
2009-05	RAN#44	R5-092397	0211	-	GCF Priority 2 - Addition of new test case 6.2.3.7	8.1.0	8.2.0
2009-05	RAN#44	R5-092398	0212	-	GCF Priority 2 - Addition of new test case 6.2.3.8	8.1.0	8.2.0
2009-05	RAN#44	R5-092406	0213	-	"GCF Priority 2 - Addition of new LTE test case 7.2.2.11 UM RLC / RLC re-establishment procedure"	8.1.0	8.2.0
2009-05	RAN#44	R5-092417	0214	-	GCF Priority 2:Corrections to EMM test case	8.1.0	8.2.0

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					9.1.3.2		
2009-05	RAN#44	R5-092418	0215	-	GCF Priority 1:Corrections to MAC test case 7.1.3.4	8.1.0	8.2.0
2009-05	RAN#44	R5-092419	0216	-	GCF Priority 1:Corrections to MAC test case 7.1.3.5	8.1.0	8.2.0
2009-05	RAN#44	R5-092420	0217	-	GCF Priority 1:Corrections to MAC test case 7.1.4.1	8.1.0	8.2.0
2009-05	RAN#44	R5-092421	0218	-	GCF Priority 2: Attach / Abnormal case / Access barred because of access class barring or NAS signalling connection establishment rejected by the network	8.1.0	8.2.0
2009-05	RAN#44	R5-092422	0219	-	GCF Priority 2: Corrections to EMM test case 9.4.1	8.1.0	8.2.0
2009-05	RAN#44	R5-092423	0220	-	GCF Priority 2:Corrections to EMM test case 9.4.3	8.1.0	8.2.0
2009-05	RAN#44	R5-092430	0221	-	GCF Priority 1:Corrections to MAC test case 7.1.1.2	8.1.0	8.2.0
2009-05	RAN#44	R5-092451	0222	-	Update of RSRP / RSRQ measurement result checking to the RRC part 3 test cases	8.1.0	8.2.0
2009-05	RAN#44	R5-092471	0223	-	GCF Priority 2-Correction of the EMM test case 9.2.3.1.4	8.1.0	8.2.0
2009-05	RAN#44	R5-092480	0224	-	GCF Priority 1:Corrections to MAC test case 7.1.2.1	8.1.0	8.2.0
2009-05	RAN#44	R5-092481	0225	-	GCF Priority 1:Corrections to MAC test case 7.1.2.2	8.1.0	8.2.0
2009-05	RAN#44	R5-092484	0226	-	GCF Priority 1:Corrections to MAC test case 7.1.2.5	8.1.0	8.2.0
2009-05	RAN#44	R5-092485	0227	-	GCF Priority 1:Corrections to MAC test case 7.1.2.7	8.1.0	8.2.0
2009-05	RAN#44	R5-092486	0228	-	GCF Priority 1:Corrections to MAC test case 7.1.2.8	8.1.0	8.2.0
2009-05	RAN#44	R5-092500	0229	-	GCF priority 2: Update of 10.2.1 for Dedicated EPS bearer context activation / Success	8.1.0	8.2.0
2009-05	RAN#44	R5-092501	0230	-	GCF priority 2: Addition of TC 10.4.1 for EPS bearer context deactivation / Success	8.1.0	8.2.0
2009-05	RAN#44	R5-092502	0231	-	GCF priority 2: Addition of TC 10.5.1 for UE requested PDN connectivity accepted by the network	8.1.0	8.2.0
2009-05	RAN#44	R5-092504	0232	-	GCF priority TBC: Addition of TC 10.5.2 for UE requested PDN connectivity accepted by the network / no PDN address allocated	8.1.0	8.2.0
2009-05	RAN#44	R5-092505	0233	-	GCF priority 3: Addition of TC 10.5.3 for UE requested PDN connectivity not accepted	8.1.0	8.2.0
2009-05	RAN#44	R5-092506	0234	-	GCF priority 2: Addition of ESM TC 10.6.1 for UE requested PDN disconnect procedure accepted by the network	8.1.0	8.2.0
2009-05	RAN#44	R5-092507	0235	-	GCF Priority 3: Addition of ESM TC 10.6.2 for UE requested PDN disconnect procedure not accepted by the network	8.1.0	8.2.0
2009-05	RAN#44	R5-092510	0236	-	GCF priority 2 - Update of 9.2.1.1.17 Attach / rejected / no suitable cells in tracking area	8.1.0	8.2.0
2009-05	RAN#44	R5-092512	0237	-	GCF priority 1: Update of EMM TC 9.3.1.2 Service Request initiated by UE for uplink signalling	8.1.0	8.2.0
2009-05	RAN#44	R5-092513	0238	-	GCF priority 2: Update of 9.2.1.1.17 Attach / rejected / no suitable cells in tracking area	8.1.0	8.2.0
2009-05	RAN#44	R5-092514	0239	-	GCF priority 1: Update of 9.2.1.1.1 Attach Procedure / Success (valid GUTI)	8.1.0	8.2.0
2009-05	RAN#44	R5-092515	0240	-	GCF priority 2: Update of 9.2.1.1.5 Attach Procedure/ Success / ATTACH ACCEPT includes the PDN address assigned to the UE	8.1.0	8.2.0
2009-05	RAN#44	R5-092516	0241	-	GCF priority 2: Update of 9.2.1.1.9 Attach / rejected / IMSI invalid	8.1.0	8.2.0
2009-05	RAN#44	R5-092517	0242	-	GCF priority 2: Update of 9.2.1.1.10 Attach / rejected / illegal ME	8.1.0	8.2.0
2009-05	RAN#44	R5-092518	0243	-	GCF priority TBC: Update of 9.2.1.1.12 Attach / rejected / GPRS services not allowed	8.1.0	8.2.0
2009-05	RAN#44	R5-092539	0244	-	GCF Priority 1 - Update of RLC section	8.1.0	8.2.0
2009-05	RAN#44	R5-092567	0245	-	GCF Priority 2 - Addition of a new test case 6.2.3.5 Inter-RAT Cell Reselection / from E-UTRA RRC_IDLE to UTRA_Idle	8.1.0	8.2.0
2009-05	RAN#44	R5-092569	0246	-	GCF Priority 2: Inter-RAT cell Selection / from E-UTRA RRC_IDLE to UTRA_Idle, serving cell	8.1.0	8.2.0

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					becomes non-suitable (SServingCell<0,barred)		
2009-05	RAN#44	R5-092570	0247	-	GCF Priority 2: Inter-RAT cell Selection / from E-UTRA RRC_IDLE to GSM_Idle/GPRS Packet_idle, serving cell becomes non-suitable (SServingCell<0,barred)	8.1.0	8.2.0
2009-05	RAN#44	R5-092571	0248	-	GCF Priority 1 - New E-UTRA MAC test case - 7.1.7.1.1 DL-SCH Transport Block Size support / DCI format 1 / RA type 0	8.1.0	8.2.0
2009-05	RAN#44	R5-092575	0249	-	GCF Priority 1 - New E-UTRA MAC test case 7.1.7.1.2 - DL-SCH Transport Block Size selection / DCI format 1 / RA type 1	8.1.0	8.2.0
2009-05	RAN#44	R5-092577	0250	-	GCF Priority 1 - New E-UTRA MAC test case 7.1.7.2.1 - UL-SCH Transport Block Size selection / DCI format 0	8.1.0	8.2.0
2009-05	RAN#44	R5-092578	0251	-	GCF priority 2: New MAC test case: 7.1.6.1 DRX Operation / (short cycle not configured) /Parameters configured by RRC (radio resource configuration)	8.1.0	8.2.0
2009-05	RAN#44	R5-092579	0252	-	GCF Priority 2 - New RRC part1 TC 8.1.3.8 RRC Connection Release: redirection from E-UTRAN to GERAN	8.1.0	8.2.0
2009-05	RAN#44	R5-092580	0253	-	GCF Priority 2 - Update of test case 8.2.1.3	8.1.0	8.2.0
2009-05	RAN#44	R5-092583	0254	-	GCF Priority 2: Attach Procedure / Success (last visited TAI, TAI list and equivalent PLMN list handling) 9.2.1.1.1a	8.1.0	8.2.0
2009-05	RAN#44	R5-092584	0255	-	GCF Priority 1 - Update of test case 8.2.1.1	8.1.0	8.2.0
2009-05	RAN#44	R5-092589	0256	-	GCF Priority 2 - Addition of new EMM test case 9.3.1.7a	8.1.0	8.2.0
2009-05	RAN#44	R5-092593	0257	-	GCF priority 2 - Update of 9.2.1.1.15 Attach / rejected / roaming not allowed in this tracking area	8.1.0	8.2.0
2009-05	RAN#44	R5-092595	0258	-	GCF Priority 1:Corrections to MAC test case 7.1.1.1	8.1.0	8.2.0
2009-05	RAN#44	R5-092596	0259	-	GCF Priority 1:Corrections to MAC test case 7.1.4.12	8.1.0	8.2.0
2009-05	RAN#44	R5-092597	0260	-	GCF Priority 1 - Update to test case 8.2.4.1	8.1.0	8.2.0
2009-05	RAN#44	R5-092700	0261	-	GCF Priority 2 - Addition of new test case 8.3.2.1	8.1.0	8.2.0
2009-05	RAN#44	R5-092701	0262	-	GCF Priority-1: Correction to 9.2.3.1.1 'Normal tracking area update / accepted'	8.1.0	8.2.0
2009-05	RAN#44	R5-092702	0263	-	GCF Priority-1: Correction to 9.2.3.1.5'Periodic tracking area update / accepted'	8.1.0	8.2.0
2009-05	RAN#44	R5-092703	0264	-	GCF Priority 2 - Addition of E-UTRAN test case 6.1.2.7 for Cell reselection: Equivalent PLMN	8.1.0	8.2.0
2009-05	RAN#44	R5-092706	0265	-	GCF Priority 1 - Update to RRC test cases	8.1.0	8.2.0
2009-05	RAN#44	R5-092712	0266	-	GCF Priority 2: New MAC test case 7.1.4.14	8.1.0	8.2.0
2009-05	RAN#44	R5-092713	0267	-	GCF Priority 2 - Update to test case 8.1.2.5	8.1.0	8.2.0
2009-05	RAN#44	R5-092714	0268	-	GCF Priority 2 - Update to test case 8.1.2.7	8.1.0	8.2.0
2009-05	RAN#44	R5-092715	0269	-	GCF Priority 2 - Addition of RRC test case 8.3.2.6	8.1.0	8.2.0
2009-05	RAN#44	R5-092716	0270	-	GCF Priority 1 - Update of E-UTRA MAC test case 7.1.4.7	8.1.0	8.2.0
2009-05	RAN#44	R5-092717	0271	-	GCF Priority 1 - New E-UTRA MAC test case 7.1.7.1.4 - DL-SCH Transport Block Size selection / DCI format 1A / RA type 2 / Distributed VRB	8.1.0	8.2.0
2009-05	RAN#44	R5-092718	0272	-	GCF Priority 1 - New E-UTRA MAC test case 7.1.7.1.3 - DL-SCH Transport Block Size selection / DCI format 1A / RA type 2 / Localised VRB	8.1.0	8.2.0
2009-05	RAN#44	R5-092730	0273	-	GCF priority 2: New MAC test case: 7.1.6.2 DRX Operation / Parameters (short cycle not configured) / DRX command MAC control element reception	8.1.0	8.2.0
2009-05	RAN#44	R5-092731	0274	-	GCF Priority 2 - Updates to E-UTRAN Idle Mode test case 6.1.2.9	8.1.0	8.2.0
2009-05	RAN#44	R5-092732	0275	-	GCF Priority 2 - Updates to E-UTRAN Idle Mode test case 6.1.2.8	8.1.0	8.2.0
2009-05	RAN#44	R5-092741	0276	-	GCF Priority 1 - Update to idle mode test cases	8.1.0	8.2.0
2009-05	RAN#44	R5-092751	0277	-	Addition of new idle mode test case for ignoring CSG cells in cell selection when Allowed CSG list is empty or not supported	8.1.0	8.2.0
2009-05	RAN#44	R5-092752	0278	-	GCF Priority 2: New idle mode test case 6.2.3.1	8.1.0	8.2.0

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2009-05	RAN#44	R5-092755	0279	-	GCF Priority 2 - Update to test case 8.3.1.10	8.1.0	8.2.0
2009-05	RAN#44	R5-092756	0280	-	GCF Priority 2 - Update to test case 8.3.2.3	8.1.0	8.2.0
2009-05	RAN#44	R5-092758	0281	-	GCF Priority 2 - Updates to E-UTRAN test case 6.1.1.1	8.1.0	8.2.0
2009-05	RAN#44	R5-092760	0282	-	GCF Priority 2: New idle mode test case 6.2.3.2	8.1.0	8.2.0
2009-05	RAN#44	R5-092761	0283	-	Move common test procedure from sections 6.0.1, 6.0.2, 6.0.3 to TS 36.508	8.1.0	8.2.0
2009-05	RAN#44	R5-092762	0284	-	Batch 2 - Addition of new RRC test case 8.3.2.7	8.1.0	8.2.0
2009-05	RAN#44	R5-092763	0285	-	Batch 2 - Addition of new RRC test case 8.3.2.8	8.1.0	8.2.0
2009-05	RAN#44	R5-092764	0286	-	LTE-SIG:TDD related updates in MAC sections	8.1.0	8.2.0
2009-05	RAN#44	R5-092768	0287	-	GCF Priority-1: Correction to 9.2.2.2.1 'NW initiated detach / re-attach required'	8.1.0	8.2.0
2009-05	RAN#44	R5-092784	0288	-	GCF Priority 2 - Update to test case 8.3.1.9	8.1.0	8.2.0
2009-05	RAN#44	R5-092483	0289	-	GCF Priority 1:Corrections to MAC test case 7.1.2.4	8.1.0	8.2.0
2009-05	RAN#44	R5-092528	0290	4	GCF Priority 1 - Update of E-UTRA MAC test case 7.1.2.3	8.1.0	8.2.0
2009-05	RAN#44	R5-092785	0291	-	GCF priority 2: A/Gb mode READY state to S1 mode cell reselection and E-UTRAN - GERAN RAU (9.2.3.4.1, 9.2.3.4.2)	8.1.0	8.2.0
2009-05	RAN#44	R5-092786	0292	-	GCF Priority 2 - Update of TC 9.2.1.1.14 Attach / rejected / tracking area not allowed	8.1.0	8.2.0
-	-	-	-	-	Editorial corrections and split into sections	8.2.0	8.2.1
2009-09	RAN#45	R5-094075	0293	-	GCF Priority 1 - Update of MAC test case 7.1.2.6	8.2.1	8.3.0
2009-09	RAN#45	R5-094076	0294	-	GCF Priority 1 - Update of MAC test case 7.1.3.1	8.2.1	8.3.0
2009-09	RAN#45	R5-094078	0295	-	GCF Priority 1 - Update of MAC test case 7.1.3.3	8.2.1	8.3.0
2009-09	RAN#45	R5-094079	0296	-	GCF Priority 1 - Update of MAC test case 7.1.3.4	8.2.1	8.3.0
2009-09	RAN#45	R5-094080	0297	-	GCF Priority 1 - Update of MAC test case 7.1.3.5	8.2.1	8.3.0
2009-09	RAN#45	R5-094081	0298	-	GCF Priority 1 - Update of MAC test case 7.1.3.6	8.2.1	8.3.0
2009-09	RAN#45	R5-094082	0299	-	GCF Priority 1 - Update of MAC test case 7.1.3.7	8.2.1	8.3.0
2009-09	RAN#45	R5-094083	0300	-	GCF Priority 1 - Update of MAC test case 7.1.4.1	8.2.1	8.3.0
2009-09	RAN#45	R5-094085	0301	-	GCF Priority 1 - Update of MAC test case 7.1.4.6	8.2.1	8.3.0
2009-09	RAN#45	R5-094086	0302	-	GCF Priority 1 - Update of MAC test case 7.1.4.7	8.2.1	8.3.0
2009-09	RAN#45	R5-094087	0303	-	GCF Priority 1 - Update of MAC test case 7.1.4.8	8.2.1	8.3.0
2009-09	RAN#45	R5-094088	0304	-	GCF Priority 1 - Update of MAC test case 7.1.4.11	8.2.1	8.3.0
2009-09	RAN#45	R5-094089	0305	-	GCF Priority 1 - Update of MAC test case 7.1.4.13	8.2.1	8.3.0
2009-09	RAN#45	R5-094090	0306	-	GCF Priority 1 - Update of MAC test case 7.1.4.15	8.2.1	8.3.0
2009-09	RAN#45	R5-094091	0307	-	GCF Priority 1 - Update of PDCP test case 7.3.1.1	8.2.1	8.3.0
2009-09	RAN#45	R5-094092	0308	-	GCF Priority 1 - Update of RRC test case 8.2.1.1	8.2.1	8.3.0
2009-09	RAN#45	R5-094093	0309	-	GCF Priority 2 - Update of MAC test case 7.1.4.16	8.2.1	8.3.0
2009-09	RAN#45	R5-094094	0310	-	GCF Priority 2 - Update of Idle Mode test case 6.1.2.3	8.2.1	8.3.0
2009-09	RAN#45	R5-094095	0311	-	GCF Priority 2 - Update of RRC test case 8.1.3.4	8.2.1	8.3.0
2009-09	RAN#45	R5-094096	0312	-	GCF Priority 2 - Update of RRC test case 8.1.3.6	8.2.1	8.3.0
2009-09	RAN#45	R5-094101	0313	-	GCF Priority 2 - Addition of new test case 10.7.1	8.2.1	8.3.0
2009-09	RAN#45	R5-094102	0314	-	GCF Priority 2 - Addition of new test case 10.7.2	8.2.1	8.3.0
2009-09	RAN#45	R5-094114	0315	-	Addition of new test case 6.2.2.5	8.2.1	8.3.0
2009-09	RAN#45	R5-094121	0316	-	GCF Priority 2 - Update to test case 8.3.1.9	8.2.1	8.3.0
2009-09	RAN#45	R5-094122	0317	-	Remove TC 8.4.1.8 from TS 36.523-1	8.2.1	8.3.0
2009-09	RAN#45	R5-094124	0318	-	GCF Priority 2 - Addition of new test case 8.4.2.4	8.2.1	8.3.0
2009-09	RAN#45	R5-094187	0319	-	GCF Priority 2 - New EMM TC 9.1.4.2	8.2.1	8.3.0

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2009-09	RAN#45	R5-094189	0320	-	GCF Priority 2 - Removal of EMM TC 9.1.2.2	8.2.1	8.3.0
2009-09	RAN#45	R5-094195	0321	-	GCF Priority 1 - Update of MAC test case 7.1.4.10	8.2.1	8.3.0
2009-09	RAN#45	R5-094196	0322	-	GCF Priority 2 - Update of RLC test case 7.2.3.21	8.2.1	8.3.0
2009-09	RAN#45	R5-094201	0323	-	GCF Priority 2 - Update of RRC test case 8.3.2.6	8.2.1	8.3.0
2009-09	RAN#45	R5-094202	0324	-	GCF Priority 2 - Add new RRC test case 8.4.1.2	8.2.1	8.3.0
2009-09	RAN#45	R5-094203	0325	-	GCF Priority 2 - Add new RRC test case 8.4.1.4	8.2.1	8.3.0
2009-09	RAN#45	R5-094205	0326	-	GCF Priority 3 - Remove RRC test case 8.1.3.3	8.2.1	8.3.0
2009-09	RAN#45	R5-094284	0327	-	Removal of the GUTI reallocation procedures test cases	8.2.1	8.3.0
2009-09	RAN#45	R5-094289	0328	-	GCF Priority 2 - TDD formulation update in 7.1.6.1 DRX Operation / (short cycle not configured) /Parameters configured by RRC (radio resource configuration)	8.2.1	8.3.0
2009-09	RAN#45	R5-094290	0329	-	GCF Priority 2 - TDD formulation update in 7.1.6.2 DRX Operation / Parameters (short cycle not configured) / DRX command MAC control element reception	8.2.1	8.3.0
2009-09	RAN#45	R5-094366	0330	-	GCF Priority 2 - Corrections to E-UTRAN test case 6.1.1.1	8.2.1	8.3.0
2009-09	RAN#45	R5-094369	0331	-	GCF Priority 2 - Updates to E-UTRAN test case 6.1.2.7	8.2.1	8.3.0
2009-09	RAN#45	R5-094372	0332	-	GCF Priority 2 - Corrections to E-UTRAN test cases 6.1.2.8 and 6.1.2.9	8.2.1	8.3.0
2009-09	RAN#45	R5-094387	0333	-	GCF Priority 2 - Update to test case 9.2.2.1.6	8.2.1	8.3.0
2009-09	RAN#45	R5-094392	0334	-	GCF Priority 2 - Correction of discard timer value to be consistent with test tolerances	8.2.1	8.3.0
2009-09	RAN#45	R5-094399	0335	-	GCF Priority 2 - Addition new test case 6.2.3.3	8.2.1	8.3.0
2009-09	RAN#45	R5-094426	0336	-	GCF Priority 1 - Corrections to MAC test case 7.1.4.6	8.2.1	8.3.0
2009-09	RAN#45	R5-094428	0337	-	GCF Priority 1 - Corrections to MAC test case 7.1.4.10	8.2.1	8.3.0
2009-09	RAN#45	R5-094432	0338	-	GCF Priority 2 - Corrections to MAC test case 7.1.4.16	8.2.1	8.3.0
2009-09	RAN#45	R5-094520	0339	-	GCF Priority 2 - Update of RRC test case 8.3.1.1	8.2.1	8.3.0
2009-09	RAN#45	R5-094521	0340	-	GCF Priority 2 - Update of RRC test case 8.3.1.3	8.2.1	8.3.0
2009-09	RAN#45	R5-094523	0341	-	GCF Priority 2 - Update of RRC test case 8.3.1.5	8.2.1	8.3.0
2009-09	RAN#45	R5-094525	0342	-	GCF Priority 1 - Update of RRC test case 8.3.3.1	8.2.1	8.3.0
2009-09	RAN#45	R5-094577	0343	-	GCF Priority 1 - Update of EMM part TC 9.1.3.1 NAS security mode command accepted by the UE	8.2.1	8.3.0
2009-09	RAN#45	R5-094627	0344	-	GCF Priority 2 - Update of MAC TC 7.1.3.2 DL SPS	8.2.1	8.3.0
2009-09	RAN#45	R5-094628	0345	-	GCF Priority 2 - Update of MAC TC 7.1.4.2 UL SPS	8.2.1	8.3.0
2009-09	RAN#45	R5-094629	0346	-	GCF Priority 1 - Corrections to MAC test case 7.1.3.9	8.2.1	8.3.0
2009-09	RAN#45	R5-094635	0347	-	GCF Priority 1 - Correction to E-UTRAN RLC test case 7.2.3.1	8.2.1	8.3.0
2009-09	RAN#45	R5-094636	0348	-	GCF Priority 1 - Adding Test Coverage for Verification of UE setting of the RRC Establishment Cause in EMM test case 9.2.1.1.1	8.2.1	8.3.0
2009-09	RAN#45	R5-094660	0349	-	GCF Priority 2 - Update of MAC test case 7.1.4.3	8.2.1	8.3.0
2009-09	RAN#45	R5-094662	0350	-	GCF Priority 1 - Corrections to RLC section	8.2.1	8.3.0
2009-09	RAN#45	R5-094664	0351	-	GCF Priority 1 - Update of RLC test case 7.2.3.9	8.2.1	8.3.0
2009-09	RAN#45	R5-094666	0352	-	GCF Priority 2 - Addition of new EMM test case 9.2.3.3.5	8.2.1	8.3.0
2009-09	RAN#45	R5-094674	0353	-	GCF Priority 2 - Update of RRC test case 8.3.2.8	8.2.1	8.3.0
2009-09	RAN#45	R5-094676	0354	-	GCF Priority 3 - Update of RRC test case 8.3.2.9	8.2.1	8.3.0
2009-09	RAN#45	R5-094707	0355	-	GCF Priority 1 - Correction to E-UTRAN MAC test case 7.1.2.3	8.2.1	8.3.0
2009-09	RAN#45	R5-094762	0356	-	GCF Priority 2 - Update of RRC test case	8.2.1	8.3.0

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					6.2.2.3		
2009-09	RAN#45	R5-094776	0357	-	GCF Priority 2 - Update of RRC test case 6.2.3.7	8.2.1	8.3.0
2009-09	RAN#45	R5-094788	0358	-	GCF Priority 2 - Update of RRC test case 6.2.3.8	8.2.1	8.3.0
2009-09	RAN#45	R5-094798	0359	-	GCF Priority 2 - Update of RRC test case 8.1.3.9	8.2.1	8.3.0
2009-09	RAN#45	R5-094814	0360	-	GCF Priority 2 - Update of RRC test case 8.1.3.10	8.2.1	8.3.0
2009-09	RAN#45	R5-094817	0361	-	GCF Priority 2 - Update of RRC test case 8.3.2.7	8.2.1	8.3.0
2009-09	RAN#45	R5-094823	0362	-	GCF Priority 2 - Update of RRC test case 8.3.2.8	8.2.1	8.3.0
2009-09	RAN#45	R5-094833	0363	-	GCF Priority 2 - Correction of EMM TC 9.2.1.1.9 Attach / rejected / IMSI invalid	8.2.1	8.3.0
2009-09	RAN#45	R5-094866	0364	2	GCF Priority 1: Corrections to E-UTRA MAC test case 7.1.7.1.1	8.2.1	8.3.0
2009-09	RAN#45	R5-094867	0365	2	GCF Priority 1: Corrections to E-UTRA MAC test case 7.1.7.1.2	8.2.1	8.3.0
2009-09	RAN#45	R5-094868	0366	2	GCF Priority 1: Corrections to E-UTRA MAC test case 7.1.7.1.3	8.2.1	8.3.0
2009-09	RAN#45	R5-094869	0367	2	GCF Priority 1: Corrections to E-UTRA MAC test case 7.1.7.1.4	8.2.1	8.3.0
2009-09	RAN#45	R5-094876	0368	-	GCF Priority 1 - Correction to E-UTRAN RLC test case 7.2.3.2	8.2.1	8.3.0
2009-09	RAN#45	R5-095004	0369	-	GCF Priority 2 - Update of 9.1.2.4	8.2.1	8.3.0
2009-09	RAN#45	R5-095005	0370	-	GCF Priority 2 - Update of 9.1.2.5	8.2.1	8.3.0
2009-09	RAN#45	R5-095008	0371	-	GCF Priority 2 - Update of MAC TC 7.1.4.14 TTI Bundling	8.2.1	8.3.0
2009-09	RAN#45	R5-095028	0372	-	GCF Priority 1 - Various corrections to RLC section of 36.523-1	8.2.1	8.3.0
2009-09	RAN#45	R5-095032	0373	-	GCF Priority 2 - Addition of new SMS over SGs test case 11.1.1	8.2.1	8.3.0
2009-09	RAN#45	R5-095036	0374	-	GCF Priority 2 - Correction to 9.2.2.2.2 NW initiated detach / IMSI detach	8.2.1	8.3.0
2009-09	RAN#45	R5-095037	0375	-	GCF Priority 2 - Correction of PDCP status report	8.2.1	8.3.0
2009-09	RAN#45	R5-095038	0376	-	GCF Priority 2 - Correction of PDCP handover test procedure	8.2.1	8.3.0
2009-09	RAN#45	R5-095041	0377	-	GCF Priority 2 - Update of 9.1.2.3	8.2.1	8.3.0
2009-09	RAN#45	R5-095065	0378	-	GCF Priority 2 - Adding Test Coverage for Verification of UE setting of the RRC Establishment Cause in EMM test case 9.2.2.1.1	8.2.1	8.3.0
2009-09	RAN#45	R5-095066	0379	-	GCF Priority 1 - Adding Test Coverage for Verification of UE setting of the RRC Establishment Cause in EMM test case 9.3.1.1	8.2.1	8.3.0
2009-09	RAN#45	R5-095067	0380	-	GCF Priority 1 - Adding Test Coverage for Verification of UE setting of the RRC Establishment Cause in EMM test case 9.3.1.2	8.2.1	8.3.0
2009-09	RAN#45	R5-095069	0381	-	GCF Priority 2 - Adding Test Coverage for Verification of UE setting of the RRC Establishment Cause in EMM test case 9.3.1.3	8.2.1	8.3.0
2009-09	RAN#45	R5-095070	0382	-	GCF Priority 2 - Adding Test Coverage for Verification of UE setting of the RRC Establishment Cause in EMM test case 9.3.2.2	8.2.1	8.3.0
2009-09	RAN#45	R5-095073	0383	-	GCF Priority 2 - Update of EMM test case 9.3.1.7a	8.2.1	8.3.0
2009-09	RAN#45	R5-095075	0384	-	GCF Priority 1 - Corrections to MAC test case 7.1.4.1	8.2.1	8.3.0
2009-09	RAN#45	R5-095076	0385	-	GCF Priority 1 - Corrections to MAC test case 7.1.4.8	8.2.1	8.3.0
2009-09	RAN#45	R5-095077	0386	-	GCF Priority 1 - Corrections to MAC test case 7.1.4.13	8.2.1	8.3.0
2009-09	RAN#45	R5-095078	0387	-	GCF Priority 1 - Corrections to MAC test case 7.1.4.5	8.2.1	8.3.0
2009-09	RAN#45	R5-095086	0388	-	GCF Priority 1 - Various corrections to RLC section of 36.523-1	8.2.1	8.3.0
2009-09	RAN#45	R5-095087	0389	-	GCF Priority 2 - New EMM TC 9.3.1.7	8.2.1	8.3.0
2009-09	RAN#45	R5-095088	0390	-	GCF Priority 1 - Update to test case 9.2.1.1.2	8.2.1	8.3.0
2009-09	RAN#45	R5-095089	0391	-	Update to GCF Priority 2 test case 9.2.1.1.7	8.2.1	8.3.0
2009-09	RAN#45	R5-095090	0392	-	GCF Priority 2 - Update to test case 9.2.2.1.1	8.2.1	8.3.0
2009-09	RAN#45	R5-095094	0393	-	Update to preamble in L2 UM test cases	8.2.1	8.3.0

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2009-09	RAN#45	R5-095097	0394	-	Add reference to test procedure for Idle Mode section	8.2.1	8.3.0
2009-09	RAN#45	R5-095103	0395	-	GCF Priority 1 - Update of MAC part TC 7.1.2.1	8.2.1	8.3.0
2009-09	RAN#45	R5-095104	0396	-	GCF Priority 1 - Corrections to MAC test case 7.1.4.11	8.2.1	8.3.0
2009-09	RAN#45	R5-095105	0397	-	Addition new test case 6.2.3.13	8.2.1	8.3.0
2009-09	RAN#45	R5-095109	0398	-	GCF Priority 1 - Update of 9.1.2.1	8.2.1	8.3.0
2009-09	RAN#45	R5-095110	0399	-	GCF Priority 1 - Correction to E-UTRAN MAC test case 7.1.3.1	8.2.1	8.3.0
2009-09	RAN#45	R5-095112	0400	-	GCF Priority 2 - Correction of EMM TC 9.2.1.1.12 Attach / rejected / EPS services not allowed	8.2.1	8.3.0
2009-09	RAN#45	R5-095113	0401	-	GCF Priority 2 - Corrections to test case 9.2.1.1.13 Attach / rejected / PLMN not allowed	8.2.1	8.3.0
2009-09	RAN#45	R5-095116	0402	-	GCF Priority 2 - Correction of EMM 9.2.1.1.17 TC Attach / rejected / no suitable cells in tracking area	8.2.1	8.3.0
2009-09	RAN#45	R5-095118	0403	-	GCF Priority 3 - Correction to EMM TC 9.2.1.2.3 Combined attach procedure / Success / EPS services only / MSC temporarily not reachable	8.2.1	8.3.0
2009-09	RAN#45	R5-095120	0404	-	GCF Priority 1 - Various corrections to other section of 36.523-1	8.2.1	8.3.0
2009-09	RAN#45	R5-095121	0405	-	GCF Priority 1 - Various corrections to RRC Part1 section of 36.523-1	8.2.1	8.3.0
2009-09	RAN#45	R5-095125	0406	-	GCF Priority 1 - Update of MAC TC 7.1.4.4 SR	8.2.1	8.3.0
2009-09	RAN#45	R5-095126	0407	-	GCF Priority 1 - Update of 9.3.2.1	8.2.1	8.3.0
2009-09	RAN#45	R5-095127	0408	-	Priority 2 - Update of test case 6.2.2.1	8.2.1	8.3.0
2009-09	RAN#45	R5-095131	0409	2	GCF Priority 1 - Addition of new Multi-layer Procedures test case 13.1.1	8.2.1	8.3.0
2009-09	RAN#45	R5-095132	0410	2	GCF Priority 1 - Addition of new Multi-layer Procedures test case 13.2.1	8.2.1	8.3.0
2009-09	RAN#45	R5-095133	0411	-	GCF Priority 1 - Correction to E-UTRAN RLC test case 7.2.3.5	8.2.1	8.3.0
2009-09	RAN#45	R5-095135	0412	-	GCF Priority 2 - Update of cell reselection test case 6.1.2.15	8.2.1	8.3.0
2009-09	RAN#45	R5-095136	0413	-	GCF Priority 2 - Update of PDCP test case handover / In-order delivery and duplicate elimination in the downlink	8.2.1	8.3.0
2009-09	RAN#45	R5-095139	0414	-	GCF Priority 2 - Addition of test case 11.1.3 MO-SMS over SGs in idle mode	8.2.1	8.3.0
2009-09	RAN#45	R5-095140	0415	-	GCF Priority 2 - Correction to 9.2.3.1.2 Normal tracking area update / accepted / 'Active' flag set	8.2.1	8.3.0
2009-09	RAN#45	R5-095141	0416	-	GCF Priority 2 - Correction of TC 9.2.1.1.14 Attach / rejected / tracking area not allowed	8.2.1	8.3.0
2009-09	RAN#45	R5-095148	0417	-	GCF Priority 2 - Correction of EMM TC 9.2.1.1.15 Attach / rejected / roaming not allowed in this tracking area	8.2.1	8.3.0
2009-09	RAN#45	R5-095149	0418	-	GCF Priority 2 - Addition of new test case 9.2.3.3.6 for E-UTRAN RRC connection failure / reselection of UTRAN cell / NAS signalling to release old S1 interface connection	8.2.1	8.3.0
2009-09	RAN#45	R5-095150	0419	-	GCF Priority 2 - Update to test case 10.8.1	8.2.1	8.3.0
2009-09	RAN#45	R5-095151	0420	-	GCF Priority 2 - Addition of new SMS over SGs test case 11.1.2	8.2.1	8.3.0
2009-09	RAN#45	R5-095161	0421	-	GCF Priority 1 - Various corrections to Idle Mode section of 36.523-1	8.2.1	8.3.0
2009-09	RAN#45	R5-095164	0422	-	GCF Priority 1 - Update of E-UTRA MAC test case 7.1.2.4	8.2.1	8.3.0
2009-09	RAN#45	R5-095172	0423	-	GCF Priority 4 - New TC 8.1.3.7 RRC Connection Release: redirection from UTRAN to E-UTRAN	8.2.1	8.3.0
2009-09	RAN#45	R5-095173	0424	1	GCF Priority 3 - Update to test case 9.2.2.1.2	8.2.1	8.3.0
2009-09	RAN#45	R5-095175	0425	1	GCF Priority 3 - Correction to 9.2.1.2.1 "Combined attach procedure / Success / EPS and non-EPS services"	8.2.1	8.3.0
2009-09	RAN#45	R5-095177	0426	-	GCF Priority 3 - CR to EMM TC 9.2.1.1.19 Attach / Abnormal case / Failure due to non integrity protection	8.2.1	8.3.0
2009-09	RAN#45	R5-095178	0427	-	GCF Priority 3 - New EMM TC 9.2.3.2.1a Combined tracking area update / successful / check of last visited TAI and handling of TAI	8.2.1	8.3.0

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					list, LAI and TMSI		
2009-09	RAN#45	R5-095179	0428	-	GCF Priority 3 - Addition of new test case 6.2.2.4	8.2.1	8.3.0
2009-09	RAN#45	R5-095188	0429	3	GCF Priority 1: Corrections to E-UTRA MAC test case 7.1.7.2.1	8.2.1	8.3.0
2009-09	RAN#45	R5-095207	0430	-	GCF Priority 2 - Addition of new test case 8.4.2.2	8.2.1	8.3.0
2009-09	RAN#45	R5-095208	0431	-	GCF Priority 1 - Corrections to RLC test case 7.2.3.7	8.2.1	8.3.0
2009-09	RAN#45	R5-095217	0432	-	GCF Priority 1 - Corrections to PDCP test cases 7.5.3.2 and 7.5.3.3	8.2.1	8.3.0
2009-09	RAN#45	R5-095219	0433	-	GCF Priority 1 - Various corrections to RRC Part2 section of 36.523-1	8.2.1	8.3.0
2009-09	RAN#45	R5-095220	0434	-	GCF Priority 1 - Various corrections to RRC Part 3 section of 36.523-1	8.2.1	8.3.0
2009-10	-	-	-	-	Minor CR 414 implementation corrections	8.3.0	8.3.1
2009-10	-	-	-	-	Minor CR 354 implementation corrections	8.3.1	8.3.2
2009-11	GERAN# 44	GP-092405	0435	-	Addition of new Test Case 6.2.3.21	8.3.2	8.4.0
2009-12	RAN#46	R5-095444	0436	-	Removal of TC 8.1.2.10 from TS 36.523-1	8.3.2	8.4.0
2009-12	RAN#46	R5-095446	0437	-	GCF Priority 1 - Various corrections to RRC Part 2 section of 36.523-1	8.3.2	8.4.0
2009-12	RAN#46	R5-095447	0438	-	Removal of TC 8.2.1.2 from TS 36.523-1	8.3.2	8.4.0
2009-12	RAN#46	R5-095448	0439	-	Removal of TC 8.2.1.4 from TS 36.523-1	8.3.2	8.4.0
2009-12	RAN#46	R5-095450	0440	-	GCF Priority 2 - Update to test case 8.2.4.5	8.3.2	8.4.0
2009-12	RAN#46	R5-095451	0441	-	GCF Priority 3 - Update to test case 8.2.4.9	8.3.2	8.4.0
2009-12	RAN#46	R5-095462	0442	-	GCF Priority 3 - Addition of test case 9.2.3.1.9a	8.3.2	8.4.0
2009-12	RAN#46	R5-095467	0443	-	GCF Priority 3 - Addition of test case 9.3.1.16	8.3.2	8.4.0
2009-12	RAN#46	R5-095505	0444	-	GCF Priority 2 - Update test case 6.1.2.11	8.3.2	8.4.0
2009-12	RAN#46	R5-095507	0445	-	GCF Priority 2 - Correction for Measurement test cases	8.3.2	8.4.0
2009-12	RAN#46	R5-095521	0446	-	GCF Priority 1 - Update of RLC test case 7.2.3.14	8.3.2	8.4.0
2009-12	RAN#46	R5-095524	0447	-	GCF Priority 2 - Update of EMM test case 9.2.3.3.5	8.3.2	8.4.0
2009-12	RAN#46	R5-095525	0448	-	GCF Priority 2 - Update of EMM test case 9.3.1.7a	8.3.2	8.4.0
2009-12	RAN#46	R5-095597	0449	-	GCF Priority 3 - Addition of E-UTRAN test case 8.3.1.11	8.3.2	8.4.0
2009-12	RAN#46	R5-095609	0450	-	GCF Priority 1 - Update of EMM test case 9.2.3.1.5	8.3.2	8.4.0
2009-12	RAN#46	R5-095621	0451	-	GCF Priority 2 - Removal of TC 8.4.2.6	8.3.2	8.4.0
2009-12	RAN#46	R5-095774	0452	-	GCF Priority 2 - Correction to test case 6.1.1.1	8.3.2	8.4.0
2009-12	RAN#46	R5-095783	0453	-	GCF Priority 3 - Update to test case 9.2.1.1.25	8.3.2	8.4.0
2009-12	RAN#46	R5-095784	0454	-	GCF Priority 2 - Update to test case 9.2.2.1.1	8.3.2	8.4.0
2009-12	RAN#46	R5-095785	0455	-	GCF Priority 3 - Update to test case 9.2.2.1.2	8.3.2	8.4.0
2009-12	RAN#46	R5-095786	0456	-	GCF Priority 2 - Update to test case 9.2.2.1.6	8.3.2	8.4.0
2009-12	RAN#46	R5-095795	0457	-	Addition of new DSMIPv6 test case for Discovery of the Home Agent via DNS	8.3.2	8.4.0
2009-12	RAN#46	R5-095796	0458	-	Addition of new DSMIPv6 test case for Security association establishment without Home Agent reallocation procedure	8.3.2	8.4.0
2009-12	RAN#46	R5-095802	0459	-	GCF Priority 3 - Addition of new RRC test case 8.4.5.4	8.3.2	8.4.0
2009-12	RAN#46	R5-095803	0460	-	GCF Priority 3 - Addition of new RRC test case 8.4.7.3	8.3.2	8.4.0
2009-12	RAN#46	R5-095804	0461	-	GCF Priority 3 - Addition of new RRC test case 8.4.7.4	8.3.2	8.4.0
2009-12	RAN#46	R5-095884	0462	-	GCF Priority 1 - Correction of TC 9.2.1.1.1 Attach Procedure / Success (valid GUTI)	8.3.2	8.4.0
2009-12	RAN#46	R5-095885	0463	-	GCF Priority x - Proposed removal of TC 9.3.1.2 Service Request initiated by UE for uplink signalling	8.3.2	8.4.0
2009-12	RAN#46	R5-095886	0464	-	GCF Priority 2 - Proposed removal of TC 9.2.1.1.5 Attach Procedure / Success / ATTACH ACCEPT message includes the PDN address assigned to the UE	8.3.2	8.4.0
2009-12	RAN#46	R5-095901	0465	-	GCF Priority 2 - Correction of TC 9.2.3.3.6 E-UTRAN RRC connection failure / reselection of UTRAN cell / NAS signalling to release old S1 interface connection	8.3.2	8.4.0
2009-12	RAN#46	R5-095937	0466	-	GCF Priority 1 - Correction to E-UTRAN MAC test case 7.1.4.6	8.3.2	8.4.0

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2009-12	RAN#46	R5-095963	0467	-	GCF Priority 2 - Update of TC 9-1-2-5 for IP handling over U-plane	8.3.2	8.4.0
2009-12	RAN#46	R5-095972	0468	-	GCF Priority 1 - Update of TC 9-1-2-1 for IP handling over U-plane	8.3.2	8.4.0
2009-12	RAN#46	R5-095976	0469	-	GCF Priority 2 - Update of TC 9-3-1-7 for IP handling over U-plane	8.3.2	8.4.0
2009-12	RAN#46	R5-095979	0470	-	GCF Priority 2 - Update of TC 9-1-2-4 for IP handling over U-plane	8.3.2	8.4.0
2009-12	RAN#46	R5-095980	0471	-	GCF Priority 2 - Test Case 9.1.4.2 Clause title formatting error	8.3.2	8.4.0
2009-12	RAN#46	R5-095997	0472	-	GCF Priority 2 - Correction to RRC test case 8.5.1.1	8.3.2	8.4.0
2009-12	RAN#46	R5-096009	0473	-	GCF Priority 1 - Correction to E-UTRAN MAC test case 7.2.3.5	8.3.2	8.4.0
2009-12	RAN#46	R5-096024	0474	-	GCF Priority 1: Cell number alignment in Test case 9.1.3.1	8.3.2	8.4.0
2009-12	RAN#46	R5-096027	0475	-	GCF Priority 2 - Cell number alignment in Test case 9.1.3.2	8.3.2	8.4.0
2009-12	RAN#46	R5-096029	0476	-	GCF Priority 2 - Cell number alignment in Test case 9.4.1	8.3.2	8.4.0
2009-12	RAN#46	R5-096031	0477	-	GCF Priority 2: Cell number alignment in Test case 9.4.3	8.3.2	8.4.0
2009-12	RAN#46	R5-096034	0478	-	GCF Priority 2: Correction to Test case 7.1.4.2	8.3.2	8.4.0
2009-12	RAN#46	R5-096036	0479	-	GCF Priority 2: Correction to Test case 7.1.4.14	8.3.2	8.4.0
2009-12	RAN#46	R5-096149	0480	-	GCF Priority 2 - update test case 8.5.1.3	8.3.2	8.4.0
2009-12	RAN#46	R5-096156	0481	-	GCF Priority 2 - Update of RLC test case 7.2.3.13	8.3.2	8.4.0
2009-12	RAN#46	R5-096160	0482	-	GCF Priority 2 - Update of TC 9-1-2-3 for IP handling over U-plane	8.3.2	8.4.0
2009-12	RAN#46	R5-096161	0483	-	GCF Priority 1 and Priority 2- EMM Successful Attach consistent description	8.3.2	8.4.0
2009-12	RAN#46	R5-096178	0484	-	GCF Priority 2 - Correction test cases 8.3.2.1, 8.3.2.7	8.3.2	8.4.0
2009-12	RAN#46	R5-096192	0485	-	GCF Priority 1 - Various editorial corrections to RLC section	8.3.2	8.4.0
2009-12	RAN#46	R5-096193	0486	-	GCF Priority 1 - Update to Idle Mode test case 6.1.2.2	8.3.2	8.4.0
2009-12	RAN#46	R5-096194	0487	-	GCF Priority 2 - Updated to test case 6.1.2.6	8.3.2	8.4.0
2009-12	RAN#46	R5-096196	0488	-	GCF Priority 2 - Correction to test case 6.3.6	8.3.2	8.4.0
2009-12	RAN#46	R5-096197	0489	-	GCF Priority 2 - Correction to test case 6.1.2.7	8.3.2	8.4.0
2009-12	RAN#46	R5-096401	0490	-	GCF Priority 1 - Correction to E-UTRAN MAC test case 7.1.2.9	8.3.2	8.4.0
2009-12	RAN#46	R5-096414	0491	-	GCF Priority 2 & 3 - Correction to test cases 9.2.1.1.9 and 9.2.1.1.12	8.3.2	8.4.0
2009-12	RAN#46	R5-096421	0492	-	GCF Priority 1: Update of MAC TC 7.1.7.1.1 DL-SCH TBS selection/DCI format 1/RA type0	8.3.2	8.4.0
2009-12	RAN#46	R5-096422	0493	-	GCF Priority 1: Update of MAC TC 7.1.7.1.2 DL-SCH TBS selection/DCI format 1/RA type1	8.3.2	8.4.0
2009-12	RAN#46	R5-096423	0494	-	GCF Priority 1: Update of MAC TC 7.1.7.1.3 DL-SCH TBS selection/DCI format 1A/RA type2/Localized VRB	8.3.2	8.4.0
2009-12	RAN#46	R5-096424	0495	-	GCF Priority 1: Update of MAC TC 7.1.7.1.4 DL-SCH TBS selection/DCI format 1A/RA type2/Distributed VRB	8.3.2	8.4.0
2009-12	RAN#46	R5-096425	0496	-	GCF Priority 1: Update of MAC TC 7.1.7.2.1 UL-SCH TBS selection/DCI format 0	8.3.2	8.4.0
2009-12	RAN#46	R5-096426	0497	1	GCF Priority 1: Update of E-UTRA MAC test case 7.1.4.7	8.3.2	8.4.0
2009-12	RAN#46	R5-096428	0498	-	GCF Priority 1: Update of E-UTRA MAC test case 7.1.3.7	8.3.2	8.4.0
2009-12	RAN#46	R5-096429	0499	-	GCF Priority 2 - Update to test case 9.2.1.1.7	8.3.2	8.4.0
2009-12	RAN#46	R5-096435	0500	-	GCF Priority 3: Introduction of a new EMM test case 9.2.3.1.6' Normal tracking area update / UE with ISR active moves to E-UTRAN '	8.3.2	8.4.0
2009-12	RAN#46	R5-096436	0501	-	GCF Priority 3: Introduction of 9.2.3.1.17 Normal tracking area update / rejected / Roaming not allowed in this tracking area	8.3.2	8.4.0
2009-12	RAN#46	R5-096437	0502	-	GCF Priority 3: Introduction of 9.2.3.1.18 Normal tracking area update / rejected / EPS services not allowed in this PLMN	8.3.2	8.4.0
2009-12	RAN#46	R5-096443	0503	-	GCF Priority 3: Addition of new test case 9.2.1.1.24: Attach / Abnormal case / Change of cell into a new tracking area	8.3.2	8.4.0

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2009-12	RAN#46	R5-096444	0504	-	GCF Priority 3: Addition of new test case 9.2.1.1.26: Attach / Abnormal case / Detach procedure collision	8.3.2	8.4.0
2009-12	RAN#46	R5-096445	0505	-	GCF Priority 2: Correction to Test case 7.1.3.2	8.3.2	8.4.0
2009-12	RAN#46	R5-096446	0506	-	GCF Priority 1: Correction to EMM test case 9.3.1.1	8.3.2	8.4.0
2009-12	RAN#46	R5-096451	0507	-	GCF Priority 2 - Correction of test cases 9.2.1.1.9, 9.2.1.1.10, 9.2.1.1.11 Attach / rejected / IMSI invalid / Illegal UE / EPS and non-EPS services not allowed	8.3.2	8.4.0
2009-12	RAN#46	R5-096452	0508	-	GCF Priority 2 - Correction of TC 9.2.3.2.1 Combined tracking area update / successful	8.3.2	8.4.0
2009-12	RAN#46	R5-096454	0509	-	GCF Priority 2 - Correction of TC 9.2.3.3.1 First Iu mode to S1 mode intersystem change after attach: go to E-UTRAN RRC idle: RAU to UTRAN	8.3.2	8.4.0
2009-12	RAN#46	R5-096459	0510	-	Disabling PHR and periodic BSR for L2 test cases in 36.523-1	8.3.2	8.4.0
2009-12	RAN#46	R5-096466	0511	-	Correction of test case 6.1.2.13	8.3.2	8.4.0
2009-12	RAN#46	R5-096467	0512	-	GCF Priority 1 - Correction to E-UTRAN MAC test case 7.1.4.13	8.3.2	8.4.0
2009-12	RAN#46	R5-096468	0513	-	GCF Priority 1 - Correction to E-UTRAN MAC test case 7.1.4.10	8.3.2	8.4.0
2009-12	RAN#46	R5-096470	0514	-	GCF Priority 3 - Addition of E-UTRAN test case 8.3.3.3 for Measurement configuration control and reporting / SON / ANR: CGI reporting of GERAN cell	8.3.2	8.4.0
2009-12	RAN#46	R5-096471	0515	-	GCF Priority 3 - Addition of E-UTRAN test case 8.3.3.2 :Measurement configuration control and reporting / SON / ANR: CGI reporting of UTRAN cell	8.3.2	8.4.0
2009-12	RAN#46	R5-096472	0516	-	GCF Priority 1 - Update of Multi-layer Procedures part TC 13.1.1 Activation and deactivation of additional data radio bearer in E-UTRA	8.3.2	8.4.0
2009-12	RAN#46	R5-096476	0517	-	GCF Priority 3 - Update of RRC part TC 8.5.1.2 RRC Connection Re-establishment: Success (after Radio Link Failure)	8.3.2	8.4.0
2009-12	RAN#46	R5-096479	0518	-	GCF Priority 3 - Update of RRC test case 8.2.1.7	8.3.2	8.4.0
2009-12	RAN#46	R5-096481	0519	-	GCF Priority 1 - Update to test case 7.2.3.4	8.3.2	8.4.0
2009-12	RAN#46	R5-096482	0520	-	GCF Priority 1 - Correction of TC 8.5.4.1 UE capability transfer / Success	8.3.2	8.4.0
2009-12	RAN#46	R5-096483	0521	-	GCF Priority 1 - Update of PDCP test case 7.3.3.1 : Ciphering and Deciphering: Correct functionality of EPS AS encryption algorithms (SNOW 3G)	8.3.2	8.4.0
2009-12	RAN#46	R5-096484	0522	-	GCF Priority 1: Correction to RRC test case 8.2.1.1	8.3.2	8.4.0
2009-12	RAN#46	R5-096485	0523	-	GCF Priority 1 - Update of EMM test case 9.2.3.1.1	8.3.2	8.4.0
2009-12	RAN#46	R5-096487	0524	-	GCF Priority 1 - Various corrections to Idle Mode section of 36.523-1	8.3.2	8.4.0
2009-12	RAN#46	R5-096488	0525	-	GCF Priority 2 - Update to test case 8.1.2.5	8.3.2	8.4.0
2009-12	RAN#46	R5-096489	0526	-	GCF Priority 2 - Update to test case 8.1.2.7	8.3.2	8.4.0
2009-12	RAN#46	R5-096491	0527	-	GCF Priority 2 - Various corrections to RRC Part 3 section of 36.523-1	8.3.2	8.4.0
2009-12	RAN#46	R5-096492	0528	-	GCF Priority 1 - Correction to E-UTRA DRB test case 12.2	8.3.2	8.4.0
2009-12	RAN#46	R5-096493	0529	3	GCF Priority 1 - Update of Multi-layer Procedures part TC 13.2.1 RRC Connection Reconfiguration: E-UTRA to E-UTRA	8.3.2	8.4.0
2009-12	RAN#46	R5-096494	0530	-	GCF Priority 1 - Update of applicability entry for DRB test case 12.3	8.3.2	8.4.0
2009-12	RAN#46	R5-096495	0531	-	GCF Priority 2 - Update of the test case 6.2.3.3	8.3.2	8.4.0
2009-12	RAN#46	R5-096496	0532	-	GCF Priority 2 - Update of Idle Mode Operations test case 6.1.2.5 Cell reselection for inter-band operation	8.3.2	8.4.0
2009-12	RAN#46	R5-096497	0533	-	GCF Priority 2 - Update of Idle Mode Operations test case 6.6.2.3.7	8.3.2	8.4.0
2009-12	RAN#46	R5-096502	0534	-	GCF Priority 2: Correction to the MAC DRX test cases preamble	8.3.2	8.4.0
2009-12	RAN#46	R5-096505	0535	-	GCF Priority 2 - Correction of TC 9.2.1.1.13	8.3.2	8.4.0

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					Attach / rejected / PLMN not allowed		
2009-12	RAN#46	R5-096506	0536	-	GCF Priority 2 - Correction of TC 9.2.1.1.14 Attach / rejected / tracking area not allowed	8.3.2	8.4.0
2009-12	RAN#46	R5-096507	0537	-	GCF Priority 2 - Correction of TC 9.2.1.1.15 Attach / rejected / roaming not allowed in this tracking area	8.3.2	8.4.0
2009-12	RAN#46	R5-096508	0538	-	GCF Priority 3 - New TC 9.2.1.1.16 Attach / rejected / EPS services not allowed in this PLMN	8.3.2	8.4.0
2009-12	RAN#46	R5-096509	0539	-	GCF Priority 2 - Correction of TC 9.2.1.1.17 Attach / rejected / no suitable cells in tracking area	8.3.2	8.4.0
2009-12	RAN#46	R5-096510	0540	-	GCF Priority 2 - Correction of TC 9.2.1.2.4 Combined attach procedure / Success / EPS services only / MSC temporarily not reachable	8.3.2	8.4.0
2009-12	RAN#46	R5-096511	0541	-	GCF Priority 2 - Correction of TC 10.2.1 Dedicated EPS bearer context activation / Success	8.3.2	8.4.0
2009-12	RAN#46	R5-096512	0542	-	GCF Priority 2 - Correction of TC 10.3.1 EPS bearer context modification / Success	8.3.2	8.4.0
2009-12	RAN#46	R5-096514	0543	-	GCF Priority 2 - Correction of TC 10.6.1 UE requested PDN disconnect procedure accepted by the network	8.3.2	8.4.0
2009-12	RAN#46	R5-096605	0544	-	GCF Priority 2 - Update of RRC test case 8.3.2.7 : Measurement configuration control and reporting / inter-RAT measurements: event B2 (measurement HRPD cells)	8.3.2	8.4.0
2009-12	RAN#46	R5-096606	0545	-	GCF Priority 2 - Update of RRC test case 8.3.2.6	8.3.2	8.4.0
2009-12	RAN#46	R5-096610	0546	-	GCF Priority 2 - Update of RRC test case 8.4.1.4	8.3.2	8.4.0
2009-12	RAN#46	R5-096611	0547	-	GCF Priority 2 - Update of RRC test case 8.4.1.2	8.3.2	8.4.0
2009-12	RAN#46	R5-096612	0548	-	GCF Priority 2 - Update to test case 8.4.2.2	8.3.2	8.4.0
2009-12	RAN#46	R5-096613	0549	-	GCF Priority 2 - Update to test case 8.4.2.4	8.3.2	8.4.0
2009-12	RAN#46	R5-096615	0550	-	GCF Priority 3 - Addition of test case 6.2.3.6	8.3.2	8.4.0
2009-12	RAN#46	R5-096616	0551	-	GCF Priority 3 - Update to test case 8.1.1.2	8.3.2	8.4.0
2009-12	RAN#46	R5-096617	0552	-	GCF Priority 3 - Addition of test case 8.2.4.4	8.3.2	8.4.0
2009-12	RAN#46	R5-096618	0553	-	GCF Priority 2 - Update to test case 8.1.3.5	8.3.2	8.4.0
2009-12	RAN#46	R5-096619	0554	-	GCF Priority 2: Updates to TAU/RAU procedure for inter-system cell re-selection between A/Gb and S1 modes	8.3.2	8.4.0
2009-12	RAN#46	R5-096620	0555	-	GCF Priority 2: Updates to Attach Procedure / Success (last visited TAI, TAI list and equivalent PLMN list handling)	8.3.2	8.4.0
2009-12	RAN#46	R5-096621	0556	-	GCF Priority 2 - Correction to TC 8.1.3.8	8.3.2	8.4.0
2009-12	RAN#46	R5-096622	0557	-	GCF Priority 3 - Update test case 8.3.1.4	8.3.2	8.4.0
2009-12	RAN#46	R5-096627	0558	-	GCF Priority 1 - Update of RRC test case 8.2.2.1	8.3.2	8.4.0
2009-12	RAN#46	R5-096628	0559	-	GCF Priority 1 - Update of RRC test case 8.2.2.2	8.3.2	8.4.0
2009-12	RAN#46	R5-096629	0560	-	GCF Priority 3 - Various corrections to EMM section of 36.523-1	8.3.2	8.4.0
2009-12	RAN#46	R5-096630	0561	-	GCF Priority 3 - Addition of new test case 9.2.1.2.5	8.3.2	8.4.0
2009-12	RAN#46	R5-096631	0562	-	GCF Priority 3 - Update to test case 9.2.1.2.6	8.3.2	8.4.0
2009-12	RAN#46	R5-096632	0563	-	GCF Priority 3 - Addition of test case 9.2.1.2.7	8.3.2	8.4.0
2009-12	RAN#46	R5-096633	0564	-	GCF Priority 3 - Addition of test case 9.2.1.2.11	8.3.2	8.4.0
2009-12	RAN#46	R5-096634	0565	1	GCF Priority 3 - Addition of test case 9.2.1.2.13	8.3.2	8.4.0
2009-12	RAN#46	R5-096635	0566	-	GCF Priority 3 - Addition of new test case 9.2.1.2.15	8.3.2	8.4.0
2009-12	RAN#46	R5-096636	0567	-	GCF Priority 3 - Addition of test cases 9.2.3.1.23 and 9.2.3.1.24	8.3.2	8.4.0
2009-12	RAN#46	R5-096637	0568	-	GCF Priority 3 - Addition of new test case 9.2.3.1.25	8.3.2	8.4.0
2009-12	RAN#46	R5-096638	0569	-	GCF Priority 3 - Addition of new test case 9.2.3.2.9	8.3.2	8.4.0
2009-12	RAN#46	R5-096639	0570	-	GCF Priority 3 - Update to test case 9.3.1.4	8.3.2	8.4.0
2009-12	RAN#46	R5-096643	0571	-	GCF Priority 1 - Update of RLC test case 7.2.3.9	8.3.2	8.4.0
2009-12	RAN#46	R5-096645	0572	-	GCF Priority 3 - Addition of new test case 8.3.3.4	8.3.2	8.4.0
2009-12	RAN#46	R5-096646	0573	-	GCF Priority 3 - Addition of new test case	8.3.2	8.4.0

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					8.3.3.5		
2009-12	RAN#46	R5-096647	0574	-	GCF Priority 3 - Addition of new test case 10.7.3	8.3.2	8.4.0
2009-12	RAN#46	R5-096648	0575	-	GCF Priority 3 - Addition of new test case 10.7.4	8.3.2	8.4.0
2009-12	RAN#46	R5-096649	0576	-	GCF Priority TBC - Addition of new test case 10.7.5	8.3.2	8.4.0
2009-12	RAN#46	R5-096650	0577	-	GCF Priority 3 - Addition of new test case 10.8.2	8.3.2	8.4.0
2009-12	RAN#46	R5-096651	0578	-	GCF Priority 3 - Addition of new test case 10.8.3	8.3.2	8.4.0
2009-12	RAN#46	R5-096652	0579	-	GCF Priority TBC - Addition of new test case 10.8.4	8.3.2	8.4.0
2009-12	RAN#46	R5-096653	0580	-	GCF Priority 3 - Addition of new test case 10.8.5	8.3.2	8.4.0
2009-12	RAN#46	R5-096654	0581	-	GCF Priority 3 - Addition of new test case 10.8.6	8.3.2	8.4.0
2009-12	RAN#46	R5-096655	0582	-	GCF Priority 3 - Addition of new test case 10.8.7	8.3.2	8.4.0
2009-12	RAN#46	R5-096656	0583	-	GCF Priority 2 - Correction of TC 10.5.1 UE requested PDN connectivity procedure accepted by the network	8.3.2	8.4.0
2009-12	RAN#46	R5-096657	0584	-	GCF Priority 2 - Addition of test case 11.1.4 MO-SMS over SGs in active mode	8.3.2	8.4.0
2009-12	RAN#46	R5-096658	0585	-	GCF Priority 2 - Correction of TC 10.4.1 EPS bearer context deactivation / Success	8.3.2	8.4.0
2009-12	RAN#46	R5-096660	0586	-	GCF Priority 3 - Addition of EMM test case 9.1.2.6	8.3.2	8.4.0
2009-12	RAN#46	R5-096661	0587	-	GCF Priority 3 - Addition of new EMM test case 9.1.5.2	8.3.2	8.4.0
2009-12	RAN#46	R5-096662	0588	-	GCF Priority 3 - Addition of new EMM test case 9.2.1.1.18	8.3.2	8.4.0
2009-12	RAN#46	R5-096663	0589	-	GCF Priority 3 - Addition of EMM test case 9.2.1.2.12	8.3.2	8.4.0
2009-12	RAN#46	R5-096665	0590	-	GCF Priority 3 - Addition of EMM test case 9.2.2.2.14	8.3.2	8.4.0
2009-12	RAN#46	R5-096666	0591	-	GCF Priority 3 - Addition of EMM test case 9.2.3.1.26	8.3.2	8.4.0
2009-12	RAN#46	R5-096667	0592	-	GCF Priority 3 - Addition of EMM test case 9.2.3.1.27	8.3.2	8.4.0
2009-12	RAN#46	R5-096668	0593	-	GCF Priority 3 - Addition of EMM test case 9.2.3.1.28	8.3.2	8.4.0
2009-12	RAN#46	R5-096669	0594	-	GCF Priority 3 - Addition of EMM test case 9.3.1.15	8.3.2	8.4.0
2009-12	RAN#46	R5-096670	0595	-	GCF Priority 3 - Addition of new test case 9.3.1.17	8.3.2	8.4.0
2009-12	RAN#46	R5-096671	0596	-	GCF Priority 3 - Correction of TC 9.2.1.2.2 Combined attach procedure / Success / EPS services only / IMSI unknown in HSS	8.3.2	8.4.0
2009-12	RAN#46	R5-096672	0597	-	GCF Priority 3 - Correction of TC 9.2.1.2.3 Combined attach procedure / Success / EPS services only / MSC temporarily not reachable	8.3.2	8.4.0
2009-12	RAN#46	R5-096673	0598	-	GCF Priority 3: Introduction of 9.2.3.1.19 Normal tracking area update / rejected / No Suitable Cells in tracking Area	8.3.2	8.4.0
2009-12	RAN#46	R5-096692	0599	-	GCF Priority 3 - Update of E-UTRAN test case 9.2.1.1.20	8.3.2	8.4.0
2009-12	RAN#46	R5-096693	0600	-	GCF Priority 3 - Correction of TC 9.2.1.1.19 Attach / Abnormal case / Failure due to non integrity protection	8.3.2	8.4.0
2009-12	RAN#46	R5-096694	0601	-	GCF Priority 3: Addition of new test case 9.2.1.1.21: Attach / Abnormal case / success after several attempts due to no network response	8.3.2	8.4.0
2009-12	RAN#46	R5-096695	0602	-	GCF Priority 3: Addition of new test case 9.2.1.1.22: : Attach / Abnormal case / unsuccessful attach after 5 attempts	8.3.2	8.4.0
2009-12	RAN#46	R5-096697	0603	1	GCF Priority 3 - Addition of test case 13.3.1.1	8.3.2	8.4.0
2010-03	RAN#47	R5-100058	0604	-	Addition of new DSMIPv6 test case for Registration of a new IPv6 CoA (Binding Update/Acknowledgment procedure in IPv6 network)	8.4.0	8.5.0
2010-03	RAN#47	R5-100059	0605	-	Addition of new DSMIPv6 test case for Re-	8.4.0	8.5.0

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					registration of IPv6 CoA		
2010-03	RAN#47	R5-100060	0606	-	Addition of new DSMIPv6 test case for Return to home link	8.4.0	8.5.0
2010-03	RAN#47	R5-100061	0607	-	Addition of new DSMIPv6 test case for Dual-Stack Mobile IPv6 detach in IPv6 network	8.4.0	8.5.0
2010-03	RAN#47	R5-100089	0608	-	GCF priority 2 - Correction of test case 10.5.1 for UE requested PDN connectivity accepted by the network	8.4.0	8.5.0
2010-03	RAN#47	R5-100096	0609	-	GCF priority 3 - Correction of test case 9.2.1.2.2 for Combined attach procedure / Success / EPS services only / IMSI unknown in HSS	8.4.0	8.5.0
2010-03	RAN#47	R5-100100	0610	-	GCF priority 2: correction of test case 9.2.3.3.1 First Iu mode to S1 mode intersystem change after attach: go to E-UTRAN RRC idle: RAU to UTRAN	8.4.0	8.5.0
2010-03	RAN#47	R5-100173	0611	-	Update of test case 9.2.3.1.28	8.4.0	8.5.0
2010-03	RAN#47	R5-100175	0612	-	Update of test case 9.1.5.2	8.4.0	8.5.0
2010-03	RAN#47	R5-100176	0613	-	Update of test case 9.1.2.6	8.4.0	8.5.0
2010-03	RAN#47	R5-100182	0614	-	Priority 2-Update of the case 6.2.2.1	8.4.0	8.5.0
2010-03	RAN#47	R5-100242	0615	-	GCF Priority 1: Update of MAC TC 7.1.2.3	8.4.0	8.5.0
2010-03	RAN#47	R5-100263	0616	-	Correction to MAC TBS selection TCs not to use RS power boosting	8.4.0	8.5.0
2010-03	RAN#47	R5-100270	0617	-	GCF Priority 1 - Update to test case 7.2.2.9	8.4.0	8.5.0
2010-03	RAN#47	R5-100271	0618	-	GCF Priority 3 - Update to test case 8.1.1.2	8.4.0	8.5.0
2010-03	RAN#47	R5-100274	0619	-	GCF Priority 2 - Update to test case 8.2.4.2	8.4.0	8.5.0
2010-03	RAN#47	R5-100275	0620	-	GCF Priority 3 - Update to test case 8.2.4.4	8.4.0	8.5.0
2010-03	RAN#47	R5-100276	0621	-	GCF Priority 2 - Update to test case 8.2.4.5	8.4.0	8.5.0
2010-03	RAN#47	R5-100277	0622	-	GCF Priority 2 - Update to test case 8.2.4.6	8.4.0	8.5.0
2010-03	RAN#47	R5-100278	0623	-	GCF Priority 2 - Update to test case 8.2.4.7	8.4.0	8.5.0
2010-03	RAN#47	R5-100279	0624	-	GCF Priority 3 - Update to test case 8.2.4.9	8.4.0	8.5.0
2010-03	RAN#47	R5-100281	0625	-	GCF Priority 2 - Update to test case 8.3.1.9	8.4.0	8.5.0
2010-03	RAN#47	R5-100283	0626	-	GCF Priority 2 - Update to test case 8.3.2.3	8.4.0	8.5.0
2010-03	RAN#47	R5-100284	0627	-	GCF Priority 2 - Update to test case 8.4.2.2	8.4.0	8.5.0
2010-03	RAN#47	R5-100285	0628	-	GCF Priority 2 - Update to test case 8.4.2.4	8.4.0	8.5.0
2010-03	RAN#47	R5-100287	0629	-	GCF Priority 3 - Update to test case 9.2.1.2.5	8.4.0	8.5.0
2010-03	RAN#47	R5-100288	0630	-	GCF Priority 3 - Update to test case 9.2.1.2.6	8.4.0	8.5.0
2010-03	RAN#47	R5-100289	0631	-	GCF Priority 3 - Update to test case 9.2.1.2.7	8.4.0	8.5.0
2010-03	RAN#47	R5-100290	0632	-	GCF Priority 3 - Update to test case 9.2.1.2.8	8.4.0	8.5.0
2010-03	RAN#47	R5-100293	0633	-	GCF Priority 3 - Update to test case 9.2.3.2.9	8.4.0	8.5.0
2010-03	RAN#47	R5-100294	0634	-	GCF Priority 3 - Update to test case 9.3.1.4	8.4.0	8.5.0
2010-03	RAN#47	R5-100383	0635	-	GCF Priority 1- Update of MAC test cases 7.1.4.6, 7.1.4.7, 7.1.4.8	8.4.0	8.5.0
2010-03	RAN#47	R5-100415	0636	-	GCF Priority 2 - Correction to remark in 6.2.2.1, 6.2.2.2 and 6.2.3.2	8.4.0	8.5.0
2010-03	RAN#47	R5-100416	0637	-	GCF Priority 2 - Correction to test case 6.1.2.6	8.4.0	8.5.0
2010-03	RAN#47	R5-100443	0638	-	GCF Priority 2: Update to test case 9.2.3.1.4	8.4.0	8.5.0
2010-03	RAN#47	R5-100462	0639	-	Correction of test case 8.3.1.3	8.4.0	8.5.0
2010-03	RAN#47	R5-100467	0640	-	Addition of new DSMIPv6 test case for Registration of a new IPv4 CoA (Binding Update/Acknowledgment procedure in IPv4 network)	8.4.0	8.5.0
2010-03	RAN#47	R5-100468	0641	-	Addition of new DSMIPv6 test case for Re-registration of IPv4 CoA	8.4.0	8.5.0
2010-03	RAN#47	R5-100469	0642	-	Addition of new DSMIPv6 test case for Dual-Stack Mobile IPv6 detach in IPv4 network	8.4.0	8.5.0
2010-03	RAN#47	R5-100470	0643	-	GCF Priority 2 - Update to P2 EMM test case 9.2.2.1.1	8.4.0	8.5.0
2010-03	RAN#47	R5-100471	0644	-	Update to P3 EMM test case 9.2.2.1.2	8.4.0	8.5.0
2010-03	RAN#47	R5-100472	0645	-	GCF Priority 2 - Update to P2 EMM test case 9.2.2.1.6	8.4.0	8.5.0
2010-03	RAN#47	R5-100475	0646	-	Removal of TC 10.5.2	8.4.0	8.5.0
2010-03	RAN#47	R5-100488	0647	-	GCF priority 1 - Update of RRC test case 8.2.2.1	8.4.0	8.5.0
2010-03	RAN#47	R5-100489	0648	-	GCF priority 1 - Update of RRC test case 8.2.2.2	8.4.0	8.5.0
2010-03	RAN#47	R5-100492	0649	-	GCF priority 1 - Update of RRC test case 8.2.3.1	8.4.0	8.5.0
2010-03	RAN#47	R5-100500	0650	-	GCF Priority 1: Clarification to UE initial state for test case 7.1.2.6	8.4.0	8.5.0
2010-03	RAN#47	R5-100501	0651	-	GCF Priority 2 - Clarification to UE initial state	8.4.0	8.5.0
2010-03	RAN#47	R5-100537	0652	-	GCF Priority 1 - Correction to E-UTRA RLC test	8.4.0	8.5.0

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					case 7.2.3.21		
2010-03	RAN#47	R5-100577	0653	-	GCF Priority 1 - Correction to E-UTRAN MAC test case 7.1.2.3	8.4.0	8.5.0
2010-03	RAN#47	R5-100582	0654	-	GCF Priority 1 - Correction to E-UTRAN MAC test case 7.1.4.7	8.4.0	8.5.0
2010-03	RAN#47	R5-100592	0655	-	GCF Priority 3 - Correction to P3 EMM test case 9.2.1.2.12	8.4.0	8.5.0
2010-03	RAN#47	R5-100625	0656	-	GCF Priority 1: Corrections to E-UTRA MAC test case 7.1.7.1.1	8.4.0	8.5.0
2010-03	RAN#47	R5-100638	0657	-	GCF Priority 1 - Update of RLC test case 7.2.2.5.2	8.4.0	8.5.0
2010-03	RAN#47	R5-100639	0658	-	GCF Priority 1 - Update of RLC test case 7.2.2.6	8.4.0	8.5.0
2010-03	RAN#47	R5-100642	0659	-	GCF Priority 1 - Update of RLC test case 7.2.2.7	8.4.0	8.5.0
2010-03	RAN#47	R5-100651	0660	-	GCF Priority 1 - Update of RLC test case 7.2.3.2	8.4.0	8.5.0
2010-03	RAN#47	R5-100652	0661	-	GCF Priority 1 - Update of RLC test case 7.2.3.3	8.4.0	8.5.0
2010-03	RAN#47	R5-100657	0662	-	GCF Priority 1 - Update of RLC test case 7.2.3.5	8.4.0	8.5.0
2010-03	RAN#47	R5-100659	0663	-	GCF Priority 1 - Update of RLC test case 7.2.3.6	8.4.0	8.5.0
2010-03	RAN#47	R5-100671	0664	-	GCF Priority 1: Corrections to E-UTRA MAC test case 7.1.7.1.2	8.4.0	8.5.0
2010-03	RAN#47	R5-100676	0665	-	GCF Priority 1: Corrections to E-UTRA MAC test case 7.1.7.1.3	8.4.0	8.5.0
2010-03	RAN#47	R5-100738	0666	-	Priority 2 - Incorrect ATTACH procedure to UTRAN and GERAN cells	8.4.0	8.5.0
2010-03	RAN#47	R5-100741	0667	-	GCF Priority x - Clarification to E-UTRA Radio Bearer Tests section	8.4.0	8.5.0
2010-03	RAN#47	R5-100742	0668	-	Priority 3 - TC 9.2.3.1.15 Normal tracking area update / rejected / PLMN not allowed - problems with Test procedure sequence	8.4.0	8.5.0
2010-03	RAN#47	R5-100745	0669	-	GCF Priority 3 - Adding new TC 9.1.5.1 EMM Information Procedure	8.4.0	8.5.0
2010-03	RAN#47	R5-100777	0670	-	GCF Priority 2 - Update of MAC test case 7.1.4.3	8.4.0	8.5.0
2010-03	RAN#47	R5-101011	0671	-	Priority ALL - Update of section 6 Idle Mode Operations to comply with RAN5 PRD13	8.4.0	8.5.0
2010-03	RAN#47	R5-101012	0672	-	Priority ALL - Update of section 9.1.x and 9.2.1.x to indicate on which cell events are to be observed in multi cell environment	8.4.0	8.5.0
2010-03	RAN#47	R5-101013	0673	-	GCF Priority 2 - Removal of test case 9.2.3.2.3	8.4.0	8.5.0
2010-03	RAN#47	R5-101014	0674	-	GCF Priority 2 - Update to test case 9.2.3.2.3	8.4.0	8.5.0
2010-03	RAN#47	R5-101032	0675	2	GCF Priority 2 - Correction of RRC test cases 8.3.1.3 and 8.3.1.5	8.4.0	8.5.0
2010-03	RAN#47	R5-101033	0676	1	GCF Priority 3 - Correction of RRC test cases 8.3.1.7 and 8.3.1.11	8.4.0	8.5.0
2010-03	RAN#47	R5-101038	0677	-	Correction of test case 6.2.3.13	8.4.0	8.5.0
2010-03	RAN#47	R5-101039	0678	-	Correction for Measurement related test cases	8.4.0	8.5.0
2010-03	RAN#47	R5-101053	0679	-	GCF priority 2 - Update of RRC test case 8.2.1.3	8.4.0	8.5.0
2010-03	RAN#47	R5-101056	0680	-	Priority ALL - Update of section 7 Layer 2 to comply with RAN5 PRD13	8.4.0	8.5.0
2010-03	RAN#47	R5-101057	0681	-	GCF Priority 1 - Various corrections to Idle Mode section 6.1 of 36.523-1	8.4.0	8.5.0
2010-03	RAN#47	R5-101062	0682	-	GCF Priority 1 - Correction to E-UTRAN PDPC test case 7.1.4.4	8.4.0	8.5.0
2010-03	RAN#47	R5-101063	0683	-	GCF Priority 1:Update of MAC TC 7.1.2.5	8.4.0	8.5.0
2010-03	RAN#47	R5-101064	0684	-	GCF Priority 1: Update of MAC TC 7.1.2.6	8.4.0	8.5.0
2010-03	RAN#47	R5-101065	0685	-	GCF Priority 1: Update of MAC TC 7.1.2.9	8.4.0	8.5.0
2010-03	RAN#47	R5-101066	0686	-	GCF Priority 1: Update of MAC TC 7.1.3.9	8.4.0	8.5.0
2010-03	RAN#47	R5-101067	0687	-	GCF Priority 1: Update of MAC TC 7.1.4.8	8.4.0	8.5.0
2010-03	RAN#47	R5-101068	0688	-	GCF Priority 1: Update of MAC TC 7.1.4.11	8.4.0	8.5.0
2010-03	RAN#47	R5-101069	0689	-	GCF Priority 3 - Corrections to TC 8.5.1.2 RRC Connection Re-establishment: Success (after Radio Link Failure)	8.4.0	8.5.0
2010-03	RAN#47	R5-101070	0690	-	GCF Priority 1 - Correction to E-UTRAN MAC test case 7.1.4.13	8.4.0	8.5.0
2010-03	RAN#47	R5-101074	0691	-	New priority 3 test case: Periodic Location Updating Procedure (PLU Timer handling, non-cell reselection to GERAN)	8.4.0	8.5.0

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2010-03	RAN#47	R5-101075	0692	-	GCF Priority 3 - Addition of new test case 9.2.3.3.4	8.4.0	8.5.0
2010-03	RAN#47	R5-101076	0693	-	GCF Priority 1 - Correction to E-UTRAN MAC test case 7.1.3.4	8.4.0	8.5.0
2010-03	RAN#47	R5-101077	0694	-	GCF Priority 1: Update of MAC TC 7.1.4.15	8.4.0	8.5.0
2010-03	RAN#47	R5-101078	0695	-	GCF Priority 1 - Update of MAC Procedures part TC 7.1.2.2	8.4.0	8.5.0
2010-03	RAN#47	R5-101079	0696	-	GCF Priority 1 - Correction to MAC test case 7.1.4.10	8.4.0	8.5.0
2010-03	RAN#47	R5-101081	0697	-	GCF Priority 1 - Update to test case 8.2.4.1	8.4.0	8.5.0
2010-03	RAN#47	R5-101082	0698	-	GCF Priority 2 - Update to test case 8.3.1.8	8.4.0	8.5.0
2010-03	RAN#47	R5-101083	0699	-	GCF Priority 2 - Update to test case 8.3.1.10	8.4.0	8.5.0
2010-03	RAN#47	R5-101084	0700	-	GCF Priority 1: Corrections to E-UTRA MAC test case 7.1.7.1.4	8.4.0	8.5.0
2010-03	RAN#47	R5-101085	0701	-	GCF Priority 1 - Update of Acknowledged Mode Procedures part TC 7.2.3.15 AM RLC / Re-ordering of RLC PDU segments"	8.4.0	8.5.0
2010-03	RAN#47	R5-101086	0702	-	GCF Priority 1 - Update of RLC test case 7.2.3.14	8.4.0	8.5.0
2010-03	RAN#47	R5-101087	0703	-	GCF Priority 1 - Update of RLC test case 7.2.3.4	8.4.0	8.5.0
2010-03	RAN#47	R5-101088	0704	-	GCF Priority 1 - Update of RLC test case 7.2.3.1	8.4.0	8.5.0
2010-03	RAN#47	R5-101089	0705	1	GCF Priority 1 - Update of RLC test case 7.2.3.7	8.4.0	8.5.0
2010-03	RAN#47	R5-101090	0706	2	GCF Priority 1 - Update of RLC test case 7.2.3.18	8.4.0	8.5.0
2010-03	RAN#47	R5-101092	0707	-	GCF priority 2 - EPS bearer context ID values and RRC messages carrying ESM messages for EPS bearer context (de)activation and modification	8.4.0	8.5.0
2010-03	RAN#47	R5-101093	0708	-	GCF priority 3 - Small correction to TC 9.2.1.1.11 Attach / rejected / EPS services and non-EPS services not allowed	8.4.0	8.5.0
2010-03	RAN#47	R5-101094	0709	-	GCF priority 2 - Correction of test case 9.2.1.1.15 for Attach / rejected / roaming not allowed in this tracking area	8.4.0	8.5.0
2010-03	RAN#47	R5-101098	0710	-	GCF Priority 2 - Update test case 8.5.1.3	8.4.0	8.5.0
2010-03	RAN#47	R5-101105	0711	-	GCF priority 1 - Update of RRC test case 8.2.1.1	8.4.0	8.5.0
2010-03	RAN#47	R5-101108	0712	-	GCF Priority 2 - Correction to EUTRAN RLC test case 7.2.2.10	8.4.0	8.5.0
2010-03	RAN#47	R5-101110	0713	-	GCF priority 2 - Correction of test case 9.2.1.2.4 for Successful combined attach procedure, EPS service only / CS domain not available	8.4.0	8.5.0
2010-03	RAN#47	R5-101113	0714	-	GCF Priority 1 - Correction to E-UTRA PDCP test case 7.3.4.1 and 7.3.4.2	8.4.0	8.5.0
2010-03	RAN#47	R5-101114	0715	-	GCF Priority 1 - Enhancement test case 8.1.2.1	8.4.0	8.5.0
2010-03	RAN#47	R5-101117	0716	-	GCF Priority 1 - Correction to EMM test cases to bring the UE to stable state at the end of expected sequence	8.4.0	8.5.0
2010-03	RAN#47	R5-101118	0717	-	GCF Priority 1 - Update of Multi-layer Procedures part TC 13.1.1 Activation and deactivation of additional data radio bearer in E-UTRA	8.4.0	8.5.0
2010-03	RAN#47	R5-101119	0718	-	GCF Priority 1 - Update of Multi-layer Procedures part TC 13.2.1 RRC Connection Reconfiguration: E-UTRA to E-UTRA	8.4.0	8.5.0
2010-03	RAN#47	R5-101120	0719	-	GCF Priority 2: Update of MAC TC 7.1.3.2	8.4.0	8.5.0
2010-03	RAN#47	R5-101121	0720	-	GCF Priority 1 - Correction to EPC test case 9.2.1.1.1	8.4.0	8.5.0
2010-03	RAN#47	R5-101122	0721	-	Priority 2 - section 9 alignment IP handling at wrong place - Missing security activation - Editorial changes	8.4.0	8.5.0
2010-03	RAN#47	R5-101125	0722	-	GCF Priority 1 - Correction to E-UTRAN RLC test case 7.2.3.15	8.4.0	8.5.0
2010-03	RAN#47	R5-101126	0723	-	GCF Priority 1 - Correction to E-UTRAN RLC test case 7.2.3.9	8.4.0	8.5.0
2010-03	RAN#47	R5-101130	0724	-	GCF Priority 1 - Correction of RRC test case 8.3.3.1	8.4.0	8.5.0
2010-03	RAN#47	R5-101131	0725	1	GCF Priority 1 - Correction to MAC test cases to bring the UE to stable state at the end of	8.4.0	8.5.0

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					expected sequence		
2010-03	RAN#47	R5-101132	0726	-	GCF Priority 1 - Correction to RRC test cases to bring the UE to stable state at the end of expected sequence	8.4.0	8.5.0
2010-03	RAN#47	R5-101133	0727	-	GCF Priority 2 - Update to test case 10.7.1	8.4.0	8.5.0
2010-03	RAN#47	R5-101134	0728	-	GCF Priority 2 - Update to test case 10.7.2	8.4.0	8.5.0
2010-03	RAN#47	R5-101135	0729	-	GCF Priority 2 - Update to test case 10.8.1	8.4.0	8.5.0
2010-03	RAN#47	R5-101141	0730	-	GCF Priority 4 - Addition of new RRC test case 8.4.7.1	8.4.0	8.5.0
2010-03	RAN#47	R5-101142	0731	-	GCF Priority 4 - Addition of new RRC test case 8.3.2.10	8.4.0	8.5.0
2010-03	RAN#47	R5-101145	0732	-	General note for test cases with statistical behaviour	8.4.0	8.5.0
2010-03	RAN#47	R5-101148	0733	-	GCF Priority 3 - Update to test case 10.7.3	8.4.0	8.5.0
2010-03	RAN#47	R5-101149	0734	-	GCF Priority 3 - Update to test case 10.7.4	8.4.0	8.5.0
2010-03	RAN#47	R5-101151	0735	-	GCF Priority 3 - Update to test case 10.8.2	8.4.0	8.5.0
2010-03	RAN#47	R5-101152	0736	-	GCF Priority 3 - Update to test case 10.8.3	8.4.0	8.5.0
2010-03	RAN#47	R5-101154	0737	-	GCF Priority 3 - Update to test case 10.8.5	8.4.0	8.5.0
2010-03	RAN#47	R5-101155	0738	-	GCF Priority 3 - Update to test case 10.8.6	8.4.0	8.5.0
2010-03	RAN#47	R5-101156	0739	-	GCF Priority 3 - Update to test case 10.8.7	8.4.0	8.5.0
2010-03	RAN#47	R5-101158	0740	-	GCF Priority 3: New PUSCH-Hopping test case 7.1.5.2:Predefined intra-TTI PUSCH hopping (N_sb=1)	8.4.0	8.5.0
2010-03	RAN#47	R5-101160	0741	-	GCF Priority 3: New PUSCH-Hopping test case 7.1.5.4: Predefined inter-TTI PUSCH hopping (N_sb=1)	8.4.0	8.5.0
2010-03	RAN#47	R5-101162	0742	1	GCF priority 3 - New test case 8.1.1.6 RRC / BCCH modification in connected mode	8.4.0	8.5.0
2010-03	RAN#47	R5-101163	0743	-	GCF Priority 3 - New TC 8.5.2.1 RRC Connection Reject: redirection from UTRAN to E-UTRAN	8.4.0	8.5.0
2010-03	RAN#47	R5-101164	0744	-	GCF Priority 3 - addition of new EMM test case 9.2.1.2.14	8.4.0	8.5.0
2010-03	RAN#47	R5-101165	0745	-	Update of test case 9.3.1.15	8.4.0	8.5.0
2010-03	RAN#47	R5-101166	0746	-	Update of test case 9.2.1.1.18	8.4.0	8.5.0
2010-03	RAN#47	R5-101167	0747	-	GCF Priority 3: Update to test case 9.2.3.1.6	8.4.0	8.5.0
2010-03	RAN#47	R5-101168	0748	-	GCF priority 3 - Correction of test case 10.5.3 for UE requested PDN connectivity procedure not accepted	8.4.0	8.5.0
2010-03	RAN#47	R5-101169	0749	-	GCF Priority 3 - Addition of new multi-layer test case 13.1.3	8.4.0	8.5.0
2010-03	RAN#47	R5-101170	0750	-	GCF Priority 3 - Addition of new test case 13.4.1.2	8.4.0	8.5.0
2010-03	RAN#47	R5-101171	0751	-	GCF Priority 3 - Update of Multi-layer Procedures part TC 13.3.1.1 Intra System Connection Reestablishment / Radio Link Recovery while T310 is running	8.4.0	8.5.0
2010-03	RAN#47	R5-101172	0752	-	GCF Priority 3 - update of test case 13.3.1.2	8.4.0	8.5.0
2010-03	RAN#47	R5-101173	0753	-	GCF Priority 2 : Correction to MAC test case 7.1.6.1	8.4.0	8.5.0
2010-03	RAN#47	R5-101174	0754	-	GCF Priority 2 : Correction to MAC test cases 7.1.6.2	8.4.0	8.5.0
2010-03	RAN#47	R5-101175	0755	2	GCF Priority 1 - Correction to E-UTRAN RLC test case 7.2.3.10	8.4.0	8.5.0
2010-03	RAN#47	R5-101177	0756	-	Update to GCF Priority 1 layer 2 UM test cases to increase the drx-Inactivity Timer to psf200	8.4.0	8.5.0
2010-03	RAN#47	R5-101179	0757	-	GCF Priority 1 - Enhancement and update to MAC test case 7.1.4.6	8.4.0	8.5.0
2010-03	RAN#47	R5-101183	0758	-	GCF Priority 1: Update of MAC TC 7.1.3.6	8.4.0	8.5.0
2010-03	RAN#47	R5-101186	0759	-	Update of test case and section titles	8.4.0	8.5.0
2010-03	RAN#47	R5-101189	0760	-	GCF Priority 2 - Update to test case 8.1.2.7	8.4.0	8.5.0
2010-03	RAN#47	R5-101190	0761	-	GCF Priority 2 - Update to test case 8.1.2.5	8.4.0	8.5.0
2010-03	RAN#47	R5-101191	0762	-	Corrections related to UE mode of operation and UE capability for CS fallback and SMS over SGs	8.4.0	8.5.0
2010-03	RAN#47	R5-101192	0763	-	GCF priority 3 - Correction of test case 10.6.2 for UE requested PDN disconnect procedure not accepted by the network	8.4.0	8.5.0
2010-03	GERAN#45	GP-100543	0605	-	Addition of new Test Case 6.2.3.22	8.4.0	8.5.0
2010-03	RAN#47	-	-	-	Moved to v9.0.0 with no change	8.5.0	9.0.0
2010-05	GERAN#46	GP-100625	0764	-	New Test case 6.2.3.28- Inter-RAT Cell Reselection from GPRS Packet_transfer to E-	9.0.0	9.1.0

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					UTRA Cell (Network Assisted Cell Change)		
2010-05	GERAN#46	GP-100626	0765	-	New Test Case 6.2.3.30 - Inter-RAT Cell Reselection failure from GPRS Packet transfer to E-UTRA (Network Assisted Cell Change)	9.0.0	9.1.0
2010-05	GERAN#46	GP-100649	0766	-	New Test Case 6.2.2.6 - Inter-RAT Cell selection / From GSM_Idle/GPRS Packet_idle to E-UTRA_RRC_IDLE / Serving cell becomes non-suitable (ServingCell<0)	9.0.0	9.1.0
2010-05	GERAN#46	GP-100650	0767	-	New Test Case 6.2.2.7 - Inter-RAT Cell selection / From GSM_Idle/GPRS Packet_idle to E-UTRA_RRC_IDLE ,when the serving cell is barred.	9.0.0	9.1.0
2010-06	RAN#48	R5-103077	0768	-	GCF Priority 2 - Correction of Minimum Cell Configuration	9.0.0	9.1.0
2010-06	RAN#48	R5-103086	0769	-	GCF Priority 3: New TC 9.3.1.5 Service request / Rejected / Illegal ME	9.0.0	9.1.0
2010-06	RAN#48	R5-103087	0770	-	GCF Priority 1 - Correction to E-UTRAN MAC test case 7.1.2.3	9.0.0	9.1.0
2010-06	RAN#48	R5-103088	0771	-	GCF Priority 1 - Correction to MAC test case 7.1.4.10	9.0.0	9.1.0
2010-06	RAN#48	R5-103089	0772	-	GCF Priority 3 - Update of TC 9.1.5.1 EMM Information Procedure	9.0.0	9.1.0
2010-06	RAN#48	R5-103090	0773	-	GCF Priority 2 - Correction to TC 9.1.2.4 Authentication not accepted by the UE / MAC code failure	9.0.0	9.1.0
2010-06	RAN#48	R5-103091	0774	-	GCF Priority 2 - Correction to TC 9.1.2.5 Authentication not accepted by the UE / SQN failure	9.0.0	9.1.0
2010-06	RAN#48	R5-103093	0775	-	GCF Priority 2 - Correction of SIB in RRC TCs 8.4.2.2 and 8.4.2.4	9.0.0	9.1.0
2010-06	RAN#48	R5-103130	0776	-	GCF Priority 2 - Update to test case 6.1.2.6	9.0.0	9.1.0
2010-06	RAN#48	R5-103131	0777	-	GCF Priority 1 - Correction to PDSCH power allocation of MAC TBS selection TCs	9.0.0	9.1.0
2010-06	RAN#48	R5-103132	0778	-	GCF Priority 3 - Correction of test case 6.2.3.13	9.0.0	9.1.0
2010-06	RAN#48	R5-103135	0779	-	GCF Priority 4 - Addition of new test case 8.3.2.2	9.0.0	9.1.0
2010-06	RAN#48	R5-103136	0780	-	GCF Priority 4 - Update test case 8.3.2.4	9.0.0	9.1.0
2010-06	RAN#48	R5-103137	0781	-	GCF Priority 4 - Addition of new test case 8.3.2.5	9.0.0	9.1.0
2010-06	RAN#48	R5-103139	0782	-	GCF Priority 3 - Correction for test case 13.4.1.2	9.0.0	9.1.0
2010-06	RAN#48	R5-103140	0783	-	GCF Priority 3 - Addition of new test case 13.4.2.1	9.0.0	9.1.0
2010-06	RAN#48	R5-103141	0784	-	GCF Priority 2 - Update test case 6.1.2.11 & 6.1.2.15	9.0.0	9.1.0
2010-06	RAN#48	R5-103144	0785	-	GCF Priority 4 Addition of new test case 14.1	9.0.0	9.1.0
2010-06	RAN#48	R5-103145	0786	-	GCF Priority 4 Addition of new test case 14.2	9.0.0	9.1.0
2010-06	RAN#48	R5-103157	0787	-	GCF Priority 4: New MAC TBS test case 7.1.7.1.6:DCI format 2A / RA type 1	9.0.0	9.1.0
2010-06	RAN#48	R5-103158	0788	-	GCF Priority 4: New MAC TBS test case 7.1.7.1.5:DCI format 2A / RA type 0	9.0.0	9.1.0
2010-06	RAN#48	R5-103159	0789	-	GCF Priority 4: Correction to E-UTRA DRB test case 12.3.1	9.0.0	9.1.0
2010-06	RAN#48	R5-103160	0790	-	GCF Priority 4: Correction to E-UTRA DRB test case 12.3.2	9.0.0	9.1.0
2010-06	RAN#48	R5-103161	0791	-	GCF Priority 4: Correction to E-UTRA DRB test case 12.3.3	9.0.0	9.1.0
2010-06	RAN#48	R5-103162	0792	-	GCF Priority 4: Correction to E-UTRA DRB test case 12.3.4	9.0.0	9.1.0
2010-06	RAN#48	R5-103163	0793	-	GCF Priority 4: Correction to generic test procedure 12.1.2 for E-UTRA DRB MIMO test cases	9.0.0	9.1.0
2010-06	RAN#48	R5-103228	0794	-	GCF Priority 4: New PUSCH-Hopping test case 7.1.5.1: Inter-TTI PUSCH hopping by uplink grant	9.0.0	9.1.0
2010-06	RAN#48	R5-103230	0795	-	GCF Priority 4: New PUSCH-Hopping test case 7.1.5.3: Predefined intra-TTI PUSCH hopping (N_sb=2/3/4)	9.0.0	9.1.0
2010-06	RAN#48	R5-103231	0796	-	GCF Priority 4: New PUSCH-Hopping test case 7.1.5.5: Predefined inter-TTI PUSCH hopping (N_sb=2/3/4)	9.0.0	9.1.0
2010-06	RAN#48	R5-103240	0797	-	GCF Priority 2 - Update to test case 8.1.2.7	9.0.0	9.1.0
2010-06	RAN#48	R5-103241	0798	-	GCF Priority 3 - Update to test case 9.2.3.1.23	9.0.0	9.1.0

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2010-06	RAN#48	R5-103242	0799	-	GCF Priority 1 - Clarification of the cells where the messages are observed in EMM test cases	9.0.0	9.1.0
2010-06	RAN#48	R5-103243	0800	-	GCF Priority 4 - Update to test case 10.7.5	9.0.0	9.1.0
2010-06	RAN#48	R5-103244	0801	-	GCF Priority 4 - Update to test case 10.8.4	9.0.0	9.1.0
2010-06	RAN#48	R5-103246	0802	-	Applicability of new TC 13.1.5	9.0.0	9.1.0
2010-06	RAN#48	R5-103271	0803	-	GCF Priority 3 - Update of RRC part TC 8.5.1.2 Radio link failure / T301 expiry	9.0.0	9.1.0
2010-06	RAN#48	R5-103272	0804	-	GCF Priority 4 - Addition of new EPS mobility management procedure test case 9.2.3.2.7 Combined tracking area update / Rejected / EPS services and non-EPS services not allowed	9.0.0	9.1.0
2010-06	RAN#48	R5-103273	0805	-	GCF Priority 3 - Update Multi-layer test cases 13.3.1.1	9.0.0	9.1.0
2010-06	RAN#48	R5-103276	0806	-	GCF Priority 2 - Correct the Test Purpose 2 of PDCP part TC 7.3.1.2 and 7.3.1.3	9.0.0	9.1.0
2010-06	RAN#48	R5-103277	0807	-	GCF Priority 1 - Correct PDCP part TC 7.3.1.1	9.0.0	9.1.0
2010-06	RAN#48	R5-103278	0808	-	GCF Priority 4 - Addition of new EPS mobility management procedure test case 9.2.3.2.7	9.0.0	9.1.0
2010-06	RAN#48	R5-103302	0809	-	GCF Priority 1: Correction to test case 7.1.3.9	9.0.0	9.1.0
2010-06	RAN#48	R5-103303	0810	-	GCF Priority 1: Correction to E-UTRA MAC test case 7.1.2.1	9.0.0	9.1.0
2010-06	RAN#48	R5-103304	0811	-	GCF Priority 1: Correction to EMM test case 9.2.3.1.1	9.0.0	9.1.0
2010-06	RAN#48	R5-103307	0812	-	GCF Priority 1: Correction to EMM test case 9.2.1.1.1	9.0.0	9.1.0
2010-06	RAN#48	R5-103308	0813	-	GCF Priority 1: Correction to EMM test case 9.2.2.2.1	9.0.0	9.1.0
2010-06	RAN#48	R5-103313	0814	-	GCF Priority 1: Correction to EUTRA MAC test cases 7.1.7.1 test cases	9.0.0	9.1.0
2010-06	RAN#48	R5-103321	0815	-	GCF Priority 2: Correction to EUTRA PDCP test case 7.3.6.1	9.0.0	9.1.0
2010-06	RAN#48	R5-103323	0816	-	GCF Priority 2: Correction to EUTRA RRC test case 8.5.1.5	9.0.0	9.1.0
2010-06	RAN#48	R5-103327	0817	-	GCF Priority 2: Correction to EPC test case 9.2.2.1.1	9.0.0	9.1.0
2010-06	RAN#48	R5-103341	0818	-	GCF Priority 2: Adding UE pre-conditions for UE to be configured for combined EPS/IMSI attach in 9.2.3.2.x combined TAU test cases	9.0.0	9.1.0
2010-06	RAN#48	R5-103364	0819	-	GCF Priority 2 - Correction to generic test procedure reference in Idle mode section	9.0.0	9.1.0
2010-06	RAN#48	R5-103365	0820	-	GCF Priority 2 - Correction to TC 8.1.3.7 RRC connection release / Redirection from UTRAN to E-UTRAN	9.0.0	9.1.0
2010-06	RAN#48	R5-103367	0821	-	GCF Priority 3 - Correction to TC 8.5.2.1 RRC Connection Reject / Redirection from UTRAN to E-UTRAN	9.0.0	9.1.0
2010-06	RAN#48	R5-103394	0822	-	GCF Priority 4 - New TC 9.3.1.18 Service Reject CSG not authorized	9.0.0	9.1.0
2010-06	RAN#48	R5-103413	0823	-	GCF Priority 4 - Addition of new test case 8.4.3.2	9.0.0	9.1.0
2010-06	RAN#48	R5-103414	0824	-	GCF Priority 4 - Addition of new test case 8.4.3.3	9.0.0	9.1.0
2010-06	RAN#48	R5-103416	0825	-	Priority 4 - Addition of test case 9.2.3.2.17	9.0.0	9.1.0
2010-06	RAN#48	R5-103418	0826	-	Priority 4 - Addition of new test case 9.2.3.2.4	9.0.0	9.1.0
2010-06	RAN#48	R5-103419	0827	-	Priority 4 - Addition of new test case 9.2.3.2.14	9.0.0	9.1.0
2010-06	RAN#48	R5-103420	0828	-	Priority 4 - Addition of new test case 9.2.3.2.8	9.0.0	9.1.0
2010-06	RAN#48	R5-103421	0829	-	Priority 3 - update of test case 9.2.2.2.14	9.0.0	9.1.0
2010-06	RAN#48	R5-103456	0830	-	GCF Priority 4 - New TC 9.2.3.3.2 Iu mode to S1 mode intersystem change / ISR is active / Expiry of T3312 in E-UTRAN or T3412 in UTRAN and further intersystem change	9.0.0	9.1.0
2010-06	RAN#48	R5-103457	0831	-	GCF Priority 4 - New test case 6.1.2.10 Cell reselection in shared network environment	9.0.0	9.1.0
2010-06	RAN#48	R5-103458	0832	-	GCF Priority 4 - New Test case 6.1.2.12 Cell reselection / Cell-specific reselection parameters provided by the network in a neighbouring cell list	9.0.0	9.1.0
2010-06	RAN#48	R5-103459	0833	-	GCF Priority 4 - addition of new test case	9.0.0	9.1.0

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					6.1.1.4: PLMN selection in shared network environment / Automatic mode		
2010-06	RAN#48	R5-103463	0834	-	GCF Priority 3 - Addition of new EMM test case 9.2.2.1.7	9.0.0	9.1.0
2010-06	RAN#48	R5-103464	0835	-	GCF Priority 3 - Addition of new EMM test case 9.2.2.1.8	9.0.0	9.1.0
2010-06	RAN#48	R5-103465	0836	-	GCF Priority 3 - Addition of new EMM test case 9.2.2.1.9	9.0.0	9.1.0
2010-06	RAN#48	R5-103486	0837	-	GCF Priority 2 Correction to test case 6.1.2.3, 6.2.3.1 & 6.2.3.6	9.0.0	9.1.0
2010-06	RAN#48	R5-103498	0838	-	GCF Priority 2 to 3 - Correction to RRC part 3 test cases	9.0.0	9.1.0
2010-06	RAN#48	R5-103513	0839	-	GCF Priority 2 - Update of RRC test case 8.2.4.5	9.0.0	9.1.0
2010-06	RAN#48	R5-103514	0840	-	GCF Priority 3 - New EMM test case 9.2.2.1.3	9.0.0	9.1.0
2010-06	RAN#48	R5-103573	0841	-	Addition of new DSMIPv6 test case for Discovery of the Home Agent address via DHCPv6	9.0.0	9.1.0
2010-06	RAN#48	R5-103579	0842	-	Addition of new DSMIPv6 test case for Security association establishment with Home Agent reallocation procedure	9.0.0	9.1.0
2010-06	RAN#48	R5-103646	0843	-	GCF Priority 2 - Corrections to C2K TCs 8.3.2.7, 8.3.2.8 and 8.3.2.9	9.0.0	9.1.0
2010-06	RAN#48	R5-103649	0844	-	Addition of new DSMIPv6 test case for Discovery of the Home Agent address via IKEv2 during tunnel setup to ePDG	9.0.0	9.1.0
2010-06	RAN#48	R5-103676	0845	-	GCF Priority 4 - Addition of test case 8.2.4.10 RRC Connection Reconfiguration / Handover (between FDD and TDD)	9.0.0	9.1.0
2010-06	RAN#48	R5-103696	0846	-	GCF Priority 1 - Correction to MAC, RRC and EMM test cases to bring the UE to stable state at the end of test	9.0.0	9.1.0
2010-06	RAN#48	R5-103697	0847	-	GCF Priority 1: Correction to EUTRA MAC test case 7.1.4.8	9.0.0	9.1.0
2010-06	RAN#48	R5-103698	0848	-	GCF Priority 1: Correction to test case 7.1.4.11	9.0.0	9.1.0
2010-06	RAN#48	R5-103800	0880	1	GCF Priority 1: Correction to EUTRA RLC test case 7.2.3.6	9.0.0	9.1.0
2010-06	RAN#48	R5-103801	0881	1	GCF Priority 1: Correction to EUTRA RLC test case 7.2.3.7	9.0.0	9.1.0
2010-06	RAN#48	R5-103802	0849	-	GCF Priority 1 - Update of RRC test cases 8.2.2.1	9.0.0	9.1.0
2010-06	RAN#48	R5-103803	0850	-	GCF Priority 1: Correction to EUTRA RLC test case 7.2.3.10	9.0.0	9.1.0
2010-06	RAN#48	R5-103804	0851	-	GCF priority 2 - Correction to test case 6.1.1.1	9.0.0	9.1.0
2010-06	RAN#48	R5-103805	0852	-	GCF Priority 2: Correction to EUTRA RLC test case 7.2.2.8	9.0.0	9.1.0
2010-06	RAN#48	R5-103806	0853	-	GCF Priority 2: Correction to EUTRA RLC test case 7.2.2.10	9.0.0	9.1.0
2010-06	RAN#48	R5-103807	0854	-	GCF Priority 2: Correction to EUTRA RLC test case 7.2.3.13	9.0.0	9.1.0
2010-06	RAN#48	R5-103808	0855	-	GCF Priority 2 - Update to test case 8.1.2.5	9.0.0	9.1.0
2010-06	RAN#48	R5-103809	0856	-	GCF Priority 2: Correction to EPC test case 9.1.3.2	9.0.0	9.1.0
2010-06	RAN#48	R5-103810	0857	-	GCF Priority 2: Adding UE pre-conditions for UE to be configured for EPS attach in 9.2.1.1.x EPS attach test cases	9.0.0	9.1.0
2010-06	RAN#48	R5-103811	0858	-	GCF Priority 2: Adding UE pre-conditions for UE to be configured for EPS attach in 9.2.3.1.x TAU test cases	9.0.0	9.1.0
2010-06	RAN#48	R5-103814	0859	-	GCF Priority 2: Adding UE pre-conditions for UE to be configured for EPS attach in 9.2.2.x detach test cases	9.0.0	9.1.0
2010-06	RAN#48	R5-103815	0860	-	GCF Priority 2: Adding UE pre-conditions for UE to be configured for combined EPS/IMSI attach in 9.2.1.2.x combined attach test cases	9.0.0	9.1.0
2010-06	RAN#48	R5-103816	0895	-	Correction to MAC and RLC handover test cases to set IE "statusReportRequired" to FALSE	9.0.0	9.1.0
2010-06	RAN#48	R5-103817	0882	1	GCF Priority 2: Correction to EMM test case 9.2.3.1.2	9.0.0	9.1.0
2010-06	RAN#48	R5-103818	0861	-	GCF Priority 2 - Correction to EPS test case 9.4.1	9.0.0	9.1.0
2010-06	RAN#48	R5-103819	0883	-	GCF Priority 2 - Update of General tests part	9.0.0	9.1.0

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					TC 11.1.4		
2010-06	RAN#48	R5-103820	0862	-	GCF Priority 2 - Correction to 'SMS over SGs' test case 11.1.1	9.0.0	9.1.0
2010-06	RAN#48	R5-103821	0863	-	GCF Priority 2 - Correction to 'SMS over SGs' test case 11.1.2	9.0.0	9.1.0
2010-06	RAN#48	R5-103822	0864	-	GCF Priority 2 - Correction to 'SMS over SGs' test case 11.1.3	9.0.0	9.1.0
2010-06	RAN#48	R5-103823	0894	-	GCF priority 3 - New test case 6.2.1.2 Inter-RAT PLMN Selection /Selection of correct RAT for UPLMN/Automatic mode	9.0.0	9.1.0
2010-06	RAN#48	R5-103824	0884	1	GCF priority 3 - Inter-RAT PLMN Selection/ Selection of correct PLMN and RAT in shared network environment, Automatic mode	9.0.0	9.1.0
2010-06	RAN#48	R5-103825	0885	1	GCF priority 4 - New test case 6.2.1.4 Inter-RAT PLMN Selection/ Selection of correct RAT from the OPLMN list/ Manual mode	9.0.0	9.1.0
2010-06	RAN#48	R5-103826	0886	-	GCF priority 3 - New test case 6.2.1.1 Inter-RAT PLMN Selection /Selection of correct RAT for OPLMN/Automatic mode	9.0.0	9.1.0
2010-06	RAN#48	R5-103827	0887	-	GCF Priority 3 - Update test case 8.2.4.8, 8.5.1.2 and 8.5.1.4	9.0.0	9.1.0
2010-06	RAN#48	R5-103828	0865	-	GCF Priority 3 - Update test case 8.3.3.3	9.0.0	9.1.0
2010-06	RAN#48	R5-103829	0888	-	GCF Priority 3 - Update RRC test case 8.3.1.4	9.0.0	9.1.0
2010-06	RAN#48	R5-103830	0866	-	GCF Priority 3: New EMM test case, 9.2.1.1.23: Attach / Abnormal case / Repeated rejects for network failures	9.0.0	9.1.0
2010-06	RAN#48	R5-103831	0867	-	GCF Priority 3: New TC 9.3.1.6 Service request / Rejected / EPS services not allowed	9.0.0	9.1.0
2010-06	RAN#48	R5-103832	0868	-	Priority 3 - update of test case 9.2.1.1.24	9.0.0	9.1.0
2010-06	RAN#48	R5-103833	0889	1	GCF Priority 2 - Correction of EMM test case 9.1.2.3	9.0.0	9.1.0
2010-06	RAN#48	R5-103836	0869	-	GCF Priority 3 - Addition of new test case 13.1.5	9.0.0	9.1.0
2010-06	RAN#48	R5-103837	0889	-	GCF Priority 3 - Update of Multilayer Procedures part TC 13.3.1.2	9.0.0	9.1.0
2010-06	RAN#48	R5-103838	0870	-	GCF Priority 3 - Update of Multilayer Procedures part TC 13.1.3	9.0.0	9.1.0
2010-06	RAN#48	R5-103839	0891	-	GCF Priority 4 - Update of RRC part TC 8.1.1.3 RRC / Paging for connection in idle mode /Multiple paging records	9.0.0	9.1.0
2010-06	RAN#48	R5-103840	0871	-	GCF Priority 4 - Addition of new test case 8.2.1.5	9.0.0	9.1.0
2010-06	RAN#48	R5-103841	0872	-	GCF Priority 4 - Addition of new test case 8.2.1.6	9.0.0	9.1.0
2010-06	RAN#48	R5-103842	0873	-	GCF Priority 4 - New TC 9.2.1.1.4 Attach Procedure Success Request for obtaining the IPv4 address of the home agent	9.0.0	9.1.0
2010-06	RAN#48	R5-103843	0874	-	Priority 4 - Addition of new test case 9.2.3.2.16	9.0.0	9.1.0
2010-06	RAN#48	R5-103844	0892	1	GCF Priority 4 - New TC 13.1.8 Connected CSFB to GSM with Redirection MO call	9.0.0	9.1.0
2010-06	RAN#48	R5-103848	0875	-	GCF Priority 2 - Update RRC test case 8.2.4.6	9.0.0	9.1.0
2010-06	RAN#48	R5-103849	0876	-	Addition of UE end state for 15 EMM test cases and termination of ongoing signalling procedure for 3 EMM test cases	9.0.0	9.1.0
2010-06	RAN#48	R5-103872	0877	-	GCF Priority 1 - Correction to MAC test case 7.1.4.5	9.0.0	9.1.0
2010-06	RAN#48	R5-103873	0878	-	GCF Priority 4 - Addition of Multi-layer Procedures part test case 13.1.7	9.0.0	9.1.0
2010-06	RAN#48	R5-103876	0879	-	GCF Priority 4 - Addition of new test case 9.2.3.2.2 for combined tracking area update / successful for EPS services only / IMSI unknown in HSS	9.0.0	9.1.0
2010-06	-	-	-	-	Typo correction of clause title 9.2.1.1.3.3	9.1.0	9.1.1
2010-09	RAN#49	GP-101502	0898	-	CR 36.523-1-0898 New test case 6.2.3.14 Inter-RAT Cell Reselection / from GSM_Idle/GPRS Packet Idle to E-UTRA (priority of E-UTRA cells are higher than the serving cell)	9.1.1	9.2.0
2010-09	RAN#49	GP-101503	0899	-	CR 36.523-1-0899 New test case 6.2.3.15 Inter-RAT Cell Reselection / from GSM_Idle/GPRS Packet Idle to E-UTRA (priority of E-UTRA cells are lower than the serving cell)	9.1.1	9.2.0

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2010-09	RAN#49	GP-101510	0896	-	CR 36.523-1-0896 6.2.3.19 : Redirection to E-UTRA upon the release of the CS connection	9.1.1	9.2.0
2010-09	RAN#49	GP-101521	0897	-	CR 36.523-1-0897 6.2.3.20: Redirection to E-UTRA upon the release of the CS connection and no suitable cell available	9.1.1	9.2.0
2010-09	RAN#49	GP-101562	0902	-	CR 36.523-1-0902 New Test case 6.2.3.27-Inter-RAT Cell selection from GPRS Packet_transfer to E-UTRA Cell (NC2 mode).	9.1.1	9.2.0
2010-09	RAN#49	GP-101603	1016	-	CR 36.523-1-1016 New Test Case 6.2.3.23 - Inter-RAT Cell Reselection from GPRS Packet transfer to E-UTRA in CCN mode (PACKET CELL CHANGE CONTINUE)	9.1.1	9.2.0
2010-09	RAN#49	R5-104073	0903	-	GCF Priority 2 - Corrections to EUTRA idle mode test cases	9.1.1	9.2.0
2010-09	RAN#49	R5-104083	0904	-	GCF Priority 2 - Review of detach at switch/power off procedure in EMM test cases	9.1.1	9.2.0
2010-09	RAN#49	R5-104084	0905	-	GCF Priority 2 - Review of switch/power off procedure	9.1.1	9.2.0
2010-09	RAN#49	R5-104107	0906	-	GCF Priority 1 - Correction to remove special configurations for UM Bearer test cases	9.1.1	9.2.0
2010-09	RAN#49	R5-104130	0907	-	GCF Priority 2 - Correction to EUTRA RRC test case 8.1.2.7	9.1.1	9.2.0
2010-09	RAN#49	R5-104136	0908	-	GCF Priority 2 - Correction to Generic E-UTRA radio bearer test procedure 12.1.1 and 12.1.2	9.1.1	9.2.0
2010-09	RAN#49	R5-104142	0909	-	GCF Priority 2 - Correction to EMM test case 9.2.3.1.2	9.1.1	9.2.0
2010-09	RAN#49	R5-104144	0910	-	GCF Priority 1 - Correction to MAC test case 7.1.2.8	9.1.1	9.2.0
2010-09	RAN#49	R5-104145	0911	-	GCF Priority 2 - Correction to EUTRA RRC test case 8.1.2.5	9.1.1	9.2.0
2010-09	RAN#49	R5-104147	0912	-	GCF Priority 2 - Correction to EUTRA MAC test case 7.1.4.3	9.1.1	9.2.0
2010-09	RAN#49	R5-104148	0913	-	GCF Priority 1 - Correction to EUTRA RLC test case 7.2.3.1	9.1.1	9.2.0
2010-09	RAN#49	R5-104149	0914	-	GCF Priority 1 - Correction to EUTRA MAC test case 7.1.2.6	9.1.1	9.2.0
2010-09	RAN#49	R5-104150	0915	-	GCF Priority 1 - Correction to EUTRA MAC test case 7.1.3.1	9.1.1	9.2.0
2010-09	RAN#49	R5-104157	0917	-	GCF Priority 1 - Correction to EUTRA MAC test case 7.1.3.6	9.1.1	9.2.0
2010-09	RAN#49	R5-104162	0918	-	GCF Priority 1 - Correction to EUTRA MAC test case 7.1.4.11	9.1.1	9.2.0
2010-09	RAN#49	R5-104168	0919	-	GCF Priority 2 - Correction of ESM test case 10.8.1	9.1.1	9.2.0
2010-09	RAN#49	R5-104173	0920	-	GCF Priority 4 - Addition of new test case 6.1.2.14	9.1.1	9.2.0
2010-09	RAN#49	R5-104178	0921	-	GCF Priority 4 - Addition of new test case 9.2.3.2.5	9.1.1	9.2.0
2010-09	RAN#49	R5-104182	0922	-	GCF Priority 3 - Update to test case 13.1.5	9.1.1	9.2.0
2010-09	RAN#49	R5-104238	0923	-	GCF Priority 2 - Correction of EMM test case 9.2.1.1.17	9.1.1	9.2.0
2010-09	RAN#49	R5-104265	0924	-	GCF Priority 2 - Update of TC 8.1.2.5	9.1.1	9.2.0
2010-09	RAN#49	R5-104283	0925	-	GCF Priority 4 Update test case 8.3.2.5	9.1.1	9.2.0
2010-09	RAN#49	R5-104286	0926	-	GCF Priority 4 - Correction of test cases 14.1 & 14.2	9.1.1	9.2.0
2010-09	RAN#49	R5-104287	0927	-	GCF Priority 4 - Addition of new test case 14.3	9.1.1	9.2.0
2010-09	RAN#49	R5-104389	0928	-	Update of DSMIPv6 test cases	9.1.1	9.2.0
2010-09	RAN#49	R5-104390	0929	-	Removal of DSMIPv6 test case 15.3	9.1.1	9.2.0
2010-09	RAN#49	R5-104399	0930	-	GCF Priority 1 - update of test case 7.2.3.4	9.1.1	9.2.0
2010-09	RAN#49	R5-104512	0931	-	GCF Priority 2 - Update to EMM test case 9.2.2.1.1	9.1.1	9.2.0
2010-09	RAN#49	R5-104535	0932	-	GCF Priority 2 - Update of TC 7.1.4.16	9.1.1	9.2.0
2010-09	RAN#49	R5-104632	0933	-	GCF Priority 1 - Correction of RRC test case 8.5.4.1	9.1.1	9.2.0
2010-09	RAN#49	R5-104637	0934	-	GCF priority 4 - Addition of new test case 8.2.4.12	9.1.1	9.2.0
2010-09	RAN#49	R5-104708	0935	-	GCF Priority 1 - Correction to EUTRA MAC test cases 7.1.7.1.1, 7.1.7.1.2, 7.1.7.1.3, 7.1.7.1.4	9.1.1	9.2.0
2010-09	RAN#49	R5-104709	0936	-	GCF Priority 1 - Correction to EUTRA MAC test case 7.1.7.2.1	9.1.1	9.2.0
2010-09	RAN#49	R5-104710	0937	-	GCF Priority 1 - Correction to EUTRA MAC test case 7.1.3.4	9.1.1	9.2.0
2010-09	RAN#49	R5-104711	0938	-	GCF Priority 1 - Correction to EUTRA MAC test	9.1.1	9.2.0

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					case 7.1.3.9		
2010-09	RAN#49	R5-104712	0939	-	GCF Priority 1 - Correction to GCF WI-081 LTE Testcases 7.1.4.11, 7.1.4.14	9.1.1	9.2.0
2010-09	RAN#49	R5-104713	0940	-	GCF Priority 2 - Correction to ETURA RRC test case 8.2.4.1	9.1.1	9.2.0
2010-09	RAN#49	R5-104714	0941	-	Correction to GCF WI-082 EMM Testcase 9.1.2.1	9.1.1	9.2.0
2010-09	RAN#49	R5-104715	0942	-	GCF Priority 2 - Corrections to EUTRA GERAN idle mode test cases	9.1.1	9.2.0
2010-09	RAN#49	R5-104716	0943	-	GCF Priority 2 - Corrections to idle mode test case 6.2.2.1	9.1.1	9.2.0
2010-09	RAN#49	R5-104717	0944	-	GCF Priority 2 - Review of detach at switch/power off procedure in Idle Mode test cases	9.1.1	9.2.0
2010-09	RAN#49	R5-104718	0945	-	GCF Priority 2 - Correction to Inter RAT HRPD test case 6.2.2.3	9.1.1	9.2.0
2010-09	RAN#49	R5-104719	0946	-	GCF Priority 2 - Correction to Inter RAT HRPD test case 6.2.3.7	9.1.1	9.2.0
2010-09	RAN#49	R5-104720	0947	-	GCF Priority 2 - Correction to Inter RAT HRPD test case 6.2.3.8	9.1.1	9.2.0
2010-09	RAN#49	R5-104721	0948	-	GCF Priority 2 - Addition of new test case 6.2.3.4	9.1.1	9.2.0
2010-09	RAN#49	R5-104722	0949	-	Addition of modified value tag after System Information modification	9.1.1	9.2.0
2010-09	RAN#49	R5-104723	0950	-	GCF Priority 2 - Correction to EUTRA RLC test case 7.2.3.21	9.1.1	9.2.0
2010-09	RAN#49	R5-104724	0951	-	GCF Priority 2 - Correction to GCF Priority 2 Inter RAT HRPD test case 8.1.3.9	9.1.1	9.2.0
2010-09	RAN#49	R5-104725	0952	-	GCF Priority 2 - Correction to TC 8.1.3.5	9.1.1	9.2.0
2010-09	RAN#49	R5-104728	0953	-	GCF Priority 2 - Correction of EMM test case 9.2.1.1.9 and 9.2.1.1.10	9.1.1	9.2.0
2010-09	RAN#49	R5-104729	0954	-	GCF Priority 2 - Correction of EMM test case 9.2.1.1.20	9.1.1	9.2.0
2010-09	RAN#49	R5-104730	0955	-	GCF Priority 2 - update of test case 9.2.3.1.8	9.1.1	9.2.0
2010-09	RAN#49	R5-104731	0956	-	GCF Priority 2 - Correction of EMM test case 9.2.1.2.1	9.1.1	9.2.0
2010-09	RAN#49	R5-104732	0957	-	GCF priority 2 - Correction of test case 9.2.1.1.1a about reference cell information	9.1.1	9.2.0
2010-09	RAN#49	R5-104733	0958	-	GCF Priority 2 - Correction of ESM test case 10.6.1	9.1.1	9.2.0
2010-09	RAN#49	R5-104734	0959	-	GCF Priority 2 - Correction to ESM test case 10.5.1	9.1.1	9.2.0
2010-09	RAN#49	R5-104735	0960	-	GCF Priority 2 - Correction to ESM test case 10.4.1	9.1.1	9.2.0
2010-09	RAN#49	R5-104736	0961	-	Add test case for RRC connection establishment of emergency call	9.1.1	9.2.0
2010-09	RAN#49	R5-104742	0962	-	GCF Priority 3: Correction to test case 7.1.5.2	9.1.1	9.2.0
2010-09	RAN#49	R5-104743	0963	-	GCF Priority 3 - Correction to test case 7.1.5.4	9.1.1	9.2.0
2010-09	RAN#49	R5-104744	0964	-	GCF priority 3: Correction to MAC TBS (MIMO configured) test case 7.1.7.1.5	9.1.1	9.2.0
2010-09	RAN#49	R5-104745	0965	-	GCF priority 3: Correction to MAC TBS (MIMO configured) test case 7.1.7.1.6	9.1.1	9.2.0
2010-09	RAN#49	R5-104746	0966	-	GCF Priority 3 - Addition of new EPS mobility management procedure test case 9.3.2.2a Paging for CS fallback / Connected mode	9.1.1	9.2.0
2010-09	RAN#49	R5-104747	0967	-	GCF Priority 3 - update of test case 9.2.1.1.12	9.1.1	9.2.0
2010-09	RAN#49	R5-104748	0968	-	GCF Priority 3 - update of test case 9.3.1.15	9.1.1	9.2.0
2010-09	RAN#49	R5-104749	0969	-	GCF Priority 3 - update of test case 9.2.3.1.23	9.1.1	9.2.0
2010-09	RAN#49	R5-104750	0970	-	GCF Priority 3 - Correction of ESM test case 10.5.3	9.1.1	9.2.0
2010-09	RAN#49	R5-104751	0971	-	GFC Priority 3 and 4: Correction of generic test procedure used in MIMO DRB test cases	9.1.1	9.2.0
2010-09	RAN#49	R5-104752	0972	-	GCF Priority 3 - Addition of new Multilayer Procedures test case 13.1.4 Call setup from E-UTRAN RRC_IDLE / CS fallback to UTRAN with Handover / MT call	9.1.1	9.2.0
2010-09	RAN#49	R5-104753	0973	-	Addition of new LTE test case 13.1.2 CS fallback UTRAN with redirection / MO call	9.1.1	9.2.0
2010-09	RAN#49	R5-104754	0974	-	GCF Priority 3 - Addition of New TC for cell reselection when 1xRTT is higher priority	9.1.1	9.2.0
2010-09	RAN#49	R5-104755	0975	-	GCF Priority 3 - Addition of New TC for cell reselection when 1xRTT is lower priority	9.1.1	9.2.0
2010-09	RAN#49	R5-104756	0976	-	GCF Priority 4 - Addition of new test case	9.1.1	9.2.0

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					6.1.1.6		
2010-09	RAN#49	R5-104757	0977	-	GCF Priority 4: Correction to test case 7.1.5.1	9.1.1	9.2.0
2010-09	RAN#49	R5-104758	0978	-	GCF Priority 4: Correction to test case 7.1.5.3	9.1.1	9.2.0
2010-09	RAN#49	R5-104759	0979	-	GCF Priority 4 - Correction to test case 7.1.5.5	9.1.1	9.2.0
2010-09	RAN#49	R5-104760	0980	-	GCF Priority 4 - Addition of new test case 8.1.2.6	9.1.1	9.2.0
2010-09	RAN#49	R5-104761	0981	-	GCF Priority 4 - Update of TC 8.2.1.5	9.1.1	9.2.0
2010-09	RAN#49	R5-104762	0982	-	GCF Priority 4 - Update of TC 8.2.1.6	9.1.1	9.2.0
2010-09	RAN#49	R5-104763	0983	-	GCF Priority 4 - Correction to TC 8.2.4.8	9.1.1	9.2.0
2010-09	RAN#49	R5-104764	0984	-	GCF Priority 4 - Update of TC 8.3.1.6	9.1.1	9.2.0
2010-09	RAN#49	R5-104765	0985	-	GCF Priority 2 - Correction to EUTRA RRC Test Case 8.2.4.7	9.1.1	9.2.0
2010-09	RAN#49	R5-104768	0986	-	GCF Priority 4 - Addition of new EMM test case 9.2.1.1.3	9.1.1	9.2.0
2010-09	RAN#49	R5-104769	0987	-	GCF Priority 4 - Addition of new test case 9.2.3.2.11	9.1.1	9.2.0
2010-09	RAN#49	R5-104770	0988	-	GCF Priority 4 - Update to test case 9.2.3.2.15	9.1.1	9.2.0
2010-09	RAN#49	R5-104771	0989	-	GCF Priority 4 - Addition of new test case 9.3.1.12a	9.1.1	9.2.0
2010-09	RAN#49	R5-104773	0990	-	GCF Priority X: Addition of New TC for Inter-RAT Cell reselection from E-UTRA idle non-CSG cell to a UTRA CSG cell	9.1.1	9.2.0
2010-09	RAN#49	R5-104774	0991	-	GCF Priority X: Addition of New TC for Inter-RAT CSG Cell Reselection from E-UTRA CSG cell to UTRA CSG cell	9.1.1	9.2.0
2010-09	RAN#49	R5-104776	0992	-	GCF Priority X: Introduction of new ESM test case 10.9.1 for UE routing of uplinks packets	9.1.1	9.2.0
2010-09	RAN#49	R5-104777	0993	-	GCF priority 2 - Cell detection timing related correction to test case 6.1.2.3	9.1.1	9.2.0
2010-09	RAN#49	R5-104778	0994	-	GCF priority 1 - Cell detection timing related correction to test case 6.1.2.4	9.1.1	9.2.0
2010-09	RAN#49	R5-104779	0995	-	GCF priority 2 - Cell detection timing related correction to test case 6.1.2.5	9.1.1	9.2.0
2010-09	RAN#49	R5-104780	0996	-	GCF priority 2 - Cell detection timing related correction to test case 6.1.2.11	9.1.1	9.2.0
2010-09	RAN#49	R5-104781	0997	-	GCF priority 1 - Cell detection timing related correction to test case 6.1.2.15	9.1.1	9.2.0
2010-09	RAN#49	R5-104782	0998	-	GCF priority 2 - Cell detection timing related correction to test case 6.2.2.1	9.1.1	9.2.0
2010-09	RAN#49	R5-104783	0999	-	GCF priority 2 - Cell detection timing related correction to test case 6.2.2.2	9.1.1	9.2.0
2010-09	RAN#49	R5-104784	1000	-	GCF priority 2 - Cell detection timing related correction to test case 6.2.3.1	9.1.1	9.2.0
2010-09	RAN#49	R5-104785	1001	-	GCF priority 2 - Cell detection timing related correction to test case 6.2.3.2	9.1.1	9.2.0
2010-09	RAN#49	R5-104786	1002	-	GCF priority 2 - Cell detection timing related correction to test case 6.2.3.3	9.1.1	9.2.0
2010-09	RAN#49	R5-104787	1003	-	GCF priority 2 - Cell detection timing related correction to test case 6.2.3.5	9.1.1	9.2.0
2010-09	RAN#49	R5-104788	1004	-	GCF priority 2 - Cell detection timing related correction to test case 8.1.2.5	9.1.1	9.2.0
2010-09	RAN#49	R5-104789	1005	-	GCF priority 2 - Cell detection timing related correction to test case 8.4.2.2	9.1.1	9.2.0
2010-09	RAN#49	R5-104790	1006	-	GCF priority 2 - Cell detection timing related correction to test case 8.4.2.4	9.1.1	9.2.0
2010-09	RAN#49	R5-104791	1007	-	GCF Priority 1 - Correction to test case 6.1.2.2	9.1.1	9.2.0
2010-09	RAN#49	R5-104792	1008	-	GCF Priority 2 - Correction to EUTRA Idle mode test case 6.1.2.6	9.1.1	9.2.0
2010-09	RAN#49	R5-104793	1009	-	GCF Priority 3 - Correction to EUTRA RRC test case 8.1.2.2	9.1.1	9.2.0
2010-09	RAN#49	R5-104794	1010	-	GCF Priority 2 - Correction to EUTRA PDCP test cases 7.3.5.2, 7.3.5.3, 7.3.5.4, 7.3.5.5	9.1.1	9.2.0
2010-09	RAN#49	R5-104795	1011	-	Correction to Generic E-UTRA radio bearer test procedure	9.1.1	9.2.0
2010-09	RAN#49	R5-104797	1012	-	GCF Priority 2 - Update test cases in clause 8.5.1	9.1.1	9.2.0
2010-09	RAN#49	R5-104798	1013	-	GCF Priority 2 - Update of MAC test case 7.1.4.3	9.1.1	9.2.0
2010-09	RAN#49	R5-105000	1014	-	GCF Priority 3 - New TC 6.3.3 Inter-RAT cell reselection / From UTRA_Idle to E-UTRA RRC_IDLE CSG cell	9.1.1	9.2.0
2010-09	RAN#49	R5-105001	1015	-	GCF Priority 1 - Correction to GCF Priority 1 MAC test cases for AP#47.05	9.1.1	9.2.0

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2010-09	RAN#49	R5-105002	1017	-	GCF Priority 1 - Correction of new test cases in 8.3.3	9.1.1	9.2.0
2010-09	RAN#49	R5-105004	1018	-	GCF Priority 4 - Update to test case 8.1.2.9	9.1.1	9.2.0
2010-09	RAN#49	R5-105005	1019	-	36523-1: Update of attach procedure specification	9.1.1	9.2.0
2010-09	RAN#49	R5-105006	1020	-	GCF Priority 4 - Update of TC 8.1.2.8	9.1.1	9.2.0
2010-09	RAN#49	R5-105007	1021	-	GCF Priority 1 - Correction of EUTRA MAC test case 7.1.4.5	9.1.1	9.2.0
2010-09	RAN#49	R5-105009	1022	-	GCF Priority 2 - Correction of EUTRA test case 8.5.1.3	9.1.1	9.2.0
2010-09	RAN#49	R5-105010	1023	-	GCF Priority 2 - Correction to ETURA RRC test case 8.5.1.1	9.1.1	9.2.0
2010-09	RAN#49	R5-105011	1024	-	GCF Priority 2 - Correction of EUTRA test case 8.3.1.3	9.1.1	9.2.0
2010-09	RAN#49	R5-105012	1025	-	GCF Priority 2 - Correction to ESM test case 10.7.2	9.1.1	9.2.0
2010-09	RAN#49	R5-105014	1027	-	GCF Priority 3 - update of test case 9.2.3.2.9	9.1.1	9.2.0
2010-09	RAN#49	R5-105015	1028	-	GCF Priority 2 - update of test case 9.2.3.1.2	9.1.1	9.2.0
2010-09	RAN#49	R5-105016	1029	-	GCF Priority 1+2: Correction to RLC test cases for AP#47.05	9.1.1	9.2.0
2010-09	RAN#49	R5-105054	1031	-	GCF Priority 1 - Correction to EUTRA RLC test case 7.2.3.18	9.1.1	9.2.0
2010-09	RAN#49	R5-105070	1026	-	Harmonising EMM test case pre-test conditions specification	9.1.1	9.2.0
2010-09	RAN#49	R5-105071	1030	-	GCF Priority x - Correction to 36.523-1 Test Case 8.3.1.5	9.1.1	9.2.0
2010-12	RAN#50	R5-106062	1133	-	GCF Priority 2 - Correction of ESM test case 10.3.1	9.2.0	9.3.0
2010-12	RAN#50	R5-106094	1134	-	GCF Priority 1 - Update of RRC test case 8.2.2.2	9.2.0	9.3.0
2010-12	RAN#50	R5-106107	1135	-	GCF Priority 1 - Correction to EMM test case 9.2.3.1.1	9.2.0	9.3.0
2010-12	RAN#50	R5-106108	1136	-	GCF Priority 2 - Correction to ESM test case 10.4.1	9.2.0	9.3.0
2010-12	RAN#50	R5-106109	1137	-	GCF Priority 2 - Correction to EMM test case 9.2.3.1.2	9.2.0	9.3.0
2010-12	RAN#50	R5-106111	1138	-	GCF Priority 2 - Correction to ESM test case 10.7.2	9.2.0	9.3.0
2010-12	RAN#50	R5-106114	1032	-	GCF Priority 3 - Correction to EMM test case 9.2.3.1.13	9.2.0	9.3.0
2010-12	RAN#50	R5-106156	1033	-	GCF Priority 1 - Correction to TC 7.2.3.2	9.2.0	9.3.0
2010-12	RAN#50	R5-106160	1034	-	GCF Priority 1 - Correction to TC 9.2.3.1.5	9.2.0	9.3.0
2010-12	RAN#50	R5-106164	1035	-	GCF Priority 2 - Correction to TC 7.3.5.4	9.2.0	9.3.0
2010-12	RAN#50	R5-106177	1036	-	GCF Priority 2 - Correction of test cases in 6.2.3.4	9.2.0	9.3.0
2010-12	RAN#50	R5-106182	1037	-	GCF Priority 2 - Correction of test cases in 8.3.2.1, 8.3.2.3, 8.3.2.5 and 8.3.2.6	9.2.0	9.3.0
2010-12	RAN#50	R5-106183	1038	-	GCF Priority 3 - Correction of test cases in 8.3.3	9.2.0	9.3.0
2010-12	RAN#50	R5-106186	1039	-	GCF Priority 3 - Corrections to test case 9.2.1.2.2	9.2.0	9.3.0
2010-12	RAN#50	R5-106187	1040	-	GCF Priority 3 - Corrections to test case 9.2.2.1.7	9.2.0	9.3.0
2010-12	RAN#50	R5-106188	1041	-	GCF Priority 1 - Corrections to test case 9.2.2.2.1	9.2.0	9.3.0
2010-12	RAN#50	R5-106189	1042	-	GCF Priority 4 - Corrections to test case 9.2.3.2.2.	9.2.0	9.3.0
2010-12	RAN#50	R5-106190	1043	-	GCF Priority 4 - Corrections to test case 9.3.1.17	9.2.0	9.3.0
2010-12	RAN#50	R5-106204	1044	-	GCF Priority 1 - Corrections to test case 7.1.4.1	9.2.0	9.3.0
2010-12	RAN#50	R5-106214	1045	-	GCF Priority 2 - Correction to EMM test cases 9.2.1.1.13, 9.2.1.1.15 and 9.2.1.1.17	9.2.0	9.3.0
2010-12	RAN#50	R5-106216	1046	-	GCF Priority 2 - Correction to EMM test case 9.2.1.1.7	9.2.0	9.3.0
2010-12	RAN#50	R5-106226	1047	-	GCF Priority 2 - Correction to EMM test case 9.2.1.2.1	9.2.0	9.3.0
2010-12	RAN#50	R5-106227	1048	-	GCF Priority 2 - Correction to EMM test case 9.2.1.2.4	9.2.0	9.3.0
2010-12	RAN#50	R5-106229	1049	-	GCF Priority 2 - Correction to EMM test case 9.2.3.1.4	9.2.0	9.3.0
2010-12	RAN#50	R5-106268	1050	-	GCF Priority 4 - Editorial correction to test case 6.1.1.6	9.2.0	9.3.0
2010-12	RAN#50	R5-106269	1051	-	GCF Priority 3 - Update to test case 6.2.2.5	9.2.0	9.3.0

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2010-12	RAN#50	R5-106274	1052	-	GCF Priority 4 - Update to test case 8.1.2.6	9.2.0	9.3.0
2010-12	RAN#50	R5-106275	1053	-	GCF Priority 4 - Update to test case 8.1.2.8	9.2.0	9.3.0
2010-12	RAN#50	R5-106276	1054	-	GCF Priority 4 - Update to test case 8.1.2.9	9.2.0	9.3.0
2010-12	RAN#50	R5-106277	1055	-	GCF Priority 2 - Update to test case 8.1.3.5	9.2.0	9.3.0
2010-12	RAN#50	R5-106280	1056	-	GCF Priority 3 - Update to test case 9.2.1.2.15 and 9.3.1.12a	9.2.0	9.3.0
2010-12	RAN#50	R5-106284	1057	-	GCF Priority 3 - Update to test cases 10.8.2, 10.8.4 and 10.8.6	9.2.0	9.3.0
2010-12	RAN#50	R5-106294	1058	-	CR to 36.523-1: Correction to UTRA cell minimum power level	9.2.0	9.3.0
2010-12	RAN#50	R5-106326	1059	-	GCF Priority 3 - Corrections to ESM test case 10.6.2	9.2.0	9.3.0
2010-12	RAN#50	R5-106333	1060	-	GCF Priority 2 - Corrections to RRC test case 8.2.4.6	9.2.0	9.3.0
2010-12	RAN#50	R5-106335	1061	-	GCF Priority 1-4 - Editorial corrections to EUTRA RRC test cases	9.2.0	9.3.0
2010-12	RAN#50	R5-106336	1062	-	GCF Priority 1-4 - Editorial corrections to EMM test cases	9.2.0	9.3.0
2010-12	RAN#50	R5-106524	1063	-	Update test case 8.1.2.11 with IMS emergency session setup	9.2.0	9.3.0
2010-12	RAN#50	R5-106525	1064	-	Update references with IMS	9.2.0	9.3.0
2010-12	RAN#50	R5-106555	1065	-	GCF Priority 1 - Correction of test cases in 6.1.2	9.2.0	9.3.0
2010-12	RAN#50	R5-106556	1066	-	GCF Priority 1 - Correction to EUTRA MAC test case 7.1.2.8	9.2.0	9.3.0
2010-12	RAN#50	R5-106557	1067	-	GCF Priority 1 - Correction to EUTRA MAC test case 7.1.4.12	9.2.0	9.3.0
2010-12	RAN#50	R5-106558	1068	-	GCF Priority 1 - Correction to EUTRA MAC test case 7.1.4.13	9.2.0	9.3.0
2010-12	RAN#50	R5-106559	1069	-	GCF Priority 2 - Making compressed mode configuration optional for FDD and removal of compressed mode requirement for TDD for InterRAT HO test cases 8.4.2.2	9.2.0	9.3.0
2010-12	RAN#50	R5-106560	1070	-	GCF Priority 2 - Making compressed mode configuration optional for FDD and removal of compressed mode requirement for TDD for InterRAT HO test cases 8.4.2.4	9.2.0	9.3.0
2010-12	RAN#50	R5-106563	1071	-	GCF Priority 1 - Update of MAC test case 7.1.4.13	9.2.0	9.3.0
2010-12	RAN#50	R5-106564	1072	-	Resolve timing issue in P1 RLC TCs	9.2.0	9.3.0
2010-12	RAN#50	R5-106565	1073	-	GCF Priority 1 - Correction to TC 7.2.3.9	9.2.0	9.3.0
2010-12	RAN#50	R5-106566	1074	-	GCF Priority 1 - Update of Radio Bearer test procedure used by TC 12.2.1	9.2.0	9.3.0
2010-12	RAN#50	R5-106567	1075	-	GCF Priority 2 - Correction to Idle mode test case 6.1.2.7	9.2.0	9.3.0
2010-12	RAN#50	R5-106568	1076	-	GCF Priority 2 - Correction of test cases in 6.1.2.8 and 6.1.2.9	9.2.0	9.3.0
2010-12	RAN#50	R5-106569	1077	-	GCF Priority 2 - Correction of test cases in 6.2.2.1 and 6.2.2.2	9.2.0	9.3.0
2010-12	RAN#50	R5-106570	1078	-	GCF Priority 2 - Correction to EUTRA RRC test case 8.1.3.5	9.2.0	9.3.0
2010-12	RAN#50	R5-106572	1079	-	GCF Priority 2 - Correction of test cases in 8.3.1.8 ~ 8.3.1.11	9.2.0	9.3.0
2010-12	RAN#50	R5-106573	1080	-	GCF Priority 2 - Update to test case 8.4.2.2 and 8.4.2.4	9.2.0	9.3.0
2010-12	RAN#50	R5-106574	1081	-	GCF Priority 2 - Correction to contents for message Extended Service Request	9.2.0	9.3.0
2010-12	RAN#50	R5-106575	1082	-	GCF Priority 2 - Correction to EMM test case 9.1.2.3	9.2.0	9.3.0
2010-12	RAN#50	R5-106595	1083	-	Add test case for RRC connection establishment of emergency call / Limited Service	9.2.0	9.3.0
2010-12	RAN#50	R5-106598	1084	-	GCF Priority 1 - Correction to EUTRA RRC test case 8.2.4.1	9.2.0	9.3.0
2010-12	RAN#50	R5-106600	1085	-	GCF Priority 2 - Correction to EMM test case 9.2.2.2.2	9.2.0	9.3.0
2010-12	RAN#50	R5-106601	1086	-	GCF Priority 2 - Correction to EMM test case 9.2.3.2.1	9.2.0	9.3.0
2010-12	RAN#50	R5-106602	1087	-	GCF Priority 3 - Corrections to test case 7.1.5.1 and 7.1.5.2	9.2.0	9.3.0
2010-12	RAN#50	R5-106603	1088	-	GCF Priority 3 - Addition new test case 6.1.2.13	9.2.0	9.3.0
2010-12	RAN#50	R5-106604	1089	-	GCF Priority 2 - Correction to EMM test case 9.2.1.1.1a	9.2.0	9.3.0

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2010-12	RAN#50	R5-106605	1090	-	GCF Priority 3 - Various corrections to EMM section 9 of 36.523-1	9.2.0	9.3.0
2010-12	RAN#50	R5-106607	1092	-	GCF Priority 3: Correction to multi-layer test cases 13.1.4 and 13.1.5	9.2.0	9.3.0
2010-12	RAN#50	R5-106608	1093	-	GCF Priority 4 - Update to test case 8.1.1.3	9.2.0	9.3.0
2010-12	RAN#50	R5-106619	1094	-	GCF Priority 1 - Correction to TC 7.3.3.1, 7.3.3.2, 7.3.3.3 and 7.3.3.4	9.2.0	9.3.0
2010-12	RAN#50	R5-106621	1095	-	GCF Priority 4 - Update to test case 8.1.1.4	9.2.0	9.3.0
2010-12	RAN#50	R5-106622	1096	-	GCF Priority 4 - Correction of test cases in 8.3.1.6	9.2.0	9.3.0
2010-12	RAN#50	R5-106623	1097	-	GCF Priority 4 - Update to test case 9.2.3.2.5, 9.2.3.2.11, and 9.3.1.12a	9.2.0	9.3.0
2010-12	RAN#50	R5-106624	1098	-	9.2.1.3.3 Attach GCF Priority 4 - Addition of new test case 9.2.3.2.13	9.2.0	9.3.0
2010-12	RAN#50	R5-106625	1099	-	GCF Priority 4: Addition of a new test case 9.2.3.2.1b	9.2.0	9.3.0
2010-12	RAN#50	R5-106626	1100	-	Addition of system information combination in Idle Mode test cases	9.2.0	9.3.0
2010-12	RAN#50	R5-106627	1101	-	Addition of system information combination in EMM test cases	9.2.0	9.3.0
2010-12	RAN#50	R5-106628	1102	-	Addition of system information combination in RRC test cases	9.2.0	9.3.0
2010-12	RAN#50	R5-106629	1103	-	Addition of system information combination in Multilayer test cases	9.2.0	9.3.0
2010-12	RAN#50	R5-106630	1104	-	Clarification of measurements requirements for Inter-RAT	9.2.0	9.3.0
2010-12	RAN#50	R5-106631	1105	-	GCF Priority X - Addition new test case 6.2.3.31	9.2.0	9.3.0
2010-12	RAN#50	R5-106632	1106	-	GCF Priority 1 – Correction to EUTRA MAC test case 7.1.4.8	9.2.0	9.3.0
2010-12	RAN#50	R5-106635	1107	-	GCF Priority TBD - Addition of new idle mode test case for inter-freq cell reselection based on CSG autonomous search	9.2.0	9.3.0
2010-12	RAN#50	R5-106636	1108	-	GCF Priority TBD - Correction to TC 16.1.1.1 Inter-RAT Cell reselection from E-UTRA idle non-CSG cell to a UTRA CSG cell	9.2.0	9.3.0
2010-12	RAN#50	R5-106637	1109	-	GCF Priority TBD - Movement of TC 16.1.1.2 to section 6.3.8	9.2.0	9.3.0
2010-12	RAN#50	R5-106638	1110	-	GCF Priority 4 - Addition of new TC 6.3.4 Inter-RAT cell reselection / From UTRA CELL_PCH state to E-UTRA RRC_IDLE CSG cell	9.2.0	9.3.0
2010-12	RAN#50	R5-106641	1112	-	GCF Priority 4 -Making measurement and reporting optional for FDD and removal compressed mode requirement for TDD for Redirection test cases 8.1.3.7	9.2.0	9.3.0
2010-12	RAN#50	R5-106642	1113	-	Periodic RI Reporting using PUCCH / Category 1 UE / Transmission mode 3/4	9.2.0	9.3.0
2010-12	RAN#50	R5-106647	1116	-	GCF Priority X - Addition of new test case 13.1.X	9.2.0	9.3.0
2010-12	RAN#50	R5-106655	1117	-	GCF Priority 4 - New test case 6.1.1.2 PLMN selection of 'Other PLMN/access technology combinations' / Automatic mode	9.2.0	9.3.0
2010-12	RAN#50	R5-106657	1119	-	GCF Priority 1 - Correction to TC 7.2.3.10	9.2.0	9.3.0
2010-12	RAN#50	R5-106659	1120	-	GCF Priority 1 - Corrections and enhancements to EUTRA PDCP test cases 7.3.3.1, 7.3.3.3, 7.3.4.1 and 7.3.4.2	9.2.0	9.3.0
2010-12	RAN#50	R5-106660	1121	-	GCF Priority 3 - Correction to test case 8.1.2.2	9.2.0	9.3.0
2010-12	RAN#50	R5-106661	1122	-	GCF Priority 2 - Corrections to E-UTRA RRC test case 8.1.2.7	9.2.0	9.3.0
2010-12	RAN#50	R5-106662	1123	-	GCF Priority 4: Addition of a new test case 9.2.1.2.1b	9.2.0	9.3.0
2010-12	RAN#50	R5-106666	1124	-	GCF Priority 2 - Correction to EUTRA MAC test case 7.1.4.16	9.2.0	9.3.0
2010-12	RAN#50	R5-106676	1125	-	GCF Priority 1-4 - Editorial corrections to various ESM test cases	9.2.0	9.3.0
2010-12	RAN#50	R5-106678	1126	-	GCF Priority 1-4 - Editorial corrections to EUTRA Idle Mode test cases	9.2.0	9.3.0
2010-12	RAN#50	R5-106679	1127	-	GCF Priority 2 - Corrections to E-UTRA PDCP test case 7.3.5.5	9.2.0	9.3.0
2010-12	RAN#50	R5-106680	1128	-	GCF Priority 2 – Correction to EUTRA RLC test case 7.2.3.16	9.2.0	9.3.0
2010-12	RAN#50	R5-106681	1129	-	GCF Priority 2 - Update to test case 9.2.3.3.1	9.2.0	9.3.0

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					and 9.2.3.3.4		
2010-12	RAN#50	R5-106707	1131	-	GCF priority X: New test case 9.2.3.2.1c Combined tracking area update / Success / CS Fallback not preferred	9.2.0	9.3.0
2010-12	RAN#50	R5-106875	1114	-	GCF Priority X - Addition of new test case 8.1.2.10	9.2.0	9.3.0
2010-12	RAN#50	R5-106876	1118	-	Cell detection timing related correction to test case 6.2.2.3, 6.2.2.4, 6.2.3.7 and 6.2.3.8	9.2.0	9.3.0
2010-12	RAN#50	R5-106877	1115	-	GCF priority X: New test case 9.2.1.2.1c Combined attach procedure / Success / EPS and CS Fallback not preferred	9.2.0	9.3.0
2010-12	RAN#50	RP-101255	1132	-	GCF Priority 2 - Correction to EUTRA RLC test case 7.2.3.21	9.2.0	9.3.0
2011-03	GERAN# 49	GP-110046	1142	-	CR 36.523-1-1142 New test case 6.2.3.16 Inter-RAT Cell Reselection / from GSM_Idle to E-UTRAN /based on H_PRIO criteria	9.3.0	9.4.0
2011-03	GERAN# 49	GP-110047	1143	-	CR 36.523-1-1143 Modifications to test case 6.2.2.6 and 6.2.2.7	9.3.0	9.4.0
2011-03	GERAN# 49	GP-110048	1144	-	CR 36.523-1-1144 New Test Case 6.2.1.6 - Inter-RAT Background HPLMN Search/Search for correct RAT for HPLMN/Automatic Mode.	9.3.0	9.4.0
2011-03	GERAN# 49	GP-110049	1145	-	CR 36.523-1-1145 New Test Case 6.2.3.24 - Inter-RAT Cell Reselection from GPRS Packet transfer to E-UTRA in CCN mode (PACKET CELL CHANGE ORDER)	9.3.0	9.4.0
2011-03	GERAN# 49	GP-110050	1146	-	CR 36.523-1-1146 New Test Case 6.2.3.26 - Inter-RAT Autonomous Cell Reselection GPRS Packet_transfer to E-UTRA (NC1 mode)	9.3.0	9.4.0
2011-03	GERAN# 49	GP-110051	1147	-	CR 36.523-1-1147 Correction to GERAN-EUTRAN Inter-RAT testcases 6.2.3.19,6.2.3.21 and 6.2.3.22	9.3.0	9.4.0
2011-03	GERAN# 49	GP-110107	1149	1	CR 36.523-1-1149 Addition of new Test case 8.4.4.1 Inter-RAT PS Handover / from GPRS Packet_transfer to E-UTRA cell	9.3.0	9.4.0
2011-03	GERAN# 49	GP-110108	1150	1	CR 36.523-1-1150 Addition of new Test case 8.4.4.2 Inter-RAT PS Handover failure from GPRS Packet_transfer to E-UTRA cell	9.3.0	9.4.0
2011-03	GERAN# 49	GP-110405	1148	1	CR 36.523-1-1148 Allow test cases 6.2.3.21 and 6.2.3.22 to be implemented in the TTCN	9.3.0	9.4.0
2011-03	GERAN# 49	GP-110417	1139	1	CR 36.523-1-1139 New test case 6.2.3.17 Inter-RAT Cell Reselection / from GSM_Idle/GPRS Packet_Idle to E-UTRA (priority E-UTRA cells)	9.3.0	9.4.0
2011-03	GERAN# 49	GP-110418	1140	1	CR 36.523-1-1140 New test case 6.2.3.18 Inter-RAT Cell Reselection / from GSM_Idle/GPRS Packet_Idle to E-UTRA (blacklisted E-UTRA cells)	9.3.0	9.4.0
2011-03	GERAN# 49	GP-110419	1141	1	CR 36.523-1-1141 New Test Case 6.2.3.29 - Inter-RAT cell Reselection from GPRS packet_transfer to E-UTRA in CCN mode (PACKET MEASUREMENT ORDER)	9.3.0	9.4.0
2011-03	GERAN# 49	GP-110420	1151	1	CR 36.523-1-1151 Correction to GERAN-EUTRAN Inter-RAT cell reselection testcases 6.2.3.28 and 6.2.3.30.	9.3.0	9.4.0
2011-03	RAN#51	R5-110137	1152	-	GCF Priority 2 - Correction to system information in 6.1.2.7 and 6.1.2.11	9.3.0	9.4.0
2011-03	RAN#51	R5-110156	1153	-	GCF priority 3: Correction of UTRA cell in Idle and EMM test cases	9.3.0	9.4.0
2011-03	RAN#51	R5-110192	1154	-	GCF Priority 2 - Correction to EUTRA test case 8.3.2.3	9.3.0	9.4.0
2011-03	RAN#51	R5-110194	1155	-	GCF Priority 3 - Correction to EMM test case 9.2.1.1.12	9.3.0	9.4.0
2011-03	RAN#51	R5-110205	1156	-	GCF Priority 2 Correction of test case in 6.2.3.4 and 6.3.4	9.3.0	9.4.0
2011-03	RAN#51	R5-110207	1157	-	GCF Priority 3 Correction of test case in 8.1.1.6	9.3.0	9.4.0
2011-03	RAN#51	R5-110208	1158	-	GCF Priority 3 Correction of test case in 8.1.2.2 and 8.1.2.8	9.3.0	9.4.0
2011-03	RAN#51	R5-110209	1159	-	GCF Priority 2 Correction of test case in 8.1.3.4, 8.1.3.6 and 8.1.3.8	9.3.0	9.4.0
2011-03	RAN#51	R5-110211	1160	-	GCF Priority 3 Correction of test case in 8.3.1.11	9.3.0	9.4.0
2011-03	RAN#51	R5-110220	1161	-	GCF Priority 1 - Enhancement to EUTRA MAC test case 7.1.4.6	9.3.0	9.4.0

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2011-03	RAN#51	R5-110223	1162	-	GCF Priority 1 - Correction to EUTRA PDCP test cases 7.3.4.1 and 7.3.4.2	9.3.0	9.4.0
2011-03	RAN#51	R5-110230	1163	-	GCF Priority 4 - Update to test cases 8.1.2.6 and 8.1.2.9	9.3.0	9.4.0
2011-03	RAN#51	R5-110231	1164	-	GCF Priority 4 - Correction on TC numbering and update to test case 8.1.2.10	9.3.0	9.4.0
2011-03	RAN#51	R5-110232	1165	-	GCF Priority 2 - Update to test cases 8.4.2.2 and 8.4.2.4	9.3.0	9.4.0
2011-03	RAN#51	R5-110234	1166	-	GCF Priority 3 - Update to test case 9.2.1.2.11	9.3.0	9.4.0
2011-03	RAN#51	R5-110273	1167	-	Correction to TC 6.2.1.1	9.3.0	9.4.0
2011-03	RAN#51	R5-110274	1168	-	Correction to TC 6.2.1.2	9.3.0	9.4.0
2011-03	RAN#51	R5-110277	1169	-	Correction to TC 8.1.3.6	9.3.0	9.4.0
2011-03	RAN#51	R5-110280	1170	-	Correction to TC 9.2.3.3.1	9.3.0	9.4.0
2011-03	RAN#51	R5-110305	1171	-	GCF Priority 3 - Correction to TC 9.2.1.1.26	9.3.0	9.4.0
2011-03	RAN#51	R5-110329	1172	-	GCF Priority 2 - Update of EMM test case 9.3.1.7a	9.3.0	9.4.0
2011-03	RAN#51	R5-110341	1173	-	Addition of new test case on Service request for mobile originating 1xCS fallback emergency call	9.3.0	9.4.0
2011-03	RAN#51	R5-110342	1174	-	Addition of new test case on emergency call in non-allowed CSG cell	9.3.0	9.4.0
2011-03	RAN#51	R5-110386	1175	-	GCF Priority 3 - Correction to EUTR-1XRTT test case 6.2.2.4	9.3.0	9.4.0
2011-03	RAN#51	R5-110387	1176	-	GCF Priority 3 - Correction to EUTR-1XRTT test case 6.2.3.9	9.3.0	9.4.0
2011-03	RAN#51	R5-110388	1177	-	GCF Priority 3 - Correction to EUTR-1XRTT test case 6.2.3.10	9.3.0	9.4.0
2011-03	RAN#51	R5-110389	1178	-	GCF Priority 3 - Correction to EUTR-1XRTT test cases 8.4.7.3	9.3.0	9.4.0
2011-03	RAN#51	R5-110390	1179	-	GCF Priority 3: Correction to EUTR-1XRTT test cases 8.4.7.4	9.3.0	9.4.0
2011-03	RAN#51	R5-110392	1180	-	GCF priority 3: Correction to MAC TBS (MIMO configured) test case 7.1.7.1.5	9.3.0	9.4.0
2011-03	RAN#51	R5-110393	1181	-	GCF priority 3: Correction to MAC TBS (MIMO configured) test case 7.1.7.1.6	9.3.0	9.4.0
2011-03	RAN#51	R5-110400	1182	-	GCF Priority 1 - Correction to EMM test case 9.2.1.1.2	9.3.0	9.4.0
2011-03	RAN#51	R5-110440	1183	-	Addition of new test case 11.2.5	9.3.0	9.4.0
2011-03	RAN#51	R5-110442	1184	-	Addition of new test case 11.2.4	9.3.0	9.4.0
2011-03	RAN#51	R5-110450	1185	-	GCF Priority 4 - Addition of new Multilayer Procedures test case 13.4.1.3	9.3.0	9.4.0
2011-03	RAN#51	R5-110477	1186	-	New TC 11.2.6 Normal tracking area update for emergency bearer services Local emergency list sent	9.3.0	9.4.0
2011-03	RAN#51	R5-110486	1187	-	GCF Priority 1..4 - Editorial corrections to EMM test cases	9.3.0	9.4.0
2011-03	RAN#51	R5-110504	1188	-	GCF P3 : Corrections to DL and UL SPS grant test cases	9.3.0	9.4.0
2011-03	RAN#51	R5-110514	1189	-	Correction to GCF WI-081 MAC test case 7.1.4.4	9.3.0	9.4.0
2011-03	RAN#51	R5-110602	1190	-	GCF Priority 2 - Correction of Idle testcase 6.2.3.5	9.3.0	9.4.0
2011-03	RAN#51	R5-110603	1191	-	GCF Priority 3 - Correction of Idle testcase 6.2.3.13	9.3.0	9.4.0
2011-03	RAN#51	R5-110604	1192	-	GCF Priority 9 - Correction of Idle testcase 6.2.3.31	9.3.0	9.4.0
2011-03	RAN#51	R5-110677	1193	-	GCF Priority 2 - Correction to GCF WI-081 UTRAN - LTE Testcase 6.2.3.3	9.3.0	9.4.0
2011-03	RAN#51	R5-110711	1194	-	GCF Priority 1 - Correction to EUTRA MAC test case 7.1.4.1	9.3.0	9.4.0
2011-03	RAN#51	R5-110712	1195	-	GCF Priority 1 - Correction to EUTRA MAC test case 7.1.4.5	9.3.0	9.4.0
2011-03	RAN#51	R5-110713	1196	-	GCF Priority 1 - Correction to E-UTRA MAC test case 7.1.3.3	9.3.0	9.4.0
2011-03	RAN#51	R5-110717	1197	-	GCF Priority 1 - Correction to EUTRA RRC test case 8.3.3.1	9.3.0	9.4.0
2011-03	RAN#51	R5-110718	1198	-	GCF Priority 1 - Correction to EUTRA RLC test case 7.2.3.10	9.3.0	9.4.0
2011-03	RAN#51	R5-110719	1199	-	GCF Priority 1 Correction of test cases in 8.3.3	9.3.0	9.4.0
2011-03	RAN#51	R5-110721	1200	-	GCF Priority 2 - Correction to EUTRA Idle Mode test case 6.2.3.5	9.3.0	9.4.0
2011-03	RAN#51	R5-110722	1201	-	GCF Priority 2 - Correction to Idle mode test cases	9.3.0	9.4.0

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2011-03	RAN#51	R5-110723	1202	-	GCF Priority 2 - Update of idle mode TC 6.1.2.7	9.3.0	9.4.0
2011-03	RAN#51	R5-110724	1203	-	GCF Priority 2 - Correction to EUTRA PDCP test cases 7.3.5.2 and 7.3.5.4	9.3.0	9.4.0
2011-03	RAN#51	R5-110725	1204	-	GCF Priority 2 - Correction to EUTRA RRC test case 8.1.2.7	9.3.0	9.4.0
2011-03	RAN#51	R5-110726	1205	-	GCF priority 2: Correction of sysinfo combination in EMM and ESM test cases	9.3.0	9.4.0
2011-03	RAN#51	R5-110728	1206	-	GCF Priority 2-Correction to TC-9.2.1.1.1a	9.3.0	9.4.0
2011-03	RAN#51	R5-110730	1207	-	GCF Priority 3 - Addition of new TC 6.3.2 Inter-RAT cell reselection / From GSM_Idle/GPRS Packet_Idle to E-UTRA idle CSG cell	9.3.0	9.4.0
2011-03	RAN#51	R5-110731	1208	-	GCF Priority 3 - Update to test case 6.3.3 and 6.3.4	9.3.0	9.4.0
2011-03	RAN#51	R5-110732	1209	-	GCF Priority 3 - Addition of new test case 6.2.2.x for Inter-RAT Cell Selection	9.3.0	9.4.0
2011-03	RAN#51	R5-110733	1210	-	GCF Priority 3 - Correction to EUTRA RRC test case 8.1.1.6	9.3.0	9.4.0
2011-03	RAN#51	R5-110734	1211	-	GCF Priority 3 - Correction to EUTRA RRC test case 8.3.2.7	9.3.0	9.4.0
2011-03	RAN#51	R5-110735	1212	-	GCF Priority 3 - Correction to EUTRA RRC test case 8.3.1.7	9.3.0	9.4.0
2011-03	RAN#51	R5-110737	1213	-	GCF Priority 3 - Correction to EUTRA RRC test case 8.3.1.4	9.3.0	9.4.0
2011-03	RAN#51	R5-110738	1214	-	GCF Priority 3 - Correction to EMM test case 9.2.3.1.23	9.3.0	9.4.0
2011-03	RAN#51	R5-110739	1215	-	GCF Priority 3 - Correction to EMM test case 9.2.1.2.9	9.3.0	9.4.0
2011-03	RAN#51	R5-110740	1216	-	GCF Priority 3 - Correction to EMM test case 9.2.3.1.25	9.3.0	9.4.0
2011-03	RAN#51	R5-110741	1217	-	GCF Priority 3 - Correction to EMM test case 9.2.1.1.16	9.3.0	9.4.0
2011-03	RAN#51	R5-110742	1218	-	GCF Priority 3 - Correction to EMM test cases 9.3.2.2 and 9.3.2.2a	9.3.0	9.4.0
2011-03	RAN#51	R5-110751	1219	-	GCF Priority 3 - Correction to EMM test case 9.3.1.15	9.3.0	9.4.0
2011-03	RAN#51	R5-110752	1220	-	GCF Priority 3 - Correction to EMM test case 9.3.1.3	9.3.0	9.4.0
2011-03	RAN#51	R5-110753	1221	-	Correction to TC 9.2.1.1.25	9.3.0	9.4.0
2011-03	RAN#51	R5-110754	1222	-	GCF Priority 3 - Correction to test case 9.3.1.6	9.3.0	9.4.0
2011-03	RAN#51	R5-110755	1223	-	GCF Priority 3- TC 9.2.3.2.1a	9.3.0	9.4.0
2011-03	RAN#51	R5-110756	1224	-	GCF Priority 3-Correction to TC 13.1.4	9.3.0	9.4.0
2011-03	RAN#51	R5-110758	1225	-	GCF Priority 3 - Correction to MultiLayer test case 13.3.1.1	9.3.0	9.4.0
2011-03	RAN#51	R5-110760	1226	-	GCF Priority 3 - Correction to Multilayer test case 13.1.3	9.3.0	9.4.0
2011-03	RAN#51	R5-110764	1227	-	GCF Priority 4 - Addition of E-UTRAN test case 6.1.1.3 for Cell reselection of ePLMN in manual mode	9.3.0	9.4.0
2011-03	RAN#51	R5-110765	1228	-	GCF Priority 4 - Addition of E-UTRAN test case 6.1.2.1 for Cell selection in forbidden Tracking Area	9.3.0	9.4.0
2011-03	RAN#51	R5-110767	1229	-	GCF Priority 4 - Correction to test case 6.2.1.3	9.3.0	9.4.0
2011-03	RAN#51	R5-110768	1230	-	GCF Priority 4 - Update to test case 6.3.7 and 6.3.8	9.3.0	9.4.0
2011-03	RAN#51	R5-110769	1231	-	GCF Priority 4 Correction of test case in 8.1.3.7	9.3.0	9.4.0
2011-03	RAN#51	R5-110770	1232	-	GCF Priority 4 - Correction to EUTRA RRC test case 8.1.2.6	9.3.0	9.4.0
2011-03	RAN#51	R5-110771	1233	-	Correction to TC 9.2.3.2.1c	9.3.0	9.4.0
2011-03	RAN#51	R5-110772	1234	-	GCF Priority 4 - Correction to EMM test case 9.2.3.2.10	9.3.0	9.4.0
2011-03	RAN#51	R5-110773	1235	-	GCF Priority 4 - Correction to EMM test case 9.2.3.2.9	9.3.0	9.4.0
2011-03	RAN#51	R5-110774	1236	-	GCF Priority 2 - Correction to EMM test case 9.3.1.7a	9.3.0	9.4.0
2011-03	RAN#51	R5-110775	1237	-	GCF Priority 2 - Correction to EMM test case 9.3.1.7	9.3.0	9.4.0
2011-03	RAN#51	R5-110776	1238	-	GCF Priority 3 - Correction to EMM test case 9.2.3.1.14	9.3.0	9.4.0
2011-03	RAN#51	R5-110777	1239	-	GCF Priority 3 - Correction to EMM test case 9.2.3.1.13	9.3.0	9.4.0
2011-03	RAN#51	R5-110778	1240	-	GCF Priority 4: Correction test case 9.2.1.2.1b, 9.2.1.2.1c and 9.2.3.2.1b to check the signalled MS Radio Access capability	9.3.0	9.4.0

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2011-03	RAN#51	R5-110779	1241	-	GCF Priority 4: Correction to ESM test case 10.9.1	9.3.0	9.4.0
2011-03	RAN#51	R5-110781	1242	-	GCF Priority 4: New TC 13.1.9 Call setup from E-UTRA RRC_IDLE - CS fallback to GSM with CCO without NACC - MO call	9.3.0	9.4.0
2011-03	RAN#51	R5-110783	1243	-	GCF Priority 2 - Correction to TCs 9.2.1.2.1 and 13.1.7	9.3.0	9.4.0
2011-03	RAN#51	R5-110790	1244	-	Priority X Addition new test case 6.2.3.32	9.3.0	9.4.0
2011-03	RAN#51	R5-110791	1245	-	Correction to TC 6.3.7	9.3.0	9.4.0
2011-03	RAN#51	R5-110792	1246	-	GCF Priority 1 - Update to EUTRA RLC test cases 7.2.3.6, 7.2.3.7, 7.2.3.8 and 7.2.3.17	9.3.0	9.4.0
2011-03	RAN#51	R5-110793	1247	-	GCF Priority 2 - Correction to EMM test case 9.2.2.2.2	9.3.0	9.4.0
2011-03	RAN#51	R5-110794	1248	-	GCF Priority 2 - Update of EMM test case 9.2.3.3.6	9.3.0	9.4.0
2011-03	RAN#51	R5-110796	1249	-	GCF Priority X: Adding test case 9.2.1.2.1d Combined attach procedure / Success / EPS and CS Fallback not preferred/data centric UE	9.3.0	9.4.0
2011-03	RAN#51	R5-110797	1250	-	GCF Priority X - Update to test case 13.1.15	9.3.0	9.4.0
2011-03	RAN#51	R5-110798	1251	-	Update to chapter '4.3 Repetition of tests' to clarify re-testing in test cases, where HARQ retransmissions are not tolerated	9.3.0	9.4.0
2011-03	RAN#51	R5-110813	1252	-	Introduction of new test case 11.2.1 for CT1 aspects of emergency calls	9.3.0	9.4.0
2011-03	RAN#51	R5-110830	1254	-	GCF Priority 2 - Correction to SMS test cases 11.1.1, 11.1.2, 11.1.3, 11.1.4	9.3.0	9.4.0
2011-03	RAN#51	R5-110876	1255	-	GCF Priority 2 - Correction to E-UTRA RLC test case 7.2.3.16	9.3.0	9.4.0
2011-03	RAN#51	R5-110877	1253	-	Priority 2 -4: Adjusting the power levels of multiple cell, multiple RAT EMM test cases	9.3.0	9.4.0
2011-03	RAN#51	R5-110062	1256	-	GCF Priority 2 - Correction to EUTRA IDLE MODE test case 6.1.2.9	9.3.0	9.4.0
2011-03	RAN#51	R5-110072	1257	-	GCF Priority 3 - Correction to MultiLayer test case 13.4.1.2	9.3.0	9.4.0
2011-03	RAN#51	R5-110077	1258	-	GCF Priority 3 - Correction to EMM test case 9.1.2.6	9.3.0	9.4.0
2011-03	RAN#51	R5-110078	1259	-	GCF Priority 3 - Correction to ESM test case 10.8.2	9.3.0	9.4.0
2011-03	RAN#51	R5-110081	1260	-	GCF Priority 3 - Correction to EUTRA RRC test case 8.1.2.3	9.3.0	9.4.0
2011-03	RAN#51	R5-110083	1261	-	GCF Priority 1 - Correction to EUTRA MAC test case 7.1.3.9	9.3.0	9.4.0
2011-03	RAN#51	R5-110085	1262	-	GCF Priority 3 - Correction to EMM test case 9.2.2.1.9	9.3.0	9.4.0
2011-03	RAN#51	R5-110086	1263	-	GCF Priority 3 - Correction to EMM test case 9.2.1.1.24	9.3.0	9.4.0
2011-03	RAN#51	R5-110087	1264	-	GCF Priority 3 - Correction to EUTRA RRC test case 8.3.1.11	9.3.0	9.4.0
2011-03	RAN#51	R5-110091	1265	-	GCF Priority 3 - Correction to MultiLayer test case 13.3.1.2	9.3.0	9.4.0
2011-03	RAN#51	R5-110097	1266	-	CGF Priority 4 - Correction to EUTRA DRB test case 12.3.2	9.3.0	9.4.0
2011-03	RAN#51	R5-110122	1267	-	GCF Priority 4 - Correction of cell number description for test case 6.1.1.6	9.3.0	9.4.0
2011-03	RAN#51	R5-110133	1268	-	GCF priority 2-4: correction of EMM, RRC, Idle mode TC postamble in connected mode	9.3.0	9.4.0
2011-03	RAN#51	R5-110814	1269	-	Addition of new idle mode test case for manual CSG ID selection across PLMNs	9.3.0	9.4.0
2011-03	RAN#51	R5-110815	1270	-	Addition of new idle mode test case for inter-freq cell reselection to hybrid cell based on CSG autonomous search	9.3.0	9.4.0
2011-06	RAN#52	R5-112079	1277	-	GCF Priority 3 - Correction to EUTRA RRC test case 8.2.4.7	9.4.0	9.5.0
2011-06	RAN#52	R5-112080	1278	-	GCF Priority 3 - Correction to EUTRA RRC test case 8.1.1.2	9.4.0	9.5.0
2011-06	RAN#52	R5-112082	1279	-	GCF Priority 2 - Correction to EUTRA Idle mode test case 6.1.1.1	9.4.0	9.5.0
2011-06	RAN#52	R5-112083	1280	-	GCF Priority 1 - Correction to EUTRA PDCP test cases 7.3.4.1 and 7.3.4.2	9.4.0	9.5.0
2011-06	RAN#52	R5-112085	1281	-	GCF Priority 4 - Correction to EUTRA RRC test case 8.5.1.4	9.4.0	9.5.0
2011-06	RAN#52	R5-112088	1283	-	GCF Priority 2 - Correction to EUTRA Idle mode test case 6.1.2.6	9.4.0	9.5.0

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2011-06	RAN#52	R5-112089	1284	-	GCF Priority 2 - Correction to EMM test case 9.2.1.1.1a	9.4.0	9.5.0
2011-06	RAN#52	R5-112090	1285	-	GCF Priority 3 - Correction to EMM test case 9.2.1.2.3	9.4.0	9.5.0
2011-06	RAN#52	R5-112093	1286	-	GCF Priority 3 - Correction to EMM test case 9.2.1.2.15	9.4.0	9.5.0
2011-06	RAN#52	R5-112094	1287	-	GCF Priority 1 - Correction to EMM test case 9.2.3.1.5	9.4.0	9.5.0
2011-06	RAN#52	R5-112095	1288	-	GCF Priority 2 - Correction to EMM test case 9.2.1.1.12	9.4.0	9.5.0
2011-06	RAN#52	R5-112096	1289	-	GCF Priority 3 - Correction to EMM test case 9.2.1.2.2	9.4.0	9.5.0
2011-06	RAN#52	R5-112097	1290	-	GCF Priority 3 - Correction to EMM test case 9.2.1.2.13	9.4.0	9.5.0
2011-06	RAN#52	R5-112098	1291	-	GCF Priority 3 - Correction to EMM test case 9.2.3.1.4	9.4.0	9.5.0
2011-06	RAN#52	R5-112105	1292	-	GCF Priority 2 - Correction to EMM test cases 9.2.1.2.1, 9.2.2.2.2	9.4.0	9.5.0
2011-06	RAN#52	R5-112106	1293	-	GCF Priority 2 - Correction to ESM test case 10.3.1	9.4.0	9.5.0
2011-06	RAN#52	R5-112107	1294	-	Removal of ESM test case 10.6.2	9.4.0	9.5.0
2011-06	RAN#52	R5-112109	1295	-	GCF Priority 2 - Correction to EMM test case 9.3.1.7 and 9.3.1.7a	9.4.0	9.5.0
2011-06	RAN#52	R5-112118	1296	-	GCF Priority 2 - Correction to update reference to 36.508 table 6.4.2.7A-1 and 6.4.2.7A-2	9.4.0	9.5.0
2011-06	RAN#52	R5-112121	1297	-	GCF Priority 4 - Correction to EMM test cases 9.2.3.2.5, 9.2.3.2.6 and 9.2.3.2.7	9.4.0	9.5.0
2011-06	RAN#52	R5-112122	1298	-	GCF Priority 2 - Correction to specific message content for RRC Connection Reconfiguration message (Handover test cases)	9.4.0	9.5.0
2011-06	RAN#52	R5-112145	1299	-	GCF Priority 1 - Correction to GCF WI-081 MAC Testcase 7.1.2.9	9.4.0	9.5.0
2011-06	RAN#52	R5-112162	1300	-	GCF Priority 4 - remove the message contents from 14.1, 14.2 and 14.3	9.4.0	9.5.0
2011-06	RAN#52	R5-112205	1301	-	GCF Priority 2 - Correction to EUTRA RLC test case 7.2.2.10	9.4.0	9.5.0
2011-06	RAN#52	R5-112208	1302	-	GCF priority 4: Correction of UTRA cell in EMM test case 9.2.3.2.8	9.4.0	9.5.0
2011-06	RAN#52	R5-112257	1303	-	GCF Priority 2 - Correcting usage of generic test procedure 36.508 cl. 6.4.2.8	9.4.0	9.5.0
2011-06	RAN#52	R5-112262	1304	-	GCF Priority 4 - Correction to Multilayer test cases 13.2.1, 13.4.1.2, 13.4.1.3	9.4.0	9.5.0
2011-06	RAN#52	R5-112266	1305	-	GCF priority 1 - Correction to EUTRA MAC test case 7.1.4.13	9.4.0	9.5.0
2011-06	RAN#52	R5-112276	1306	-	GCF Priority 4 - Update of EMM test case 9.2.1.1.4	9.4.0	9.5.0
2011-06	RAN#52	R5-112287	1307	-	GCF Priority 3 - Editorial correction to EMM test case 9.2.1.1.26	9.4.0	9.5.0
2011-06	RAN#52	R5-112304	1308	-	GCF Priority 4 - Correction to TC 8.1.3.7	9.4.0	9.5.0
2011-06	RAN#52	R5-112351	1309	-	GCF Priority 3 - Update of EMM TC 9.2.1.2.13	9.4.0	9.5.0
2011-06	RAN#52	R5-112390	1310	-	Update of HeNB enhancements test case 6.3.9	9.4.0	9.5.0
2011-06	RAN#52	R5-112391	1311	-	Update of HeNB enhancements test case 6.4.2	9.4.0	9.5.0
2011-06	RAN#52	R5-112392	1312	-	Update of idle mode section Table 6.0.1-2	9.4.0	9.5.0
2011-06	RAN#52	R5-112434	1313	-	GCF Priority 1 - Correction to EUTRA MAC test case 7.1.2.5	9.4.0	9.5.0
2011-06	RAN#52	R5-112483	1314	-	GCF Priority 1 - Correction to EUTRA MAC test case 7.1.2.1	9.4.0	9.5.0
2011-06	RAN#52	R5-112534	1315	-	GCF Priority 3: Update of TC 8.3.1.4	9.4.0	9.5.0
2011-06	RAN#52	R5-112569	1316	-	GCF Priority 3 – Correction to test case 9.2.3.1.25	9.4.0	9.5.0
2011-06	RAN#52	R5-112594	1318	-	New TC 6.4.6 Inter-RAT cell reselection / From UTRA CELL_PCH to E-UTRA RRC_IDLE member hybrid cell	9.4.0	9.5.0
2011-06	RAN#52	R5-112595	1319	-	New TC 6.4.7 Inter-RAT cell reselection / From GERAN to E-UTRA RRC_IDLE member hybrid cell	9.4.0	9.5.0
2011-06	RAN#52	R5-112602	1320	-	GCF priority 4 - Addition of Multi-layer Procedures test case 13.1.13	9.4.0	9.5.0
2011-06	RAN#52	R5-112603	1321	-	GCF Priority 1 - Correction to EUTRA RLC test case 7.2.3.6	9.4.0	9.5.0
2011-06	RAN#52	R5-112604	1322	-	GCF Priority 1 - Correction to EUTRA RLC test case 7.2.3.6	9.4.0	9.5.0
2011-06	RAN#52	R5-112605	1323	-	GCF priority 1 - Modification to EUTRA RLC	9.4.0	9.5.0

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					test case 7.2.3.9		
2011-06	RAN#52	R5-112606	1324	-	GCF Priority 1 - Correction to EUTRA RLC test case 7.2.3.18	9.4.0	9.5.0
2011-06	RAN#52	R5-112607	1325	-	GCF Priority 2 Correction of CSG test cases	9.4.0	9.5.0
2011-06	RAN#52	R5-112608	1326	-	GCF Priority 2 - Correction to EUTRA PDCP test cases 7.3.5.2	9.4.0	9.5.0
2011-06	RAN#52	R5-112610	1327	-	GCF Priority 2 - Review of detach at switch/power off procedure in EMM test cases and Emergency calls over IMS test case 11.2.3	9.4.0	9.5.0
2011-06	RAN#52	R5-112611	1328	-	GCF Priority 2 - Correction to EMM test case 9.2.3.1.2	9.4.0	9.5.0
2011-06	RAN#52	R5-112614	1329	-	GCF Priority 3 Correction of Measurement configuration test cases	9.4.0	9.5.0
2011-06	RAN#52	R5-112615	1330	-	GCF Priority 3 - Correction to EMM test cases 9.2.1.2.5, 9.2.1.2.6 and 9.2.1.2.7	9.4.0	9.5.0
2011-06	RAN#52	R5-112616	1331	-	GCF Priority 3 - Correction to EMM test cases 9.3.1.4 & 9.3.1.5	9.4.0	9.5.0
2011-06	RAN#52	R5-112617	1332	-	GCF Priority 3 - Correction to EMM test case 9.2.3.1.14	9.4.0	9.5.0
2011-06	RAN#52	R5-112618	1333	-	GCF Priority 3 - Correction to EMM test case 9.2.3.1.15	9.4.0	9.5.0
2011-06	RAN#52	R5-112619	1334	-	GCF Priority 3 - Correction to EMM test case 9.2.3.2.3	9.4.0	9.5.0
2011-06	RAN#52	R5-112620	1335	-	GCF Priority 3 - Correction to EMM test case 9.2.3.2.9	9.4.0	9.5.0
2011-06	RAN#52	R5-112622	1337	-	GCF Priority 3 - Correction to EMM test case 9.2.1.2.8	9.4.0	9.5.0
2011-06	RAN#52	R5-112623	1338	-	GCF Priority 3 - Correction to EMM test case 9.2.1.2.9	9.4.0	9.5.0
2011-06	RAN#52	R5-112624	1339	-	GCF Priority 3 - Correction to EMM test case 9.2.3.2.12	9.4.0	9.5.0
2011-06	RAN#52	R5-112625	1340	-	GCF Priority 3 - Correction to time requirements at cell reselection in EMM test cases	9.4.0	9.5.0
2011-06	RAN#52	R5-112626	1341	-	GCF Priority 3 - Addition of new test case 9.2.3.1.22	9.4.0	9.5.0
2011-06	RAN#52	R5-112628	1342	-	Addition of GCF Priority 3 EMM test case 9.2.2.1.4	9.4.0	9.5.0
2011-06	RAN#52	R5-112629	1343	-	GCF Priority 3 - Correction to Multilayer test case 13.1.3 and 13.1.15	9.4.0	9.5.0
2011-06	RAN#52	R5-112630	1344	-	GCF Priority 3 - New Multi Layer TC 13.4.2.4 Inter-system mobility / Service based redirection from UTRA to E-UTRA	9.4.0	9.5.0
2011-06	RAN#52	R5-112631	1345	-	GCF Priority 3 - Addition of new test case 13.4.2.2	9.4.0	9.5.0
2011-06	RAN#52	R5-112632	1346	-	GCF Priority 3 - Correction to test case 13.1.4	9.4.0	9.5.0
2011-06	RAN#52	R5-112634	1347	-	GCF Priority 3 - Addition of new test case 8.4.3.1 Inter-RAT handover / From E-UTRA to GPRS / PS HO	9.4.0	9.5.0
2011-06	RAN#52	R5-112636	1348	-	GCF Priority 3 - Addition of new test case 13.3.2.1	9.4.0	9.5.0
2011-06	RAN#52	R5-112638	1349	-	Correction to EMM test case to allow execution of all RAT specific branches using a single MRAT device	9.4.0	9.5.0
2011-06	RAN#52	R5-112639	1350	-	GCF Priority 4 Addition new test case 9.2.3.1.9	9.4.0	9.5.0
2011-06	RAN#52	R5-112640	1351	-	GCF Priority 4 - Corrections to Extended Service Request message in 9.2.3.2.1b and 13.1.8	9.4.0	9.5.0
2011-06	RAN#52	R5-112641	1352	-	GCF priority 4 - Addition of EMM test case 9.2.3.1.20	9.4.0	9.5.0
2011-06	RAN#52	R5-112642	1353	-	GCF Priority 4 - Add new test case 13.4.3.1	9.4.0	9.5.0
2011-06	RAN#52	R5-112643	1354	-	GCF Priority 1 - Correction to EMM test case 9.2.1.1.1	9.4.0	9.5.0
2011-06	RAN#52	R5-112654	1355	-	Add new test case 11.2.2	9.4.0	9.5.0
2011-06	RAN#52	R5-112657	1356	-	Addition of new test case on Attach for emergency bearer services / Rejected / No suitable cells in tracking area / Emergency call using the CS domain	9.4.0	9.5.0
2011-06	RAN#52	R5-112658	1357	-	Update of IMS Emergency TC 11.2.6	9.4.0	9.5.0
2011-06	RAN#52	R5-112659	1358	-	New TC for IMS Emergency 11.2.7	9.4.0	9.5.0
2011-06	RAN#52	R5-112660	1359	-	GCF Priority 4 - Update of TC 13.1.9 MO call CS fallback to GSM with CCO without NACC	9.4.0	9.5.0
2011-06	RAN#52	R5-112661	1360	-	GCF Priority 4 - New TC 13.1.10 MT call CS	9.4.0	9.5.0

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					fallback to GSM with CCO without NACC PS service suspension		
2011-06	RAN#52	R5-112666	1361	-	GCF Priority X Correction of test case in 6.2.2.8	9.4.0	9.5.0
2011-06	RAN#52	R5-112667	1362	-	GCF Priority X - Addition of new test case 13.1.2a	9.4.0	9.5.0
2011-06	RAN#52	R5-112668	1363	-	GCF Priority X - Addition of new test case 13.1.16	9.4.0	9.5.0
2011-06	RAN#52	R5-112671	1364	-	Update test case 8.1.2.11	9.4.0	9.5.0
2011-06	RAN#52	R5-112672	1365	-	Update test case 8.1.2.12	9.4.0	9.5.0
2011-06	RAN#52	R5-112678	1366	-	GCF Priority X Addition new test case 6.4.3	9.4.0	9.5.0
2011-06	RAN#52	R5-112679	1367	-	GCF Priority X Addition new test case 6.4.4	9.4.0	9.5.0
2011-06	RAN#52	R5-112680	1368	-	GCF Priority X Addition new test case 6.4.5	9.4.0	9.5.0
2011-06	RAN#52	R5-112682	1369	-	Addition of new HeNB test case for intra-frequency SI acquisition	9.4.0	9.5.0
2011-06	RAN#52	R5-112687	1372	-	GCF priority 4 - Update Multi-layer Procedures test case 13.1.7	9.4.0	9.5.0
2011-06	RAN#52	R5-112688	1373	-	GCF priority 4 - Addition of Multi-layer Procedures test case 13.1.11	9.4.0	9.5.0
2011-06	RAN#52	R5-112689	1374	-	GCF priority 4 - Addition of Multi-layer Procedures test case 13.1.12	9.4.0	9.5.0
2011-06	RAN#52	R5-112690	1375	-	GCF Priority 2 - Correction to EUTRA Idle mode test case 6.3.6	9.4.0	9.5.0
2011-06	RAN#52	R5-112693	1376	-	Addition of a new TC for MCCH information acquisition/UE is switched on	9.4.0	9.5.0
2011-06	RAN#52	R5-112695	1378	-	Addition of a new TC for MCCH information acquisition/ UE handover to a cell in a new MBMS area	9.4.0	9.5.0
2011-06	RAN#52	R5-112701	1379	-	GCF Priority 3 - Correction to test case 13.1.2	9.4.0	9.5.0
2011-06	RAN#52	R5-112703	1381	-	GCF priority 4 - Update Multi-layer Procedures test case 13.3.1.2	9.4.0	9.5.0
2011-06	RAN#52	R5-112705	1382	-	GCF Priority 2 - Corrections to EUTRA RRC test case 8.4.1.2	9.4.0	9.5.0
2011-06	RAN#52	R5-112720	1385	-	GCF Priority 2: Update of test case 9.2.3.4.1	9.4.0	9.5.0
2011-06	RAN#52	R5-112749	1377	-	Addition of a new TC for MCCH information acquisition/ when cell reselection to a cell in a new MBMS area	9.4.0	9.5.0
2011-06	RAN#52	R5-112750	1370	-	GCF Priority X - Addition of new test case 6.4.1	9.4.0	9.5.0
2011-06	RAN#52	R5-112753	1317	-	GCF priority 1 – Correction to EUTRA MAC test case 7.1.4.10	9.4.0	9.5.0
2011-06	RAN#52	R5-112754	1336	-	GCF Priority 2 - Correction to EUTRA MAC test case 7.1.4.3	9.4.0	9.5.0
2011-06	RAN#52	R5-112755	1383	-	GCF Priority 1 - Correction to EUTRA RLC test case 7.2.3.17	9.4.0	9.5.0
2011-06	RAN#52	R5-112756	1380	-	GCF priority 4 - Addition of EMM test case 9.2.3.3.3	9.4.0	9.5.0
2011-06	RAN#52	R5-112757	1371	-	GCF Priority X - Add new test case 9.2.2.1.10	9.4.0	9.5.0
2011-06	GERAN# 50	GP-110571	1274	-	CR 36.523-1-1274 Removal of LTE TC 6.2.3.2 specification due to duplication	9.4.0	9.5.0
2011-06	GERAN# 50	GP-110575	1275	-	CR 36.523-1-1275 Removal of Test Case 8.4.4.2	9.4.0	9.5.0
2011-06	GERAN# 50	GP-110831	1386	-	CR 36.523-1-1386 Addition of new Test case 8.4.4.2 Inter-RAT PS Handover / from GPRS Packet_transfer to E-UTRA cell (CCN mode)	9.4.0	9.5.0
2011-06	GERAN# 50	GP-110832	1387	-	CR 36.523-1-1387 Addition of new Test case 8.4.4.3 Inter-RAT PS Handover / from GPRS Packet_transfer to E-UTRA cell (NC2 mode)	9.4.0	9.5.0
2011-06	GERAN# 50	GP-110839	1273	1	CR 36.523-1-1273 Modification of tc 6.2.3.19	9.4.0	9.5.0
2011-09	GERAN# 51	GP-111104	1386	1	CR 36.523-1-1386 Corrections to GERAN – LTE Tests	9.5.0	9.6.0
2011-09	RAN#53	R5-113031	1389	-	GCF Priority 3: Correction of EMM TC 9.2.3.2.1a	9.5.0	9.6.0
2011-09	RAN#53	R5-113101	1390	-	GCF Priority 4 - Correction to Idle mode test case 6.2.2.7	9.5.0	9.6.0
2011-09	RAN#53	R5-113102	1391	-	GCF Priority 2 -Correction to EUTRA RRC test case 8.1.3.6	9.5.0	9.6.0
2011-09	RAN#53	R5-113104	1392	-	GCF Priority 1 - Correction to EUTRA RRC test cases 8.2.4.1, 8.2.4.4 and 8.2.4.7	9.5.0	9.6.0
2011-09	RAN#53	R5-113105	1393	-	GCF Priority 4 - Correction to EUTRA RRC test case 8.3.1.6	9.5.0	9.6.0
2011-09	RAN#53	R5-113106	1394	-	GCF Priority 3 - Correction to EUTRA RRC test case 8.3.1.7	9.5.0	9.6.0
2011-09	RAN#53	R5-113107	1395	-	GCF Priority 1 - Correction to EUTRA RRC test	9.5.0	9.6.0

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					case 8.3.3.1		
2011-09	RAN#53	R5-113108	1396	-	GCF Priority 3 - Correction to EUTRA RRC test case 8.2.4.7	9.5.0	9.6.0
2011-09	RAN#53	R5-113110	1397	-	GCF Priority 1 - Correction to ESM test cases 10.2.1 and 10.4.1	9.5.0	9.6.0
2011-09	RAN#53	R5-113111	1398	-	GCF Priority 4 - Correction to ESM test cases 10.8.5 and 10.8.6	9.5.0	9.6.0
2011-09	RAN#53	R5-113113	1399	-	GCF Priority 3 - Correction to EMM test case 9.2.1.1.11	9.5.0	9.6.0
2011-09	RAN#53	R5-113114	1400	-	GCF Priority 3 - Correction to EMM test case 9.2.3.1.16	9.5.0	9.6.0
2011-09	RAN#53	R5-113115	1401	-	GCF Priority 3 - Correction to EMM test cases 9.2.3.1.9a and 9.2.3.1.23	9.5.0	9.6.0
2011-09	RAN#53	R5-113116	1402	-	GCF Priority 4 - Correction to EMM test case 9.2.3.2.2	9.5.0	9.6.0
2011-09	RAN#53	R5-113117	1403	-	GCF Priority 4 - Correction to EMM test case 9.2.3.2.4	9.5.0	9.6.0
2011-09	RAN#53	R5-113118	1404	-	GCF Priority 4 - Correction to EMM test case 9.2.3.2.11	9.5.0	9.6.0
2011-09	RAN#53	R5-113121	1405	-	GCF Priority 3 - Correction to EMM test case 9.2.1.1.25	9.5.0	9.6.0
2011-09	RAN#53	R5-113124	1406	-	GCF Priority 3 - Correction to EMM test case 9.2.1.2.12	9.5.0	9.6.0
2011-09	RAN#53	R5-113129	1407	-	GCF Priority 1 - Correction to several EUTRA RLC test cases	9.5.0	9.6.0
2011-09	RAN#53	R5-113131	1408	-	GCF Priority 1 - Correction to EUTRA RLC test case 7.2.3.9	9.5.0	9.6.0
2011-09	RAN#53	R5-113170	1409	-	GCF Priority TBD - Update of test case 6.3.1 Inter-frequency cell reselection / From E-UTRA RRC_IDLE non-CSG cell to E-UTRA RRC_IDLE CSG cell	9.5.0	9.6.0
2011-09	RAN#53	R5-113188	1410	-	GCF Priority 2 - Correction to ESM test case 10.4.1	9.5.0	9.6.0
2011-09	RAN#53	R5-113189	1411	-	GCF Priority 1 - Correction to EUTRA RLC test case 7.2.3.7	9.5.0	9.6.0
2011-09	RAN#53	R5-113190	1412	-	GCF Priority 3 - Correction to Multilayer test case 13.3.1.2	9.5.0	9.6.0
2011-09	RAN#53	R5-113240	1413	-	GCF Priority 3 - Update of EMM test case 9.2.2.1.9	9.5.0	9.6.0
2011-09	RAN#53	R5-113270	1414	-	Update of IMS emergency test case 11.2.3	9.5.0	9.6.0
2011-09	RAN#53	R5-113293	1415	-	Update of the case 11.2.4	9.5.0	9.6.0
2011-09	RAN#53	R5-113294	1416	-	Update of test case 11.2.5	9.5.0	9.6.0
2011-09	RAN#53	R5-113300	1417	-	GCF Priority 2 - Update test case 9.1.2.3, 9.2.1.1.9, 9.2.1.1.11, 9.2.1.1.25, 9.2.1.2.12, 9.2.2.1.2, 9.2.2.1.3, 9.2.2.1.8, 9.2.2.1.9, 9.2.3.2.4, 9.3.1.6 and 9.3.1.16	9.5.0	9.6.0
2011-09	RAN#53	R5-113325	1418	-	GCF Priority 3 - Correction to testcase 13.3.2.1	9.5.0	9.6.0
2011-09	RAN#53	R5-113331	1420	-	GCF Priority 3 - Corrections to TC 6.3.2 Inter-RAT reselection from GERAN to E-UTRA CSG cell	9.5.0	9.6.0
2011-09	RAN#53	R5-113332	1421	-	Corrections to TC 6.4.7 Inter-RAT reselection from GERAN to E-UTRA Hybrid cell	9.5.0	9.6.0
2011-09	RAN#53	R5-113333	1422	-	Corrections to HeNB Section 6.3 TCs	9.5.0	9.6.0
2011-09	RAN#53	R5-113360	1423	-	Priority 4: Correction to TC 13.1.9 MO call CS fallback to GSM with CCO without NACC	9.5.0	9.6.0
2011-09	RAN#53	R5-113364	1424	-	GCF Priority 3 - Correction to test case 9.3.1.17	9.5.0	9.6.0
2011-09	RAN#53	R5-113374	1425	-	GCF priority 3 - Update to Multi Layer Procedure test case 13.3.1.1	9.5.0	9.6.0
2011-09	RAN#53	R5-113482	1426	-	GCF Priority 3 - Correction to test case 9.2.1.2.5	9.5.0	9.6.0
2011-09	RAN#53	R5-113539	1427	-	GCF Priority 3 - Correction to EMM test case 9.2.1.2.15	9.5.0	9.6.0
2011-09	RAN#53	R5-113573	1428	-	GCF Priority 4 - Editorial correction to EUTRA RRC test case 8.3.2.4	9.5.0	9.6.0
2011-09	RAN#53	R5-113575	1429	-	GCF Priority 3 / 4 - Editorial corrections to EUTRA MAC test cases 7.1.5.x	9.5.0	9.6.0
2011-09	RAN#53	R5-113672	1430	-	GCF Priority 1 - Correction to GCF WI-091 MAC Testcase 7.1.4.15	9.5.0	9.6.0
2011-09	RAN#53	R5-113673	1431	-	GCF Priority 1: Correction to RLC AM test case 7.2.3.6	9.5.0	9.6.0
2011-09	RAN#53	R5-113674	1432	-	GCF Priority 1 - Correction to EUTRA RRC test case 8.5.4.1	9.5.0	9.6.0
2011-09	RAN#53	R5-113675	1433	-	GCF Priority 1 & 3 :Corrections to test cases	9.5.0	9.6.0

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					9.2.3.1.1, 9.2.3.1.9a & 9.2.3.1.27, to make suitable for single frequency operation		
2011-09	RAN#53	R5-113676	1434	-	GCF Priority 2 - Correction to Idle mode test case 6.1.2.6	9.5.0	9.6.0
2011-09	RAN#53	R5-113677	1435	-	GCF Priority 2 Complete SIBs Reading for TC 6.2.2.1_2_3_4	9.5.0	9.6.0
2011-09	RAN#53	R5-113678	1436	-	GCF Priority 2 Complete SIBs Reading for TC 6.2.3	9.5.0	9.6.0
2011-09	RAN#53	R5-113679	1437	-	GCF Priority 2: Correction to DRX test cases 7.1.6.1 and 7.1.6.2	9.5.0	9.6.0
2011-09	RAN#53	R5-113680	1438	-	GCF Priority 2 Complete SIBs Reading for TC 8.4.2.2.4	9.5.0	9.6.0
2011-09	RAN#53	R5-113681	1439	-	GCF Priority 2 & 3: Update of EMM test cases to cater for bands with single frequency operation	9.5.0	9.6.0
2011-09	RAN#53	R5-113682	1440	-	GCF Priority 2 - Update of EMM test cases 9.2.1.2.1	9.5.0	9.6.0
2011-09	RAN#53	R5-113685	1441	-	GCF Priority 2 - Correction to GCF WI-082 EMM LTE MRAT Testcase 9.2.3.1.18/	9.5.0	9.6.0
2011-09	RAN#53	R5-113687	1442	-	GCF Priority 3 Complete SIBs Reading for TC 6.3.2.3.7.8	9.5.0	9.6.0
2011-09	RAN#53	R5-113688	1443	-	GCF Priority 3 - Update of test case 6.2.1.1	9.5.0	9.6.0
2011-09	RAN#53	R5-113689	1444	-	GCF Priority 3 - Update of test case 6.2.3.32	9.5.0	9.6.0
2011-09	RAN#53	R5-113690	1445	-	GCF Priority 3 - Correction to EUTRA MAC test case 7.1.4.14	9.5.0	9.6.0
2011-09	RAN#53	R5-113691	1446	-	GCF Priority 3 - Correction to EUTRA RRC test case 8.2.4.12	9.5.0	9.6.0
2011-09	RAN#53	R5-113692	1447	-	GCF Priority 3 - Correction to EMM test case 9.1.5.1	9.5.0	9.6.0
2011-09	RAN#53	R5-113693	1448	-	GCF Priority 3 - Correction to EMM test cases 9.3.1.4 and 9.3.1.5	9.5.0	9.6.0
2011-09	RAN#53	R5-113694	1449	-	GCF Priority 3 - Correction of test case 9.2.3.1.9a	9.5.0	9.6.0
2011-09	RAN#53	R5-113695	1450	-	GCF Priority 3 - Correction to location update message contents	9.5.0	9.6.0
2011-09	RAN#53	R5-113696	1451	-	GCF Priority 3 - Update of EMM test cases to cater for bands with single frequency and LTE only operation	9.5.0	9.6.0
2011-09	RAN#53	R5-113699	1452	-	GCF Priority 3 - Correction to the value of timer T3402 in EMM test case 9.2.3.1.26	9.5.0	9.6.0
2011-09	RAN#53	R5-113701	1453	-	GCF Priority 3 - Correction to ESM test cases 10.7.3 and 10.8.3	9.5.0	9.6.0
2011-09	RAN#53	R5-113702	1454	-	GCF Priority 4 - Correction to GCF WI-081 Idle Mode Testcase 6.1.1.2	9.5.0	9.6.0
2011-09	RAN#53	R5-113703	1455	-	GCF Priority 4: Correction to Rank Indication test case 7.1.8.1	9.5.0	9.6.0
2011-09	RAN#53	R5-113704	1456	-	GCF Priority 4 - Correction to EUTRA RRC test case 8.1.2.8	9.5.0	9.6.0
2011-09	RAN#53	R5-113705	1457	-	GCF Priority 4 - Correction to 8.1.2.13	9.5.0	9.6.0
2011-09	RAN#53	R5-113706	1458	-	GCF Priority 4 – Update to test cases 8.2.1.5 and 8.2.1.6	9.5.0	9.6.0
2011-09	RAN#53	R5-113707	1459	-	GCF Priority 4 - Correction to EUTRA RRC Test Case 8.4.3.3	9.5.0	9.6.0
2011-09	RAN#53	R5-113708	1460	-	GCF Priority 4 - Addition of EUTRA RRC Test Case 8.4.1.5	9.5.0	9.6.0
2011-09	RAN#53	R5-113709	1461	-	GCF Priority 4 - Correction to EMM test case 9.2.3.2.17	9.5.0	9.6.0
2011-09	RAN#53	R5-113710	1462	-	GCF Priority 4: Correction test case 9.2.1.2.1b to check the signalled MS Radio Access capability	9.5.0	9.6.0
2011-09	RAN#53	R5-113711	1463	-	GCF Priority 4 - Correction to GCF WI-082 ESM Testcase 10.8.7	9.5.0	9.6.0
2011-09	RAN#53	R5-113713	1465	-	GCF Priority 4 - Correction to ESM test case 10.9.1	9.5.0	9.6.0
2011-09	RAN#53	R5-113714	1466	-	GCF Priority 4 - Correction to ESM test case 10.3.1	9.5.0	9.6.0
2011-09	RAN#53	R5-113715	1467	-	GCF Priority 4 - Update to test case 13.1.15	9.5.0	9.6.0
2011-09	RAN#53	R5-113716	1468	-	GCF Priority 4 - Update of test case 13.1.11	9.5.0	9.6.0
2011-09	RAN#53	R5-113717	1469	-	GCF Priority 4 - Update of test case 13.1.12	9.5.0	9.6.0
2011-09	RAN#53	R5-113718	1470	-	GCF Priority 4 - Update of test case 13.1.13	9.5.0	9.6.0
2011-09	RAN#53	R5-113719	1471	-	GCF Priority 4 - Update of test case 13.1.7	9.5.0	9.6.0
2011-09	RAN#53	R5-113720	1472	-	GCF Priority 4 - Update of test case 13.1.8	9.5.0	9.6.0
2011-09	RAN#53	R5-113721	1473	-	GCF Priority 4 - Add new test case 13.4.3.2	9.5.0	9.6.0

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2011-09	RAN#53	R5-113722	1474	-	GCF Priority 4 - Update test case 13.4.3.1	9.5.0	9.6.0
2011-09	RAN#53	R5-113723	1475	-	GCF Priority 4 - Add new test case 13.4.3.4	9.5.0	9.6.0
2011-09	RAN#53	R5-113728	1477	-	Update test case 8.1.2.12	9.5.0	9.6.0
2011-09	RAN#53	R5-113729	1478	-	Addition of new test case for e1xCSFB / MT call	9.5.0	9.6.0
2011-09	RAN#53	R5-113730	1479	-	Addition of new test case for e1xCSFB / MO call	9.5.0	9.6.0
2011-09	RAN#53	R5-113754	1480	-	GCF Priority X - Update to test case 6.4.1	9.5.0	9.6.0
2011-09	RAN#53	R5-113755	1481	-	Various updates to Rel-9 HeNB enhancements test cases	9.5.0	9.6.0
2011-09	RAN#53	R5-113756	1482	-	GCF Priority X Correction of TC 6.4.3.4.5.6.7	9.5.0	9.6.0
2011-09	RAN#53	R5-113757	1483	-	GCF Priority X Addition new test case 8.3.4.2	9.5.0	9.6.0
2011-09	RAN#53	R5-113758	1484	-	GCF Priority X Addition new test case 8.3.4.4	9.5.0	9.6.0
2011-09	RAN#53	R5-113759	1485	-	Addition of new HeNB test case for Inter-frequency SI acquisition member Hybrid Cell	9.5.0	9.6.0
2011-09	RAN#53	R5-113762	1486	-	Addition of a new eMBMS test case 17.2.1: UE Acquire the MBMS data based on the SIB13 and MCCH message /MCCH and MTCH are on the same MCH	9.5.0	9.6.0
2011-09	RAN#53	R5-113763	1487	-	Addition of a new eMBMS test case 17.2.2: UE Acquire the MBMS data based on the SIB13 and MCCH message /MCCH and MTCH are on different MCHs	9.5.0	9.6.0
2011-09	RAN#53	R5-113764	1488	-	Addition of a new eMBMS test case 17.2.3: UE Acquire the MBMS data based on the SIB13 and MCCH message /MCCH and MTCH are on different MCHs	9.5.0	9.6.0
2011-09	RAN#53	R5-113765	1489	-	Addition of a new eMBMS test case 17.2.4: Reception of PDCCH DCI format 0 and PHICH in MBSFN subframes	9.5.0	9.6.0
2011-09	RAN#53	R5-113766	1490	-	Addition of a new TC for MCCH information acquisition/ UE is receiving an MBMS service	9.5.0	9.6.0
2011-09	RAN#53	R5-113767	1491	-	Addition of a new TC for MCCH information acquisition/ /UE is not receiving MBMS data	9.5.0	9.6.0
2011-09	RAN#53	R5-113783	1492	-	GCF Priority X - Addition of new test case 8.2.1.8	9.5.0	9.6.0
2011-09	RAN#53	R5-113792	1493	-	GCF Priority 2 - Correction to GCF WI-081 Idle Mode Interband Testcase 6.1.2.5	9.5.0	9.6.0
2011-09	RAN#53	R5-113793	1494	-	GCF Priority 2 - Correction to GCF WI-091 MAC Testcase 7.1.4.16	9.5.0	9.6.0
2011-09	RAN#53	R5-113805	1496	-	Clarification of LTE only branch in EMM TCs	9.5.0	9.6.0
2011-09	RAN#53	R5-113806	1497	-	GCF Priority 3 - Correction to EMM test case 9.2.1.2.3	9.5.0	9.6.0
2011-09	RAN#53	R5-113807	1498	-	GCF Priority 2 & 3 - Update of EMM test cases 9.2.2.1.6, 9.2.2.1.7, 9.2.2.1.8 and 9.2.2.1.9	9.5.0	9.6.0
2011-09	RAN#53	R5-113808	1499	-	GCF Priority 3 - Correction to EMM test case 9.3.1.6	9.5.0	9.6.0
2011-09	RAN#53	R5-113809	1500	-	GCF Priority 2 - Correction to GCF WI-082 EMM Testcase 9.2.3.3.5	9.5.0	9.6.0
2011-09	RAN#53	R5-113810	1501	-	GCF Priority 3 - Correction to EMM test case 9.2.3.1.4	9.5.0	9.6.0
2011-09	RAN#53	R5-113811	1502	-	GCF Priority 2, 3 & 4 - Update of EMM test cases 9.2.2.2.2, 9.3.1.3, 9.3.1.12a, 9.3.2.2 and 9.3.2.2a	9.5.0	9.6.0
2011-09	RAN#53	R5-113812	1503	-	GCF Priority 3 - Addition of new test case 13.3.2.2	9.5.0	9.6.0
2011-09	RAN#53	R5-113813	1504	-	GCF Priority 1 & 2 - Update of LTE-C2k test cases 8.4.5.4, 8.4.7.3 and 8.4.7.4	9.5.0	9.6.0
2011-09	RAN#53	R5-113836	1505	-	GCF Priority 3 - Correction to WI-082 EUTRA EMM Testcase 9.2.3.1.22	9.5.0	9.6.0
2011-09	RAN#53	R5-113848	1476	-	New E-UTRA MAC test case for padding BSR	9.5.0	9.6.0
2011-09	RAN#53	R5-113849	1464	-	GCF Priority 3 - Correction to EUTRA MAC test cases 7.1.7.1.5 and 7.1.7.1.6	9.5.0	9.6.0
2011-09	RAN#53	R5-113850	1495	-	GCF Priority 2 - Correction to EMM test cases	9.5.0	9.6.0
2011-12	GERAN#52	GP-111502	1506	-	CR 36523-1-1506 Correction to 6.2.3.22	9.6.0	9.7.0
2011-12	GERAN#52	GP-111525	1507	-	CR 36523-1-1507 Addition of new Test case 13.4.2.5 Inter-system mobility / Service based redirection from GSM/GPRS to E-UTRA	9.6.0	9.7.0
2011-12	GERAN#52	GP-111539	1509	-	CR 36523-1-1509 Moving the TCs under section 8.4.4 to void	9.6.0	9.7.0
2011-12	GERAN#52	GP-111540	1510	-	CR 36523-1-1510 Addition of new Test case 13.4.2.6 to 13.4.2.8	9.6.0	9.7.0
2011-12	RAN#54	R5-115138	1511	-	GCF Priority U2 - Correction to EUTRA RRC	9.6.0	9.7.0

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					test case 8.3.3.2		
2011-12	RAN#54	R5-115164	1512	-	GCF Priority 3 - Correction to test case 6.1.2.13	9.6.0	9.7.0
2011-12	RAN#54	R5-115167	1513	-	GCF Priority g1 - Correction to GERAN CSFB test cases	9.6.0	9.7.0
2011-12	RAN#54	R5-115176	1514	-	GCF Priority 4 - Removal of test case 14.3	9.6.0	9.7.0
2011-12	RAN#54	R5-115228	1515	-	GCF Priority 4 - Correction to Idle Mode Testcase 6.1.1.4	9.6.0	9.7.0
2011-12	RAN#54	R5-115230	1516	-	GCF Priority 3: Correction to EMM test cases 9.2.2.2.2, 9.3.1.3, 9.3.2.2, 9.3.2.2a	9.6.0	9.7.0
2011-12	RAN#54	R5-115239	1517	-	GCF Priority 3 - Correction to EUTRA RRC test case 8.3.1.7	9.6.0	9.7.0
2011-12	RAN#54	R5-115244	1518	-	Correction to parameter ' sf-AllocEnd-r9' in MBMS test cases	9.6.0	9.7.0
2011-12	RAN#54	R5-115245	1519	-	Editorial correction to test case 8.1.3.10	9.6.0	9.7.0
2011-12	RAN#54	R5-115272	1520	-	Update of test cases 8.4.7.3, 8.4.7.4, 8.4.7.5 and 8.4.7.6	9.6.0	9.7.0
2011-12	RAN#54	R5-115305	1521	-	GCF Priority X Addition new test case 6.1.2.2a	9.6.0	9.7.0
2011-12	RAN#54	R5-115311	1522	-	GCF Priority X Correction for test cases 8.3.4.1_2_3_4	9.6.0	9.7.0
2011-12	RAN#54	R5-115314	1523	-	Update of TC 11.2.6 IMS Emergency CT1 aspects	9.6.0	9.7.0
2011-12	RAN#54	R5-115355	1524	-	GCF Priority 3 - Correction to EMM test case 9.2.1.1.25	9.6.0	9.7.0
2011-12	RAN#54	R5-115361	1525	-	GCF Priority 2 - Correction to EMM test case 9.2.3.3.5	9.6.0	9.7.0
2011-12	RAN#54	R5-115370	1526	-	Correction to GCF P3 EMM test case 9.3.1.17	9.6.0	9.7.0
2011-12	RAN#54	R5-115448	1527	-	GCF Priority 4 - Correction to EUTRA Idle Mode test case 6.1.1.3	9.6.0	9.7.0
2011-12	RAN#54	R5-115455	1528	-	GCF Priority 4 - Removal of test case 6.1.2.1	9.6.0	9.7.0
2011-12	RAN#54	R5-115511	1529	-	GCF Priority X: Addition of new test case 8.3.1.9a	9.6.0	9.7.0
2011-12	RAN#54	R5-115532	1530	-	Update of TC 11.2.4 IMS Emergency CT1 aspects	9.6.0	9.7.0
2011-12	RAN#54	R5-115539	1531	-	GCF Priority 1 - Correction to EUTRA MAC test case 7.1.4.10	9.6.0	9.7.0
2011-12	RAN#54	R5-115547	1532	-	GCF Priority 1 - Correction to EUTRA MAC test case 7.1.3.3	9.6.0	9.7.0
2011-12	RAN#54	R5-115560	1533	-	GCF Priority 2 (and lower) - Corrections to various EMM test cases	9.6.0	9.7.0
2011-12	RAN#54	R5-115561	1534	-	GCF Priority 2 (and lower) - Corrections to ESM test cases 10.3.1 and 10.9.1	9.6.0	9.7.0
2011-12	RAN#54	R5-115564	1535	-	GCF Priority 1 - Correction to EUTRA MAC test case 7.1.3.9	9.6.0	9.7.0
2011-12	RAN#54	R5-115576	1536	-	GCF Priority 2 - Editorial Correction to EUTRA RLC test case 7.2.3.13	9.6.0	9.7.0
2011-12	RAN#54	R5-115620	1537	-	CGF Priority 1 - Correction to EUTRA MAC test case 7.1.7.2.1	9.6.0	9.7.0
2011-12	RAN#54	R5-115622	1538	-	GCF Priority 1 - Correction to RRC test case 8.5.4.1	9.6.0	9.7.0
2011-12	RAN#54	R5-115624	1539	-	GCF Priority 2 Correction for test cases 6.1.2.13 and 6.1.2.15	9.6.0	9.7.0
2011-12	RAN#54	R5-115625	1540	-	GCF Priority 2 - Correction to Idle Mode test case 6.1.1.1	9.6.0	9.7.0
2011-12	RAN#54	R5-115626	1541	-	GCF Priority 2 - Correction to EMM test case 9.2.3.3.5	9.6.0	9.7.0
2011-12	RAN#54	R5-115627	1542	-	GCF Priority 2: Corrections to equivalent PLMN test case 9.2.3.1.4	9.6.0	9.7.0
2011-12	RAN#54	R5-115628	1543	-	GCF Priority 2: Corrections to test case 9.2.3.1.16	9.6.0	9.7.0
2011-12	RAN#54	R5-115629	1544	-	GCF Priority 3 - Corrections to Idle mode Shared network test cases	9.6.0	9.7.0
2011-12	RAN#54	R5-115630	1545	-	GCF Priority 3: Addition of new idle mode test case for Manual support for CSG ID selection	9.6.0	9.7.0
2011-12	RAN#54	R5-115631	1546	-	GCF Priority 3 - Correction to test case 6.2.3.13	9.6.0	9.7.0
2011-12	RAN#54	R5-115634	1547	-	GCF Priority 3 - Correction to EMM test case 9.2.3.2.1a	9.6.0	9.7.0
2011-12	RAN#54	R5-115635	1548	-	GCF Priority 3 - Correction to EMM test case 9.1.5.1	9.6.0	9.7.0
2011-12	RAN#54	R5-115636	1549	-	GCF Priority 3 - Update of EMM test case 9.3.1.15	9.6.0	9.7.0
2011-12	RAN#54	R5-115637	1550	-	GCF Priority 3 - Update to test case 9.2.3.1.23	9.6.0	9.7.0
2011-12	RAN#54	R5-115638	1551	-	GCF Priority 3 - Correction to ESM test cases 10.8.5	9.6.0	9.7.0

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2011-12	RAN#54	R5-115639	1552	-	GCF Priority 4 - Update to test case 6.1.2.14	9.6.0	9.7.0
2011-12	RAN#54	R5-115640	1553	-	GCF Priority 4 - Correction to GCF WI-081 Idle Mode Testcase 6.1.1.3	9.6.0	9.7.0
2011-12	RAN#54	R5-115642	1554	-	Removal of TC 11.2.9	9.6.0	9.7.0
2011-12	RAN#54	R5-115644	1555	-	GCF Prio 3: Corrections to TC 8.4.3.1	9.6.0	9.7.0
2011-12	RAN#54	R5-115645	1556	-	GCF Priority 4 Correction for test cases 6.2.3.13 and 6.2.3.31	9.6.0	9.7.0
2011-12	RAN#54	R5-115646	1557	-	GCF Priority 4 - Update to EUTRA RRC test case 8.3.1.6	9.6.0	9.7.0
2011-12	RAN#54	R5-115647	1558	-	GCF Priority 4 - Correction to EMM test case 9.2.3.1.17	9.6.0	9.7.0
2011-12	RAN#54	R5-115648	1559	-	GCF Priority 4 - Correction to EMM test cases 9.3.1.12a	9.6.0	9.7.0
2011-12	RAN#54	R5-115649	1560	-	GCF Priority 4: Correction to test case 9.2.1.2.1d	9.6.0	9.7.0
2011-12	RAN#54	R5-115650	1561	-	GCF priority 4: Minor correction to test case 9.2.1.2.1c	9.6.0	9.7.0
2011-12	RAN#54	R5-115651	1562	-	GCF Priority 4 - Add new test case 13.4.3.3	9.6.0	9.7.0
2011-12	RAN#54	R5-115652	1563	-	GCF Priority 4 - Add new test case 13.4.3.5	9.6.0	9.7.0
2011-12	RAN#54	R5-115653	1564	-	GCF Priority 4 - Update test case 13.4.3.2	9.6.0	9.7.0
2011-12	RAN#54	R5-115654	1565	-	GCF Priority 4 - Update test case 13.4.3.1	9.6.0	9.7.0
2011-12	RAN#54	R5-115655	1566	-	GCF Priority 4 - Update test case 13.4.3.4	9.6.0	9.7.0
2011-12	RAN#54	R5-115656	1567	-	GCF Priority 4 - Correction to EMM test case 9.2.3.3.5a	9.6.0	9.7.0
2011-12	RAN#54	R5-115792	1568	-	GCF priority X - new test case 6.1.1.3a for Cell reselection of ePLMN in manual mode / between FDD and TDD	9.6.0	9.7.0
2011-12	RAN#54	R5-115662	1569	-	GCF Priority 4 - Correction to EUTRA RRC test case 8.2.4.8	9.6.0	9.7.0
2011-12	RAN#54	R5-115672	1570	-	Update of TC 11.2.7 IMS Emergency CT1 aspects	9.6.0	9.7.0
2011-12	RAN#54	R5-115673	1571	-	Update of test case 11.2.1	9.6.0	9.7.0
2011-12	RAN#54	R5-115675	1572	-	Update of test case 11.2.3	9.6.0	9.7.0
2011-12	RAN#54	R5-115676	1573	-	Update of test case 11.2.4	9.6.0	9.7.0
2011-12	RAN#54	R5-115677	1574	-	GCF Priority U1: Correction to TC 6.3.7 Inter-RAT Cell reselection from E-UTRA idle non-CSG cell to a UTRA CSG cell	9.6.0	9.7.0
2011-12	RAN#54	R5-115678	1575	-	GCF Priority U1 - Correction to EUTRA RRC testcase 8.4.1.4	9.6.0	9.7.0
2011-12	RAN#54	R5-115680	1576	-	Addition of new Rel-9 test case 6.2.3.7a	9.6.0	9.7.0
2011-12	RAN#54	R5-115681	1577	-	Addition of new Rel-9 test case 6.2.3.8a	9.6.0	9.7.0
2011-12	RAN#54	R5-115682	1578	-	Addition of new Rel-9 test case 6.2.3.9a	9.6.0	9.7.0
2011-12	RAN#54	R5-115683	1579	-	Addition of new Rel-9 test case 6.2.3.10a	9.6.0	9.7.0
2011-12	RAN#54	R5-115684	1580	-	GCF Priority X Addition new test case 6.1.2.3a	9.6.0	9.7.0
2011-12	RAN#54	R5-115685	1581	-	GCF Priority X Addition new test case 6.1.2.17	9.6.0	9.7.0
2011-12	RAN#54	R5-115686	1582	-	GCF Priority X Addition new test case 6.1.2.18	9.6.0	9.7.0
2011-12	RAN#54	R5-115687	1583	-	GCF Priority U2: Correction to TC 6.3.3 Inter-RAT cell reselection / From UTRA_Idle to E-UTRA RRC_IDLE CSG cell	9.6.0	9.7.0
2011-12	RAN#54	R5-115794	1584	-	GCF priority x - Add new test case 6.1.1.1a	9.6.0	9.7.0
2011-12	RAN#54	R5-115691	1585	-	GCF Priority X - Addition of new test case 8.5.1.x	9.6.0	9.7.0
2011-12	RAN#54	R5-115692	1586	-	GCF Priority X - Addition of new test case 8.1.2.x	9.6.0	9.7.0
2011-12	RAN#54	R5-115693	1587	-	GCF Priority X: Addition of new test case 8.3.1.11a	9.6.0	9.7.0
2011-12	RAN#54	R5-115709	1588	-	GCF Priority 4 - Update of test cases 13.1.11	9.6.0	9.7.0
2011-12	RAN#54	R5-115710	1589	-	GCF Priority 4 - Update of test cases 13.1.12	9.6.0	9.7.0
2011-12	RAN#54	R5-115711	1590	-	GCF Priority 4 - Update of test cases 13.1.13	9.6.0	9.7.0
2011-12	RAN#54	R5-115712	1591	-	Addition of new test case for e1xCSFB emergency call	9.6.0	9.7.0
2011-12	RAN#54	R5-115713	1592	-	Addition of new test case for 1xCSFB emergency call	9.6.0	9.7.0
2011-12	RAN#54	R5-115720	1593	-	GCF Priority 3 - Correction to EMM test case 9.2.3.1.26	9.6.0	9.7.0
2011-12	RAN#54	R5-115722	1594	-	Maximum bandwidth config for MAC TBS test cases in band 25	9.6.0	9.7.0
2011-12	RAN#54	R5-115726	1595	-	GCF Priority 1 - Correction to EUTRA MAC test case 7.1.4.5	9.6.0	9.7.0
2011-12	RAN#54	R5-115793	1596	-	Addition of a new TC for Cell reselection / interband operation / Between FDD and TDD	9.6.0	9.7.0
2011-12	RAN#54	R5-115753	1597	-	Update of test case 6.2.3.8 and 6.2.3.10	9.6.0	9.7.0

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2011-12	RAN#54	R5-115795	1598	-	PLMN selection in shared network environment / Automatic mode / between FDD and TDD	9.6.0	9.7.0
2011-12	RAN#54	R5-115796	1599	-	Inter-frequency cell reselection according to cell reselection priority provided by SIBs / Between FDD and TDD	9.6.0	9.7.0
2011-12	RAN#54	R5-115797	1600	-	Addition of new test case 6.2.3.1a	9.6.0	9.7.0
2011-12	RAN#54	R5-115763	1602	-	GCF Priority 4: Modification on the Event A3 timeToTrigger value in TC 8.3.1.6	9.6.0	9.7.0
2011-12	RAN#54	R5-115798	1603	-	GCF Priority 2 - Update of EMM test case 9.2.2.1.7	9.6.0	9.7.0
2011-12	RAN#54	R5-115766	1604	-	GCF Priority 3 - Correction to EMM test cases 9.2.3.1.22	9.6.0	9.7.0
2011-12	RAN#54	R5-115767	1605	-	GCF Priority 3 - Update of EMM test cases 9.2.3.1.26 Preamble	9.6.0	9.7.0
2011-12	RAN#54	R5-115768	1606	-	GCF Priority 2 - Update of EMM test cases 9.2.3.2.3	9.6.0	9.7.0
2011-12	RAN#54	R5-115769	1607	-	GCF Priority 2 - Update test case 9.2.3.1.6	9.6.0	9.7.0
2011-12	RAN#54	R5-115771	1608	-	Update test case 11.2.2	9.6.0	9.7.0
2011-12	RAN#54	R5-115774	1609	-	GCF Priority 2 - Correction to Idle mode test case 6.2.2.5	9.6.0	9.7.0
2012-03	RAN#55	R5-120125	1610	-	GCF Priority 1 - Correction of test case 7.1.2.6	9.7.0	9.8.0
2012-03	RAN#55	R5-120156	1611	-	GCF Priority X Correction of test case 6.1.2.2a	9.7.0	9.8.0
2012-03	RAN#55	R5-120158	1612	-	GCF Priority X Correction of test case 6.1.2.18	9.7.0	9.8.0
2012-03	RAN#55	R5-120174	1613	-	GCF Priority 2: Modification on TC 8.1.3.4 RRC connection release / Redirection to another E-UTRAN frequency	9.7.0	9.8.0
2012-03	RAN#55	R5-120236	1614	-	GCF priority c1: Correction of measurement gap offset	9.7.0	9.8.0
2012-03	RAN#55	R5-120265	1615	-	GCF Priority 2 - Correction to EMM test case 9.2.3.1.4	9.7.0	9.8.0
2012-03	RAN#55	R5-120267	1616	-	GCF Priority 2 - Correction to EUTRA Idle mode testcase 6.1.2.13	9.7.0	9.8.0
2012-03	RAN#55	R5-120268	1617	-	GCF Priority 3 - Correction to EUTRA MAC testcase 7.1.3.2	9.7.0	9.8.0
2012-03	RAN#55	R5-120269	1618	-	GCF Priority 4 - Correction to EUTRA MAC testcase 7.1.4.7a	9.7.0	9.8.0
2012-03	RAN#55	R5-120270	1619	-	GCF Priority 1 - Correction to EUTRA RLC testcase 7.2.3.8	9.7.0	9.8.0
2012-03	RAN#55	R5-120271	1620	-	GCF Priority 3 - Correction to EUTRA testcase 8.3.1.11	9.7.0	9.8.0
2012-03	RAN#55	R5-120272	1621	-	GCF Priority u1 - Correction to EUTRA RRC test case 8.3.3.2 and 8.3.3.3	9.7.0	9.8.0
2012-03	RAN#55	R5-120273	1622	-	GCF Priority u1 - Correction to EMM test case 9.2.3.1.6	9.7.0	9.8.0
2012-03	RAN#55	R5-120356	1623	-	GCF Priority 3 - Correction to EUTRA RRC test case 8.3.1.4	9.7.0	9.8.0
2012-03	RAN#55	R5-120357	1624	-	GCF Priority 3 - Correction to EMM test case 9.2.1.1.23	9.7.0	9.8.0
2012-03	RAN#55	R5-120398	1625	-	GCF Priority 3 - Correction to EMM test case 9.2.3.1.16	9.7.0	9.8.0
2012-03	RAN#55	R5-120400	1626	-	GCF Priority 3 - Correction to EMM test case 9.2.3.1.23	9.7.0	9.8.0
2012-03	RAN#55	R5-120403	1627	-	Update of IMS emergency call test case 11.2.1	9.7.0	9.8.0
2012-03	RAN#55	R5-120440	1628	-	GCF Priority X - Update to test case 8.2.1.8	9.7.0	9.8.0
2012-03	RAN#55	R5-120441	1629	-	GCF Priority X - Addition of new test case 8.3.1.3a	9.7.0	9.8.0
2012-03	RAN#55	R5-120482	1630	-	Clarification on specifying parameter values without taking into account uncertainties	9.7.0	9.8.0
2012-03	RAN#55	R5-120490	1631	-	GCF Priority 4 - Correction to EMM test case 9.2.3.2.13	9.7.0	9.8.0
2012-03	RAN#55	R5-120494	1632	-	GCF Priority X Correction of test case 6.1.2.17	9.7.0	9.8.0
2012-03	RAN#55	R5-120528	1633	-	GCF Priority 2 - Correction to EUTRA RRC test case 8.3.2.3	9.7.0	9.8.0
2012-03	RAN#55	R5-120541	1634	-	GCF Priority 4: Correction to ESM test case 10.3.1	9.7.0	9.8.0
2012-03	RAN#55	R5-120542	1635	-	GCF Priority 4: Correction to ESM test case 10.9.1	9.7.0	9.8.0
2012-03	RAN#55	R5-120584	1636	-	GCF Priority U1 - Correction to EUTRA Idle Mode test case 6.2.1.3	9.7.0	9.8.0
2012-03	RAN#55	R5-120622	1637	-	GCF Priority 2 : Update of inter band cell reselection test case 6.1.2.5 to cater for bands with single frequency operation	9.7.0	9.8.0
2012-03	RAN#55	R5-120623	1638	-	GCF Priority 2 - Correction to EMM test case	9.7.0	9.8.0

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					9.2.3.1.6		
2012-03	RAN#55	R5-120624	1639	-	GCF Priority 2 - Correction to EMM test case 9.2.3.2.1a	9.7.0	9.8.0
2012-03	RAN#55	R5-120625	1640	-	GCF Priority 2 (and lower) - Correction of TAI list fields in EMM test cases	9.7.0	9.8.0
2012-03	RAN#55	R5-120627	1641	-	GCF Priority 3 : Update of EMM test cases 9.2.3.1.17 and 9.2.3.1.19	9.7.0	9.8.0
2012-03	RAN#55	R5-120628	1642	-	GCF Priority 3 : Update of EMM authentication test case 9.1.2.6 to cater for bands with single frequency operation	9.7.0	9.8.0
2012-03	RAN#55	R5-120629	1643	-	GCF Priority 3 - Correction to EMM test case 9.2.3.1.26	9.7.0	9.8.0
2012-03	RAN#55	R5-120630	1644	-	GCF Priority 3 - Correction to EMM test case 9.2.3.3.4	9.7.0	9.8.0
2012-03	RAN#55	R5-120633	1646	-	GCF Priority 4 - Correction to EMM test case 9.2.1.1.18	9.7.0	9.8.0
2012-03	RAN#55	R5-120635	1647	-	GCF Priority 4 - Update to test case 13.4.3.3	9.7.0	9.8.0
2012-03	RAN#55	R5-120636	1648	-	GCF Priority 4 - Update to test case 13.4.3.5	9.7.0	9.8.0
2012-03	RAN#55	R5-120637	1649	-	GCF Priority 4 - Update test case 13.4.3.2	9.7.0	9.8.0
2012-03	RAN#55	R5-120638	1650	-	GCF Priority 4 - Update to test case 14.1 and 14.2	9.7.0	9.8.0
2012-03	RAN#55	R5-120639	1651	-	GCF Priority u1 Correction of test case 6.2.3.3	9.7.0	9.8.0
2012-03	RAN#55	R5-120640	1652	-	GCF Priority U1 - update of E-UTRA Idle mode test case 6.2.2.5	9.7.0	9.8.0
2012-03	RAN#55	R5-120641	1653	-	GCF Priority U1 - update of E-UTRA RRC test case 8.1.3.7	9.7.0	9.8.0
2012-03	RAN#55	R5-120642	1654	-	GCF Priority U1 - update of E-UTRA RRC test case 8.3.2.4	9.7.0	9.8.0
2012-03	RAN#55	R5-120643	1655	-	GCF Priority u1 - Correction to EMM test case 9.2.3.3.1	9.7.0	9.8.0
2012-03	RAN#55	R5-120644	1656	-	GCF Priority u1 - Correction to EMM test case 9.2.1.2.1b	9.7.0	9.8.0
2012-03	RAN#55	R5-120645	1657	-	GCF Priority U1 - update of E-UTRA Multi-Layer test case 13.4.2.1	9.7.0	9.8.0
2012-03	RAN#55	R5-120646	1658	-	GCF Priority U1 - update of E-UTRA Multi-Layer test case 13.4.2.4	9.7.0	9.8.0
2012-03	RAN#55	R5-120647	1659	-	GCF Priority u1 - Correction to Multilayer test case 13.1.2	9.7.0	9.8.0
2012-03	RAN#55	R5-120649	1660	-	GCF Priority U2 - update of E-UTRA RRC test case 8.3.2.3	9.7.0	9.8.0
2012-03	RAN#55	R5-120650	1661	-	8.1.3.12a RRC connection release / Success / With priority information / Inter-band / Between FDD and TDD	9.7.0	9.8.0
2012-03	RAN#55	R5-120651	1662	-	8.1.3.11a RRC connection release / Redirection to another E-UTRAN band / Between FDD and TDD	9.7.0	9.8.0
2012-03	RAN#55	R5-120652	1663	-	8.2.4.13a RRC connection reconfiguration / Handover / Success (with measurement) / Inter-band / Between FDD and TDD	9.7.0	9.8.0
2012-03	RAN#55	R5-120653	1664	-	8.2.4.14a RRC connection reconfiguration / Handover / Failure / Re-establishment successful / Inter-band / Between FDD and TDD	9.7.0	9.8.0
2012-03	RAN#55	R5-120654	1665	-	8.2.4.15a RRC connection reconfiguration / Handover / Failure / Re-establishment failure / Inter-band / Between FDD and TDD	9.7.0	9.8.0
2012-03	RAN#55	R5-120657	1666	-	8.3.1.14a Measurement configuration control and reporting / Intra E-UTRAN measurements / Two simultaneous events A2 and A3 (inter-band measurements) / Between FDD and TDD	9.7.0	9.8.0
2012-03	RAN#55	R5-120658	1667	-	8.3.1.15a Measurement configuration control and reporting / Intra E-UTRAN measurements / Inter-band handover / IE measurement configuration not present / Between FDD and TDD	9.7.0	9.8.0
2012-03	RAN#55	R5-120659	1668	-	8.3.1.16a Measurement configuration control and reporting / Intra E-UTRAN measurements / Continuation of the measurements after RRC connection re-establishment / Inter-band / Between FDD and TDD	9.7.0	9.8.0
2012-03	RAN#55	R5-120660	1669	-	GCF Priority u2 - Correction to EUTRA RRC test case 8.3.3.3	9.7.0	9.8.0
2012-03	RAN#55	R5-120661	1670	-	GCF Priority U2 - update of E-UTRA RRC test	9.7.0	9.8.0

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					case 8.4.2.2		
2012-03	RAN#55	R5-120662	1671	-	GCF Priority U2 - update of E-UTRA RRC test case 8.4.2.4	9.7.0	9.8.0
2012-03	RAN#55	R5-120663	1672	-	GCF Priority U2 - update of E-UTRA Multi-Layer test case 13.1.2	9.7.0	9.8.0
2012-03	RAN#55	R5-120664	1673	-	GCF Priority U2 - update of E-UTRA Multi-Layer test case 13.1.3	9.7.0	9.8.0
2012-03	RAN#55	R5-120665	1674	-	GCF Priority U2 - update of E-UTRA Multi-Layer test case 13.1.15	9.7.0	9.8.0
2012-03	RAN#55	R5-120666	1675	-	GCF Priority U2 - update of E-UTRA Multi-Layer test case 13.4.3.1	9.7.0	9.8.0
2012-03	RAN#55	R5-120667	1676	-	GCF Priority U2 - update of E-UTRA Multi-Layer test case 13.4.3.2	9.7.0	9.8.0
2012-03	RAN#55	R5-120668	1677	-	GCF Priority U2 - update of E-UTRA Multi-Layer test case 13.4.3.4	9.7.0	9.8.0
2012-03	RAN#55	R5-120669	1678	-	GCF Priority M1 - update of E-UTRA RRC test case 8.3.2.5	9.7.0	9.8.0
2012-03	RAN#55	R5-120670	1679	-	GCF Priority M1 - update of E-UTRA RRC test case 8.3.2.6	9.7.0	9.8.0
2012-03	RAN#55	R5-120671	1680	-	GCF Priority g1 - Correction to EUTRA Idle mode test case 6.2.3.1	9.7.0	9.8.0
2012-03	RAN#55	R5-120673	1681	-	GCF Priority X Correction of test case 6.1.2.3a	9.7.0	9.8.0
2012-03	RAN#55	R5-120674	1682	-	GCF Priority X Addition of new test case 6.2.3.3a	9.7.0	9.8.0
2012-03	RAN#55	R5-120675	1683	-	GCF Priority X Addition of new test case 6.2.3.5a	9.7.0	9.8.0
2012-03	RAN#55	R5-120676	1684	-	GCF Priority X - Addition of new test case 6.2.3.x	9.7.0	9.8.0
2012-03	RAN#55	R5-120695	1685	-	Update of test case 11.2.4	9.7.0	9.8.0
2012-03	RAN#55	R5-120696	1686	-	Update of test case 11.2.5	9.7.0	9.8.0
2012-03	RAN#55	R5-120697	1687	-	GCF Priority X - Update of TC 11.2.8 to include IMS procedures	9.7.0	9.8.0
2012-03	RAN#55	R5-120698	1688	-	Update test case 11.2.2	9.7.0	9.8.0
2012-03	RAN#55	R5-120699	1689	-	GCF Priority x - Update test case 8.1.2.11	9.7.0	9.8.0
2012-03	RAN#55	R5-120700	1690	-	GCF Priority x - Update test case 8.1.2.12	9.7.0	9.8.0
2012-03	RAN#55	R5-120701	1691	-	GCF Priority x : Update of titles of test cases 8.3.1.9a and 8.3.1.11a	9.7.0	9.8.0
2012-03	RAN#55	R5-120703	1693	-	Addition of new test 11.2.10	9.7.0	9.8.0
2012-03	RAN#55	R5-120705	1694	-	GCF Priority X - Addition of new test case 8.3.2.3a	9.7.0	9.8.0
2012-03	RAN#55	R5-120707	1695	-	GCF Priority 4 (and higher) - Editorial corrections to various EMM test cases	9.7.0	9.8.0
2012-03	RAN#55	R5-120708	1696	-	Addition of new Rel-9 test case 13.4.4.1	9.7.0	9.8.0
2012-03	RAN#55	R5-120709	1697	-	Addition of new Rel-9 test case 13.4.4.2	9.7.0	9.8.0
2012-03	RAN#55	R5-120710	1698	-	GCF Priority X - update of E-UTRA Multi-Layer test case 13.1.2a	9.7.0	9.8.0
2012-03	RAN#55	R5-120711	1699	-	Modification of TC 8.4.7.1: Inter-RAT handover / SRVCC from E-UTRA to 1xRTT(CS) / Speech	9.7.0	9.8.0
2012-03	RAN#55	R5-120712	1700	-	Addition for new 13.4.4.3 LTE-CDMA2000-HRPD interworking test case	9.7.0	9.8.0
2012-03	RAN#55	R5-120713	1701	-	Addition for new 13.4.4.4 LTE-CDMA2000-HRPD interworking test case	9.7.0	9.8.0
2012-03	RAN#55	R5-120714	1702	-	8.3.1.12a Measurement configuration control and reporting / Intra E-UTRAN measurements / Two simultaneous events A3 (inter-band measurements) / Between FDD and TDD	9.7.0	9.8.0
2012-03	RAN#55	R5-120715	1703	-	8.3.1.13a Measurement configuration control and reporting / Intra E-UTRAN measurements / Periodic reporting (intra-frequency and inter-band measurements) / Between FDD and TDD	9.7.0	9.8.0
2012-03	RAN#55	R5-120741	1716	-	GCF Priority X - Addition of new test case 8.6.4.y	9.7.0	9.8.0
2012-03	RAN#55	R5-120742	1717	-	GCF Priority X - Addition of new test case 8.6.4.z	9.7.0	9.8.0
2012-03	RAN#55	R5-120743	1718	-	GCF Priority X - Addition of new test case 8.6.x.y	9.7.0	9.8.0
2012-03	RAN#55	R5-120744	1719	-	GCF Priority X - Addition of new test case 8.6.x.z	9.7.0	9.8.0
2012-03	RAN#55	R5-120751	1720	-	Addition of new Rel-9 test case 18.1.1	9.7.0	9.8.0
2012-03	RAN#55	R5-120757	1721	-	GCF Priority 2 : Introduction of new equivalent , 6.1.2.x test cases to cater for bands with single frequency operation	9.7.0	9.8.0
2012-03	RAN#55	R5-120758	1722	-	GCF Priority 2 : Introduction of new equivalent	9.7.0	9.8.0

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					6.1.1.x test cases to cater for bands with single frequency operation		
2012-03	RAN#55	R5-120760	1723	-	GCF Priority U1 - Correction to EUTRA RRC test case 8.1.3.7	9.7.0	9.8.0
2012-03	RAN#55	R5-120764	1724	-	GCF Priority U1 - Correction to EUTRA RRC test cases 8.4.1.2 and 8.4.1.4	9.7.0	9.8.0
2012-03	RAN#55	R5-120765	1725	-	GCF Priority 2 - Correction to EMM test case 9.2.3.2.1	9.7.0	9.8.0
2012-03	RAN#55	R5-120766	1726	-	GCF Priority u1 - Update to test case 9.2.3.3.2	9.7.0	9.8.0
2012-03	RAN#55	R5-120767	1727	-	GCF Priority u1 - Update to test case 9.2.3.3.3	9.7.0	9.8.0
2012-03	RAN#55	R5-120768	1728	-	GCF Priority u1 - Update to test case 9.2.3.3.5	9.7.0	9.8.0
2012-03	RAN#55	R5-120769	1729	-	GCF Priority X - Update of test cases 6.2.2.3, 6.2.3.7, 6.2.3.7a, 6.2.3.8, 6.2.3.8a, 6.2.3.9, 6.2.3.9a, 6.2.3.10, 6.2.3.10a	9.7.0	9.8.0
2012-03	RAN#55	R5-120771	1731	-	GCF Priority 3 - Correction to Idle Mode test case 6.1.2.13	9.7.0	9.8.0
2012-03	RAN#55	R5-120776	1732	-	GCF Priority UX – Correction to EUTRA to UTRA Handover testcases	9.7.0	9.8.0
2012-03	RAN#55	R5-120631	1645	-	Addition of new MDT test case for 'Logged MDT / Intra-frequency measurement, logging and reporting / E-UTRA handover'	9.8.0	10.0.0
2012-03	RAN#55	R5-120724	1704	-	Addition of a new TC 17.3.1 for MBMS Counting / UE not receiving MBMS service	9.8.0	10.0.0
2012-03	RAN#55	R5-120727	1705	-	CA / RRC connection reconfiguration / Carrier Aggregation / SCell addition/ modification/release / Success	9.8.0	10.0.0
2012-03	RAN#55	R5-120728	1706	-	CA / RRC connection reconfiguration / Carrier Aggregation / SCell SI change / Success	9.8.0	10.0.0
2012-03	RAN#55	R5-120729	1707	-	CA / RRC connection reconfiguration / SCell addition without UL	9.8.0	10.0.0
2012-03	RAN#55	R5-120730	1708	-	CA / RRC connection reconfiguration / Handover / Success / SCell addition	9.8.0	10.0.0
2012-03	RAN#55	R5-120731	1709	-	CA / RRC connection reconfiguration / Handover / Success / SCell becomes PCell	9.8.0	10.0.0
2012-03	RAN#55	R5-120732	1710	-	CA / Measurement configuration control and reporting / Intra E-UTRAN measurements / Event A6	9.8.0	10.0.0
2012-03	RAN#55	R5-120733	1711	-	CA / Measurement configuration control and reporting / Intra E-UTRAN measurements / Additional measurement reporting	9.8.0	10.0.0
2012-03	RAN#55	R5-120734	1712	-	Addition of new Rel-10 test case 7.1.3.11 CA / Correct HARQ process handling / DCCH and DTCH / Pcell and Scell	9.8.0	10.0.0
2012-03	RAN#55	R5-120738	1713	-	Addition of new MDT test case for 'Logged MDT / Intra-frequency measurement, logging and reporting / Limiting area scope'	9.8.0	10.0.0
2012-03	RAN#55	R5-120739	1714	-	New Logged MDT test case 8.6.2.1 (Intra-frequency measurement, logging and reporting)	9.8.0	10.0.0
2012-03	RAN#55	R5-120740	1715	-	New Logged MDT test case 8.6.2.2 (Inter-frequency measurement, logging and reporting)	9.8.0	10.0.0
2012-03	RAN#55	R5-120770	1730	-	Addition of a new Rel-10 test case 17.3.2	9.8.0	10.0.0
2012-06	RAN#55	R5-120638	1650	-	GCF Priority 4 - Update to test case 14.1 and 14.2 (addition in Table 14.2.3.2-1 of forgotten Step 5 alert check and Note)	10.0.0	10.1.0
2012-06	RAN#56	R5-121080	1738	-	GCF Priority m1: Optimisation of frequency allocation	10.0.0	10.1.0
2012-06	RAN#56	R5-121081	1739	-	GCF Priority P2: Optimisation of frequency allocation	10.0.0	10.1.0
2012-06	RAN#56	R5-121087	1740	-	GCF Priority U1 - Correction to EUTRA RRC test case 8.1.3.7	10.0.0	10.1.0
2012-06	RAN#56	R5-121099	1741	-	GCF Priority U1 - Correction to EMM test case 9.2.3.3.6	10.0.0	10.1.0
2012-06	RAN#56	R5-121106	1742	-	GCF Priority U1 - Correction to test EUTRA-UTRA test case 13.3.2.1	10.0.0	10.1.0
2012-06	RAN#56	R5-121108	1743	-	GCF Priority C1 - Correction to test cases 6.2.3.8 and 6.2.3.8a	10.0.0	10.1.0
2012-06	RAN#56	R5-121142	1744	-	GCF priority 3 - Correction to idle mode test case 6.1.2.13	10.0.0	10.1.0
2012-06	RAN#56	R5-121158	1745	-	GCF Priority X - corrections to TC 13.4.4.3	10.0.0	10.1.0
2012-06	RAN#56	R5-121159	1746	-	GCF Priority X - corrections to TC 13.4.4.4	10.0.0	10.1.0
2012-06	RAN#56	R5-121202	1747	-	GCF priority x - Update of test case 6.1.1.1a	10.0.0	10.1.0
2012-06	RAN#56	R5-121275	1748	-	GCF Priority 2 - Update of test cases 9.3.1.4	10.0.0	10.1.0
2012-06	RAN#56	R5-121278	1749	-	GCF Priority X - Update of Inter-system session	10.0.0	10.1.0

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					management test case 13.4.4.1 and 13.4.4.2		
2012-06	RAN#56	R5-121289	1750	-	GCF Priority X - Update to test case 8.6.6.1	10.0.0	10.1.0
2012-06	RAN#56	R5-121293	1751	-	GCF Priority X - Addition of new test case 8.2.4.13	10.0.0	10.1.0
2012-06	RAN#56	R5-121295	1752	-	GCF Priority X - Addition of new test case 8.2.4.15	10.0.0	10.1.0
2012-06	RAN#56	R5-121296	1753	-	GCF Priority X - Addition of new test case 8.3.1.15	10.0.0	10.1.0
2012-06	RAN#56	R5-121297	1754	-	GCF Priority X - Addition of new test case 8.3.1.16	10.0.0	10.1.0
2012-06	RAN#56	R5-121394	1755	-	GCF Priority 4 Correction of test case 8.2.4.10	10.0.0	10.1.0
2012-06	RAN#56	R5-121411	1756	-	GCF Priority 4 - Update test case 8.1.2.6	10.0.0	10.1.0
2012-06	RAN#56	R5-121412	1757	-	GCF Priority 4 - Update test case 8.1.2.9	10.0.0	10.1.0
2012-06	RAN#56	R5-121419	1758	-	GCF Priority 2 and 3 - Removal of 'Active' flag test cases	10.0.0	10.1.0
2012-06	RAN#56	R5-121426	1759	-	Changing to Void of GERAN to E-UTRAN section 8.4.4	10.0.0	10.1.0
2012-06	RAN#56	R5-121437	1760	-	GCF Priority g1 - Correction to EUTRA test case 8.1.3.8	10.0.0	10.1.0
2012-06	RAN#56	R5-121450	1761	-	GCF Priority 3 - Correction to EUTRA MAC testcase 7.1.4.2	10.0.0	10.1.0
2012-06	RAN#56	R5-121465	1762	-	GCF Priority 1 and 3 - Correction to EMM test cases 9.2.1.1.2 and 9.2.2.1.8	10.0.0	10.1.0
2012-06	RAN#56	R5-121466	1763	-	GCF Priority U1 - Correction to multi-layer test case 13.1.5	10.0.0	10.1.0
2012-06	RAN#56	R5-121504	1764	-	GCF priority 2: Correction to test case 9.2.1.17	10.0.0	10.1.0
2012-06	RAN#56	R5-121505	1765	-	GCF priority G1: Correction to test case 13.4.2.2	10.0.0	10.1.0
2012-06	RAN#56	R5-121511	1766	-	Introduction of new PWS test case 18.1.4	10.0.0	10.1.0
2012-06	RAN#56	R5-121517	1767	-	Introduction of new Rel10 CA test case 7.1.4.21	10.0.0	10.1.0
2012-06	RAN#56	R5-121541	1768	-	GCF Priority 1, 2, 3, 4 and U1 - Correction to EMM test cases to use new PICS	10.0.0	10.1.0
2012-06	RAN#56	R5-121548	1769	-	GCF Priority 1 - Correction to EUTRA RRC test case 8.5.4.1	10.0.0	10.1.0
2012-06	RAN#56	R5-121550	1770	-	GCF Priority 4 - Correction to ESM test case 10.8.7	10.0.0	10.1.0
2012-06	RAN#56	R5-121623	1771	-	Radio Link Failure logging / Reporting at GERAN Inter-RAT handover	10.0.0	10.1.0
2012-06	RAN#56	R5-121632	1772	-	GCF Priority 4 - Update test case 13.4.3.4	10.0.0	10.1.0
2012-06	RAN#56	R5-121666	1773	-	GCF Priority 3 - Correction to EMM test case 9.2.3.1.17	10.0.0	10.1.0
2012-06	RAN#56	R5-121703	1774	-	GCF Priority u1 - Correction to Multilayer test case 13.4.2.4	10.0.0	10.1.0
2012-06	RAN#56	R5-121738	1775	-	GCF Priority 1 and 3 - Correction to EUTRA MAC test cases 7.1.7.1.1, 7.1.7.1.2, 7.1.7.1.3, 7.1.7.1.4, 7.1.7.1.5, 7.1.7.1.6 and 7.1.7.2.1	10.0.0	10.1.0
2012-06	RAN#56	R5-121739	1776	-	GCF Priority 1 - Correction to EMM test case 9.2.3.1.5	10.0.0	10.1.0
2012-06	RAN#56	R5-121740	1777	-	GCF Priority 2: Addition of equivalent EMM test cases for single frequency operation	10.0.0	10.1.0
2012-06	RAN#56	R5-121742	1778	-	GCF Priority 2: Corrections to EMM test cases to enable single frequency operation	10.0.0	10.1.0
2012-06	RAN#56	R5-121743	1779	-	GCF Priority 2 - Update to test case 10.4.1	10.0.0	10.1.0
2012-06	RAN#56	R5-121744	1780	-	GCF Priority 3 - Correction to EUTRA MAC testcase 7.1.3.2	10.0.0	10.1.0
2012-06	RAN#56	R5-121746	1781	-	GCF Priority 4 - Correction to EMM CSG test case 9.3.1.18	10.0.0	10.1.0
2012-06	RAN#56	R5-121747	1782	-	GCF Priority 3 Update of TC 9.2.3.1.23	10.0.0	10.1.0
2012-06	RAN#56	R5-121748	1783	-	GCF Priority 3 - Correction to EMM test case 9.2.1.1.23, 9.2.3.2.4, 9.2.3.2.14, 9.2.3.2.2, 9.2.3.2.17	10.0.0	10.1.0
2012-06	RAN#56	R5-121749	1784	-	GCF Priority 3 - Correction to EMM test case 9.2.3.1.4	10.0.0	10.1.0
2012-06	RAN#56	R5-121750	1785	-	GCF Priority 3 - Correction to EMM test case 9.2.2.1.7	10.0.0	10.1.0
2012-06	RAN#56	R5-121753	1786	-	GCF Priority 4 - Correction to EUTRA Idle Mode test cases 6.1.1.6 and 6.1.1.6a	10.0.0	10.1.0
2012-06	RAN#56	R5-121754	1787	-	GCF priority 4 - Correction to Idle Mode test case 6.1.2.12	10.0.0	10.1.0
2012-06	RAN#56	R5-121755	1788	-	GCF Priority 4 - Correction to Idle mode test case 6.1.1.6a	10.0.0	10.1.0
2012-06	RAN#56	R5-121756	1789	-	GCF Priority 4 - Editorial corrections to some EMM test cases	10.0.0	10.1.0

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2012-06	RAN#56	R5-121757	1790	-	GCF Priority 4 - Update test case 13.4.3.1	10.0.0	10.1.0
2012-06	RAN#56	R5-121758	1791	-	GCF Priority 4 - Update test case 13.4.3.2	10.0.0	10.1.0
2012-06	RAN#56	R5-121759	1792	-	GCF Priority 4 - Update to test case 14.2	10.0.0	10.1.0
2012-06	RAN#56	R5-121760	1793	-	GCF Priority u1 - Update to EUTRA Idle Mode test case 6.2.1.2	10.0.0	10.1.0
2012-06	RAN#56	R5-121761	1794	-	GCF Priority u1 - Correction to EUTRA Idle Mode test case 6.2.1.3	10.0.0	10.1.0
2012-06	RAN#56	R5-121762	1795	-	GCF Priority u1 - Correction to EMM test case 9.2.1.2.11	10.0.0	10.1.0
2012-06	RAN#56	R5-121763	1796	-	GCF Priority u1 - Correction to EMM test case 9.2.1.2.15	10.0.0	10.1.0
2012-06	RAN#56	R5-121764	1797	-	GCF Priority u1 - Correction to EMM test case 9.2.3.3.5	10.0.0	10.1.0
2012-06	RAN#56	R5-121765	1798	-	GCF Priority u1 - Correction to EMM test case 9.2.1.2.1d	10.0.0	10.1.0
2012-06	RAN#56	R5-121766	1799	-	GCF Priority u1 - Correction to EMM test case 9.2.3.2.1c	10.0.0	10.1.0
2012-06	RAN#56	R5-121767	1800	-	GCF Priority U1 - Correction to EUTRA Multi-Layer test case 13.1.4	10.0.0	10.1.0
2012-06	RAN#56	R5-121768	1801	-	GCF Priority U1 - Correction to multi-layer test case 13.4.2.1	10.0.0	10.1.0
2012-06	RAN#56	R5-121771	1802	-	GCF Priority g1 - Correction to EUTRA test case 6.2.2.2	10.0.0	10.1.0
2012-06	RAN#56	R5-121772	1803	-	GCF Priority g1 - Correction to EUTRA test case 6.2.3.1	10.0.0	10.1.0
2012-06	RAN#56	R5-121773	1804	-	GCF Priority g1 - Correction to EUTRA test case 8.3.2.2	10.0.0	10.1.0
2012-06	RAN#56	R5-121774	1805	-	GCF Priority g1 - Update to test case 9.2.3.3.5a	10.0.0	10.1.0
2012-06	RAN#56	R5-121775	1806	-	GCF Priority g1 - Correction to EMM test case 9.2.3.4.1	10.0.0	10.1.0
2012-06	RAN#56	R5-121776	1807	-	GCF Priority g2 Correction of test case 8.4.3.1	10.0.0	10.1.0
2012-06	RAN#56	R5-121780	1808	-	GCF Priority X - Update to test case 6.2.3.33	10.0.0	10.1.0
2012-06	RAN#56	R5-121781	1809	-	GCF Priority X - Addition of new test case 8.1.3.12	10.0.0	10.1.0
2012-06	RAN#56	R5-121782	1810	-	GCF Priority X - Addition of new test case 8.1.3.11	10.0.0	10.1.0
2012-06	RAN#56	R5-121783	1811	-	GCF Priority X - Addition of new Rel-9 EUTRA RRC test case 8.1.3.6a	10.0.0	10.1.0
2012-06	RAN#56	R5-121784	1812	-	GCF Priority X - Addition of new test case 8.2.4.14	10.0.0	10.1.0
2012-06	RAN#56	R5-121785	1813	-	GCF Priority X - Addition of new test case 8.3.1.12	10.0.0	10.1.0
2012-06	RAN#56	R5-121786	1814	-	GCF Priority X - Addition of new test case 8.3.1.13	10.0.0	10.1.0
2012-06	RAN#56	R5-121787	1815	-	GCF Priority X - Addition of new test case 8.3.1.14	10.0.0	10.1.0
2012-06	RAN#56	R5-121788	1816	-	GCF Priority C2 - Correction to test case 8.4.5.4	10.0.0	10.1.0
2012-06	RAN#56	R5-121789	1817	-	Addition of new e1xCSFB Rel-9 test case 8.4.7.7	10.0.0	10.1.0
2012-06	RAN#56	R5-121790	1818	-	Addition of new e1xCSFB Rel-9 test case 8.4.7.8	10.0.0	10.1.0
2012-06	RAN#56	R5-121791	1819	-	Addition of new e1xCSFB Rel-9 test case 8.4.7.9	10.0.0	10.1.0
2012-06	RAN#56	R5-121792	1820	-	Addition of new Rel-9 SRVCC test case 13.4.3.6	10.0.0	10.1.0
2012-06	RAN#56	R5-121793	1821	-	GCF Priority X - Addition of new test case 13.4.1.4	10.0.0	10.1.0
2012-06	RAN#56	R5-121794	1822	-	GCF Priority X Addition of new test case 13.3.1.3	10.0.0	10.1.0
2012-06	RAN#56	R5-121807	1823	-	GCF Priority X - Update of IMS test case 11.2.8	10.0.0	10.1.0
2012-06	RAN#56	R5-121808	1824	-	Add new test case 11.2.11	10.0.0	10.1.0
2012-06	RAN#56	R5-121826	1825	-	New UTRAN ANR/E-UTRAN test case 8.7.1	10.0.0	10.1.0
2012-06	RAN#56	R5-121828	1826	-	Update of MDT test case 8.6.2.3	10.0.0	10.1.0
2012-06	RAN#56	R5-121829	1827	-	Update of MDT test case 8.6.2.4	10.0.0	10.1.0
2012-06	RAN#56	R5-121830	1828	-	Addition of new MDT test case 8.6.2.5	10.0.0	10.1.0
2012-06	RAN#56	R5-121831	1829	-	Addition of new MDT test case 8.6.2.6	10.0.0	10.1.0
2012-06	RAN#56	R5-121832	1830	-	Addition of new MDT test case 8.6.2.7	10.0.0	10.1.0
2012-06	RAN#56	R5-121833	1831	-	Addition of new MDT test case 8.2.6.8	10.0.0	10.1.0
2012-06	RAN#56	R5-121834	1832	-	GCF Priority X - Addition of new test case 8.6.4.5	10.0.0	10.1.0
2012-06	RAN#56	R5-121836	1833	-	GCF Priority X - Addition of new test case	10.0.0	10.1.0

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					8.6.4.6		
2012-06	RAN#56	R5-121837	1834	-	GCF Priority X - Addition of new test case 8.6.5.1	10.0.0	10.1.0
2012-06	RAN#56	R5-121839	1835	-	GCF Priority X - Addition of new test case 8.6.6.3	10.0.0	10.1.0
2012-06	RAN#56	R5-121840	1836	-	GCF Priority X - Addition of new test case 8.6.7.1	10.0.0	10.1.0
2012-06	RAN#56	R5-121841	1837	-	New Logged MDT test case 8.6.3.1	10.0.0	10.1.0
2012-06	RAN#56	R5-121843	1838	-	Radio Link Failure logging / Reporting at RRC connection establishment and reestablishment	10.0.0	10.1.0
2012-06	RAN#56	R5-121844	1839	-	Radio Link Failure logging / Reporting at E-UTRA handover	10.0.0	10.1.0
2012-06	RAN#56	R5-121848	1840	-	Correction to UE Pre-test condition for TS 36.523-1 Test Case 6.4.7 (Inter-RAT cell reselection / From GSM_Idle/GPRS Packet_Idle to E-UTRA RRC_IDLE member hybrid cell)	10.0.0	10.1.0
2012-06	RAN#56	R5-121849	1841	-	Correction of E-UTRAN<>GERAN test cases for Classmark Change	10.0.0	10.1.0
2012-06	RAN#56	R5-121855	1842	-	Addition of new PWS Rel-9 test case 18.1.7	10.0.0	10.1.0
2012-06	RAN#56	R5-121857	1843	-	Correction of CA TC 8.2.2.3	10.0.0	10.1.0
2012-06	RAN#56	R5-121858	1844	-	Correction of CA TC 8.2.2.4	10.0.0	10.1.0
2012-06	RAN#56	R5-121859	1845	-	Correction of CA TC 8.2.2.5	10.0.0	10.1.0
2012-06	RAN#56	R5-121860	1846	-	Correction of CA TC 8.2.4.17	10.0.0	10.1.0
2012-06	RAN#56	R5-121861	1847	-	Removal of CA TC 8.2.4.16	10.0.0	10.1.0
2012-06	RAN#56	R5-121862	1848	-	Correction of CA TC 8.3.1.17	10.0.0	10.1.0
2012-06	RAN#56	R5-121863	1849	-	Correction of CA TC 8.3.1.18	10.0.0	10.1.0
2012-06	RAN#56	R5-121865	1850	-	GCF Priority X - Addition of new CA test case	10.0.0	10.1.0
2012-06	RAN#56	R5-121869	1851	-	GCF Priority 1 - Correction to EUTRA RLC test case 7.2.3.10	10.0.0	10.1.0
2012-06	RAN#56	R5-121870	1852	-	GCF Priority 1 - Correction to EUTRA RLC test case 7.2.3.13	10.0.0	10.1.0
2012-06	RAN#56	R5-121889	1853	-	Update to TC 6.1.1.3a	10.0.0	10.1.0
2012-06	RAN#56	R5-121890	1854	-	Update to TC 6.1.1.4a	10.0.0	10.1.0
2012-06	RAN#56	R5-121891	1855	-	Update to TC 6.1.2.15a	10.0.0	10.1.0
2012-06	RAN#56	R5-121892	1856	-	Update to TC 6.1.2.16	10.0.0	10.1.0
2012-06	RAN#56	R5-121893	1857	-	GCF Priority X Correction of test cases 6.2.3.3a and 6.2.3.5a	10.0.0	10.1.0
2012-06	RAN#56	R5-121894	1858	-	GCF Priority 4: Modification on TC 8.1.2.9	10.0.0	10.1.0
2012-06	RAN#56	R5-121895	1859	-	Update to TC 8.1.3.11a	10.0.0	10.1.0
2012-06	RAN#56	R5-121896	1860	-	Update to TC 8.1.3.12a	10.0.0	10.1.0
2012-06	RAN#56	R5-121897	1861	-	Update to TC 8.2.4.13a	10.0.0	10.1.0
2012-06	RAN#56	R5-121898	1862	-	Update to TC 8.2.4.14a	10.0.0	10.1.0
2012-06	RAN#56	R5-121899	1863	-	Update to TC 8.2.4.15a	10.0.0	10.1.0
2012-06	RAN#56	R5-122008	1864	-	Introduction of new Rel10 CA test case 7.1.9.1	10.0.0	10.1.0
2012-06	RAN#56	R5-122009	1865	-	Radio Link Failure logging / Reporting at CDMA2000 Inter-RAT handover	10.0.0	10.1.0
2012-06	RAN#56	R5-122010	1866	-	Immediate MDT / Reporting / Location information	10.0.0	10.1.0
2012-06	RAN#56	R5-122011	1867	-	GCF Priority U1 - Correction to EMM test case 9.2.3.3.2	10.0.0	10.1.0
2012-06	RAN#56	R5-122012	1868	-	GCF Priority X - Update of EMM test case 9.2.1.2.1b	10.0.0	10.1.0
2012-06	RAN#56	R5-122013	1869	-	GCF Priority X - Update of EMM test case 9.2.1.2.1c	10.0.0	10.1.0
2012-06	RAN#56	R5-122016	1870	-	Addition of new e1xCSFB Rel-9 test case 13.4.4.5	10.0.0	10.1.0
2012-06	RAN#56	R5-122100	1871	-	Update to TC 8.3.1.12a	10.0.0	10.1.0
2012-06	RAN#56	R5-122101	1872	-	Updates to TC 8.3.1.13a	10.0.0	10.1.0
2012-06	RAN#56	R5-122102	1873	-	Update to TC 8.3.1.14a	10.0.0	10.1.0
2012-06	RAN#56	R5-122103	1874	-	Update to TC 8.3.1.15a	10.0.0	10.1.0
2012-06	RAN#56	R5-122104	1875	-	Update to TC 8.3.1.16a	10.0.0	10.1.0
2012-06	RAN#56	R5-122105	1876	-	GCF Priority U1 - Correction to EUTRA RRC test case 8.4.2.2	10.0.0	10.1.0
2012-06	RAN#56	R5-122107	1877	-	GCF Priority U1 - Correction to EMM test case 9.2.1.2.13	10.0.0	10.1.0
2012-06	RAN#56	R5-122108	1878	-	GCF Priority U1 - Correction to EMM test case 9.2.3.2.9	10.0.0	10.1.0
2012-06	RAN#56	R5-122113	1879	-	GCF Priority 4 - Correction to EMM test case 9.2.3.2.4	10.0.0	10.1.0
2012-06	RAN#56	R5-122114	1880	-	GCF Priority u1 - Correction to EMM test case 9.2.3.3.3	10.0.0	10.1.0

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2012-06	RAN#56	R5-122115	1881	-	GCF Priority U1: Modification on TC 9.2.3.2.13	10.0.0	10.1.0
2012-06	RAN#56	R5-122119	1882	-	GCF priority 3: Correction to EMM TC 9.2.3.1.17	10.0.0	10.1.0
2012-09	RAN#57	R5-123079	1887	-	GCF Priority u1: Optimisation of test frequency allocation of UTRA cell	10.1.0	10.2.0
2012-09	RAN#57	R5-123099	1888	-	GCF Priority 2 - Correction to test case 9.2.3.2.1	10.1.0	10.2.0
2012-09	RAN#57	R5-123102	1889	-	GCF Priority X - Corrections of test case 8.1.3.12	10.1.0	10.2.0
2012-09	RAN#57	R5-123119	1890	-	GCF Priority u1 - Correction to EUTRA RRC test case 8.3.2.5	10.1.0	10.2.0
2012-09	RAN#57	R5-123120	1891	-	GCF Priority u1 - Correction to EMM test case 9.2.1.2.13	10.1.0	10.2.0
2012-09	RAN#57	R5-123124	1892	-	GCF Priority u1 - Correction to EMM test case 9.2.3.3.5a	10.1.0	10.2.0
2012-09	RAN#57	R5-123126	1893	-	GCF Priority g1 - Correction to multilayer test case 13.1.7	10.1.0	10.2.0
2012-09	RAN#57	R5-123131	1894	-	GCF Priority g1 - Correction to EMM test case 9.2.3.4.1	10.1.0	10.2.0
2012-09	RAN#57	R5-123132	1895	-	GCF Priority 3 - Correction to EUTRA MAC testcase 7.1.3.2	10.1.0	10.2.0
2012-09	RAN#57	R5-123202	1896	-	GCF Priority X - Update to test case 6.2.3.33	10.1.0	10.2.0
2012-09	RAN#57	R5-123203	1897	-	GCF Priority U1 - Correction to EMM test case 9.2.3.3.2	10.1.0	10.2.0
2012-09	RAN#57	R5-123247	1898	-	GCF Priority C1 - Correction to Rel9 EUTRA-1xRTT test case 6.2.3.10a	10.1.0	10.2.0
2012-09	RAN#57	R5-123248	1899	-	GCF Priority C1 - Correction to Rel9 EUTRA-HRPD test case 6.2.3.7a	10.1.0	10.2.0
2012-09	RAN#57	R5-123251	1900	-	GCF Priority C1 - Correction to Rel9 EUTRA-1xRTT test case 6.2.3.9a	10.1.0	10.2.0
2012-09	RAN#57	R5-123254	1901	-	GCF Priority U1 - Correction to EMM test case 9.2.1.2.13	10.1.0	10.2.0
2012-09	RAN#57	R5-123325	1902	-	GCF Priority 1 - Correction to EUTRA RRC test case 8.5.4.1	10.1.0	10.2.0
2012-09	RAN#57	R5-123415	1903	-	GCF Priority 4: Correction to test case 6.1.2.8a	10.1.0	10.2.0
2012-09	RAN#57	R5-123423	1904	-	Enhancements to LTE CA test case 7.1.9.1	10.1.0	10.2.0
2012-09	RAN#57	R5-123424	1905	-	Update PWS Rel-9 test case 18.1.4	10.1.0	10.2.0
2012-09	RAN#57	R5-123432	1906	-	GCF Priority 1- Correction to RRC test case 8.1.3.12a	10.1.0	10.2.0
2012-09	RAN#57	R5-123433	1907	-	GCF Priority 4 - Correction to Idle Mode test case 6.1.1.3b	10.1.0	10.2.0
2012-09	RAN#57	R5-123474	1909	-	GCF Priority g1: Correction to EMM TC 9.2.3.4.1	10.1.0	10.2.0
2012-09	RAN#57	R5-123475	1910	-	Corrections of measGapConfig IE definitions in CDMA2000 related test cases	10.1.0	10.2.0
2012-09	RAN#57	R5-123476	1911	-	GCF Priority 2: Update MAC TC 7.1.4.16	10.1.0	10.2.0
2012-09	RAN#57	R5-123496	1912	-	Update MDT TC 8.6.5.3 title	10.1.0	10.2.0
2012-09	RAN#57	R5-123536	1913	-	Update of References to specs and Releases in 36.523-1 v990 (pointer)	10.1.0	10.2.0
2012-09	RAN#57	R5-123539	1914	-	Update of References to specs and Releases in 36.523-1	10.1.0	10.2.0
2012-09	RAN#57	R5-123541	1915	-	Add missing PLMN and TAC	10.1.0	10.2.0
2012-09	RAN#57	R5-123550	1916	-	GCF Priority 3 - Correction to test cases 9.3.1.4, 9.3.1.5 and 9.3.1.6	10.1.0	10.2.0
2012-09	RAN#57	R5-123554	1917	-	Correction to UTRAN ANR E-UTRAN Inter-RAT test case 8.7.1	10.1.0	10.2.0
2012-09	RAN#57	R5-123565	1918	-	GCF priority b1: Correction to test case 6.1.2.5	10.1.0	10.2.0
2012-09	RAN#57	R5-123586	1919	-	GCF Priority U1 - Update of EMM TC 9.2.3.2.3	10.1.0	10.2.0
2012-09	RAN#57	R5-123637	1920	-	GCF priority 1 - Correction of test case 8.5.4.1	10.1.0	10.2.0
2012-09	RAN#57	R5-123638	1921	-	GCF Priority 1..4 - Editorial Corrections to EMM test cases	10.1.0	10.2.0
2012-09	RAN#57	R5-123640	1922	-	GCF Priority 3 - Update of EMM test case 9.2.2.1.2	10.1.0	10.2.0
2012-09	RAN#57	R5-123641	1923	-	GCF Priority 3 - Correction to EUTRA Idle Mode test case 6.1.1.4	10.1.0	10.2.0
2012-09	RAN#57	R5-123642	1924	-	GCF Priority u1 - Correction to Idle mode test case 6.2.1.1	10.1.0	10.2.0
2012-09	RAN#57	R5-123643	1925	-	GCF Priority u1 - Correction to Idle mode test case 6.2.3.13	10.1.0	10.2.0
2012-09	RAN#57	R5-123644	1926	-	GCF Priority u1 - Correction to EMM test case 9.2.3.2.9	10.1.0	10.2.0
2012-09	RAN#57	R5-123645	1927	-	GCF Priority u1 - Correction to EMM test case 9.2.3.2.14	10.1.0	10.2.0

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2012-09	RAN#57	R5-123646	1928	-	GCF Priority u1 - Correction to EMM test case 9.2.3.3.2	10.1.0	10.2.0
2012-09	RAN#57	R5-123647	1929	-	GCF Priority u1 - Correction to EMM test case 9.3.1.6	10.1.0	10.2.0
2012-09	RAN#57	R5-123648	1930	-	GCF Priority u1 - Correction to EMM test cases 9.2.1.2.1b and 9.2.1.2.1.c	10.1.0	10.2.0
2012-09	RAN#57	R5-123649	1931	-	GCF Priority u1 Update of TC 9.2.3.3.1	10.1.0	10.2.0
2012-09	RAN#57	R5-123650	1932	-	GCF Priority U1 - Correction to EMM test case 9.2.1.2.9	10.1.0	10.2.0
2012-09	RAN#57	R5-123651	1933	-	GCF Priority U1 - Update of EMM test case 9.2.3.2.1b	10.1.0	10.2.0
2012-09	RAN#57	R5-123655	1934	-	GCF Priority U2 - Correction to UTRA-EUTRA test case 8.4.2.4	10.1.0	10.2.0
2012-09	RAN#57	R5-123656	1935	-	GCF Priority C1 - Correction to test cases 8.3.2.8 and 8.3.2.10	10.1.0	10.2.0
2012-09	RAN#57	R5-123657	1936	-	GCF Priority C1 - Correction to test case 6.2.3.9	10.1.0	10.2.0
2012-09	RAN#57	R5-123659	1937	-	GCF Priority g1 - Correction to multilayer test case 13.1.10	10.1.0	10.2.0
2012-09	RAN#57	R5-123660	1938	-	GCF Priority g1 - Correction to multilayer test case 13.1.8	10.1.0	10.2.0
2012-09	RAN#57	R5-123661	1939	-	GCF Priority g1 - Correction to multilayer test case 13.1.9	10.1.0	10.2.0
2012-09	RAN#57	R5-123665	1940	-	GCF Priority 3 - Correction to EUTRA MAC test cases 7.1.3.2, 7.1.4.2	10.1.0	10.2.0
2012-09	RAN#57	R5-123666	1941	-	Correction to Rel-9 EUTRA-HRPD Idle Mode test case 6.2.3.8a	10.1.0	10.2.0
2012-09	RAN#57	R5-123667	1942	-	GCF Priority X: Addition of New Inter band test case 6.1.2.15b	10.1.0	10.2.0
2012-09	RAN#57	R5-123668	1943	-	Correction to EUTRA Idle Mode test case 6.1.1.4a	10.1.0	10.2.0
2012-09	RAN#57	R5-123669	1944	-	GCF Priority X - Update of test case 6.1.2.2a	10.1.0	10.2.0
2012-09	RAN#57	R5-123671	1945	-	GCF Priority X - Addition of new test case 8.4.7.11	10.1.0	10.2.0
2012-09	RAN#57	R5-123672	1946	-	GCF Priority X: Correction to test case 13.4.4.1	10.1.0	10.2.0
2012-09	RAN#57	R5-123673	1947	-	GCF Priority X - Update of 13.4.4.5	10.1.0	10.2.0
2012-09	RAN#57	R5-123674	1948	-	GCF Priority X - Update of 8.4.7.x test cases	10.1.0	10.2.0
2012-09	RAN#57	R5-123680	1949	-	GCF Priority x - Addition of new test case 6.2.3.4a : Inter-RAT cell reselection / From UTRA_CELL_PCH state to E-UTRA RRC_IDLE based on RSRQ+RSRP evaluation	10.1.0	10.2.0
2012-09	RAN#57	R5-123685	1950	-	Update PWS Rel-9 test case 18.1.7	10.1.0	10.2.0
2012-09	RAN#57	R5-123708	1951	-	GCF Priority X - Addition of New Rel-10 eICIC test case	10.1.0	10.2.0
2012-09	RAN#57	R5-123709	1952	-	Addition of new Rel-10 eICIC test case 8.3.1.19	10.1.0	10.2.0
2012-09	RAN#57	R5-123732	1957	-	GCF Priority g1 - Correction to EUTRA test cases 8.4.3.2 and 8.4.3.3	10.1.0	10.2.0
2012-09	RAN#57	R5-123735	1958	-	Correction to EUTRAN-GERAN test cases for classmark change	10.1.0	10.2.0
2012-09	RAN#57	R5-123736	1959	-	GCF Priority U1 - Correction to EMM test case 9.2.3.3.4	10.1.0	10.2.0
2012-09	RAN#57	R5-123790	1960	-	GCF Priority 3 - Correction to EMM test case 9.2.2.1.3	10.1.0	10.2.0
2012-09	RAN#57	R5-123738	1961	-	GCF Priority X Addition of new test case 13.4.1.5	10.1.0	10.2.0
2012-09	RAN#57	R5-123739	1962	-	GCF Priority u1 - Correction to SRVCC test cases 13.4.3.1, 13.4.3.2, 13.4.3.4 and 13.4.3.6	10.1.0	10.2.0
2012-09	RAN#57	R5-123749	1963	-	Update test case 11.2.11	10.1.0	10.2.0
2012-09	RAN#57	R5-123753	1964	-	Update of CA TC 7.1.3.11	10.1.0	10.2.0
2012-09	RAN#57	R5-123754	1965	-	GCF Priority X - Addition of New Carrier Aggregation test case	10.1.0	10.2.0
2012-09	RAN#57	R5-123755	1966	-	Correction of CA test case 8.2.2.3	10.1.0	10.2.0
2012-09	RAN#57	R5-123756	1967	-	Addition of new TC 7.1.4.19 CA / UE power headroom reporting / SCell activation and DL pathloss change reporting / Extended PHR	10.1.0	10.2.0
2012-09	RAN#57	R5-123794	1968	-	Addition of new TC 7.1.4.23 CA / Correct handling of MAC control information / Buffer status	10.1.0	10.2.0
2012-09	RAN#57	R5-123758	1969	-	Correction of CA test case 8.2.2.4	10.1.0	10.2.0
2012-09	RAN#57	R5-123759	1970	-	Correction of CA test case 8.2.2.5	10.1.0	10.2.0
2012-09	RAN#57	R5-123760	1971	-	Correction of CA test case 8.2.4.17	10.1.0	10.2.0
2012-09	RAN#57	R5-123761	1972	-	Correction of CA test case 8.2.4.18	10.1.0	10.2.0
2012-09	RAN#57	R5-123762	1973	-	Correction of CA test case 8.3.1.17	10.1.0	10.2.0

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2012-09	RAN#57	R5-123763	1974	-	Correction of CA test case 8.3.1.18	10.1.0	10.2.0
2012-09	GERAN#56	GP-120868	1886	-	CR 36.523-1-1886 GCF Priority g1 - Correction to Idle mode test case 6.2.3.19	10.1.0	10.2.0
2012-09	GERAN#56	GP-121042	1884	1	CR 36.523-1-1884 GCF priority g1 - Correction to Idle Mode test case 6.2.3.24	10.1.0	10.2.0
2012-09	GERAN#56	GP-121043	1975	-	CR 36.523-1-1975 GCF Priority g1 - Deletion of Idle mode test case 6.2.3.20	10.1.0	10.2.0
2012-09	RAN#57	R5-123436	1908	-	Addition of new TC9.4.5 Integrity protection / Correct functionality of EPS NAS integrity algorithm / ZUC	10.2.0	11.0.0
2012-09	RAN#57	R5-123721	1953	-	Addition of Test Case 7.3.4.3 Integrity protection Correct functionality of EPS AS integrity algorithms ZUC	10.2.0	11.0.0
2012-09	RAN#57	R5-123722	1954	-	Addition of new ZUC test case 7.3.3.6 correct functionality of EPS UP encryption algorithms	10.2.0	11.0.0
2012-09	RAN#57	R5-123723	1955	-	Addition of new TC7.3.3.5 Ciphering and deciphering / Correct functionality of EPS AS encryption algorithms / ZUC	10.2.0	11.0.0
2012-09	RAN#57	R5-123724	1956	-	Addition of new TC 9.4.6 Ciphering and deciphering / Correct functionality of EPS NAS encryption algorithm / ZUC	10.2.0	11.0.0
2012-12	RAN#58	R5-125074	1978	-	GCF P3: Update of TC 9.2.1.1.19 to apply to all types of attach	11.0.0	11.1.0
2012-12	RAN#58	R5-125080	1980	-	GCF WI-151 - Correction to LTE FDD-TDD Inter-mode test case 6.1.1.1a	11.0.0	11.1.0
2012-12	RAN#58	R5-125087	1981	-	GCF Priority 3: Correction to EMM test case 9.2.3.1.16	11.0.0	11.1.0
2012-12	RAN#58	R5-125126	1982	-	GCF Priority 4 - Correction to EUTRA Idle Mode test case 6.1.1.6a	11.0.0	11.1.0
2012-12	RAN#58	R5-125130	1983	-	Split of CA TC 7.1.3.11 to Intra-band contiguous CA and Inter-band CA	11.0.0	11.1.0
2012-12	RAN#58	R5-125132	1984	-	GCF Priority 3 - Update to Multilayer procedure test cases 13.1.3, 13.3.2.1 and 13.3.2.2	11.0.0	11.1.0
2012-12	RAN#58	R5-125154	1985	-	GCF Priority X - Corrections_TCs_8.4.7.x	11.0.0	11.1.0
2012-12	RAN#58	R5-125155	1986	-	GCF Priority X - Renumbering test case 8.4.7.11 to 8.4.7.10	11.0.0	11.1.0
2012-12	RAN#58	R5-125172	1987	-	Correction of RSRQ EUTRA 6.1.2.18	11.0.0	11.1.0
2012-12	RAN#58	R5-125173	1988	-	Correction of RSRQ EUTRA-GERAN 6.2.3.1a	11.0.0	11.1.0
2012-12	RAN#58	R5-125200	1989	-	GCF Priority 3 - Editorial correction for test case 9.2.1.1.25	11.0.0	11.1.0
2012-12	RAN#58	R5-125204	1990	-	GCF Priority 3 - Update test case 9.2.1.1.26	11.0.0	11.1.0
2012-12	RAN#58	R5-125207	1991	-	Correction to ANR for UTRAN IRAT (E-UTRAN) test case 8.7.1	11.0.0	11.1.0
2012-12	RAN#58	R5-125232	1992	-	GCF Priority 1 - Correction to Idle Mode test case 6.2.3.6	11.0.0	11.1.0
2012-12	RAN#58	R5-125233	1993	-	GCF Priority u1: Correction to RRC test case 8.1.3.7	11.0.0	11.1.0
2012-12	RAN#58	R5-125234	1994	-	GCF Priority u1: Correction to RRC test case 8.4.2.2	11.0.0	11.1.0
2012-12	RAN#58	R5-125235	1995	-	GCF Priority u2: Correction to RRC test case 8.4.2.4	11.0.0	11.1.0
2012-12	RAN#58	R5-125272	1996	-	Correction to CA test case 8.2.2.4.1	11.0.0	11.1.0
2012-12	RAN#58	R5-125274	1997	-	GCF Priority U1 - Update test case 6.2.3.3	11.0.0	11.1.0

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2012-12	RAN#58	R5-125276	1998	-	Clarification to Local Emergency list provided by the NWK and more	11.0.0	11.1.0
2012-12	RAN#58	R5-125317	1999	-	GCF Priority 1 - Correction to PDCP test cases 7.3.4.1 and 7.3.4.2	11.0.0	11.1.0
2012-12	RAN#58	R5-125333	2000	-	GCF Priority 3 - Update of TC 9.2.3.1.27	11.0.0	11.1.0
2012-12	RAN#58	R5-125525	2001	-	Addition of new MDT test case 8.6.7.2	11.0.0	11.1.0
2012-12	RAN#58	R5-125526	2002	-	Addition of new MDT test case 8.6.7.3	11.0.0	11.1.0
2012-12	RAN#58	R5-125532	2003	-	Update to GCF P3 TCs 9.2.2.1.3 and 9.2.2.1.4	11.0.0	11.1.0
2012-12	RAN#58	R5-125584	2004	-	GCF Priority G1 - Update test case 13.4.3.5	11.0.0	11.1.0
2012-12	RAN#58	R5-125633	2005	-	GCF Priority U2 - Correction to UTRA-EUTRA test case 8.4.2.4	11.0.0	11.1.0
2012-12	RAN#58	R5-125634	2006	-	GCF Priority U2 - Correction to EMM test case 9.2.3.2.3	11.0.0	11.1.0
2012-12	RAN#58	R5-125640	2007	-	GCF WI-151 - Correction to LTE FDD-TDD Inter-mode test case 6.1.1.4a	11.0.0	11.1.0
2012-12	RAN#58	R5-125657	2008	-	Editorial corrections to some EMM test cases	11.0.0	11.1.0
2012-12	RAN#58	R5-125662	2009	-	GCF Priority X - Correction to Rel-10 eICIC test case 8.3.1.20	11.0.0	11.1.0
2012-12	RAN#58	R5-125663	2010	-	Removal of technical content in 36.523-1 v10.2.0 and substitution with pointer to the next Release	11.0.0	11.1.0
2012-12	RAN#58	R5-125683	2011	-	GCF Priority 4 - Correction to EMM test case 9.2.3.2.13	11.0.0	11.1.0
2012-12	RAN#58	R5-125685	2012	-	Split of CA TC 7.1.9.1 to Intra-band contiguous CA and Inter-band CA	11.0.0	11.1.0
2012-12	RAN#58	R5-125697	2013	-	GCF Priority 4: Update of EMM test cases 9.2.1.1.1b, 9.2.1.1.15a, 9.2.1.1.16a, 9.2.3.1.15a and 9.2.3.1.18a	11.0.0	11.1.0
2012-12	RAN#58	R5-125702	2014	-	GCF Priority 1 - Correction to PDCP test case 7.3.3.1, 7.3.3.2, 7.3.3.3 and 7.3.3.4	11.0.0	11.1.0
2012-12	RAN#58	R5-125703	2015	-	GCF Priority 1 - Correction to EUTRA RRC test case 8.5.4.1	11.0.0	11.1.0
2012-12	RAN#58	R5-125704	2016	-	GCF Priority 1 - Correction to EMM test case 9.2.3.3.5a	11.0.0	11.1.0
2012-12	RAN#58	R5-125705	2017	-	GCF Priority 2 - Correction to Idle Mode testcases referring to 36.508 6.4.2.7A-2	11.0.0	11.1.0
2012-12	RAN#58	R5-125707	2018	-	GCF Priority 2 - Update test case 9.2.2.2.2	11.0.0	11.1.0
2012-12	RAN#58	R5-125708	2019	-	GCF Priority 3 - Correction to EMM test case 9.3.1.6	11.0.0	11.1.0
2012-12	RAN#58	R5-125710	2020	-	GCF Priority 3 - Correction to EMM test case 9.2.2.1.3	11.0.0	11.1.0
2012-12	RAN#58	R5-125711	2021	-	GCF Priority 3 - Update test case 9.2.1.1.24	11.0.0	11.1.0
2012-12	RAN#58	R5-125712	2022	-	GCF Priority 3 - update of TC 9.2.1.1.24	11.0.0	11.1.0
2012-12	RAN#58	R5-125713	2023	-	GCF Priority 3: Modification of TC 6.1.2.13	11.0.0	11.1.0
2012-12	RAN#58	R5-125714	2024	-	GCF priority 3: Modification of TC 8.3.1.4	11.0.0	11.1.0
2012-12	RAN#58	R5-125715	2025	-	GCF priority 3: Modification of TC 8.3.2.6	11.0.0	11.1.0

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2012-12	RAN#58	R5-125716	2026	-	GCF Priority 2: Modification of EMM TC 9.2.2.1.6	11.0.0	11.1.0
2012-12	RAN#58	R5-125717	2027	-	GCF priority 2: Modification of TC 8.3.1.1	11.0.0	11.1.0
2012-12	RAN#58	R5-125718	2028	-	GCF priority 2: Modification of TC 8.3.1.2	11.0.0	11.1.0
2012-12	RAN#58	R5-125720	2029	-	GCF Priority 4 - Corrections to Single Frequency EUTRA Idle Mode test cases	11.0.0	11.1.0
2012-12	RAN#58	R5-125721	2030	-	GCF Priority 4 - Correction to EUTRA Idle Mode test case 6.1.2.9a	11.0.0	11.1.0
2012-12	RAN#58	R5-125722	2031	-	Correction of Rel-9 inter-band test case 8.3.1.16	11.0.0	11.1.0
2012-12	RAN#58	R5-125723	2032	-	Correction to Rel-9 EUTRA FDD-TDD test case 8.2.4.14a	11.0.0	11.1.0
2012-12	RAN#58	R5-125724	2033	-	Correction to Rel-9 EUTRA FDD-TDD test case 8.2.4.15a	11.0.0	11.1.0
2012-12	RAN#58	R5-125725	2034	-	GCF Priority 4: Update of EMM test case 9.2.3.2.4	11.0.0	11.1.0
2012-12	RAN#58	R5-125726	2035	-	GCF Priority 4: Corrections to user PLMN reselection test cases	11.0.0	11.1.0
2012-12	RAN#58	R5-125728	2036	-	GCF Priority 4 - Correction to test case 6.3.5	11.0.0	11.1.0
2012-12	RAN#58	R5-125729	2037	-	GCF Priority U1 - Update test case 6.2.3.6	11.0.0	11.1.0
2012-12	RAN#58	R5-125730	2038	-	GCF Priority u1 - Correction to preamble in 6.2.2.8/6.2.3.3/6.2.3.3a/6.4.5 test cases	11.0.0	11.1.0
2012-12	RAN#58	R5-125731	2039	-	GCF Priority u1: Modification of TC 6.2.3.13	11.0.0	11.1.0
2012-12	RAN#58	R5-125732	2040	-	GCF Priority u1: Modification of TC 6.2.3.32	11.0.0	11.1.0
2012-12	RAN#58	R5-125733	2041	-	GCF Priority u1 - Update to RRC test case 8.3.2.3	11.0.0	11.1.0
2012-12	RAN#58	R5-125734	2042	-	GCF Priority u1 - Update to RRC test case 8.3.2.4	11.0.0	11.1.0
2012-12	RAN#58	R5-125735	2043	-	GCF priority u1: Modification of TC 8.3.2.3	11.0.0	11.1.0
2012-12	RAN#58	R5-125736	2044	-	GCF priority u1: Modification of TC 8.3.2.4	11.0.0	11.1.0
2012-12	RAN#58	R5-125738	2046	-	GCF Priority u1: Modification of EMM TC 9.2.3.2.1a	11.0.0	11.1.0
2012-12	RAN#58	R5-125740	2047	-	GCF Priority u1 - Update to SRVCC test cases 13.4.3.1, 13.4.3.2, 13.4.3.4 and 13.4.3.6	11.0.0	11.1.0
2012-12	RAN#58	R5-125741	2048	-	GCF Priority U1 - Update test case 13.4.3.1	11.0.0	11.1.0
2012-12	RAN#58	R5-125742	2049	-	GCF Priority U1 - Update test case 13.4.3.2	11.0.0	11.1.0
2012-12	RAN#58	R5-125743	2050	-	GCF Priority U1 - Update test case 13.4.3.4	11.0.0	11.1.0
2012-12	RAN#58	R5-125744	2051	-	GCF Priority u2 - Update to RRC test case 8.3.3.2	11.0.0	11.1.0
2012-12	RAN#58	R5-125747	2052	-	GCF P4: Update of TC 9.2.1.1.3 to clarify applicability of all types of attach and more	11.0.0	11.1.0
2012-12	RAN#58	R5-125748	2053	-	GCF P4: Update of TC 9.2.1.1.4 to clarify applicability of all types of attach and more	11.0.0	11.1.0
2012-12	RAN#58	R5-125749	2054	-	GCF priority g1: Modification of TC 8.3.2.2	11.0.0	11.1.0
2012-12	RAN#58	R5-125750	2055	-	GCF priority g2: Modification of TC 8.3.2.1	11.0.0	11.1.0

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2012-12	RAN#58	R5-125753	2058	-	GCF Priority m1 - Update of RRC test cases 8.3.2.5 and 8.3.2.6	11.0.0	11.1.0
2012-12	RAN#58	R5-125754	2059	-	GCF Priority i1 - Correction to LTE FDD-TDD Inter-mode test case 13.4.1.3	11.0.0	11.1.0
2012-12	RAN#58	R5-125756	2060	-	Correction to test cases 6.1.2.15, 6.1.2.15a and 6.1.2.15b	11.0.0	11.1.0
2012-12	RAN#58	R5-125757	2061	-	Correction to EUTRANFeatureGroupIndicators in EMM test cases	11.0.0	11.1.0
2012-12	RAN#58	R5-125758	2062	-	Correction to TS 36.523-1 TC 9.2.3.1.5 "Periodic tracking area update / Accepted"	11.0.0	11.1.0
2012-12	RAN#58	R5-125759	2063	-	Correction to Multi-layer test cases 13.1.7,13.1.8,13.1.9,13.1.10	11.0.0	11.1.0
2012-12	RAN#58	R5-125761	2064	-	Correction of RSRQ EUTRA-UTRAN 6.2.3.33	11.0.0	11.1.0
2012-12	RAN#58	R5-125762	2065	-	Correction of RSRQ EUTRA-UTRAN 8.3.2.3a	11.0.0	11.1.0
2012-12	RAN#58	R5-125763	2066	-	Update of test case 11.2.11	11.0.0	11.1.0
2012-12	RAN#58	R5-125764	2067	-	GCF WI-154 - Correction to IMS Emergency Call test case 11.2.2	11.0.0	11.1.0
2012-12	RAN#58	R5-125765	2068	-	GCF WI-151 - Correction to LTE FDD-TDD Inter-mode test case 8.3.1.13a	11.0.0	11.1.0
2012-12	RAN#58	R5-125766	2069	-	GCF Priority X - Updates of e1xCSFB TC_13.1.17	11.0.0	11.1.0
2012-12	RAN#58	R5-125767	2070	-	Correction of RSRQ EUTRA-UTRAN 6.2.3.3a	11.0.0	11.1.0
2012-12	RAN#58	R5-125768	2071	-	Correction of RSRQ EUTRA-UTRAN 6.2.3.4a	11.0.0	11.1.0
2012-12	RAN#58	R5-125769	2072	-	Correction of RSRQ EUTRA-UTRAN 6.2.3.5a	11.0.0	11.1.0
2012-12	RAN#58	R5-125770	2073	-	GCF Priority 1 - Update of test case 8.5.4.1 to Clarify FGI 33 - 36	11.0.0	11.1.0
2012-12	RAN#58	R5-125775	2074	-	Update PWS Rel-9 test case 18.1.1	11.0.0	11.1.0
2012-12	RAN#58	R5-125776	2075	-	Correction to PWS Rel-9 test case 18.1.3	11.0.0	11.1.0
2012-12	RAN#58	R5-125781	2076	-	GCF Priority X - Addition of New Rel-10 H(e)NB test case 6.3.10	11.0.0	11.1.0
2012-12	RAN#58	R5-125782	2077	-	GCF Priority X - Addition of new Rel-10 H(e)NB test case 6.3.12	11.0.0	11.1.0
2012-12	RAN#58	R5-125783	2078	-	GCF Priority X - Addition of New Rel-10 H(e)NB test case 6.3.11	11.0.0	11.1.0
2012-12	RAN#58	R5-125785	2079	-	Location stimulus clarification for MDT test cases	11.0.0	11.1.0
2012-12	RAN#58	R5-125786	2080	-	New E-UTRAN MDT test case 8.6.2.9	11.0.0	11.1.0
2012-12	RAN#58	R5-125787	2081	-	New E-UTRAN MDT test case 8.6.4.7	11.0.0	11.1.0
2012-12	RAN#58	R5-125788	2082	-	New E-UTRAN MDT test case 8.6.6.4	11.0.0	11.1.0
2012-12	RAN#58	R5-125789	2083	-	Update of MDT test cases 8.6.5.1 and 8.6.7.1	11.0.0	11.1.0
2012-12	RAN#58	R5-125790	2084	-	Addition of new TC 7.1.4.22: Correct HARQ process handling / UL MIMO	11.0.0	11.1.0
2012-12	RAN#58	R5-125793	2085	-	GCF Priority X - Addition of new test case 13.4.3.7	11.0.0	11.1.0
2012-12	RAN#58	R5-125794	2086	-	GCF Priority X - Addition of new test case	11.0.0	11.1.0

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2012-12	RAN#58	R5-125795	2087	-	GCF Priority X - Addition of new test case 13.4.3.9	11.0.0	11.1.0
2012-12	RAN#58	R5-125796	2088	-	GCF Priority X - Addition of new test case 13.4.3.10	11.0.0	11.1.0
2012-12	RAN#58	R5-125797	2089	-	GCF Priority X - Addition of new test case 13.4.3.11	11.0.0	11.1.0
2012-12	RAN#58	R5-125798	2090	-	GCF Priority X - Addition of new test case 13.4.3.12	11.0.0	11.1.0
2012-12	RAN#58	R5-125799	2091	-	GCF Priority X - Addition of new test case 13.4.3.13	11.0.0	11.1.0
2012-12	RAN#58	R5-126000	2092	-	Add aSRVCC test case 13.4.3.14	11.0.0	11.1.0
2012-12	RAN#58	R5-126001	2093	-	Add aSRVCC test case 13.4.3.16	11.0.0	11.1.0
2012-12	RAN#58	R5-126006	2094	-	Splitting of CA test case 7.1.4.19 to Intra-band Contiguous CA and Inter-band CA	11.0.0	11.1.0
2012-12	RAN#58	R5-126007	2095	-	Renumbering TC 7.1.4.23 and Splitting it to intra-band contiguous CA and inter-band CA	11.0.0	11.1.0
2012-12	RAN#58	R5-126008	2096	-	GCF Priority X - Update of Carrier Aggregation test case 8.4.2.7	11.0.0	11.1.0
2012-12	RAN#58	R5-126019	2097	-	GCF Priority U1 - Update test case 6.2.1.3	11.0.0	11.1.0
2012-12	RAN#58	R5-126021	2098	-	GCF Priority 1 - Correction to EUTRA MAC test cases 7.1.7.1.1, 7.1.7.1.2, 7.1.7.1.3, 7.1.7.1.4, 7.1.7.1.5, 7.1.7.1.6 and 7.1.7.2.1	11.0.0	11.1.0
2012-12	RAN#58	R5-126022	2099	-	GCF Priority g1: Correction to EUTRA to GERAN HO test case 8.4.3.3	11.0.0	11.1.0
2012-12	RAN#58	R5-126023	2100	-	GCF Priority U1 - Correction to EMM test case 9.2.3.3.2	11.0.0	11.1.0
2012-12	RAN#58	R5-126024	2101	-	GCF Priority 3 - Correction to EMM test case 9.3.1.6	11.0.0	11.1.0
2012-12	RAN#58	R5-126026	2102	-	Correction of RSRQ EUTRA 8.3.1.3a	11.0.0	11.1.0
2012-12	RAN#58	R5-126028	2103	-	Correction of RSRQ EUTRA 6.1.2.3a	11.0.0	11.1.0
2012-12	RAN#58	R5-126029	2104	-	Correction of RSRQ EUTRA 6.1.2.17	11.0.0	11.1.0
2012-12	RAN#58	R5-126030	2105	-	Addition of new CA related test case: CA / Correct handling of MAC control information / Buffer Status / UL data arrive in the UE Tx buffer / Extended buffer size	11.0.0	11.1.0
2012-12	RAN#58	R5-126067	1979	-	GCF Priority U1 - Correction to EMM test case 9.2.3.3.2	11.0.0	11.1.0
2012-12	RAN#58	R5-126068	2045	-	GCF Priority u1 - Correction to EMM test case 9.2.3.3.5	11.0.0	11.1.0
2012-12	RAN#58	R5-126070	2106	-	GCF Priority 1 - Update of test case 8.5.4.1 to add Carrier Aggregation IEs	11.0.0	11.1.0
2012-12	RAN#58	R5-126071	2107	-	Addition of New Carrier Aggregation test case for A5	11.0.0	11.1.0
2012-12	RAN#58	R5-126073	2108	-	Addition of New Carrier Aggregation test case for PCell Change SCell no Change	11.0.0	11.1.0
2012-12	RAN#58	R5-126074	2109	-	Addition of New Carrier Aggregation test case for Event A6	11.0.0	11.1.0
2012-12	RAN#58	R5-126075	2110	-	Addition of New Carrier Aggregation test case	11.0.0	11.1.0

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2012-12	RAN#58	R5-126076	2111	-	Addition of New Carrier Aggregation test case for RLF	11.0.0	11.1.0
2012-12	GERAN#56	GP-121233	1976	-	Addition of New Carrier Aggregation test case for RLF	11.0.0	11.1.0
2012-12	GERAN#56	GP-121234	1977	-	Addition of New Carrier Aggregation test case for RLF	11.1.0	11.1.1
2013-03	RAN#59	R5-130079	2115	-	GCF Priority 4 - Correction to EMM tc 9.2.3.2.1c	11.1.1	11.2.0
2013-03	RAN#59	R5-130081	2116	-	GCF Priority 3 - Correction to Multi-Layer test case 13.1.3	11.1.1	11.2.0
2013-03	RAN#59	R5-130088	2117	-	Update to test case 8.3.1.3a	11.1.1	11.2.0
2013-03	RAN#59	R5-130159	2118	-	GCF Priority 3 - Correction to EMM test case 9.2.1.1.24	11.1.1	11.2.0
2013-03	RAN#59	R5-130178	2119	-	GCF Priority u1 - Correction to EMM test case 9.2.3.2.1c	11.1.1	11.2.0
2013-03	RAN#59	R5-130207	2120	-	GCF Priority 4 - Correction to RRC test case 8.1.2.6	11.1.1	11.2.0
2013-03	RAN#59	R5-130208	2121	-	GCF Priority X - Correction to RRC test case 8.2.4.14	11.1.1	11.2.0
2013-03	RAN#59	R5-130209	2122	-	GCF Priority U1 - Correction to EMM test case 9.2.1.2.13	11.1.1	11.2.0
2013-03	RAN#59	R5-130212	2123	-	GCF Priority U1 - Correction to EMM test case 9.2.3.3.5	11.1.1	11.2.0
2013-03	RAN#59	R5-130312	2124	-	GCF Priority u1 - Update test case 13.4.3.2	11.1.1	11.2.0
2013-03	RAN#59	R5-130313	2125	-	Update test case 13.4.3.14	11.1.1	11.2.0
2013-03	RAN#59	R5-130314	2126	-	Update test case 13.4.3.16	11.1.1	11.2.0
2013-03	RAN#59	R5-130316	2127	-	GCF Priority 3 - Update test case 9.2.3.1.27	11.1.1	11.2.0
2013-03	RAN#59	R5-130317	2128	-	GCF Priority 3 - Update test case 9.2.3.1.28	11.1.1	11.2.0
2013-03	RAN#59	R5-130340	2129	-	Correction of MDT test case 8.6.7.1	11.1.1	11.2.0
2013-03	RAN#59	R5-130341	2130	-	Addition of new MO SMS test cases 11.1.5 and 11.1.6	11.1.1	11.2.0
2013-03	RAN#59	R5-130355	2131	-	GCF Priority g1 - Update to EUTRA Idle Mode test case 6.2.3.1	11.1.1	11.2.0
2013-03	RAN#59	R5-130356	2132	-	GCF Priority 2 - Correction to EMM test case TC9.4.4	11.1.1	11.2.0
2013-03	RAN#59	R5-130357	2133	-	GCF Priority 4 - Correction to Idle Mode test case TC6.2.3.19	11.1.1	11.2.0
2013-03	RAN#59	R5-130369	2134	-	Update to test cases 13.4.3.8, 13.4.3.9, 13.4.3.11 and 13.4.3.13	11.1.1	11.2.0
2013-03	RAN#59	R5-130454	2135	-	GCF Priority g1 - Update to Inter-RAT measurements test case 8.3.2.5	11.1.1	11.2.0
2013-03	RAN#59	R5-130455	2136	-	GCF Priority g2 - Update to Inter-RAT measurements test case 8.3.3.3	11.1.1	11.2.0
2013-03	RAN#59	R5-130527	2137	-	Correction to test case 11.1.1 & 11.1.4	11.1.1	11.2.0
2013-03	RAN#59	R5-130539	2138	-	Updating of EMM cause of test case 11.2.6 and 11.2.7	11.1.1	11.2.0

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2013-03	RAN#59	R5-130558	2139	-	GCF Priority 1 - Corrections to MAC TC 7.1.4.10	11.1.1	11.2.0
2013-03	RAN#59	R5-130560	2140	-	Corrections to TC 13.4.3.3 "Inter-system mobility / E-UTRA voice to GSM CS voice / SRVCC"	11.1.1	11.2.0
2013-03	RAN#59	R5-130562	2141	-	Correction to Table 13.4.3.2.3.3-6: HANDOVER TO UTRAN COMMAND (step 32, Table 13.4.3.2.3.3-5) to include new handover condition defined in TS 36.508	11.1.1	11.2.0
2013-03	RAN#59	R5-130586	2142	-	Correction to MDT test case 8.6.3.1	11.1.1	11.2.0
2013-03	RAN#59	R5-130624	2143	-	Correction to preamble for TC 6.2.3.4a	11.1.1	11.2.0
2013-03	RAN#59	R5-130625	2144	-	GCF Priority X - Correction to RSRQ test case 6.1.2.17	11.1.1	11.2.0
2013-03	RAN#59	R5-130626	2145	-	Correction to RSRQ test case 6.1.2.18	11.1.1	11.2.0
2013-03	RAN#59	R5-130627	2146	-	Correction to RSQR test case 6.2.3.3a	11.1.1	11.2.0
2013-03	RAN#59	R5-130628	2147	-	GCF Priority u1 - Correction to EUTRA RRC Test Case 8.4.2.2	11.1.1	11.2.0
2013-03	RAN#59	R5-130629	2148	-	GCF Priority u2 - Correction to EUTRA RRC Test Case 8.4.2.4	11.1.1	11.2.0
2013-03	RAN#59	R5-130630	2149	-	Update of 8.4.5.4 - Addition of C2K checking parameters	11.1.1	11.2.0
2013-03	RAN#59	R5-130631	2150	-	Update of 8.4.7.3 - Addition of C2K checking parameters	11.1.1	11.2.0
2013-03	RAN#59	R5-130632	2151	-	Update of 8.4.7.4 - Addition of C2K checking parameters	11.1.1	11.2.0
2013-03	RAN#59	R5-130633	2152	-	Update of 8.4.7.5 - Addition of C2K checking parameters	11.1.1	11.2.0
2013-03	RAN#59	R5-130634	2153	-	Update of 8.4.7.6 - Addition of C2K checking parameters	11.1.1	11.2.0
2013-03	RAN#59	R5-130635	2154	-	Update of 8.4.7.7 - Addition of C2K checking parameters	11.1.1	11.2.0
2013-03	RAN#59	R5-130636	2155	-	Update of 8.4.7.8 - Addition of C2K checking parameters	11.1.1	11.2.0
2013-03	RAN#59	R5-130637	2156	-	Update of 8.4.7.9 - Addition of C2K checking parameters	11.1.1	11.2.0
2013-03	RAN#59	R5-130639	2158	-	GCF Priority c1 - Correction to title of EUTRA-1xRTT test cases 8.4.7.3 and 8.4.7.4	11.1.1	11.2.0
2013-03	RAN#59	R5-130641	2159	-	GCF Priority g1 - Correction to EUTRA RRC Test Cases 8.4.3.2 and 8.4.3.3	11.1.1	11.2.0
2013-03	RAN#59	R5-130642	2160	-	GCF Priority 4 - Correction to EMM tc 9.2.3.1.17	11.1.1	11.2.0
2013-03	RAN#59	R5-130644	2162	-	GCF Priority 2 - Correction to EMM test case 9.2.3.1.4	11.1.1	11.2.0
2013-03	RAN#59	R5-130645	2163	-	GCF Priority U1 - Correction to EMM test case 9.2.3.2.13	11.1.1	11.2.0
2013-03	RAN#59	R5-130646	2164	-	GCF Priority U1 - Correction to EMM test case 9.2.1.2.5	11.1.1	11.2.0
2013-03	RAN#59	R5-130647	2165	-	GCF Priority 4 - Correction to EMM tc 9.2.3.3.5a	11.1.1	11.2.0

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2013-03	RAN#59	R5-130649	2166	-	New LTE Rel-9 TC for UE rejection of NAS security mode command with EIA0	11.1.1	11.2.0
2013-03	RAN#59	R5-130650	2167	-	GCF Priority 1 - Update test case 9.1.3.1 to test not null and null ciphering algorithms	11.1.1	11.2.0
2013-03	RAN#59	R5-130651	2168	-	Correction to GCF P3 EMM test case 9.2.2.1.8	11.1.1	11.2.0
2013-03	RAN#59	R5-130652	2169	-	Update of 11.2.8 - Addition of C2K checking parameters	11.1.1	11.2.0
2013-03	RAN#59	R5-130653	2170	-	GCF Priority 3 - Correction to Multi-layer test cases 13.1.x	11.1.1	11.2.0
2013-03	RAN#59	R5-130654	2171	-	GCF Priority u1 - Update test case 13.1.2	11.1.1	11.2.0
2013-03	RAN#59	R5-130655	2172	-	GCF Priority u1 - Update test case 13.1.2a	11.1.1	11.2.0
2013-03	RAN#59	R5-130656	2173	-	GCF Priority u1 - Update test case 13.1.5	11.1.1	11.2.0
2013-03	RAN#59	R5-130657	2174	-	GCF Priority g1 - Update test case 13.1.9	11.1.1	11.2.0
2013-03	RAN#59	R5-130658	2175	-	Update of 13.1.17 - Addition of C2K checking parameters	11.1.1	11.2.0
2013-03	RAN#59	R5-130659	2176	-	Update of 13.1.18 - Addition of C2K checking parameters	11.1.1	11.2.0
2013-03	RAN#59	R5-130660	2177	-	Update of 13.4.4.1 - Addition of C2K checking parameters	11.1.1	11.2.0
2013-03	RAN#59	R5-130661	2178	-	Update of 13.4.4.2 - Addition of C2K checking parameters	11.1.1	11.2.0
2013-03	RAN#59	R5-130662	2179	-	Update of 13.4.4.4 - Addition of C2K checking parameters	11.1.1	11.2.0
2013-03	RAN#59	R5-130663	2180	-	Update of 13.4.4.5 - Addition of C2K checking parameters	11.1.1	11.2.0
2013-03	RAN#59	R5-130664	2181	-	Update of 13.4.4.3 - C2K messages contents for checking parameters	11.1.1	11.2.0
2013-03	RAN#59	R5-130665	2182	-	GCF Priority 3 - Correction to EMM test case 9.1.5.1	11.1.1	11.2.0
2013-03	RAN#59	R5-130669	2183	-	Addition of new Inter-RAT measurement test case for event B1	11.1.1	11.2.0
2013-03	RAN#59	R5-130697	2184	-	New aSRVCC TC 13_4_3_15 MO call voice-data SRVCC HO cancelled	11.1.1	11.2.0
2013-03	RAN#59	R5-130698	2185	-	New aSRVCC TC 13_4_3_17 MT call voice-data SRVCC HO cancelled	11.1.1	11.2.0
2013-03	RAN#59	R5-130699	2186	-	Update of eICIC test case 8.3.1.20	11.1.1	11.2.0
2013-03	RAN#59	R5-130701	2187	-	Update of Carrier Aggregation test case 8.2.4.19.1	11.1.1	11.2.0
2013-03	RAN#59	R5-130703	2188	-	Editorial Corrections to Carrier Aggregation Radio Resource Reconfiguration test cases	11.1.1	11.2.0
2013-03	RAN#59	R5-130704	2189	-	Modification on CA radio resource reconfiguration related test cases	11.1.1	11.2.0
2013-03	RAN#59	R5-130705	2190	-	Editorial Corrections to Carrier Aggregation Handover Test cases	11.1.1	11.2.0
2013-03	RAN#59	R5-130707	2191	-	Modification of CA TC 8.2.4.17 and 8.2.4.18	11.1.1	11.2.0
2013-03	RAN#59	R5-130720	2192	-	New NIMTC test case 6.1.1.7 PLMN selection / Periodic reselection /	11.1.1	11.2.0

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2013-03	RAN#59	R5-130722	2193	-	New NIMTC test case 9.2.1.1.27 Attach / Abnormal case / Network reject with Extended Wait Timer	11.1.1	11.2.0
2013-03	RAN#59	R5-130723	2194	-	New NIMTC test case 10.5.4 UE requested PDN connectivity not accepted / Network reject with Extended Wait Timer	11.1.1	11.2.0
2013-03	RAN#59	R5-130729	2195	-	Addition of new MDT test case 8.6.3.2	11.1.1	11.2.0
2013-03	RAN#59	R5-130730	2196	-	Addition of New MDT test case for Logged MDT	11.1.1	11.2.0
2013-03	RAN#59	R5-130733	2198	-	Addition of new test case 8.3.1.bb	11.1.1	11.2.0
2013-03	RAN#59	R5-130734	2199	-	Addition of new test case 8.3.1.cc	11.1.1	11.2.0
2013-03	RAN#59	R5-130735	2200	-	Addition of new test case 8.3.1.dd	11.1.1	11.2.0
2013-03	RAN#59	R5-130739	2202	-	GCF Priority 3 - Corrections to EMM TC 9.2.1.1.12, 9.2.3.1.12, 9.2.3.1.18	11.1.1	11.2.0
2013-03	RAN#59	R5-130740	2203	-	GCF Priority U1 - Correction to EMM test case 9.2.1.2.8	11.1.1	11.2.0
2013-03	RAN#59	R5-130741	2204	-	GCF Priority g1 - Update test case 13.1.8	11.1.1	11.2.0
2013-03	RAN#59	R5-130742	2205	-	GCF Priority g1 - Update test case 13.1.12	11.1.1	11.2.0
2013-03	RAN#59	R5-130746	2206	-	GCF Priority i1 - Correction to LTE FDD-TDD Inter-mode test case 8.3.1.15a	11.1.1	11.2.0
2013-03	RAN#59	R5-130747	2207	-	GCF Priority i1 - Correction to LTE FDD-TDD Inter-mode test case 8.3.1.16a	11.1.1	11.2.0
2013-03	RAN#59	R5-130748	2208	-	GCF Priority 1 - Correction to EUTRA RRC test case 8.5.4.1	11.1.1	11.2.0
2013-03	RAN#59	R5-130752	2209	-	Modification of CA TC 8.2.4.19	11.1.1	11.2.0
2013-03	RAN#59	R5-130753	2210	-	Modification of CA TC 8.2.4.20	11.1.1	11.2.0
2013-03	RAN#59	R5-130754	2211	-	Modification of CA TC 8.2.4.21	11.1.1	11.2.0
2013-03	RAN#59	R5-130755	2212	-	Modification of CA TCs 8.3.1.17 and 8.3.1.18	11.1.1	11.2.0
2013-03	RAN#59	R5-130756	2213	-	Modification of CA TC 8.3.1.22	11.1.1	11.2.0
2013-03	RAN#59	R5-130757	2214	-	Modification of CA TC 8.4.2.7	11.1.1	11.2.0
2013-03	RAN#59	R5-130758	2215	-	Update of Carrier Aggregation test case 8.2.4.20.1	11.1.1	11.2.0
2013-03	RAN#59	R5-130762	2216	-	GCF Priority 3 – Corrections to EMM tcs 9.2.3.2.1a and 9.2.3.3.4	11.1.1	11.2.0
2013-03	RAN#59	R5-130778	2161	-	GCF Priority 3 - Update test case 9.3.1.3	11.1.1	11.2.0
2013-03	RAN#59	R5-130784	2217	-	GCF Priority ee1 - Corrections to Emgerency Call over IMS test cases	11.1.1	11.2.0
2013-03	RAN#59	R5-130785	2218	-	GCF Priority c1 - Correction to EUTRA-HRPD test case 8.3.2.8	11.1.1	11.2.0
2013-03	RAN#59	R5-130786	2219	-	GCF Priority c1 - Correction to EUTRA-1xRTT test case 8.3.2.10	11.1.1	11.2.0
2013-03	GERAN3 #57	GP-130307	2112	-	GCF Priority g1 - Correction to EUTRA Idle Mode test case 6.2.3.23	11.1.1	11.2.0
2013-06	RAN#60	GP-130357	2220	-	CR 36.523-1-2220 GCF Priority 1 - Correction to EUTRA Idle Mode Test Case 6.2.3.15	11.2.0	11.3.0

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2013-06	RAN#60	GP-130358	2221	-	CR 36.523-1-2221 GCF priority g1 - Correction to Idle Mode test case 6.2.1.6	11.2.0	11.3.0
2013-06	RAN#60	GP-130371	2222	-	CR 36.523-1-2222 Removal of TC 6.2.3.22	11.2.0	11.3.0
2013-06	RAN#60	R5-131066	2224	-	Update of CDMA2000 specification references: Clause 2 of TS 36.523-1	11.2.0	11.3.0
2013-06	RAN#60	R5-131071	2225	-	Update of CDMA2000 specification references for UE Capability Transfer	11.2.0	11.3.0
2013-06	RAN#60	R5-131072	2226	-	Update of CDMA2000 specification references for Inter-RAT Handover	11.2.0	11.3.0
2013-06	RAN#60	R5-131073	2227	-	Update of CDMA2000 specification references of Inter-system session management	11.2.0	11.3.0
2013-06	RAN#60	R5-131077	2228	-	Update of of LTE MDT test case 8.6.3.3	11.2.0	11.3.0
2013-06	RAN#60	R5-131087	2229	-	Editorial Remove square bracket in TC 8.3.2.1	11.2.0	11.3.0
2013-06	RAN#60	R5-131088	2230	-	Editorial Remove square bracket and FFS in TCs 13.4.2.2, 13.4.3.3, 13.4.3.5	11.2.0	11.3.0
2013-06	RAN#60	R5-131091	2231	-	Editorial TC 12.1.1	11.2.0	11.3.0
2013-06	RAN#60	R5-131128	2232	-	Correction of description on 36523-3	11.2.0	11.3.0
2013-06	RAN#60	R5-131142	2233	-	GCF Priority X - Correction to Idle Mode test case 6.3.11	11.2.0	11.3.0
2013-06	RAN#60	R5-131143	2234	-	GCF Priority X - Correction to Idle Mode test case 6.3.10	11.2.0	11.3.0
2013-06	RAN#60	R5-131169	2235	-	Update to test function Update UE Location Information	11.2.0	11.3.0
2013-06	RAN#60	R5-131215	2236	-	GCF Priority u1 - Update to EMM test case 9.2.3.2.9	11.2.0	11.3.0
2013-06	RAN#60	R5-131255	2237	-	GCF Priority 3 - Correction to EUTRA MAC test case 7.1.4.2	11.2.0	11.3.0
2013-06	RAN#60	R5-131294	2238	-	Update test case 13.1.3	11.2.0	11.3.0
2013-06	RAN#60	R5-131295	2239	-	Update test case 13.1.7	11.2.0	11.3.0
2013-06	RAN#60	R5-131296	2240	-	Update test case 13.1.10	11.2.0	11.3.0
2013-06	RAN#60	R5-131298	2241	-	Update test case 13.1.15	11.2.0	11.3.0
2013-06	RAN#60	R5-131299	2242	-	Update test case 13.1.11	11.2.0	11.3.0
2013-06	RAN#60	R5-131300	2243	-	Update test case 13.1.13	11.2.0	11.3.0
2013-06	RAN#60	R5-131301	2244	-	Update test case 13.1.4	11.2.0	11.3.0
2013-06	RAN#60	R5-131302	2245	-	Update test case 13.1.16	11.2.0	11.3.0
2013-06	RAN#60	R5-131314	2246	-	Correction to RSRQ test case 8.3.2.3a	11.2.0	11.3.0
2013-06	RAN#60	R5-131316	2247	-	Correction to EUTRA-HRPD test case 8.3.3.4	11.2.0	11.3.0
2013-06	RAN#60	R5-131317	2248	-	Correction to EMM test case 9.2.1.2.8	11.2.0	11.3.0
2013-06	RAN#60	R5-131318	2249	-	Correction to EMM test case 9.2.2.1.8	11.2.0	11.3.0
2013-06	RAN#60	R5-131324	2250	-	Correction to CA test cases 8.3.1.18.1 and 8.3.1.18.2	11.2.0	11.3.0
2013-06	RAN#60	R5-131366	2251	-	Update test case 13.4.2.1	11.2.0	11.3.0
2013-06	RAN#60	R5-131367	2252	-	Update test case 13.4.3.1	11.2.0	11.3.0

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2013-06	RAN#60	R5-131368	2253	-	Update test case 13.4.3.2	11.2.0	11.3.0
2013-06	RAN#60	R5-131369	2254	-	Update test case 13.4.3.7	11.2.0	11.3.0
2013-06	RAN#60	R5-131370	2255	-	Update test case 13.4.3.8	11.2.0	11.3.0
2013-06	RAN#60	R5-131371	2256	-	Update test case 13.4.3.9	11.2.0	11.3.0
2013-06	RAN#60	R5-131372	2257	-	Update test case 13.4.3.10	11.2.0	11.3.0
2013-06	RAN#60	R5-131373	2258	-	Update test case 13.4.3.11	11.2.0	11.3.0
2013-06	RAN#60	R5-131375	2259	-	Update test case 13.4.3.12	11.2.0	11.3.0
2013-06	RAN#60	R5-131376	2260	-	Update test case 13.4.3.13	11.2.0	11.3.0
2013-06	RAN#60	R5-131377	2261	-	Update test case 13.4.3.14	11.2.0	11.3.0
2013-06	RAN#60	R5-131378	2262	-	Update test case 13.4.3.16	11.2.0	11.3.0
2013-06	RAN#60	R5-131441	2263	-	Correction to test case 8.3.1.26	11.2.0	11.3.0
2013-06	RAN#60	R5-131470	2264	-	Update IMS emergency call pre-test condition	11.2.0	11.3.0
2013-06	RAN#60	R5-131480	2265	-	Adding a new TC 9.2.3.1.5a for NIMTC conformance testing	11.2.0	11.3.0
2013-06	RAN#60	R5-131485	2266	-	Splitting TC 11.2.8 in two TCs one for UTRA/GERAN and one for 1xRTT	11.2.0	11.3.0
2013-06	RAN#60	R5-131496	2367	-	Correction to generic MO CSFB procedures	11.2.0	11.3.0
2013-06	RAN#60	R5-131504	2267	-	Editorial update of test case 13.1.5	11.2.0	11.3.0
2013-06	RAN#60	R5-131557	2268	-	Update of 8.4.7.10 - Addition of C2K checking parameters	11.2.0	11.3.0
2013-06	RAN#60	R5-131626	2269	-	Addition of new test case for PLMN change in eMDT	11.2.0	11.3.0
2013-06	RAN#60	R5-131633	2270	-	Addition of new test case for EventB2 reporting in eMDT	11.2.0	11.3.0
2013-06	RAN#60	R5-131635	2271	-	Addition of new test case for RACH reporting in eMDT	11.2.0	11.3.0
2013-06	RAN#60	R5-131675	2272	-	Correction to EMM Test Case 9.2.3.1.19	11.2.0	11.3.0
2013-06	RAN#60	R5-131693	2273	-	GCF Priority 2 / 3 - Editorial corrections to EMM test cases 9.2.1.1.1a and 9.2.3.1.17	11.2.0	11.3.0
2013-06	RAN#60	R5-131708	2274	-	GCF Priority 2 - Corrections to SMS over SGs test cases	11.2.0	11.3.0
2013-06	RAN#60	R5-131713	2275	-	Editorial correction to TC 9.2.1.1.1	11.2.0	11.3.0
2013-06	RAN#60	R5-131733	2276	-	Correction to LTE-A test case 8.2.2.5.1/8.2.2.5.2	11.2.0	11.3.0
2013-06	RAN#60	R5-131810	2277	-	CSG reselection requirements correction in TC 6.3.1	11.2.0	11.3.0
2013-06	RAN#60	R5-131811	2278	-	CSG reselection requirements correction in TC 6.3.3	11.2.0	11.3.0
2013-06	RAN#60	R5-131812	2279	-	CSG reselection requirements correction in TC 6.3.4	11.2.0	11.3.0
2013-06	RAN#60	R5-131813	2280	-	CSG reselection requirements correction in TC 6.3.7	11.2.0	11.3.0
2013-06	RAN#60	R5-131814	2281	-	CSG reselection requirements correction in TC 6.3.8	11.2.0	11.3.0

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2013-06	RAN#60	R5-131815	2282	-	Correction to EUTRA Idle mode Test case 6.1.2.13	11.2.0	11.3.0
2013-06	RAN#60	R5-131816	2283	-	Correction to EUTRA Idle mode test case 6.2.3.1a	11.2.0	11.3.0
2013-06	RAN#60	R5-131817	2284	-	Correction to MAC test case 7.1.1.2	11.2.0	11.3.0
2013-06	RAN#60	R5-131818	2285	-	Update of test case 8.5.4.1	11.2.0	11.3.0
2013-06	RAN#60	R5-131819	2286	-	Correction to EUTRA-1xRTT test case 8.3.2.10	11.2.0	11.3.0
2013-06	RAN#60	R5-131820	2287	-	Correction to EUTRA-HRPD test case 8.3.2.8	11.2.0	11.3.0
2013-06	RAN#60	R5-131821	2288	-	New TC 8.3.4.5 Inter-frequency E-UTRAN FDD - FDD / CSG Proximity Indication	11.2.0	11.3.0
2013-06	RAN#60	R5-131822	2289	-	Addition of new test case 8.3.1.23	11.2.0	11.3.0
2013-06	RAN#60	R5-131823	2290	-	Addition of new test case 8.3.1.27	11.2.0	11.3.0
2013-06	RAN#60	R5-131824	2291	-	GCF Priority 1 - Correction to EUTRA RRC Test Case 8.3.2.2.	11.2.0	11.3.0
2013-06	RAN#60	R5-131825	2292	-	GCF Priority x - Correction to EUTRA test case 8.3.1.13	11.2.0	11.3.0
2013-06	RAN#60	R5-131826	2293	-	Editorial Remove square bracket in TC 8.4.3.2	11.2.0	11.3.0
2013-06	RAN#60	R5-131827	2294	-	Update to test case 9.2.1.2.3 and 9.2.3.2.3	11.2.0	11.3.0
2013-06	RAN#60	R5-131828	2295	-	GCF Priority 3 - Corrections to EMM TC 9.2.1.1.12, 9.2.3.1.12, 9.2.3.1.18	11.2.0	11.3.0
2013-06	RAN#60	R5-131829	2296	-	Correction to EMM test case 9.2.3.2.1a	11.2.0	11.3.0
2013-06	RAN#60	R5-131830	2297	-	Correction to EMM test case 9.2.3.3.2	11.2.0	11.3.0
2013-06	RAN#60	R5-131831	2298	-	GCF Priority 2 - Correction to EUTRA EMM Test Case 9.2.3.2.3	11.2.0	11.3.0
2013-06	RAN#60	R5-131832	2299	-	GCF Priority 2: Extending the scope of TC 9.1.4.2 to verify IMEISV	11.2.0	11.3.0
2013-06	RAN#60	R5-131833	2300	-	GCF G2: Corrections to EMM test case 9.2.3.4.1	11.2.0	11.3.0
2013-06	RAN#60	R5-131834	2301	-	GCF Priority U1: Correction to EMM test case 9.2.3.3.4	11.2.0	11.3.0
2013-06	RAN#60	R5-131835	2302	-	9.2.3.1.8 'Load Balancing TAU' does not test the main requirement	11.2.0	11.3.0
2013-06	RAN#60	R5-131836	2303	-	Correction to EMM test case 9.1.3.3	11.2.0	11.3.0
2013-06	RAN#60	R5-131837	2304	-	Update to test case 11.2.6	11.2.0	11.3.0
2013-06	RAN#60	R5-131838	2305	-	Update test case 11.2.11	11.2.0	11.3.0
2013-06	RAN#60	R5-131839	2306	-	Update of test case 8.3.3.5	11.2.0	11.3.0
2013-06	RAN#60	R5-131840	2307	-	Correction to EUTRA Multi-layer Test Case 13.3.1.3	11.2.0	11.3.0
2013-06	RAN#60	R5-131841	2308	-	Corrections to eMBMS test case 17.1.1	11.2.0	11.3.0
2013-06	RAN#60	R5-131842	2309	-	Corrections to eMBMS test case 17.1.2	11.2.0	11.3.0
2013-06	RAN#60	R5-131843	2310	-	Corrections to eMBMS test case 17.1.3	11.2.0	11.3.0
2013-06	RAN#60	R5-131844	2311	-	Corrections to eMBMS test case 17.1.4	11.2.0	11.3.0
2013-06	RAN#60	R5-131845	2312	-	Corrections to eMBMS test case 17.1.5	11.2.0	11.3.0

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2013-06	RAN#60	R5-131846	2313	-	Corrections to eMBMS test case 17.2.1	11.2.0	11.3.0
2013-06	RAN#60	R5-131847	2314	-	Corrections to eMBMS test case 17.2.2	11.2.0	11.3.0
2013-06	RAN#60	R5-131848	2315	-	Corrections to eMBMS test case 17.2.3	11.2.0	11.3.0
2013-06	RAN#60	R5-131849	2316	-	Corrections to eMBMS test case 17.2.4	11.2.0	11.3.0
2013-06	RAN#60	R5-131850	2317	-	Correction to PWS(CMAS) test case 18.1.3	11.2.0	11.3.0
2013-06	RAN#60	R5-131851	2318	-	Corrections to eMBMS test case 17.3.1	11.2.0	11.3.0
2013-06	RAN#60	R5-131852	2319	-	Corrections to eMBMS test case 17.3.2	11.2.0	11.3.0
2013-06	RAN#60	R5-131853	2320	-	Correction to E-UTRA MDT test case 8.6.2.1	11.2.0	11.3.0
2013-06	RAN#60	R5-131854	2321	-	Correction to E-UTRA MDT test case 8.6.2.2	11.2.0	11.3.0
2013-06	RAN#60	R5-131855	2322	-	Correction to E-UTRA MDT test case 8.6.2.3	11.2.0	11.3.0
2013-06	RAN#60	R5-131856	2323	-	Correction to E-UTRA MDT test case 8.6.2.4	11.2.0	11.3.0
2013-06	RAN#60	R5-131857	2324	-	Correction to E-UTRA MDT test case 8.6.2.5	11.2.0	11.3.0
2013-06	RAN#60	R5-131858	2325	-	Correction to E-UTRA MDT test case 8.6.2.8	11.2.0	11.3.0
2013-06	RAN#60	R5-131859	2326	-	Correction to E-UTRA MDT test case 8.6.3.1	11.2.0	11.3.0
2013-06	RAN#60	R5-131860	2327	-	Correction to E-UTRA MDT test case 8.6.3.2	11.2.0	11.3.0
2013-06	RAN#60	R5-131861	2328	-	Correction to E-UTRA MDT test case 8.6.3.3	11.2.0	11.3.0
2013-06	RAN#60	R5-131879	2330	-	Correction to MAC LTE CA test case 7.1.3.11	11.2.0	11.3.0
2013-06	RAN#60	R5-131880	2331	-	Correction to MAC LTE CA test case 7.1.4.18	11.2.0	11.3.0
2013-06	RAN#60	R5-131881	2332	-	Correction to MAC LTE CA test case 7.1.9.1	11.2.0	11.3.0
2013-06	RAN#60	R5-131882	2333	-	Correction to MAC LTE CA test case 7.1.4.20.1	11.2.0	11.3.0
2013-06	RAN#60	R5-131883	2334	-	Correction to MAC LTE CA test case 7.1.4.19.1	11.2.0	11.3.0
2013-06	RAN#60	R5-131886	2335	-	Update of eICIC test case 8.3.1.20	11.2.0	11.3.0
2013-06	RAN#60	R5-131892	2336	-	Adding a new TC 9.2.1.1.2a for NIMTC conformance testing	11.2.0	11.3.0
2013-06	RAN#60	R5-131894	2337	-	Addition of new test case for TDD additional special subframe configuration with CRS based transmission scheme	11.2.0	11.3.0
2013-06	RAN#60	R5-131895	2338	-	Addition of new test case for TDD additional special subframe configuration with UE-specific reference signals based transmission scheme	11.2.0	11.3.0
2013-06	RAN#60	R5-131898	2339	-	Correction to EUTRA EMM Test Case 9.2.3.2.1b	11.2.0	11.3.0
2013-06	RAN#60	R5-131899	2340	-	Correction to EUTRA EMM Test Case 9.2.1.2.1b	11.2.0	11.3.0
2013-06	RAN#60	R5-132003	2341	-	Update to test case 8.2.4.17.2	11.2.0	11.3.0
2013-06	RAN#60	R5-132005	2342	-	Correction to RRC test case 8.2.4.14	11.2.0	11.3.0
2013-06	RAN#60	R5-132018	2343	-	New Carrier Aggregation test case on MIMO	11.2.0	11.3.0
2013-06	RAN#60	R5-132019	2344	-	Correction to usage of cells in Inter-band LTE CA test case 8.2.4.19.2	11.2.0	11.3.0
2013-06	RAN#60	R5-132020	2345	-	Correction to usage of cells in Inter-band LTE CA test case 8.2.4.20.2	11.2.0	11.3.0

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2013-06	RAN#60	R5-132021	2346	-	Correction to usage of cells in Inter-band LTE CA test case 8.2.4.21.2	11.2.0	11.3.0
2013-06	RAN#60	R5-132022	2347	-	Addition of SCell configuration type to CA test cases	11.2.0	11.3.0
2013-06	RAN#60	R5-132024	2348	-	Correction to eICIC test case 8.3.1.19	11.2.0	11.3.0
2013-06	RAN#60	R5-132032	2349	-	Correction to idle mode test case 6.1.2.17	11.2.0	11.3.0
2013-06	RAN#60	R5-132033	2350	-	Correction to LTE FDD-TDD Inter-mode test case 8.1.3.12a	11.2.0	11.3.0
2013-06	RAN#60	R5-132034	2351	-	GCF Priority 1 - Update of EUTRA RRC test case 8.5.4.1 to handle Rel-11 IEs	11.2.0	11.3.0
2013-06	RAN#60	R5-132035	2352	-	Correction to EMM test case 9.2.3.3.4	11.2.0	11.3.0
2013-06	RAN#60	R5-132042	2353	-	GCF Priority 2 - Corrections to ESM test case 10.3.1	11.2.0	11.3.0
2013-06	RAN#60	R5-132043	2354	-	GCF Priority 2 - Corrections to ESM test case 10.9.1	11.2.0	11.3.0
2013-06	RAN#60	R5-132044	2355	-	Addition of new test case for T300 expiry in eMDT	11.2.0	11.3.0
2013-06	RAN#60	R5-132045	2356	-	Addition of new test case about TAC and PLMN id in eMDT	11.2.0	11.3.0
2013-06	RAN#60	R5-132046	2357	-	Addition of new test case about PLMN list in eMDT	11.2.0	11.3.0
2013-06	RAN#60	R5-132047	2358	-	Addition of new test case about Location information for eMDT	11.2.0	11.3.0
2013-06	RAN#60	R5-132048	2359	-	Addition of new test case for inter-frequency measurements report in eMDT	11.2.0	11.3.0
2013-06	RAN#60	R5-132049	2360	-	Addition of new test case for inter-RAT measurements report in eMDT	11.2.0	11.3.0
2013-06	RAN#60	R5-132054	2361	-	Addition of new test case for reporitng reestablishment in eMDT	11.2.0	11.3.0
2013-06	RAN#60	R5-132056	2362	-	Addition of new test case for EventA2 reporting in eMDT	11.2.0	11.3.0
2013-06	RAN#60	R5-132058	2363	-	GCF Priority X - Correction to Idle Mode test case 6.3.12	11.2.0	11.3.0
2013-06	RAN#60	R5-132067	2364	-	GCF Priority ee1 - Update of Emergency Call over IMS test cases	11.2.0	11.3.0
2013-06	RAN#60	R5-132069	2365	-	GCF Priority i1 - Correction to LTE FDD-TDD Inter-mode test case 6.1.1.4a	11.2.0	11.3.0
2013-06	RAN#60	R5-132084	2366	-	Update of TC 11.2.7 to consider document C1-131732	11.2.0	11.3.0
2013-09	RAN#61	R5-133081	2368	-	Correction to CA test case 8.2.4.21.2	11.3.0	11.4.0
2013-09	RAN#61	R5-133082	2369	-	GCF Priority 3 - Correction to EMM test case 9.2.1.1.11	11.3.0	11.4.0
2013-09	RAN#61	R5-133093	2370	-	Correction to EMM test case 9.2.3.4.1	11.3.0	11.4.0
2013-09	RAN#61	R5-133114	2371	-	Clarification for handling of differences between conformance requirements in different releases of core specifications	11.3.0	11.4.0
2013-09	RAN#61	R5-133128	2372	-	Correction to CA Test Case 8.2.2.5.1 and 8.2.2.5.2	11.3.0	11.4.0

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2013-09	RAN#61	R5-133145	2373	-	Correction to EMM test case 9.2.1.1.1b	11.3.0	11.4.0
2013-09	RAN#61	R5-133167	2374	-	Editorial update of TC 9.2.3.3.2	11.3.0	11.4.0
2013-09	RAN#61	R5-133184	2375	-	Update of text for Update UE Location Information	11.3.0	11.4.0
2013-09	RAN#61	R5-133322	2376	-	Addition of new eMDT test case 8.6.7.4	11.3.0	11.4.0
2013-09	RAN#61	R5-133323	2377	-	Addition of new eMDT test case 8.6.4.8	11.3.0	11.4.0
2013-09	RAN#61	R5-133324	2378	-	Addition of new eMDT test case 8.6.4.9	11.3.0	11.4.0
2013-09	RAN#61	R5-133325	2379	-	Addition of new eMDT test case 8.6.4.10	11.3.0	11.4.0
2013-09	RAN#61	R5-133326	2380	-	Addition of new eMDT test case 8.6.8.2	11.3.0	11.4.0
2013-09	RAN#61	R5-133327	2381	-	Addition of new eMDT test case 8.6.8.5	11.3.0	11.4.0
2013-09	RAN#61	R5-133328	2382	-	Addition of new eMDT test case 8.6.9.1	11.3.0	11.4.0
2013-09	RAN#61	R5-133342	2383	-	Correction to test case 8.4.3.2	11.3.0	11.4.0
2013-09	RAN#61	R5-133362	2384	-	Correction of ESM test cases 10.3.1 and 10.9.1	11.3.0	11.4.0
2013-09	RAN#61	R5-133483	2385	-	GCF Priority 4: Modification to TC 6.1.2.12	11.3.0	11.4.0
2013-09	RAN#61	R5-133486	2386	-	Modification to TC 8.3.1.13a	11.3.0	11.4.0
2013-09	RAN#61	R5-133510	2387	-	Update to test case 9.2.1.1.18	11.3.0	11.4.0
2013-09	RAN#61	R5-133585	2388	-	GCF Priority 3 - Correction to 6.1.2.9a test cases	11.3.0	11.4.0
2013-09	RAN#61	R5-133586	2389	-	Define new TC 6.1.2.19 for Intra-frequency cell reselection with MFBI support	11.3.0	11.4.0
2013-09	RAN#61	R5-133587	2390	-	Define new TC 6.1.2.21 for Inter-band cell reselection with MFBI support	11.3.0	11.4.0
2013-09	RAN#61	R5-133589	2391	-	GCF priority 4 - Correction to EUTRA RRC test cases 8.2.1.5 and 8.2.1.6	11.3.0	11.4.0
2013-09	RAN#61	R5-133590	2392	-	Correction to FDD-TDD test case 8.3.1.15a	11.3.0	11.4.0
2013-09	RAN#61	R5-133591	2393	-	GCF Priority 4 - Corrections to EUTRA-GERAN Test Case 8.4.3.3	11.3.0	11.4.0
2013-09	RAN#61	R5-133592	2394	-	GCF Priority 3 - Correction to test case 9.2.3.1.18a	11.3.0	11.4.0
2013-09	RAN#61	R5-133593	2395	-	GCF Priority 2 - Correction to test case 9.2.3.3.6	11.3.0	11.4.0
2013-09	RAN#61	R5-133594	2396	-	Correction to EMM TC 9.2.2.1.3	11.3.0	11.4.0
2013-09	RAN#61	R5-133595	2397	-	GCF Priority 2 - Correction to test case 9.2.1.2.4 and 9.2.3.2.4	11.3.0	11.4.0
2013-09	RAN#61	R5-133596	2398	-	Correction to EUTRA test case 9.2.1.2.1b	11.3.0	11.4.0
2013-09	RAN#61	R5-133597	2399	-	Correction to EMM Test Case 9.2.3.1.6	11.3.0	11.4.0
2013-09	RAN#61	R5-133598	2400	-	Clarification of EMM Test case 9.2.2.2.2	11.3.0	11.4.0
2013-09	RAN#61	R5-133599	2401	-	Add test case Attach / Success / IMS	11.3.0	11.4.0
2013-09	RAN#61	R5-133600	2402	-	GCF Priority U1 – Correction to EMM test case 9.2.1.2.13	11.3.0	11.4.0
2013-09	RAN#61	R5-133602	2403	-	Add test case EPS bearer context deactivation / Re-establishment	11.3.0	11.4.0

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2013-09	RAN#61	R5-133603	2404	-	Corrections to allow both ISIM or USIM to be used in test cases using IMS	11.3.0	11.4.0
2013-09	RAN#61	R5-133604	2405	-	Correction to SRVCC test case 13.4.3.1	11.3.0	11.4.0
2013-09	RAN#61	R5-133605	2406	-	Correction to eMBMS test case 17.3.1	11.3.0	11.4.0
2013-09	RAN#61	R5-133606	2407	-	Correction to eMBMS test case 17.3.2	11.3.0	11.4.0
2013-09	RAN#61	R5-133610	2408	-	GCF Priority 4: Modification to TC 6.1.2.14	11.3.0	11.4.0
2013-09	RAN#61	R5-133611	2409	-	Modification to TC 8.3.1.13	11.3.0	11.4.0
2013-09	RAN#61	R5-133613	2410	-	Update of test case 8.3.3.2	11.3.0	11.4.0
2013-09	RAN#61	R5-133617	2412	-	Correction to CA Test Case 8.3.1.22.1 and 8.3.1.22.2	11.3.0	11.4.0
2013-09	RAN#61	R5-133618	2413	-	Correction to CA Test Case 8.3.1.17.2	11.3.0	11.4.0
2013-09	RAN#61	R5-133619	2414	-	Correction to CA Test Case 8.2.2.3.2	11.3.0	11.4.0
2013-09	RAN#61	R5-133620	2415	-	Correction to CA Test Case 8.2.4.21.1 and 8.2.4.21.2	11.3.0	11.4.0
2013-09	RAN#61	R5-133621	2416	-	Update of CA Test Case 8.2.2.3.1	11.3.0	11.4.0
2013-09	RAN#61	R5-133622	2417	-	Correction to CA test case 8.5.1.7	11.3.0	11.4.0
2013-09	RAN#61	R5-133623	2418	-	Correction to EUTRA CA RRC test cases 8.2.4.17.1 and 8.2.4.17.2	11.3.0	11.4.0
2013-09	RAN#61	R5-133624	2419	-	Correction to EUTRA CA RRC test cases 8.2.4.19.1 and 8.2.4.19.2	11.3.0	11.4.0
2013-09	RAN#61	R5-133646	2420	-	Update of Test Case 8.3.1.20	11.3.0	11.4.0
2013-09	RAN#61	R5-133648	2422	-	Correction of eICIC TC 8.3.1.19 & 8.3.1.20	11.3.0	11.4.0
2013-09	RAN#61	R5-133660	2423	-	Addition of new eMDT test case 8.6.9.3	11.3.0	11.4.0
2013-09	RAN#61	R5-133663	2424	-	New eMBMS service continuity test case 17.4.1	11.3.0	11.4.0
2013-09	RAN#61	R5-133664	2425	-	New eMBMS service continuity test case 17.4.2	11.3.0	11.4.0
2013-09	RAN#61	R5-133665	2426	-	New TC 17.4.7 MBMS Interest Indication after Radio Link Failure	11.3.0	11.4.0
2013-09	RAN#61	R5-133666	2427	-	Introduction of New eMBMS Service Continuity Improvements test case 17.4.4	11.3.0	11.4.0
2013-09	RAN#61	R5-133667	2428	-	Addition of new TC 8.6.2.11 Logged MDT / Logging and reporting / Reporting at intra LTE handover / PLMN list	11.3.0	11.4.0
2013-09	RAN#61	R5-133668	2429	-	Addition of new TC 8.6.2.12 Logged MDT / Logging and reporting / Reporting at RRC connection re-establishment / PLMN list	11.3.0	11.4.0
2013-09	RAN#61	R5-133669	2430	-	Addition of new TC 8.6.3.4 Logged MDT / Logging and reporting / Reporting at UTRAN Inter-RAT handover / PLMN list	11.3.0	11.4.0
2013-09	RAN#61	R5-133670	2431	-	Addition of new TC 8.6.6.5 Handover Failure logging / Logging and reporting / Reporting at RRC connection establishment / PLMN list	11.3.0	11.4.0
2013-09	RAN#61	R5-133671	2432	-	Addition of new TC 8.6.6.6 Handover Failure logging / Logging and reporting / Reporting at intra LTE handover / PLMN list	11.3.0	11.4.0
2013-09	RAN#61	R5-133672	2433	-	Addition of new TC 8.6.6.7 Handover Failure logging / Logging and reporting / Reporting at	11.3.0	11.4.0

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					RRC connection re-establishment / PLMN list		
2013-09	RAN#61	R5-133673	2434	-	Addition of new TC 8.6.9.4 Connection Establishment Failure logging / Logging and reporting / Reporting of CDMA2000 Inter-RAT measurements	11.3.0	11.4.0
2013-09	RAN#61	R5-133675	2435	-	Introduction of New LTE RAN Enhancements for Diverse Data Applications test case 8.2.2.6.2	11.3.0	11.4.0
2013-09	RAN#61	R5-133676	2436	-	New test case 8.2.2.6.1 RRC connection reconfiguration/ UE Assistance Information/power preference indication setup and release	11.3.0	11.4.0
2013-09	RAN#61	R5-133677	2437	-	New test case 8.2.2.6.3 RRC connection reconfiguration/ UE Assistance Information/T340 running	11.3.0	11.4.0
2013-09	RAN#61	R5-133679	2438	-	Addition of new TC 7.1.3.X Correct handling of DL assignment / Dynamic case / EPDCCH	11.3.0	11.4.0
2013-09	RAN#61	R5-133680	2439	-	Addition of new TC 7.1.3.Y Correct handling of DL assignment / Semi-persistent case / EPDCCH	11.3.0	11.4.0
2013-09	RAN#61	R5-133692	2441	-	Define new TC 6.1.2.20 for Inter-frequency cell reselection with MFBI support.	11.3.0	11.4.0
2013-09	RAN#61	R5-133695	2443	-	Addition of new MFBI test case: 8.2.4.22 RRC connection reconfiguration / Handover / MFBI / target cell broadcasting information disregarded by the UE	11.3.0	11.4.0
2013-09	RAN#61	R5-133696	2444	-	Update of Emergency Call over IMS test case 11.2.7	11.3.0	11.4.0
2013-09	RAN#61	R5-133699	2445	-	New eMBMS service continuity test case 17.4.6	11.3.0	11.4.0
2013-09	RAN#61	R5-133700	2446	-	New eMBMS service continuity test case 17.4.8	11.3.0	11.4.0
2013-09	RAN#61	R5-133707	2447	-	Addition of new Rel-10 eICIC test case 8.3.1.21	11.3.0	11.4.0
2013-09	RAN#61	R5-133723	2440	-	Update of TC 6.2.1.1 Inter-RAT PLMN Selection for OPLMN Automatic mode	11.3.0	11.4.0
2013-09	RAN#61	R5-133725	2448	-	Correction of EUTRA RRC test case 8.5.4.1	11.3.0	11.4.0
2013-09	RAN#61	R5-133730	2421	-	Addition of new eICIC Test Case 8.3.1.27	11.3.0	11.4.0
2013-09	RAN#61	R5-133732	2442	-	Update of Test Case 8.2.4.13a	11.3.0	11.4.0
2013-09	RAN#61	R5-133733	2411	-	Correction to CA Test Case 8.3.1.18.1 and 8.3.1.18.2	11.3.0	11.4.0