8 Radio Resource Control RRC

8.1 RRC Connection Management Procedure

8.1.1 Paging

8.1.1.1 Paging for Connection in idle mode

8.1.1.1.1 Definition

8.1.1.1.2 Conformance requirement

A UE in idle mode, CELL_PCH state or URA_PCH state shall receive the paging information for all its monitored paging occasions. For an UE in idle mode, the paging occasions are specified in [25.304] and depend on the IE "CN domain specific DRX cycle length coefficient", as specified in subclause 8.6.3.1a. For a UE in CELL_PCH state or URA_PCH state, the paging occasions depend also on the IE "UTRAN DRX cycle length coefficient" and the IE "RRC State Indicator", as specified in subclauses 8.6.3.2 and 8.6.3.3 respectively.

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

If the UE is in idle mode, for each occurrence of the IE "Paging record" included in the message the UE shall:

1> if the IE "Used paging identity" is a CN identity:

2> compare the IE "UE identity" with all of its allocated CN UE identities:

2> if one match is found:

3> indicate reception of paging; and

3> forward the IE "CN domain identity", the IE "UE identity" and the IE "Paging cause" to the upper layers.

1> otherwise:

2> ignore that paging record.

In the UE, the initial direct transfer procedure shall be initiated, when the upper layers request establishment of a signalling connection. This request also includes a request for the transfer of a NAS message.

Upon initiation of the initial direct transfer procedure when the UE is in idle mode, the UE shall:

1> set the variable ESTABLISHMENT_CAUSE to the cause for establishment indicated by upper layers;

1> perform an RRC connection establishment procedure, according to subclause 8.1.3;

1> if the RRC connection establishment procedure was not successful:

2> indicate failure to establish the signalling connection to upper layers and end the procedure.

1> when the RRC connection establishment procedure is completed successfully:

2> continue with the initial direct transfer procedure as below.

Upon initiation of the initial direct transfer procedure when the UE is in CELL_PCH or URA_PCH state, the UE shall:

1> perform a cell update procedure, according to subclause 8.3.1, using the cause "uplink data transmission";

1> when the cell update procedure completed successfully:

2> continue with the initial direct transfer procedure as below.

The UE shall, in the INITIAL DIRECT TRANSFER message:

1> set the IE "NAS message" as received from upper layers; and

1> set the IE "CN domain identity" as indicated by the upper layers; and

1> set the IE "Intra Domain NAS Node Selector" as follows:

2> derive the IE "Intra Domain NAS Node Selector" from TMSI/PMTSI, IMSI, or IMEI; and

2> provide the coding of the IE "Intra Domain NAS Node Selector" according to the following priorities:

1. derive the routing parameter for IDNNS from TMSI (CS domain) or PTMSI (PS domain) whenever a valid TMSI/PTMSI is available;

2. base the routing parameter for IDNNS on IMSI when no valid TMSI/PTMSI is available;

3. base the routing parameter for IDNNS on IMEI only if no (U)SIM is inserted in the UE.

1> calculate the START according to subclause 8.5.9 for the CN domain as set in the IE "CN Domain Identity"; and

1> include the calculated START value for that CN domain in the IE "START".

In CELL_FACH state, the UE shall:

1> include a measurement report in the IE "Measured results on RACH", as specified in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in System Information Block type 12 (or "System Information Block Type 11" if "System Information Block Type 12" is not being broadcast);

1> include in the IE "Measured results on RACH" all requested reporting quantities for cells for which measurements are reported.

The UE shall:

1> transmit the INITIAL DIRECT TRANSFER message on the uplink DCCH using AM RLC on signalling radio bearer RB3;

1> when the INITIAL DIRECT TRANSFER message has been submitted to lower layers for transmission:

2> confirm the establishment of a signalling connection to upper layers; and

2> add the signalling connection with the identity indicated by the IE "CN domain identity" in the variable ESTABLISHED_SIGNALLING_CONNECTIONS.

1> when the successful delivery of the INITIAL DIRECT TRANSFER message has been confirmed by RLC:

2> the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.2 and 8.1.8, 3GPP TS 25.211 clause 5.3.3.10 (FDD), 3GPP TS25.221 (TDD), 3GPP TS 25.304 clause 8.

8.1.1.1.3 Test purpose

1) For the CS domain

To confirm that the UE establishes an RRC connection after it receives a PAGING TYPE 1 message which includes IE "UE identity"(in IE "Paging Record") set to the IMSI of the UE, and responds with a correct INITIAL DIRECT TRANSFER message.

2) For the PS domain

To confirm that the UE establishes an RRC connection after it receives a PAGING TYPE 1 message which includes IE "UE identity"(in IE "Paging Record") set to the P-TMSI allocated by SS at initial attach and responds with a correct INITIAL DIRECT TRANSFER message.

8.1.1.1.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: MM-IDLE state and Updated update status with no TMSI (if CS supported)

GMM-Registered with a P-TMSI assigned (if PS supported)

the UE shall have an IMSI.

Test Procedure

SS transmits SYSTEM INFORMATION BLOCK TYPE 1 or 13 messages, depending on the CN type supported by the UE. The SS transmits a PAGING TYPE 1 message, which includes an unmatched CN UE identity for the UE in the idle state. The UE shall not change its state. The SS transmits a PAGING TYPE 1 message, which includes a matched CN UE identity for the UE in the idle state. During transmission of PAGING TYPE 1 messages, SS selects the correct paging indicator on the PICH in order to allow the UE to respond to paging. Then the UE transmits an RRC CONNECTION REQUEST to the SS, the SS transmits an RRC CONNECTION SETUP to the UE. When the UE receives this message, the UE establishes an RRC connection and transmits an RRC CONNECTION SETUP COMPLETE message and an INITIAL DIRECT TRANSFER message on the uplink DCCH.

NOTE: For UEs supporting GSM-MAP CN type only, SYSTEM INFORMATION TYPE 1 messages are to be sent by SS in this test case. On the other hand, SS transmits SYSTEM INFORMATION TYPE 13 messages if the UE under test supports only ANSI-41 CN type.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1		←	SYSTEM INFORMATION BLOCK TYPE 13 or SYSTEM INFORMATION BLOCK TYPE 1	Transmit these messages on the BCCH. See default message contents in TS 34.108.
2		←	PAGING TYPE 1	The SS transmits the message, which includes an unmatched identity (incorrect IMSI), and the UE does not change its state.
3		←	PAGING TYPE 1	The SS transmits the message, which includes a matched identity. See default message contents in TS 34.108.
4	→		RRC CONNECTION REQUEST	
5		←	RRC CONNECTION SETUP	SS assigns DPCH resources to allow UE to establish an RRC connection.
6	→		RRC CONNECTION SETUP COMPLETE	
7	→		INITIAL DIRECT TRANSFER	

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 1 (Step 1) – for UEs supporting GSM-MAP core networks

Use the default message type found in TS 34.108, clause 6.1.

SYSTEM INFORMATION TYPE 13 (Step 1) – for UEs supporting ANSI-41 core networks

Use the default message type found in TS 34.108, clause 6.1.

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
CHOICE Used paging identity	CN identity
- Paging cause	Terminating Call with one of the supported services
- CN domain identity	A Registered Domain (PS Domain or CS Domain)
- CHOICE UE Identity	IMSI
- IMSI	Set to an arbitrary octet string of length 7 bytes which is different from the IMSI value stored in the TEST USIM card.
BCCH modification info	Not Present

PAGING TYPE 1 (Step 3)

Use the default message type found in TS 34.108, clause 9.1.

Note that Separate message types are defined in TS 34.108 for the cases of TM (Speech in CS) and for TM (Packet in PS).

RRC CONNECTION REQUEST (Step 4)

Information Element	Value/remark
Message type	
Initial UE identity	Same as the registered P-TMSI if PS supported by UE, otherwise the IMSI stored in the TEST USIM card.
Establishment Cause	Check to see if it is set to the same value as "Paging Cause" IE in the PAGING TYPE 1 message transmitted on step 3.
Protocol Error Indicator	Check to see if it is set to FALSE
Measured results on RACH	Not checked.

INITIAL DIRECT TRANSFER (Step 7) – for UEs supporting GSM-MAP core networks

Information Element	Value/remark
Message Type	
Integrity check info	Not present
CN domain identity	CS domain or PS domain (as specified by the SS in the PAGING TYPE 1 message of Step 3)
Intra Domain NAS Node Selector	
- CHOICE version	R99
-- CHOICE CN type	GSM-MAP
--- CHOICE Routing basis	IMSI (response to IMSI paging) in CS domain or Local (P)-TMSI in PS Domain
---- Routing parameter	If the IE "CN domain identity" is equal to "CS domain", bit string (10) consisting of DecimalToBinary [(IMSI div 10) mod 1000]. The first/ leftmost bit of the bit string contains the most significant bit of the result. If the IE "CN domain identity" is equal to "PS domain": The TMSI/ PTMSI consists of 4 octets (32bits). This can be represented by a string of bits numbered from b0 to b31, with bit b0 being the least significant. The "Routing parameter" is set to bits b14 through b23 of the TMSI/ PTMSI. The first/ leftmost/ most significant bit of the bit string contains bit b23 of the TMSI/ PTMSI.
--- Entered parameter	Not checked
NAS message	Not checked
START	Not checked
Measured results on RACH	Not checked

INITIAL DIRECT TRANSFER (Step 7) – for UEs supporting ANSI-41 core networks

Information Element	Value/remark
Message Type	
Integrity check info	Not present
CN domain identity	CS domain or PS domain (as specified by the SS in the PAGING TYPE 1 message of Step 3)
Intra Domain NAS Node Selector	
- CHOICE version	ANSI-41 : Bitstring(14), all bits set to 0
NAS message	Not checked
START	Not checked
Measured results on RACH	Not checked

8.1.1.1.5 Test requirement

After step 2 the UE shall not respond to PAGING TYPE 1 message sent in step 2.

After step 3 the UE shall transmit RRC CONNECTION REQUEST message on the uplink CCCH.

After step 5 the UE shall have an RRC connection based on dedicated physical channel resources and transmit an RRC CONNECTION SETUP COMPLETE message and INITIAL DIRECT TRANSFER message on the uplink DCCH.

8.1.1.2 Paging for Connection in connected mode (CELL_PCH)

8.1.1.2.1 Definition

8.1.1.2.2 Conformance requirement

A UE in idle mode, CELL_PCH state or URA_PCH state shall receive the paging information for all its monitored paging occasions. For an UE in idle mode, the paging occasions are specified in [25.304] and depend on the IE "CN domain specific DRX cycle length coefficient", as specified in subclause 8.6.3.1a. For a UE in CELL_PCH state or URA_PCH state, the paging occasions depend also on the IE "UTRAN DRX cycle length coefficient" and the IE "RRC State Indicator", as specified in subclauses 8.6.3.2 and 8.6.3.3 respectively.

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below:

If the UE is in connected mode, for each occurrence of the IE "Paging record" included in the message the UE shall:

1> if the IE "Used paging identity" is a UTRAN identity and if this U-RNTI is the same as the U-RNTI allocated to the UE:

2> if the optional IE "CN originated page to connected mode UE" is included:

3> indicate reception of paging; and

3> forward the IE "CN domain identity", the IE "Paging cause" and the IE "Paging record type identifier" to the upper layers.

2> otherwise:

3> perform a cell update procedure with cause "paging response" as specified in subclause 8.3.1.2.

2> ignore any other remaining IE "Paging record" that may be present in the message.

1> otherwise:

2> ignore that paging record.

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or

- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI":

the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

Reference

3GPP TS 25.331 clause 8.1.2, 8.3.1.7.

8.1.1.2.3 Test purpose

To confirm that the UE enters the CELL_FACH state after it receives a PAGING TYPE 1 message which indicates that the paging has originated from UTRAN. To verify that the UE performs cell update procedure after entering the CELL_FACH state.

8.1.1.2.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CELL_PCH state (state 6-12) as specified in clause 7.4 of TS 34.108, with a valid U-RNTI already assigned by the SS.

Test Procedure

SS transmits SYSTEM INFORMATION BLOCK TYPE 1 or 13 messages, depending on the CN type supported by the UE. The SS transmits a PAGING TYPE 1 message, which includes an unmatched U-RNTI. The UE does not change its state. Then SS transmits a PAGING TYPE 1 message with a matched identifier but originates from the CN instead of UTRAN. The UE shall not change state after receiving this message. The SS transmits a PAGING TYPE 1 message, which includes a matched U-RNTI. Then the UE enters the CELL_FACH state and performs the cell updating procedure.

NOTE: For UEs supporting GSM-MAP CN type only, SYSTEM INFORMATION TYPE 1 messages are to be sent by SS in this test case. On the other hand, SS transmits SYSTEM INFORMATION TYPE 13 messages if the UE under test supports only ANSI-41 CN type.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1		←	SYSTEM INFORMATION BLOCK TYPE 13 or SYSTEM INFORMATION BLOCK TYPE 1	Transmit these messages on the BCCH, in addition to the normal BCCH transmissions. See specific message contents
2		←	PAGING TYPE 1	The SS transmits a message including an unmatched identifier. UE shall not respond to the paging.
3		←	PAGING TYPE 1	The SS transmits a message includes a matched identifier but with the used paging identity being a CN identity, UE shall not respond to the paging.
4		←	PAGING TYPE 1	The SS transmits the message with used paging identity being a UTRAN identity and including the UE's assigned U-RNTI
5		→	CELL UPDATE	The UE enters the CELL_FACH state. UE performs cell updating procedure. The CELL UPDATE message shall contain the value "Cell Update Cause" set to "paging response".
6		←	CELL UPDATE CONFIRM	See message content.
7	→		UTRAN MOBILITY INFORMATION CONFIRM	

Specific Message Contents

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to an arbitrary 16-bit string which is different from the SRNC identity assigned.
- S-RNTI	Set to an arbitrary 20-bit string which is different from the S-RNTI assigned.
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

PAGING TYPE 1 (Step 3)

Same as the PAGING TYPE 1 message as in step 3 of clause 8.1.1.1.4.

PAGING TYPE 1 (Step 4)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to the same SRNC identity as previously assigned.
- S-RNTI	Set to the same S-RNTI as previously assigned.
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

SYSTEM INFORMATION BLOCK TYPE 13

Use the same SYSTEM INFORMATION BLOCK TYPE 13 message as specified in clause 8.1.1.1.4.

SYSTEM INFORMATION BLOCK TYPE 1

Use the same SYSTEM INFORMATION BLOCK TYPE 1 message as specified in clause 8.1.1.1.4.

CELL UPDATE CONFIRM (Step 6)

Use the message sub-type in default message content defined in [9] (TS 34.108) Clause 9, with the following exceptions.

Information Element	Value/Remarks
New C-RNTI	'1010 1010 1010 1010'

UTRAN MOBILITY INFORMATION CONFIRM (Step 7)

Only the message type is checked.

8.1.1.2.5 Test requirement

After step 2 the UE shall not respond to the PAGING TYPE 1 message sent in step 2.

After step 3 the UE shall not respond to the PAGING TYPE 1 message sent in step 3.

After step 4 the UE shall enter the CELL FACH state and send a CELL UPDATE message with "Cell Update Cause" IE set to "paging response".

After step 6 the UE shall be in the CELL_FACH state and shall transmit UTRAN MOBILITY INFORMATION CONFIRM message.

8.1.1.3 Paging for Connection in connected mode (URA_PCH)

8.1.1.3.1 Definition

8.1.1.3.2 Conformance requirement

A UE in idle mode, CELL_PCH state or URA_PCH state shall receive the paging information for all its monitored paging occasions. For an UE in idle mode, the paging occasions are specified in [25.304] and depend on the IE "CN domain specific DRX cycle length coefficient", as specified in subclause 8.6.3.1a. For a UE in CELL_PCH state or URA_PCH state, the paging occasions depend also on the IE "UTRAN DRX cycle length coefficient" and the IE "RRC State Indicator", as specified in subclauses 8.6.3.2 and 8.6.3.3 respectively.

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below:

If the UE is in connected mode, for each occurrence of the IE "Paging record" included in the message the UE shall:

1> if the IE "Used paging identity" is a UTRAN identity and if this U-RNTI is the same as the U-RNTI allocated to the UE:

2> if the optional IE "CN originated page to connected mode UE" is included:

3> indicate reception of paging; and

3> forward the IE "CN domain identity", the IE "Paging cause" and the IE "Paging record type identifier" to the upper layers.

2> otherwise:

3> perform a cell update procedure with cause "paging response" as specified in subclause 8.3.1.2.

2> ignore any other remaining IE "Paging record" that may be present in the message.

1> otherwise:

2> ignore that paging record.

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI":

the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

Reference

3GPP TS 25.331 clause 8.1.2, 8.3.1.7.

8.1.1.3.3 Test purpose

To confirm that the UE enters the CELL_FACH state after it receives a PAGING TYPE 1 message in which the IE "Used paging identity" is set to "UTRAN identity", and the UE takes the U-RNTI value assigned to it in the IE "U-RNTI".

8.1.1.3.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: URA_PCH state (state 6-13) as specified in clause 7.4 of TS 34.108, with a valid U-RNTI assigned by the SS.

Test Procedure

The SS transmits a PAGING TYPE 1 message, which includes an unmatched U-RNTI. The UE does not change its current state. The SS transmits a PAGING TYPE 1 message which includes a matched U-RNTI. Then the UE listens to it and enters the CELL_FACH state to transmit a CELL UPDATE message using uplink CCCH in respond to the paging.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PAGING TYPE 1	The SS transmits the message that includes an unmatched identifier, but UE does not change its state.
2	←		PAGING TYPE 1	The SS transmits the message that includes a matched identifier.
3	→		CELL UPDATE	The UE enters the CELL_FACH state.
4	←		CELL UPDATE CONFIRM	See message content.
5	→		UTRAN MOBILITY INFORMATION CONFIRM	

Specific Message Contents

PAGING TYPE 1 (Step 1)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to an unused SRNC identity which is different from the SRNC identity assigned.
- S-RNTI	Set to an arbitrary 20-bit string which is different from the S-RNTI assigned.
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to the previously assigned SRNC identity
- S-RNTI	Set to previously assigned S-RNTI
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

CELL UPDATE CONFIRM (Step 4)

Use the message sub-type in default message content defined in [9] (TS 34.108) Clause 9, with the following exceptions.

Information Element	Value/Remarks
New C-RNTI	'1010 1010 1010 1010'

UTRAN MOBILITY INFORMATION CONFIRM (Step 5)

Only the message type is checked.

8.1.1.3.5 Test requirement

After step 1 the UE shall not respond to the paging.

After step 2 the UE shall enter the CELL_FACH state, and transmit CELL UPDATE message to initiate the cell updating procedure with the paging cause set to "paging response".

After step 4 the UE shall be in the CELL_FACH state and shall transmit UTRAN MOBILITY INFORMATION CONFIRM message.

8.1.1.4 Paging for notification of BCCH modification in idle mode

8.1.1.4.1 Definition

8.1.1.4.2 Conformance requirement

A UE in idle mode state shall receive the paging information for all its monitored paging occasions. For an UE in idle mode, the paging occasions are specified in TS 25.304 and depend on the IE "CN domain specific DRX cycle length coefficient".

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

…

If the IE "BCCH modification info" is included, any UE in idle mode state shall perform the actions as specified in TS 25.331 subclause 8.1.1 in addition to any actions caused by the IE "Paging record" occurrences in the message.

The UE shall:

1> compare the value of IE "MIB value tag" in the IE "BCCH modification info" with the value tag stored for the master information block in variable VALUE_TAG.

1> if the value tags differ:

2> read the master information block on BCH;

2> if the value tag of the master information block in the system information is the same as the value in IE "MIB value tag" in "BCCH modification info" but different from the value tag stored in the variable VALUE_TAG:

3> perform actions as specified in TS 25.331 subclause 8.1.1.5.

…

Upon reception of the master information block, the UE shall:

1> compare the value tag in the master information block with the value tag stored for this cell and this PLMN in the variable VALUE_TAG;

1> if the value tags differ:

2> store the value tag into the variable VALUE_TAG for the master information block;

2> read and store scheduling information included in the master information block.

….

For all system information blocks or scheduling blocks that are supported by the UE referenced in the master information block or the scheduling blocks, the UE shall perform the following actions:

1> for all system information blocks with area scope "PLMN" or "Equivalent PLMN" that use value tags:

2> compare the value tag read in scheduling information for that system information block with the value stored within the variable VALUE_TAG for that system information block;

2> if the value tags differ:

3> store the value tag read in scheduling information for that system information block into the variable VALUE_TAG;

3> read and store the IEs of that system information block.

…

Reference

3GPP TS 25.331 clause 8.1.1, 8.1.2.

8.1.1.4.3 Test purpose

To confirm that the UE checks the new value tag of the master information block and reads the updated SYSTEM INFORMATION BLOCK messages after it receives a PAGING TYPE 1 message which includes the IE "BCCH Modification Information".

8.1.1.4.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108 with a CN UE identity, depending on the CN domain(s) supported by the UE.

Test Procedure

The SS transmits a PAGING TYPE 1 message. This message addresses the UE using its (P)TMSI and the "paging cause" IE set to a terminating call type that is supported by the UE. The UE shall respond with RRC CONNECTION REQUEST message. Then SS shall transmit RRC CONNECTION REJECT message to UE.

The SS transmits a PAGING TYPE 1 message on the paging occasions assigned to the UE. The message shall include the IE "BCCH Modification Information" indicating the value tag of the modified master information block. Then it transmits the new master information block followed by the new SYSTEM INFORMATION BLOCK TYPE 5 or SYSTEM INFORMATION BLOCK TYPE 5bis message. In the new SIB TYPE 5 / SIB TYPE 5bis message, the IE "Available Signature" is different when compared to the original SIB TYPE 5 / SIB TYPE 5bis message.

At the paging occasion, SS transmits a new PAGING TYPE 1 message. This message addresses the UE using its (P)TMSI and the "paging cause" IE set to a terminating call type that is supported by the UE. The UE shall respond with RRC CONNECTION REQUEST message. Then SS shall transmit RRC CONNECTION REJECT message to UE.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1		←	PAGING TYPE 1	SS starts to transmit this message on the PCCH at the correct paging occasion.
1a	→		RRC CONNECTION REQUEST	
1b		←	RRC CONNECTION REJECT	
2		←	PAGING TYPE 1	SS transmits the message including the IE "BCCH Modification Information", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block.
2a			Void	
3		←	MASTER INFORMATION BLOCK	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the original setting.
		←	SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis	At the same time, SS starts to transmit the affected SIB TYPE 5 / SIB TYPE 5bis messages continuously. The IE "Available Signature" is changed from "0000 0000 1111 1111(B)" to "1111 1111 0000 0000(B)" (for FDD) and Available SYNC_UL codes is changed from “11110000(B)” to “00001111(B)”.
3a				SS waits 5s (to ensure that the UE has time to read the new system information)
4		←	PAGING TYPE 1	SS starts to transmit this message continuously on the PCCH at the correct paging occasion.
5			RRC CONNECTION REQUEST	
6		←	RRC CONNECTION REJECT	

Specific Message Contents

PAGING TYPE 1 (Step 1 and 4)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	CN identity
- Paging Cause	Terminating Call with one of the supported services
- CN Domain Identity	Supported Domain (PS Domain or CS Domain)
- CHOICE UE Identity	Local (P)TMSI
- Routing parameter	Same as registered TMSI or P-TMSI
BCCH modification info	Not Present

RRC CONNECTION REJECT (Step 1b)

Use the same message type found in [9] TS 34.108 clause 9.

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
MIB Value Tag	Set to (Current MIB value tag + 1)
BCCH Modification time	Not Present

MASTER INFORMATION BLOCK (Step 3)

Information Element	Value/remark
MIB Value tag	As in PAGING TYPE 1 in step 2
SIB 5 Cell Value tag	Set to (Current SIB5 value tag + 1)

SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis (Step 3) (FDD)

Use the same message type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
- PRACH system information	
- PRACH info	
- CHOICE mode	FDD
- Available Signature	'1111 1111 0000 0000'B

SYSTEM INFORMATION BLOCK TYPE 5 (Step 3) (1.28 Mcps TDD)

- PRACH system information list	
- PRACH system information	
- PRACH info	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- SYNC_UL info	
- SYNC_UL codes bitmap	"00001111"
- Access Service Class	
- ASC Settings	(ASC#0 to ASC #7)
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	"00001111"

RRC CONNECTION REJECT

Use the same message type found in TS 34.108, clause 9.

8.1.1.4.5 Test requirement

After step 1 the UE shall transmit RRC CONNECTION REQUEST messages in response to the PAGING TYPE 1 messages sent in step 1, using an allowed signature according to original IE "Available signature" (FDD))/ "Available SYNC_UL codes indices "(1.28 Mcps TDD) in SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis.

After step 4 the UE shall transmit RRC CONNECTION REQUEST messages in response to the PAGING TYPE 1 messages sent in step 4, using an allowed signature according to modified IE "Available signature" (FDD)/ "Available SYNC_UL codes indices "(1.28 Mcps TDD) in SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis.

8.1.1.5 Paging for notification of BCCH modification in connected mode (CELL_PCH)

8.1.1.5.1 Definition

8.1.1.5.2 Conformance requirement

A UE in CELL_PCH state shall receive the paging information for all its monitored paging occasions. For a UE in CELL_PCH state, the paging occasions depend also on the IE "UTRAN DRX cycle length coefficient" and the IE "RRC State Indicator", as specified in TS 25.331 subclauses 8.6.3.2 and 8.6.3.3 respectively.

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

…

If the IE "BCCH modification info" is included, any UE in CELL_PCH state shall perform the actions as specified in TS 25.331 subclause 8.1.1 in addition to any actions caused by the IE "Paging record" occurrences in the message.

The UE shall:

1> compare the value of IE "MIB value tag" in the IE "BCCH modification info" with the value tag stored for the master information block in variable VALUE_TAG.

1> if the value tags differ:

2> read the master information block on BCH;

2> if the value tag of the master information block in the system information is the same as the value in IE "MIB value tag" in "BCCH modification info" but different from the value tag stored in the variable VALUE_TAG:

3> perform actions as specified in TS 25.331 subclause 8.1.1.5.

…

Upon reception of the master information block, the UE shall:

1> compare the value tag in the master information block with the value tag stored for this cell and this PLMN in the variable VALUE_TAG;

1> if the value tags differ:

2> store the value tag into the variable VALUE_TAG for the master information block;

2> read and store scheduling information included in the master information block.

….

For all system information blocks or scheduling blocks that are supported by the UE referenced in the master information block or the scheduling blocks, the UE shall perform the following actions:

1> for all system information blocks with area scope "PLMN" or "Equivalent PLMN" that use value tags:

2> compare the value tag read in scheduling information for that system information block with the value stored within the variable VALUE_TAG for that system information block;

2> if the value tags differ:

3> store the value tag read in scheduling information for that system information block into the variable VALUE_TAG;

3> read and store the IEs of that system information block.

…

Reference

3GPP TS 25.331 clause 8.1.1, 8.1.2.

8.1.1.5.3 Test purpose

To confirm that the UE, in addition to any actions caused by the IE "Paging record" occurrences in the PAGING TYPE 1 message, checks the new value tag of the master information block, and read the SYSTEM INFORMATION messages after it receives a PAGING TYPE 1 message which includes the IE "BCCH Modification Information".

8.1.1.5.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_PCH state (state 6-12) as specified in clause 7.4 of TS 34.108 with valid a U-RNTI assigned to it.

Test Procedure

The SS transmits a PAGING TYPE 1 message on the paging occasions assigned to the UE. The PAGING TYPE 1 message shall include the IE "BCCH Modification Information" indicating value tag of the modified master information block. Then it transmits the new master information block followed by the new SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis message. In the new SIB TYPE 5 / SIB TYPE 5bis message, the IE "Available Signature" for FDD, "Available Channelisation codes indices " for TDD 3.84 Mcps and 7.68 Mcps options or "Available SYNC_UL codes indices " for TDD 1.28 Mcps option is different when compared to the original SIB TYPE 5 / SIB TYPE 5bis message. At the paging occasion, SS transmits a new PAGING TYPE 1 message. This message addresses the UE using its U-RNTI. The UE shall respond with a CELL UPDATE message and set IE "cell update cause" to "paging response". The SS shall transmit a CELL UPDATE CONFIRM message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1			Void	
2	←		PAGING TYPE 1	SS transmits the paging message which comprises IE "BCCH Modification Information", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block.
2a			Void	
3	←		MASTER INFORMATION BLOCK	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the original setting.
	←		SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis.	For FDD, at the same time, SS starts to transmit the affected SIB TYPE 5/ SIB TYPE 5bis continuously. The value of IE "Available Signature" is changed from "0000 0000 1111 1111(B)" to "1111 1111 0000 0000(B)". For TDD 3.84 Mcps and 7.68 Mcps options, at the same time, SS starts to transmit the affected SIB TYPE 6 continuously. The value of IE "Available Channelisation codes indices " is changed according to test purposes. For TDD 1.28 Mcps option, at the same time, SS starts to transmit the affected SIB TYPE 6 continuously. The value of IE "Available SYNC_UL codes indices " is changed according to test purposes.
3a				SS waits 5s (to ensure that the UE has time to read the new system information)
4	←		PAGING TYPE 1	SS transmits this message continuously on the PCCH at the correct paging occasion.
5	→		CELL UPDATE	
6	←		CELL UPDATE CONFIRM	See message content.

Specific Message Contents

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
- MIB Value Tag	Set to (Current MIB value tag + 1)
- BCCH Modification time	Not Present

MASTER INFORMATION BLOCK (Step 3)

Information Element	Value/remark
MIB Value tag	As in PAGING TYPE 1 in step 2
SIB 5 Cell Value tag	Set to (Current SIB5 value tag + 1)

SYSTEM INFORMATION BLOCK TYPE 5/ SYSTEM INFORMATION BLOCK TYPE 5bis. (Step 3)(FDD)

Use the same message type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
- PRACH system information - PRACH info - CHOICE mode - Available Signature	 FDD '1111 1111 0000 0000'B

SYSTEM INFORMATION BLOCK TYPE 5 (Step 3) (TDD 3.84 Mcps option)

Use the same message type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
- PRACH system information - PRACH info - CHOICE mode - CHOICE *TDD option* - Available Channelisation codes indices	 TDD 3.84 Mcps option To be defined (each bit indicates availability of a channelization code index)

SYSTEM INFORMATION BLOCK TYPE 5 (Step 3) (TDD 1.28 Mcps option)

Use the same message type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
- PRACH system information - PRACH info - CHOICE mode - CHOICE *TDD option* - Available SYNC_UL codes indices	 TDD 1.28 Mcps option To be defined (each bit indicates availability of a SYNC_UL code index)

SYSTEM INFORMATION BLOCK TYPE 5 (Step 3) (TDD 7.68 Mcps option)

Use the same message type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
- PRACH system information - PRACH info - CHOICE mode - CHOICE *TDD option* - Available Channelisation codes indices	 TDD 7.68 Mcps option To be defined (each bit indicates availability of a channelization code index)

PAGING TYPE 1 (Step 4)

Information Element	Value/remark
Message Type Paging record list Paging record - CHOICE Used paging identity - U-RNTI - SRNC Identity - S-RNTI - CN originated page to connected mode UE BCCH modification info	 Only 1 entry UTRAN identity Equal to the U-RNTI assigned earlier. Not Present Not Present

CELL UPDATE (Step 5)

Check to see if the same message type found in TS 34.108, clause 9 is received, with the following exceptions:

Information Element	Value/remark
U-RNTI - SRNC identity - S-RNTI	Checked to see if it is set to the same values as in step 4
Cell update cause	Paging response

CELL UPDATE CONFIRM (Step 6)

Use the same message type found in (TS 34.108) Clause 9, with the following exception:

Information Element	Value/remark
RRC State indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3

8.1.1.5.5 Test requirement

After step 4 the UE shall transmit a CELL UPDATE message with IE "cell update cause" set to "paging response", using an allowed signature according to modified IE "Available signature"(FDD))/ " Available SYNC_UL codes indices "(1.28 Mcps TDD)/ "Available Channelisation codes indices " (3.84 Mcps and 7.68 Mcps TDD) in SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis.

8.1.1.5a Paging on HS-DSCH for notification of BCCH modification in CELL_PCH

8.1.1.5a.1 Definition and applicability

All UEs which support FDD and HS-PDSCH in CELL_PCH and URA_PCH.

8.1.1.5a.2 Conformance requirement

Upon modifications of system information blocks using value tags, UTRAN should notify the new value tag for the master information block in the IE "BCCH modification info", transmitted in the following way:

1> to reach UEs in idle mode, and in CELL_PCH state and URA_PCH state with S-CCPCH assigned, the IE "BCCH modification info" is contained in a PAGING TYPE 1 message transmitted on the PCCH in all paging occasions in the cell;

1> to reach UEs in CELL_PCH state and URA_PCH state with HS-DSCH assigned and no dedicated H-RNTI assigned, the IE "BCCH modification info" is contained in a PAGING TYPE 1 message transmitted on the PCCH in all paging occasions in the cell;

…

Upon reception of a PAGING TYPE 1 message or a SYSTEM INFORMATION CHANGE INDICATION message containing the IE "BCCH modification info" containing the IE "MIB value tag" but not containing the IE "BCCH modification time", the UE shall perform actions as specified in subclause 8.1.1.7.3.

…

The UE shall:

1> compare the value of IE "MIB value tag" in the IE "BCCH modification info" with the value tag stored for the master information block in variable VALUE_TAG.

1> if the value tags differ:

2> read the master information block on BCH;

2> if the value tag of the master information block in the system information is the same as the value in IE "MIB value tag" in "BCCH modification info" but different from the value tag stored in the variable VALUE_TAG:

3> perform actions as specified in subclause 8.1.1.5.

…

A UE in CELL_PCH state shall receive the paging information for all its monitored paging occasions. For a UE in CELL_PCH state, the paging occasions depend also on the IE "UTRAN DRX cycle length coefficient" and the IE "RRC State Indicator", as specified in TS 25.331 subclauses 8.6.3.2 and 8.6.3.3 respectively.

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

If the UE is in idle mode, for each occurrence of the IE "Paging record" included in the message the UE shall:

1> if the IE "Used paging identity" is a CN identity:

2> compare the IE "UE identity" with all of its allocated CN UE identities:

2> if one match is found:

…

Reference

3GPP TS 25.331 clause 8.1.1.7, 8.1.1.7.1, 8.1.2.3

8.1.1.5a.3 Test purpose

To confirm that the UE, in addition to any actions caused by the IE "Paging record" occurrences in PAGING TYPE 1 mapped on HS-DSCH, checks the new value tag of the master information block, and reads the SYSTEM INFORMATION messages mapped on HS-DSCH after it receives a PAGING TYPE 1 message on HSDSCH which includes the IE "BCCH Modification Information".

8.1.1.5a.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_PCH (state 6-12) as specified in clause 7.4 of TS 34.108 with valid a U-RNTI but no dedicated H-RNTI assigned to it. HS-DSCH reception in CELL_PCH and URA_PCH is enabled by including the parameters for HS-DSCH reception in CELL_PCH and URA_PCH state in default SIB5, condition B1, TS 34.108, section 6.1.0b.

Test Procedure

The SS transmits a PAGING TYPE 1 message with PCCH mapped onto HS-DSCH on the paging occasions assigned to the UE. The PAGING TYPE 1 message shall include the IE "BCCH Modification Information" indicating value tag of the modified master information block. Then it transmits the new master information block followed by the new SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis message. In the new SIB TYPE 5 / SIB TYPE 5bis message, the IE "Available Signature" for FDD is different when compared to the original SIB TYPE 5 / SIB TYPE 5bis message. At the paging occasion, SS transmits a new PAGING TYPE 1 message. This message addresses the UE using its U-RNTI. The UE shall respond with a CELL UPDATE message and set IE "cell update cause" to "paging response". The SS shall transmit a CELL UPDATE CONFIRM message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1		←	PAGING TYPE 1	SS transmits the paging message which comprises IE "BCCH Modification Information" on HS-DSCH, with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block.
2		←	MASTER INFORMATION BLOCK	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the original setting.
		←	SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis.	For FDD, at the same time, SS starts to transmit the affected SIB TYPE 5/ SIB TYPE 5bis continuously. The value of IE "Available Signature" is changed from "0000 0000 1111 1111(B)" to "1111 1111 0000 0000(B)".
3				SS waits 5s (to ensure that the UE has time to read the new system information)
4		←	PAGING TYPE 1	SS transmits this message continuously on the PCCH at the correct paging occasion.
5		→	CELL UPDATE	
6		←	CELL UPDATE CONFIRM	See message content.

Specific Message Contents

PAGING TYPE 1 (Step 1)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
- MIB Value Tag	Set to (Current MIB value tag + 1)
- BCCH Modification time	Not Present

MASTER INFORMATION BLOCK (Step 2)

Information Element	Value/remark
MIB Value tag	As in PAGING TYPE 1 in step 1
SIB 5 Cell Value tag	Set to (Current SIB5 value tag + 1)

SYSTEM INFORMATION BLOCK TYPE 5/ SYSTEM INFORMATION BLOCK TYPE 5bis. (Step 3)(FDD)

Use the same message type found in clause 6.1.0b, condition B1, of TS 34.108, with the following exception.

Information Element	Value/remark
- PRACH system information	
- PRACH info	
- CHOICE mode	FDD
- Available Signature	'1111 1111 0000 0000'B

PAGING TYPE 1 (Step 4)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	Equal to the U-RNTI assigned earlier.
- SRNC Identity	
- S-RNTI	
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

CELL UPDATE (Step 5)

Check to see if the same message type found in TS 34.108, clause 9 is received, with the following exceptions:

Information Element	Value/remark
U-RNTI	Checked to see if it is set to the same values as in step 4
- SRNC identity	
- S-RNTI	
Cell update cause	Paging response
HS-DSCH in CELL_FACH	Check to see if set to TRUE

CELL UPDATE CONFIRM (Step 6)

Use the same message type found in (TS 34.108) Clause 9, with the following exception:

Information Element	Value/remark
RRC State indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3

8.1.1.5a.5 Test requirement

After step 5 the UE shall transmit a CELL UPDATE message with IE "cell update cause" set to "paging response" and “HS-PDSCH in CELL_FACH” set to TRUE, using an allowed signature according to modified IE "Available signature"(FDD) in SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis

8.1.1.5b Paging on HS-DSCH for notification of BCCH modification in CELL_PCH (1.28Mcps TDD)

8.1.1.5b.1 Definition and applicability

All UEs which support 1.28Mcps TDD and E-DCH and HS-PDSCH in CELL_PCH and URA_PCH.

8.1.1.5b.2 Conformance requirement

Upon modifications of system information blocks using value tags, UTRAN should notify the new value tag for the master information block in the IE "BCCH modification info", transmitted in the following way:

1> to reach UEs in idle mode, and in CELL_PCH state and URA_PCH state with S-CCPCH assigned, the IE "BCCH modification info" is contained in a PAGING TYPE 1 message transmitted on the PCCH in all paging occasions in the cell;

1> to reach UEs in CELL_PCH state and URA_PCH state with HS-DSCH assigned and no dedicated H-RNTI assigned, the IE "BCCH modification info" is contained in a PAGING TYPE 1 message transmitted on the PCCH in all paging occasions in the cell;

1> to reach UEs in CELL_FACH state or TDD UEs in CELL_DCH with S-CCPCH assigned, the IE "BCCH modification info" is contained in a SYSTEM INFORMATION CHANGE INDICATION message transmitted on the BCCH mapped on at least one FACH on every Secondary CCPCH in the cell;

1> for FDD and 1.28 Mcps TDD, to reach UEs in CELL_FACH state with HS-DSCH assigned and in CELL_PCH with HS-DSCH and dedicated H-RNTI assigned, the IE "BCCH modification info" is contained in a SYSTEM

INFORMATION CHANGE INDICATION message transmitted on the BCCH mapped on the HS-PDSCH indicated with the first indexed HS-SCCH code by the BCCH specific H-RNTI.

Upon reception of a PAGING TYPE 1 message or a SYSTEM INFORMATION CHANGE INDICATION message containing the IE "BCCH modification info" containing the IE "MIB value tag" but not containing the IE "BCCH modification time", the UE shall perform actions as specified in subclause 8.1.1.7.3.

If the IE "BCCH modification time" is included the UE shall perform actions as specified in subclause 8.1.1.7.2.

…

The UE shall:

1> compare the value of IE "MIB value tag" in the IE "BCCH modification info" with the value tag stored for the master information block in variable VALUE_TAG.

1> if the value tags differ:

2> read the master information block on BCH;

2> if the value tag of the master information block in the system information is the same as the value in IE "MIB value tag" in "BCCH modification info" but different from the value tag stored in the variable VALUE_TAG:

3> perform actions as specified in subclause 8.1.1.5.

…

A UE in idle mode, CELL_PCH state or URA_PCH state shall receive the paging information for all its monitored paging occasions. For a UE in idle mode, the paging occasions are specified in [4] and depend on the IE "CN domain specific DRX cycle length coefficient", as specified in subclause 8.6.3.1a. For a UE in CELL_PCH state or URA_PCH state, the paging occasions depend also on the IE "UTRAN DRX cycle length coefficient" and the IE "RRC State Indicator", as specified in subclauses 8.6.3.2 and 8.6.3.3 respectively.

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

If the UE is in idle mode, for each occurrence of the IE "Paging record" included in the message the UE shall:

1> if the IE "Used paging identity" is a CN identity:

2> compare the IE "UE identity" with all of its allocated CN UE identities:

2> if one match is found:

3> indicate reception of paging; and

3> forward the IE "CN domain identity", the IE "UE identity" and the IE "Paging cause" to the upper layers.

1> otherwise:

2> ignore that paging record.

…

If the IE "BCCH modification info" is included, any UE in idle mode, CELL_PCH or URA_PCH state shall perform the actions as specified in subclause 8.1.1 in addition to any actions caused by the IE "Paging record" occurrences in the message as specified above.

…

Reference

3GPP TS 25.331 clause 8.1.1.7.1, 8.1.1.7.3, 8.1.2.3

8.1.1.5b.3 Test purpose

To confirm that the UE, in addition to any actions caused by the IE "Paging record" occurrences in PAGING TYPE 1 mapped on HS-DSCH, checks the new value tag of the master information block, and reads the SYSTEM INFORMATION messages mapped on HS-DSCH after it receives a PAGING TYPE 1 message on HSDSCH which includes the IE "BCCH Modification Information".

8.1.1.5b.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_PCH (state 6-12) as specified in clause 7.4 of TS 34.108 with valid a U-RNTI but no dedicated H-RNTI assigned to it. HS-DSCH reception in CELL_PCH and URA_PCH is enabled by including the parameters for HS-DSCH reception in CELL_PCH and URA_PCH state in default SIB5, condition B1, TS 34.108, section 6.1.0b.

Test Procedure

The SS transmits a PAGING TYPE 1 message with PCCH mapped onto HS-DSCH on the paging occasions assigned to the UE. The PAGING TYPE 1 message shall include the IE "BCCH Modification Information" indicating value tag of the modified master information block. Then it transmits the new master information block followed by the new SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis message. In the new SIB TYPE 5 / SIB TYPE 5bis message, the IE " SYNC_UL codes bitmap " for "E-RUCCH Info" is different when compared to the original SIB TYPE 5 / SIB TYPE 5bis message. At the paging occasion, SS transmits a new PAGING TYPE 1 message. This message addresses the UE using its U-RNTI. The UE shall respond with a CELL UPDATE message on common E-DCH and set IE "cell update cause" to "paging response". The SS shall transmit a CELL UPDATE CONFIRM message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1		←	PAGING TYPE 1	SS transmits the paging message which comprises IE "BCCH Modification Information" on HS-DSCH, with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block.
2		←	MASTER INFORMATION BLOCK	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the original setting.
		←	SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis.	at the same time, SS starts to transmit the affected SIB TYPE 5/ SIB TYPE 5bis continuously. The value of IE " SYNC_UL codes bitmap " for "E-RUCCH Info" is changed from "00001111" to "11110000". The value of IE " SYNC_UL codes bitmap " for " PRACH info " is changed from "11110000" to "00001111".
3				SS waits 5s (to ensure that the UE has time to read the new system information)
4		←	PAGING TYPE 1	SS transmits this message continuously on the PCCH at the correct paging occasion.
5		→	CELL UPDATE	
6		←	CELL UPDATE CONFIRM	See message content.

Specific Message Contents

PAGING TYPE 1 (Step 1)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
- MIB Value Tag	Set to (Current MIB value tag + 1)
- BCCH Modification time	Not Present

MASTER INFORMATION BLOCK (Step 2)

Information Element	Value/remark
MIB Value tag	As in PAGING TYPE 1 in step 1
SIB 5 Cell Value tag	Set to (Current SIB5 value tag + 1)

SYSTEM INFORMATION BLOCK TYPE 5/ SYSTEM INFORMATION BLOCK TYPE 5bis. (Step 2)(1.28Mcps TDD)

Use the same message type found in clause 6.1.0b, condition B1, of TS 34.108, with the following exception.

Information Element	Value/remark
- PRACH system information	
- PRACH info	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- SYNC_UL info	
- SYNC_UL codes bitmap	"00001111"
CommonEDCHSystemInfo	
-CHOICE Mode	
- CHOICE TDD option	1.28 Mcps TDD
- prach-PreambleForEnhancedUplink	
- E-RUCCH Info	
- SYNC_UL info	
- SYNC_UL codes bitmap	"11110000"

PAGING TYPE 1 (Step 4)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	Equal to the U-RNTI assigned earlier.
- SRNC Identity	
- S-RNTI	
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

CELL UPDATE (Step 5)

Check to see if the same message type found in TS 34.108, clause 9 is received, with the following exceptions:

Information Element	Value/remark
U-RNTI	Checked to see if it is set to the same values as in step 4
- SRNC identity	
- S-RNTI	
Cell update cause	Paging response
HS-PDSCH in CELL_FACH	Check to see if set to TRUE
Support of common E-DCH	Check to see if set to TRUE

CELL UPDATE CONFIRM (Step 6)

Use the same message type found in (TS 34.108) Clause 9, with the following exception:

Information Element	Value/remark
RRC State indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3

8.1.1.5b.5 Test requirement

After step 5 the UE shall transmit a CELL UPDATE message with IE "cell update cause" set to "paging response" and "HS-PDSCH in CELL_FACH" and "Support of common E-DCH" set to TRUE, using common E-DCH in SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis

8.1.1.6 Paging for notification of BCCH modification in connected mode (URA_PCH)

8.1.1.6.1 Definition

8.1.1.6.2 Conformance requirement

A UE in URA_PCH state shall receive the paging information for all its monitored paging occasions. For a UE in URA_PCH state, the paging occasions depend also on the IE "UTRAN DRX cycle length coefficient" and the IE "RRC State Indicator", as specified in TS 25.331 subclauses 8.6.3.2 and 8.6.3.3 respectively.

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

…

If the IE "BCCH modification info" is included, any UE in URA_PCH state shall perform the actions as specified in TS 25.331 subclause 8.1.1 in addition to any actions caused by the IE "Paging record" occurrences in the message as specified above.

The UE shall:

1> compare the value of IE "MIB value tag" in the IE "BCCH modification info" with the value tag stored for the master information block in variable VALUE_TAG.

1> if the value tags differ:

2> read the master information block on BCH;

2> if the value tag of the master information block in the system information is the same as the value in IE "MIB value tag" in "BCCH modification info" but different from the value tag stored in the variable VALUE_TAG:

3> perform actions as specified in subclause 8.1.1.5.

…

Upon reception of the master information block, the UE shall:

1> compare the value tag in the master information block with the value tag stored for this cell and this PLMN in the variable VALUE_TAG;

1> if the value tags differ:

2> store the value tag into the variable VALUE_TAG for the master information block;

2> read and store scheduling information included in the master information block.

….

For all system information blocks or scheduling blocks that are supported by the UE referenced in the master information block or the scheduling blocks, the UE shall perform the following actions:

1> for all system information blocks with area scope "PLMN" or "Equivalent PLMN" that use value tags:

2> compare the value tag read in scheduling information for that system information block with the value stored within the variable VALUE_TAG for that system information block;

2> if the value tags differ:

3> store the value tag read in scheduling information for that system information block into the variable VALUE_TAG;

3> read and store the IEs of that system information block.

…

Reference

3GPP TS 25.331 clause 8.1.1, 8.1.2.

8.1.1.6.3 Test purpose

To confirm that the UE checks the included new value tag of the master information block and reads the relevant SYSTEM INFORMATION block(s) after it receives a PAGING TYPE 1 message which includes the IE "BCCH Modification Information".

8.1.1.6.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: URA_PCH state (state 6-13) as specified in clause 7.4 of TS 34.108 with a valid U-RNTI assigned.

Test Procedure

The SS transmits a PAGING TYPE 1 message on the paging occasions assigned to the UE. The message shall include the IE "BCCH Modification Information" indicating the value tag of the master information block. Then it transmits the new master information block followed by the new SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis. message. In the new SIB TYPE 5 /SIB TYPE 5bis message, the IE "Available Signature" for FDD, "Available Channelisation codes indices" for TDD 3.84 Mcps and 7.68 Mcps options or "Available SYNC_UL codes indices" for TDD 1.28 Mcps option is different when compared to the original SIB TYPE 5 /SIB TYPE 5bis message. At the next paging occasion, SS transmits a new PAGING TYPE 1 message. This message addresses the UE using its U-RNTI and the "paging cause" IE set to a terminating call type that is supported by the UE. The UE shall respond with a CELL UPDATE message and set IE "cell update cause" to "paging response". The SS shall transmit a CELL UPDATE CONFIRM message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1			Void	
2	←		PAGING TYPE 1	SS transmits the paging message which comprises IE "BCCH Modification Information", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block.
2a			Void	
3	←		MASTER INFORMATION BLOCK	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the original setting.
	←		SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis.	For FDD, at the same time, SS starts to transmit the affected SIB TYPE 5 / SIB TYPE 5bis message continuously. The value of IE "Available Signature" is changed from "0000 0000 1111 1111(B)" to "1111 1111 0000 0000(B)". For TDD 3.84 Mcps and 7.68 Mcps options, at the same time, SS starts to transmit the affected SIB TYPE 6 continuously. The value of IE "Available Channelisation codes indices" is changed according to test purposes. For TDD 1.28 Mcps option, at the same time, SS starts to transmit the affected SIB TYPE 6 continuously. The value of IE "Available SYNC_UL codes indices" is changed according to test purposes.
3a				SS waits 5s (to ensure that the UE has time to read the new system information)
4	←		PAGING TYPE 1	SS transmits this message continuously on the PCCH at the correct occasion.
5	→		CELL UPDATE	
6	←		CELL UPDATE CONFIRM	See message content.

Specific Message Contents

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
- MIB Value Tag	Set to (Current MIB value tag + 1)
- BCCH Modification time	Not Present

MASTER INFORMATION BLOCK (Step 3)

Information Element	Value/remark
MIB Value tag	As in PAGING TYPE 1 in step 2
SIB 5 Cell Value tag	Set to (Current SIB5 value tag + 1)

SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis. (Step 3)

Use the same message type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
- PRACH system information	
- PRACH info	
- CHOICE mode	FDD
- Available Signature	'1111 1111 0000 0000'B

SYSTEM INFORMATION BLOCK TYPE 5 (Step 3) (TDD 3.84 Mcps option)

Use the same message type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
- PRACH system information	
- PRACH info	
- CHOICE mode	TDD
- CHOICE *TDD option*	3.84 Mcps option
- Available Channelisation codes indices	To be defined (each bit indicates availability of a channelization code index)

SYSTEM INFORMATION BLOCK TYPE 5 (Step 3) (TDD 1.28 Mcps option)

Use the same message type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
- PRACH system information	
- PRACH info	
- CHOICE mode	TDD
- CHOICE *TDD option*	1.28 Mcps option
- Available SYNC_UL codes indices	To be defined (each bit indicates availability of a SYNC_UL code index)

SYSTEM INFORMATION BLOCK TYPE 5 (Step 3) (TDD 7.68 Mcps option)

Use the same message type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
- PRACH system information	
- PRACH info	
- CHOICE mode	TDD
- CHOICE *TDD option*	7.68 Mcps option
- Available Channelisation codes indices	To be defined (each bit indicates availability of a channelization code index)

PAGING TYPE 1 (Step 4)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	Equal to the U-RNTI assigned earlier.
- SRNC Identity	
- S-RNTI	
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

CELL UPDATE (Step 5)

Check to see if the same message type found in TS 34.108, clause 9 is received, with the following exceptions:

Information Element	Value/remark
U-RNTI	Checked to see if it is set to the same values as in step 4
- SRNC identity	
- S-RNTI	
Cell update cause	Paging response

CELL UPDATE CONFIRM (Step 6)

Use the same message type found in TS 34.108, clause 9 with the following exceptions.

Information Element	Value/Remarks
RRC State indicator	URA_PCH
UTRAN DRX cycle length coefficient	3

8.1.1.6.5 Test requirement

After step 4, the UE shall transmit a CELL UPDATE message with IE "cell update cause" set to "paging response", using an allowed signature according to modified IE "Available signature" (FDD))/ "Available SYNC_UL codes indices" (1.28 Mcps TDD) / "Available Channelisation codes indices " (3.84 Mcps and 7.68 Mcps TDD) in SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis.

8.1.1.6a Paging for notification of synchronised BCCH modification in idle mode using BCCH modification time

8.1.1.6a.1 Definition

8.1.1.6a.2 Conformance requirement

For modification of some system information elements, e.g. reconfiguration of the channels, it is important for the UE to know exactly when a change occurs. In such cases, the UTRAN should notify the SFN when the change will occur as well as the new value tag for the master information block in the IE "BCCH modification info"

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

…

Upon reception of a PAGING TYPE 1 message or a SYSTEM INFORMATION CHANGE INDICATION message containing the IE "BCCH modification info" containing the IE "MIB value tag" and containing the IE "BCCH modification time", the UE shall:

1> perform the actions as specified in TS 25.331 subclause 8.1.1.7.3 at the time, indicated in the IE "BCCH Modification Info".

…

If the IE "BCCH modification info" is included, any UE in idle mode state shall perform the actions as specified in TS 25.331 subclause 8.1.1 in addition to any actions caused by the IE "Paging record" occurrences in the message.

The UE shall:

1> compare the value of IE "MIB value tag" in the IE "BCCH modification info" with the value tag stored for the master information block in variable VALUE_TAG.

1> if the value tags differ:

2> read the master information block on BCH;

2> if the value tag of the master information block in the system information is the same as the value in IE "MIB value tag" in "BCCH modification info" but different from the value tag stored in the variable VALUE_TAG:

3> perform actions as specified in TS 25.331 subclause 8.1.1.5.

…

Upon reception of the master information block, the UE shall:

1> compare the value tag in the master information block with the value tag stored for this cell and this PLMN in the variable VALUE_TAG;

1> if the value tags differ:

2> store the value tag into the variable VALUE_TAG for the master information block;

2> read and store scheduling information included in the master information block.

….

For all system information blocks or scheduling blocks that are supported by the UE referenced in the master information block or the scheduling blocks, the UE shall perform the following actions:

1> for all system information blocks with area scope "PLMN" that use value tags:

2> compare the value tag read in scheduling information for that system information block with the value stored within the variable VALUE_TAG for that system information block;

2> if the value tags differ:

3> store the value tag read in scheduling information for that system information block into the variable VALUE_TAG;

3> read and store the IEs of that system information block.

…

Reference

3GPP TS 25.331 clause 8.1.1, 8.1.2.

8.1.1.6a.3 Test purpose

To confirm that the UE checks the new value tag of the master information block and reads the updated SYSTEM INFORMATION BLOCK messages exactly when a change occurs at "BCCH modification time".

8.1.1.6a.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108 with a CN UE identity, depending on the CN domain(s) supported by the UE.

Test Procedure

The SS transmits a PAGING TYPE 1 message. This message addresses the UE using its (P)TMSI and the "paging cause" IE set to a terminating call type that is supported by the UE. The UE shall respond with RRC CONNECTION REQUEST message. Then SS shall transmit RRC CONNECTION REJECT message to UE.

The SS transmits a PAGING TYPE 1 message on the paging occasions assigned to the UE. The message shall include the IE "BCCH Modification Information" indicating the value tag of the modified master information block and BCCH Modification time. Then it transmits the new master information block followed by the new SYSTEM INFORMATION BLOCK TYPE 5 or SYSTEM INFORMATION BLOCK TYPE 5bis message.

At the paging occasion, SS transmits a new PAGING TYPE 1 message. This message addresses the UE using its (P)TMSI and the "paging cause" IE set to a terminating call type that is supported by the UE. The UE shall respond with RRC CONNECTION REQUEST message. Then SS shall transmit RRC CONNECTION REJECT message to UE.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1		←	PAGING TYPE 1	SS starts to transmit this message on the PCCH at the correct paging occasion.
2	→		RRC CONNECTION REQUEST	
3		←	RRC CONNECTION REJECT	
4		←	PAGING TYPE 1	SS transmits the message including the IE "BCCH Modification Information", with the MIB "Value Tag" different from the "MIB Value Tag" of the current Master Information Block and “BCCH Modification time”.
5				Before “BCCH Modification time” SS changes S-CCPCH configuration from TS34.108 Clause 6.1.0.b Interactive/Background 32 kbps RAB + SRB for PCCH + SRB for CCCH + SRB for DCCH + SRB for BCCH in One SCCPCH to TS 34.108 Clause 6.1.1 SCCPCH configuration with Stand-alone SRB for PCCH in the first SCCPCH and Interactive/Background 32 kbps PS RAB + SRBs for CCCH/DCCH/BCCH in the second SCCPCH.
6		←	MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the original setting before BCCH Modification time. At the same time, SS starts to transmit the new SIB TYPE 5 / SIB TYPE 5bis messages continuously. The SIB TYPE 5 / SIB TYPE 5 bis messages are changed from TS34.108 Clause .6.1.0.b to TS34.108 Clause 6.1.1.
7		←	PAGING TYPE 1	SS starts to transmit this message continuously on the PCCH using the new SCCPCH configuration broadcast in NEW SIB TYPE 5 / SIB TYPE 5 bis before the SFN of BCCH Modification Time -1000. SS checks to see UE transmits no RRC CONNECTION REQUEST before the SFN of BCCH Modification Time
8				SS waits 500 SFN after SFN of BCCH Modification Time (to ensure that the UE has time to read the new system information)
9		←	PAGING TYPE 1	SS starts to transmit this message continuously on the PCCH using the new SCCPCH configuration broadcast in NEW SIB TYPE 5 / SIB TYPE 5 bis at the correct paging occasion.
10	→		RRC CONNECTION REQUEST	
11		←	RRC CONNECTION REJECT	

Specific Message Contents

PAGING TYPE 1 (Step 1)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	CN identity
- Paging Cause	Terminating Call with one of the supported services
- CN Domain Identity	Supported Domain (PS Domain or CS Domain)
- CHOICE UE Identity	Local (P)TMSI
- Routing parameter	Same as registered TMSI or P-TMSI
BCCH modification info	Not Present

Use the same SCCPCH in TS 34.108 clause 6.1.0b.

RRC CONNECTION REJECT (Step 3 and 11)

Use the same message type found in [9] TS 34.108 clause 9.

PAGING TYPE 1 (Step 4)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
MIB Value Tag	Set to (Current MIB value tag + 1)
BCCH Modification time	Set to (Current SFN +4088) MOD4096

Use the same SCCPCH configuration in TS 34.108 clause 6.1.0b.

MASTER INFORMATION BLOCK (Step 6)

Information Element	Value/remark
MIB Value tag	As in PAGING TYPE 1 in step 4
SIB 5 Cell Value tag	Set to (Current SIB5 value tag + 1)

SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis (Step 6) (FDD) (3.84 Mcps TDD) (1.28 Mcps TDD)

Use the same message type found in clause 6.1.1 of TS 34.108

PAGING TYPE 1 (Steps 7 & 9)

Use the same message as defined for Step 1.

Use the same SCCPCH configuration in TS 34.108 clause 6.1.1.

8.1.1.6a.5 Test requirement

After step 1 the UE shall transmit RRC CONNECTION REQUEST messages in response to the PAGING TYPE 1 messages sent in step 1, using an allowed SCCPCH configuration in SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis.

After step 6 UE shall not try to receive MIB whose value tag is same as IE "BCCH modification info" in PAGING TYPE 1 continuously.

After step 7 UE shall not transmit RRC CONNECTION REQUEST messages in response to the PAGING TYPE 1 messages sent in step 7

After step 9 the UE shall transmit RRC CONNECTION REQUEST messages in response to the PAGING TYPE 1 messages sent in step 9, using an allowed SCCPCH configuration in SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis.

8.1.1.7 Paging for Connection in connected mode (CELL_DCH)

8.1.1.7.1 Definition

8.1.1.7.2 Conformance requirement

When the UE receives a PAGING TYPE 2 message, it shall not affect the state of any other ongoing RRC procedures, when not stated otherwise elsewhere.

The UE shall:

1> indicate reception of paging; and

1> forward the IE "Paging cause" and the IE "Paging record type identifier" to upper layers.

…

In the UE, the initial direct transfer procedure shall be initiated, when the upper layers request establishment of a signalling connection. This request also includes a request for the transfer of a NAS message.

….

The UE shall, in the INITIAL DIRECT TRANSFER message:

1> set the IE "NAS message" as received from upper layers; and

1> set the IE "CN domain identity" as indicated by the upper layers; and

1> set the IE "Intra Domain NAS Node Selector" as follows:

2> derive the IE "Intra Domain NAS Node Selector" from TMSI/PMTSI, IMSI, or IMEI; and

2> provide the coding of the IE "Intra Domain NAS Node Selector" according to the following priorities:

1. derive the routing parameter for IDNNS from TMSI (CS domain) or PTMSI (PS domain) whenever a valid TMSI/PTMSI is available;

2. base the routing parameter for IDNNS on IMSI when no valid TMSI/PTMSI is available;

3. base the routing parameter for IDNNS on IMEI only if no (U)SIM is inserted in the UE.

…

The UE shall:

1> transmit the INITIAL DIRECT TRANSFER message on the uplink DCCH using AM RLC on signalling radio bearer RB3;

1> when the INITIAL DIRECT TRANSFER message has been submitted to lower layers for transmission:

2> confirm the establishment of a signalling connection to upper layers; and

2> add the signalling connection with the identity indicated by the IE "CN domain identity" in the variable ESTABLISHED_SIGNALLING_CONNECTIONS.

1> when the successful delivery of the INITIAL DIRECT TRANSFER message has been confirmed by RLC:

2> the procedure ends.

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent via a radio access technology other than UTRAN, with a mandatory IE having a value, including choice, reserved for future extension (spare) or a value not used in this version of the specification (e.g. a dummy value), the UE shall:

1> if a default value of the IE is defined:

2> treat the rest of the message using the default value of the IE.

1> if no default value of the IE is defined:

2> set the variable PROTOCOL_ERROR_REJECT to TRUE;

2> set the IE "Protocol error cause" in the variable PROTOCOL_ERROR_INFORMATION to "Information element value not comprehended";

2> perform procedure specific error handling according to clause 8.

Reference

3GPP TS 25.331 clause 8.1.8.2, 8.1.11.3, 9.4.

8.1.1.7.3 Test purpose

To confirm that the UE responds to a PAGING TYPE 2 message which includes the IE "Paging Cause" and the IE "Paging Record Type Identifier".

To confirm that the UE responds with a RRC STATUS message after it has received an invalid PAGING TYPE 2 message.

To Page with the Paging Record Type Identifier set to "IMSI", in order to test the UEs behaviour to this situation which may occur when details of the temporary identity have been lost in the core network.

8.1.1.7.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_DCH state (state 6-9 or state 6-10) as specified in clause 7.4 of TS 34.108 after executing a location registration and/or attach procedure. The UE has been registered in both CS and PS domains.

Test Procedure

The SS transmits an invalid PAGING TYPE 2 message. UE shall respond by transmitting a RRC STATUS message on the uplink DCCH using RLC-AM mode. Finally, SS transmits a PAGING TYPE 2 message, which includes a matched Paging Record Type Identifier. In the CS domain the UE shall respond to this message by the transmission of an INITIAL DIRECT TRANSFER message. In the PS Domain the UE will locally detach and then initiate a GPRS attach procedure (as per clause 4.7.9.1.2 of TS 24.008) also involving the transmission of an INITIAL DIRECT TRANSFER message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1			Void	
2	←		PAGING TYPE 2	SS pages UE from a new CN domain, see specific message contents.
3	→		RRC STATUS	The UE shall respond by reporting the protocol error to the SS.
4	←		PAGING TYPE 2	SS pages the UE with a matched identifier and with a valid "paging cause" IE from a new CN Domain.
5	→		INITIAL DIRECT TRANSFER	The UE shall respond to the paging message sent in step 4.

Specific Message Contents

PAGING TYPE 2 (Step 2)

SS sends a message containing a protocol error causing the UE to perform procedure specific error handling.

Use the same message type found in clause 9 of TS 34.108, with the following exceptions.

Information Element	Value/remark
Paging Cause	Set to value "Spare"
CN Domain Identity	Set to a new CN Domain
Paging Record Type Identifier	Set to "IMSI (GSM-MAP)" for UEs supporting GSM-MAP core network type or "IMSI (DS-41)" for UEs supporting ANSI-41 core network type.

RRC STATUS (Step 3)

Use the same message type found in TS 34.108, clause 9, with the following exception.

Information Element	Value/remark
Identification of received message	
- Received message type	PAGING TYPE 2
- RRC transaction identifier	Checked to see if the value is identical to the same IE in the PAGING TYPE 2 message.
Protocol error information	
- Protocol Error Cause	Information element value not comprehended

PAGING TYPE 2 (Step 4)

Use the same message type found in TS 34.108, clause 9, with the following exception.

Information Element	Value/remark
Paging cause	Terminating Call supported by the UE in the new domain
CN domain identity	New Domain supported by the UE
Paging record type identifier	Set to "IMSI (GSM-MAP)" for UEs supporting GSM-MAP core network type or "IMSI (DS-41)" for UEs supporting ANSI-41 core network type.

INITIAL DIRECT TRANSFER (Step 5) – for UEs supporting GSM-MAP core networks

Check to see if the same message type found in TS 34.108 clause 9 is received, with the following exceptions:

Information Element	Value/remark
CN domain identity	CS domain or PS domain as specified in the PAGING TYPE 2 message in Step 4.
Intra Domain NAS Node Selector	
- CHOICE version	R99
-- CHOICE CN type	GSM
--- CHOICE Routing basis	local (P)TMSI – if CS Domain IMSI (cause UE initiated event) or IMSI (response to IMSI paging) - if PS Domain
---- Routing parameter	If the IE "CN domain identity" is equal to "CS domain": The TMSI consists of 4 octets (32bits). This can be represented by a string of bits numbered from b0 to b31, with bit b0 being the least significant The "Routing parameter" bit string consists of bits b14 through b23 of the TMSI/ PTMSI. The first/ leftmost/ most significant bit of the bit string contains bit b23 of the TMSI/ PTMSI. If the IE "CN domain identity" is equal to "PS domain": The "Routing parameter" bit string consists of DecimalToBinary [(IMSI div 10) mod 1000]. The first/ leftmost bit of the bit string contains the most significant bit of the result.
--- Entered parameter	Not checked
NAS message	Not checked

INITIAL DIRECT TRANSFER (Step 5) – for UEs supporting ANSI-41 core networks

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
CN domain identity	CS domain or PS domain as specified in the PAGING TYPE 2 message in Step 4.
Intra Domain NAS Node Selector	
- CHOICE version	ANSI-41 : Bitstring(14), all bits set to 0
NAS message	Not checked
START	Not checked
Measured results on RACH	Not checked

8.1.1.7.5 Test requirement

After step 2 the UE shall respond to the paging message by transmitting RRC STATUS on the DCCH, stating the protocol error as "Information element value not comprehended ".

After step 4 the UE shall respond to the paging message by transmitting an INITIAL DIRECT TRANSFER message on the uplink DCCH.

8.1.1.8 Paging for Connection in connected mode (CELL_FACH)

8.1.1.8.1 Definition

8.1.1.8.2 Conformance requirement

When the UE receives a PAGING TYPE 2 message, it shall not affect the state of any other ongoing RRC procedures, when not stated otherwise elsewhere.

The UE shall:

1> indicate reception of paging; and

1> forward the IE "Paging cause" and the IE "Paging record type identifier" to upper layers.

…

In the UE, the initial direct transfer procedure shall be initiated, when the upper layers request establishment of a signalling connection. This request also includes a request for the transfer of a NAS message.

The UE shall, in the INITIAL DIRECT TRANSFER message:

…

In CELL_FACH state, the UE shall:

1> include a measurement report in the IE "Measured results on RACH", as specified in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in System Information Block type 12 (or "System Information Block Type 11" if "System Information Block Type 12" is not being broadcast);

1> include in the IE "Measured results on RACH" all requested reporting quantities for cells for which measurements are reported.

The UE shall:

1> transmit the INITIAL DIRECT TRANSFER message on the uplink DCCH using AM RLC on signalling radio bearer RB3;

1> when the INITIAL DIRECT TRANSFER message has been submitted to lower layers for transmission:

2> confirm the establishment of a signalling connection to upper layers; and

2> add the signalling connection with the identity indicated by the IE "CN domain identity" in the variable ESTABLISHED_SIGNALLING_CONNECTIONS.

1> when the successful delivery of the INITIAL DIRECT TRANSFER message has been confirmed by RLC:

2> the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.8.2, 8.1.11.

8.1.1.8.3 Test purpose

To confirm that the UE responds to a PAGING TYPE 2 message, which includes a matching value for IE "Paging Record Type Identifier".

8.1.1.8.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_FACH state (state 6-11) as specified in clause 7.4 of TS 34.108. The UE has been registered in both CS and PS domains.

Test Procedure

The SS transmits a PAGING TYPE 2 message. Then the UE shall respond by transmitting an upper layer message to answer this page.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1			Void	
2	←		PAGING TYPE 2	The SS transmits the message includes a matched identifier.
3	→		INITIAL DIRECT TRANSFER	The UE responds by sending an upper layer message.

Specific Message Content

PAGING TYPE 2 (Step 2)

Use the same message type found in [9] (TS 34.108) Clause 9, with the following exception.

Information Element	Value/remark
Paging cause	Terminating Call supported by the UE
CN domain identity	CS
Paging record type identifier	Set to "TMSI (GSM-MAP)/P-TMSI" for UEs supporting GSM-MAP core network type or "TMSI (DS-41)" for UEs supporting ANSI-41 core network type.

INITIAL DIRECT TRANSFER (Step 3) – for UEs supporting GSM-MAP core networks

Only the message type IE for this message is checked.

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
CN domain identity	CS domain
Intra Domain NAS Node Selector	
- CHOICE version	R99
-- CHOICE CN type	GSM
--- CHOICE Routing basis	Local (P)TMSI
---- Routing parameter	The TMSI/P-TMSI consists of 4 octets (32bits). This can be represented by a string of bits numbered from b0 to b31, with bit b0 being the least significant. The "Routing parameter" bit string consists of bits b14 through b23 of the TMSI/ PTMSI. The first/ leftmost/ most significant bit of the bit string contains bit b23 of the TMSI/ PTMSI.
--- Entered parameter	Not checked
NAS message	Not checked
START	Not checked
Measured results on RACH	Not checked

INITIAL DIRECT TRANSFER (Step 3) – for UEs supporting ANSI-41 core networks

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
CN domain identity	CS domain
Intra Domain NAS Node Selector	
- CHOICE version	ANSI-41 : Bitstring(14), all bits set to 0
NAS message	Not checked
START	Not checked
Measured results on RACH	Not checked

8.1.1.8.5 Test requirement

After step 2 the UE shall respond to the PAGING TYPE 2 message by transmitting an INITIAL DIRECT TRANSFER message on the uplink DCCH.

8.1.1.9 Paging for Connection in idle mode (multiple paging records)

8.1.1.9.1 Definition

8.1.1.9.2 Conformance requirement

A UE in idle mode, CELL_PCH state or URA_PCH state shall receive the paging information for all its monitored paging occasions. For an UE in idle mode, the paging occasions are specified in [25.304] and depend on the IE "CN domain specific DRX cycle length coefficient", as specified in subclause 8.6.3.1a. For a UE in CELL_PCH state or URA_PCH state, the paging occasions depend also on the IE "UTRAN DRX cycle length coefficient" and the IE "RRC State Indicator", as specified in subclauses 8.6.3.2 and 8.6.3.3 respectively.

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

If the UE is in idle mode, for each occurrence of the IE "Paging record" included in the message the UE shall:

1> if the IE "Used paging identity" is a CN identity:

2> compare the IE "UE identity" with all of its allocated CN UE identities:

2> if one match is found:

3> indicate reception of paging; and

3> forward the IE "CN domain identity", the IE "UE identity" and the IE "Paging cause" to the upper layers.

1> otherwise:

2> ignore that paging record.

:

In the UE, the initial direct transfer procedure shall be initiated, when the upper layers request establishment of a signalling connection. This request also includes a request for the transfer of a NAS message.

Upon initiation of the initial direct transfer procedure when the UE is in idle mode, the UE shall:

1> set the variable ESTABLISHMENT_CAUSE to the cause for establishment indicated by upper layers;

1> perform an RRC connection establishment procedure, according to subclause 8.1.3;

1> if the RRC connection establishment procedure was not successful:

2> indicate failure to establish the signalling connection to upper layers and end the procedure.

1> when the RRC connection establishment procedure is completed successfully:

2> continue with the initial direct transfer procedure as below.

Upon initiation of the initial direct transfer procedure when the UE is in CELL_PCH or URA_PCH state, the UE shall:

1> perform a cell update procedure, according to subclause 8.3.1, using the cause "uplink data transmission";

1> when the cell update procedure completed successfully:

2> continue with the initial direct transfer procedure as below.

The UE shall, in the INITIAL DIRECT TRANSFER message:

1> set the IE "NAS message" as received from upper layers; and

1> set the IE "CN domain identity" as indicated by the upper layers; and

1> set the IE "Intra Domain NAS Node Selector" as follows:

2> derive the IE "Intra Domain NAS Node Selector" from TMSI/PMTSI, IMSI, or IMEI; and

2> provide the coding of the IE "Intra Domain NAS Node Selector" according to the following priorities:

1. derive the routing parameter for IDNNS from TMSI (CS domain) or PTMSI (PS domain) whenever a valid TMSI/PTMSI is available;

2. base the routing parameter for IDNNS on IMSI when no valid TMSI/PTMSI is available;

3. base the routing parameter for IDNNS on IMEI only if no (U)SIM is inserted in the UE.

1> calculate the START according to subclause 8.5.9 for the CN domain as set in the IE "CN Domain Identity"; and

1> include the calculated START value for that CN domain in the IE "START".

In CELL_FACH state, the UE shall:

1> include a measurement report in the IE "Measured results on RACH", as specified in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in System

Information Block type 12 (or "System Information Block Type 11" if "System Information Block Type 12" is not being broadcast);

1> include in the IE "Measured results on RACH" all requested reporting quantities for cells for which measurements are reported.

The UE shall:

1> transmit the INITIAL DIRECT TRANSFER message on the uplink DCCH using AM RLC on signalling radio bearer RB3;

1> when the INITIAL DIRECT TRANSFER message has been submitted to lower layers for transmission:

2> confirm the establishment of a signalling connection to upper layers; and

2> add the signalling connection with the identity indicated by the IE "CN domain identity" in the variable ESTABLISHED_SIGNALLING_CONNECTIONS.

1> when the successful delivery of the INITIAL DIRECT TRANSFER message has been confirmed by RLC:

2> the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.2 and 8.1.8, 3GPP TS 25.211 clause 5.3.3.10 (FDD), 3GPP TS25.221 (TDD), 3GPP TS 25.304 clause 8.

8.1.1.9.3 Test purpose

1) For the CS domain

To confirm that the UE establishes an RRC connection after it receives a PAGING TYPE 1 message which contains multiple paging records and includes IE "UE identity"(in IE "Paging Record") set to the IMSI of the UE, and responds with a correct INITIAL DIRECT TRANSFER message.

2) For the PS domain

To confirm that the UE establishes an RRC connection after it receives a PAGING TYPE 1 message which contains multiple paging records and includes IE "UE identity"(in IE "Paging Record") set to the P-TMSI allocated by SS at initial attach and responds with a correct INITIAL DIRECT TRANSFER message.

8.1.1.9.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: MM-IDLE state and Updated update status with no TMSI (if CS supported)

GMM-Registered with a P-TMSI assigned (if PS supported)

the UE shall have an IMSI.

Test Procedure

SS transmits SYSTEM INFORMATION BLOCK TYPE 1 or 13 messages, depending on the CN type supported by the UE. The SS also transmits SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis messages. The SS transmits a PAGING TYPE 1 message, which includes an unmatched CN UE identity for idle mode, and an unmatched UTRAN UE identity for connected mode. The UE shall not change its state. The SS transmits a PAGING TYPE 1 message, which includes two unmatched identities and a matched CN UE identity for the UE in the idle state. During transmission of PAGING TYPE 1 messages, SS selects the correct paging indicator on the PICH in order to allow the UE to respond to paging. Then the UE transmits an RRC CONNECTION REQUEST to the SS, the SS transmits an RRC CONNECTION SETUP to the UE. When the UE receives this message, the UE establishes an RRC connection and transmits an RRC CONNECTION SETUP COMPLETE message and an INITIAL DIRECT TRANSFER message on the uplink DCCH.

NOTE: For UEs supporting GSM-MAP CN type only, SYSTEM INFORMATION TYPE 1 messages are to be sent by SS in this test case. On the other hand, SS transmits SYSTEM INFORMATION TYPE 13 messages if the UE under test supports only ANSI-41 CN type.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		SYSTEM INFORMATION BLOCK TYPE 13 or SYSTEM INFORMATION BLOCK TYPE 1	See specific message contents.
2	←		SYSTEM INFORMATION BLOCK TYPE 5/SYSTEM INFORMATION BLOCK TYPE 5bis, MASTER INFORMATION BLOCK	See specific message contents.
3	←		PAGING TYPE 1	The SS transmits the message, which includes only unmatched identities, and the UE does not change its state.
4	←		PAGING TYPE 1	The SS transmits the message, which includes a matched identity.
5	→		RRC CONNECTION REQUEST	
6	←		RRC CONNECTION SETUP	SS assigns DPCH resources to allow UE to establish an RRC connection.
7	→		RRC CONNECTION SETUP COMPLETE	
8	→		INITIAL DIRECT TRANSFER	

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 1 (Step 1) – for UEs supporting GSM-MAP core networks

Use the default message type found in clause 6.1 of TS 34.108, except for the following.

Information Element	Value/remark
CN domain system information	
- CN domain identity	PS
- CN domain specific DRX cycle length coefficient	8
- CN domain identity	CS
- CN domain specific DRX cycle length coefficient	6

SYSTEM INFORMATION TYPE 13 (Step 1) – for UEs supporting ANSI-41 core networks

Use the default message type found in clause 6.1 of TS 34.108, clause 6.1.

MASTER INFORMATION BLOCK (Step 2)

Information Element	Value/remark
MIB Value tag	Set to (Current MIB value tag + 1)
SIB 5/5bis Cell Value tag	Set to (Current SIB5/5bis value tag + 1)

SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis. (Step 2)

Use the default message type found in clause 6.1 of TS 34.108, except for the following.

Information Element	Value/remark
PICH Info	
- Number of PI per frame	36

PAGING TYPE 1 (Step 3)

Information Element	Value/remark
Message Type	
Paging record list	
- Paging record 1	
- CHOICE Used paging identity	CN identity
- Paging cause	Terminating Call with one of the supported services
- CN domain identity	A Registered Domain (PS Domain or CS Domain)
- CHOICE UE Identity	IMSI
- IMSI	Set to an arbitrary octet string of length 7 bytes which is different from the IMSI value stored in the TEST USIM card.
- Paging record 2	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to an arbitrary SRNC identity.
- S-RNTI	Set to an arbitrary 20-bit string.
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

PAGING TYPE 1 (Step 4)

For services in CS:

Information Element	Value/remark
Message Type	
Paging record list	
- Paging record 1	
- CHOICE Used paging identity	CN identity
- Paging cause	Terminating Call with one of the supported services
- CN domain identity	A Registered Domain (PS Domain or CS Domain)
- CHOICE UE Identity	IMSI
- IMSI	Set to an arbitrary octet string of length 7 bytes which is different from the IMSI value stored in the TEST USIM card.
- Paging record 2	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to an arbitrary SRNC identity.
- S-RNTI	Set to an arbitrary 20-bit string.
- CN originated page to connected mode UE	Not Present
- Paging record 3	
- CHOICE Used paging identity	CN identity
- Paging cause	Terminating Call with one of the supported services
- CN domain identity	CS domain
- CHOICE UE identity	
- IMSI (GSM-MAP)	Set to the same octet string as in the IMSI stored in the USIM card
BCCH modification info	Not Present

For packet in PS:

Information Element	Value/remark
Message Type	
Paging record list	
- Paging record 1	
- CHOICE Used paging identity	CN identity
- Paging cause	Terminating Call with one of the supported services
- CN domain identity	A Registered Domain (PS Domain or CS Domain)
- CHOICE UE Identity	IMSI
- IMSI	Set to an arbitrary octet string of length 7 bytes which is different from the IMSI value stored in the TEST USIM card.
- Paging record 2	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to an arbitrary SRNC identity.
- S-RNTI	Set to an arbitrary 20-bit string.
- CN originated page to connected mode UE	Not Present
- Paging record 3	
- CHOICE Used paging identity	CN identity
- Paging cause	Terminating Call with one of the supported services
- CN domain identity	PS domain
- CHOICE UE identity	
- P-TMSI	Use P-TMSI allocated by SS at initial attach.
BCCH modification info	Not Present

RRC CONNECTION REQUEST (Step 5)

Information Element	Value/remark
Message type	
Initial UE identity	Same as the registered P-TMSI if PS supported by UE, otherwise the IMSI stored in the TEST USIM card.
Establishment Cause	Check to see if it is set to the same value as "Paging Cause" IE in the PAGING TYPE 1 message transmitted on step 3.
Protocol Error Indicator	Check to see if it is set to FALSE
Measured results on RACH	Not checked.

INITIAL DIRECT TRANSFER (Step 8) – for UEs supporting GSM-MAP core networks

Information Element	Value/remark
Message Type	
Integrity check info	Not present
CN domain identity	CS domain or PS domain (as specified by the SS in the PAGING TYPE 1 message of Step 4)
Intra Domain NAS Node Selector	
- CHOICE version	R99
-- CHOICE CN type	GSM-MAP
--- CHOICE Routing basis	IMSI (response to IMSI paging) in CS domain or Local (P)-TMSI in PS Domain
---- Routing parameter	If the IE "CN domain identity" is equal to "CS domain", bit string (10) consisting of DecimalToBinary [(IMSI div 10) mod 1000]. The first/ leftmost bit of the bit string contains the most significant bit of the result. If the IE "CN domain identity" is equal to "PS domain": The TMSI/ PTMSI consists of 4 octets (32bits). This can be represented by a string of bits numbered from b0 to b31, with bit b0 being the least significant. The "Routing parameter" is set to bits b14 through b23 of the TMSI/ PTMSI. The first/ leftmost/ most significant bit of the bit string contains bit b23 of the TMSI/ PTMSI.
--- Entered parameter	Not checked
NAS message	Not checked
START	Not checked
Measured results on RACH	Not checked

INITIAL DIRECT TRANSFER (Step 8) – for UEs supporting ANSI-41 core networks

Information Element	Value/remark
Message Type	
Integrity check info	Not present
CN domain identity	CS domain or PS domain (as specified by the SS in the PAGING TYPE 1 message of Step 3)
Intra Domain NAS Node Selector	
- CHOICE version	ANSI-41 : Bitstring(14), all bits set to 0
NAS message	Not checked
START	Not checked
Measured results on RACH	Not checked

8.1.1.9.5 Test requirement

After step 3 the UE shall not respond to the PAGING TYPE 1 message sent in step 3.

After step 4 the UE shall transmit an RRC CONNECTION REQUEST message on the uplink CCCH.

After step 6 the UE shall have an RRC connection based on dedicated physical channel resources and transmit an RRC CONNECTION SETUP COMPLETE message and an INITIAL DIRECT TRANSFER message on the uplink DCCH.

8.1.1.10 Paging for Connection in connected mode (URA_PCH, multiple paging records)

8.1.1.10.1 Definition

8.1.1.10.2 Conformance requirement

A UE in idle mode, CELL_PCH state or URA_PCH state shall receive the paging information for all its monitored paging occasions. For an UE in idle mode, the paging occasions are specified in [25.304] and depend on the IE "CN domain specific DRX cycle length coefficient", as specified in subclause 8.6.3.1a. For a UE in CELL_PCH state or URA_PCH state, the paging occasions depend also on the IE "UTRAN DRX cycle length coefficient" and the IE "RRC State Indicator", as specified in subclauses 8.6.3.2 and 8.6.3.3 respectively.

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

:

If the UE is in connected mode, for each occurrence of the IE "Paging record" included in the message the UE shall:

1> if the IE "Used paging identity" is a UTRAN identity and if this U-RNTI is the same as the U-RNTI allocated to the UE:

2> if the optional IE "CN originated page to connected mode UE" is included:

3> indicate reception of paging; and

3> forward the IE "CN domain identity", the IE "Paging cause" and the IE "Paging record type identifier" to the upper layers.

2> otherwise:

3> perform a cell update procedure with cause "paging response" as specified in subclause 8.3.1.2.

2> ignore any other remaining IE "Paging record" that may be present in the message.

1> otherwise:

2> ignore that paging record.

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI":

the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

Reference

3GPP TS 25.331 clause 8.1.2, 8.3.1.7.

8.1.1.10.3 Test purpose

To confirm that the UE enters the CELL_FACH state after it receives a PAGING TYPE 1 message in which the IE "Used paging identity" is set to "UTRAN identity", and the UE takes the U-RNTI value assigned to it in the IE "U-RNTI".

8.1.1.10.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: URA_PCH state (state 6-13) as specified in clause 7.4 of TS 34.108, with a valid U-RNTI assigned by the SS.

Test Procedure

The SS transmits SYSTEM INFORMATION BLOCK TYPE 6 messages with a modified PCH configuration. The SS then transmits a PAGING TYPE 1 message, which includes a matched IMSI, but the UE does not respond since it is in

connected mode. The SS transmits a PAGING TYPE 1 message, which includes a matched U-RNTI but in a paging occasion not according to the DRX cycle of the UE. The UE does not reply. The SS transmits a PAGING TYPE 1 message, which includes a matched U-RNTI in a correct paging occasion. Then the UE listens to it and enters the CELL_FACH state to transmit a CELL UPDATE message using uplink CCCH in respond to the paging. The SS sends the UE back to URA_PCH state using CELL UPDATE CONFIRM and also modifies the UTRAN DRX cycle length for the UE. The SS then transmits a PAGING TYPE 1 message using the new paging occasions. The UE replies to this page.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		SYSTEM INFORMATION BLOCK TYPE 6, MASTER INFORMATION BLOCK, SCHEDULING BLOCK 1	See specific message contents
1a	←		PAGING TYPE 1	SS transmits the message including the IE "BCCH Modification Information", with the "Value Tag" same as that in the MIB.
2	←		PAGING TYPE 1	The SS transmits the message that includes a matched CN UE identity, but the UE does not respond.
3	←		PAGING TYPE 1	The SS transmits the message that includes a matched UTRAN UE identity but in a paging occasion not according to the DRX cycle of the UE.
4	←		PAGING TYPE 1	The SS transmits the message that includes a matched UTRAN UE identity in the correct paging occasion.
5	→		CELL UPDATE	The UE enters the CELL_FACH state.
6	←		CELL UPDATE CONFIRM	See message content.
7	→		UTRAN MOBILITY INFORMATION CONFIRM	After transmitting this message, the UE returns to URA_PCH state and changes its UTRAN DRX cycle.
8	←		PAGING TYPE 1	The SS transmits the message that includes a matched UTRAN UE identity, using a paging occasion which is included in the new DRX cycle, but not in the old DRX cycle.
9	→		CELL UPDATE	The UE enters the CELL_FACH state.
10	←		CELL UPDATE CONFIRM	See message content.
11	→		UTRAN MOBILITY INFORMATION CONFIRM	

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 6 (Step 1)

Use the default message type found in clause 6.1 of TS 34.108, except for the following.

Information Element	Value/remark
- Secondary CCPCH info	
- CHOICE mode	FDD
- Secondary scrambling code	Not Present
- STTD indicator	FALSE
- Spreading factor	64
- Code number	1
- Pilot symbol existence	FALSE
- TFCI existence	TRUE
- Fixed or Flexible position	Flexible
- Timing offset	0
- TFCS	(This IE is repeated for TFC number for PCH and FACH.)
- CHOICE TFCI signalling	Normal
- TFCI Field 1 information	
- CHOICE TFCS representation	Complete reconfiguration
- TFCS complete reconfiguration information	
- CHOICE CTFC Size	4 bit
- CTFC information	0
- Power offset information	Not Present
- CTFC information	1
- Power offset information	Not Present
- CTFC information	2
- Power offset information	Not Present
- CTFC information	3
- Power offset information	Not Present
- CTFC information	4
- Power offset information	Not Present
- CTFC information	5
- Power offset information	Not Present
- CTFC information	6
- Power offset information	Not Present
- CTFC information	8
- Power offset information	Not Present
- FACH/PCH information	
- TFS	(PCH)
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC Size	240
- Number of TB and TTI List	
- Number of Transport blocks	0
- Number of Transport blocks	1
- CHOICE Logical Channel List	ALL
- Semi-static Transport Format information	
- Transmission time interval	10 ms
- Type of channel coding	Convolutional
- Coding Rate	½
- Rate matching attribute	230
- CRC size	16 bit
- Transport Channel Identity	12 (for PCH)
- CTCH indicator	FALSE
- TFS	(FACH)
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC Size	168
- Number of TB and TTI List	
- Number of Transport blocks	0
- Number of Transport blocks	1
- Number of Transport blocks	2
- CHOICE Logical Channel List	ALL
- Semi-static Transport Format information	
- Transmission time interval	10 ms
- Type of channel coding	Convolutional
- Coding Rate	1/2
- Rate matching attribute	220
- CRC size	16 bit

Information Element	Value/remark
- Transport Channel Identity	13 (for FACH)
- CTCH indicator	FALSE
- TFS	(FACH)
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC Size	360
- Number of TB and TTI List	
- Number of Transport blocks	0
- Number of Transport blocks	1
- CHOICE Logical Channel List	ALL
- Semi-static Transport Format information	
- Transmission time interval	10 ms
- Type of channel coding	Turbo
- Rate matching attribute	130
- CRC size	16bit
- Transport Channel Identity	14 (for FACH)
- CTCH indicator	FALSE
PICH Info - CHOICE mode - Channelisation code - Number of PI per frame	 FDD 2 72
- STTD indicator	FALSE

MASTER INFORMATION BLOCK (Step 1)

Information Element	Value/remark
MIB Value tag	A valid value (as defined in TS 25.331) that is different from the previous MIB.
SB 1 Cell Value tag	Set to (Current SB 1 value tag + 1)

SCHEDULING BLOCK 1 (Step 1)

Information Element	Value/remark
SIB 6 Cell Value tag	Set to (Current SIB 6 value tag + 1)

PAGING TYPE 1 (STEP 1a)

Information Element	Value/remark
Message Type Paging record list BCCH modification info MIB Value Tag BCCH Modification time	 Not Present Same value as the MIB value tag in the MIB in step 1 Not Present

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Message Type	
Paging record list	
- Paging record 1	
- CHOICE Used paging identity	CN identity
- Paging cause	Terminating Call with one of the supported services
- CN domain identity	A Registered Domain (PS Domain or CS Domain)
- CHOICE UE Identity	IMSI
- IMSI	Set to the same octet string as in the IMSI stored in the USIM card.
- Paging record 2	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to an unused SRNC identity which is different from the SRNC identity assigned.
- S-RNTI	Set to an arbitrary 20-bit string which is different from the S-RNTI assigned.
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

PAGING TYPE 1 (Steps 3, 4 and 8)

Information Element	Value/remark
Message Type	
Paging record list	
- Paging record 1	
- CHOICE Used paging identity	CN identity
- Paging cause	Terminating Call with one of the supported services
- CN domain identity	A Registered Domain (PS Domain or CS Domain)
- CHOICE UE Identity	IMSI
- IMSI	Set to the octet string which is the same as the IMSI value stored in the USIM card.
- Paging record 2	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to an unused SRNC identity which is different from the SRNC identity assigned.
- S-RNTI	Set to an arbitrary 20-bit string which is different from the S-RNTI assigned.
- CN originated page to connected mode UE	Not Present
- Paging record 3	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to the previously assigned SRNC identity
- S-RNTI	Set to previously assigned S-RNTI
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

CELL UPDATE CONFIRM (Step 6)

Use the message sub-type in default message content defined in [9] (TS 34.108) Clause 9, with the following exceptions.

Information Element	Value/Remarks
New C-RNTI	'1010 1010 1010 1010'
RRC State Indicator	URA_PCH
UTRAN DRX Cycle length coefficient	4

UTRAN MOBILITY INFORMATION CONFIRM (Step 7)

Only the message type is checked.

CELL UPDATE CONFIRM (Step 10)

Use the message sub-type in default message content defined in [9] (TS 34.108) Clause 9, with the following exceptions.

Information Element	Value/Remarks
New C-RNTI	'1010 1010 1010 1010'

8.1.1.10.5 Test requirement

After steps 2 and 3 the UE shall not respond to the paging.

After steps 4 and 8 the UE shall enter the CELL FACH state, and transmit CELL UPDATE message to initiate the cell updating procedure with the cell update cause set to "paging response".

After steps 6 and 10 the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message.

8.1.1.11 Paging for Connection in idle mode (Shared Network Environment)

8.1.1.11.1 Definition

This test is only valid for UEs supporting GSM-MAP CN signalling.

8.1.1.11.2 Conformance requirement

Upon reception of the master information block, the UE shall:

1> if the IE "Multiple PLMN List" is not present in the Master Information Block:

2> consider the IE "PLMN identity" in the Master Information Block as the PLMN identity of the cell.

1> else:

2> consider the PLMN identities in the IE "Multiple PLMN List" as the PLMN identities of the cell;

2> when reading the "Multiple PLMN List", read all the PLMN identities in the list as follows:

3> if the IE "MIB PLMN Identity" is set to TRUE:

4> read the "PLMN identity" IE in the MIB and consider it as a part of the "Multiple PLMN List".

3> if the IE "MIB PLMN Identity" is set to FALSE:

4> not consider the "PLMN identity" IE in the MIB as a part of the "Multiple PLMN List";

4> not consider the IE "PLMN identity" in the MIB as a PLMN identity of the cell;

4> not forward the PLMN in the IE "PLMN identity" of the MIB to upper layers.

3> if the MCC is not present when reading an IE "PLMN identity with Optional MCC" in the IE "Multiple PLMN List":

4> set the MCC of this PLMN identity equal to the MCC of the closest preceding "PLMN identity with Optional MCC" in the "Multiple PLMN List" that includes an MCC;

4> or, if no such "PLMN identity with Optional MCC" exists, the UE shall set the MCC of this PLMN identity to the MCC of the "PLMN identity" IE in the Master Information Block.

…

A UE in idle mode, CELL_PCH state or URA_PCH state shall receive the paging information for all its monitored paging occasions. For an UE in idle mode, the paging occasions are specified in [25.304] and depend on the IE "CN domain specific DRX cycle length coefficient", as specified in subclause 8.6.3.1a. For a UE in CELL_PCH state or URA_PCH state, the paging occasions depend also on the IE "UTRAN DRX cycle length coefficient" and the IE "RRC State Indicator", as specified in subclauses 8.6.3.2 and 8.6.3.3 respectively.

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

If the UE is in idle mode, for each occurrence of the IE "Paging record" included in the message the UE shall:

1> if the IE "Used paging identity" is a CN identity:

2> compare the IE "UE identity" with all of its allocated CN UE identities:

2> if one match is found:

3> indicate reception of paging; and

3> forward the IE "CN domain identity", the IE "UE identity" and the IE "Paging cause" to the upper layers.

1> otherwise:

2> ignore that paging record.

In the UE, the initial direct transfer procedure shall be initiated, when the upper layers request establishment of a signalling connection. This request also includes a request for the transfer of a NAS message.

Upon initiation of the initial direct transfer procedure the UE shall:

1> set the variable ESTABLISHMENT_CAUSE to the cause for establishment indicated by upper layers.

Upon initiation of the initial direct transfer procedure when the UE is in idle mode, the UE shall:

1> perform an RRC connection establishment procedure, according to subclause 8.1.3;

NOTE: If an RRC connection establishment is ongoing, this procedure continues unchanged, i.e. it is not interrupted.

1> if the RRC connection establishment procedure was not successful:

2> if the establishment cause for the failed RRC connection establishment was set to "MBMS reception" and a different cause value is stored in the variable "ESTABLISHMENT_CAUSE":

3> UE-AS (RRC) initiates a new RRC connection establishment procedure, using the establishment cause as contained in the variable ESTABLISHMENT_CAUSE.

2> otherwise:

3> indicate failure to establish the signalling connection to upper layers and end the procedure.

1> when the RRC connection establishment procedure is completed successfully:

2> continue with the initial direct transfer procedure as below.

Upon initiation of the initial direct transfer procedure when the UE is in CELL_PCH or URA_PCH state, the UE shall:

1> perform a cell update procedure, according to subclause 8.3.1, using the cause "uplink data transmission";

1> when the cell update procedure completed successfully:

2> continue with the initial direct transfer procedure as below.

The UE shall, in the INITIAL DIRECT TRANSFER message:

1> set the IE "NAS message" as received from upper layers; and

1> set the IE "CN domain identity" as indicated by the upper layers; and

1> set the IE "Intra Domain NAS Node Selector" as follows:

2> derive the IE "Intra Domain NAS Node Selector" from TMSI/PMTSI, IMSI, or IMEI; and

2> provide the coding of the IE "Intra Domain NAS Node Selector" according to the following priorities:

1. derive the routing parameter for IDNNS from TMSI (CS domain) or PTMSI (PS domain) whenever a valid TMSI/PTMSI is available;

2. base the routing parameter for IDNNS on IMSI when no valid TMSI/PTMSI is available;

3. base the routing parameter for IDNNS on IMEI only if no (U)SIM is inserted in the UE.

1> if the UE, on the existing RRC connection, has received a dedicated RRC message containing the IE "Primary PLMN Identity in the IE "CN Information Info"

2> set the IE "PLMN identity" in the INITIAL DIRECT TRANSFER message to the latest PLMN information received via dedicated RRC signalling. If NAS has indicated the PLMN towards which a signalling connection is requested, and this PLMN is not in agreement with the latest PLMN information received via dedicated RRC signalling, then the initial direct transfer procedure shall be aborted, and NAS shall be informed.

1> if the UE, on the existing RRC connection, has not received a dedicated RRC message containing the IE "CN Information Info" , and if the IE "Multiple PLMN List" was broadcast in the cell where the current RRC connection was established:

2> set the IE "PLMN identity" in the INITIAL DIRECT TRANSFER message to the PLMN chosen by higher layers [5, 25] amongst the PLMNs in the IE "Multiple PLMN List" broadcast in the cell where the RRC connection was established.

1> if the IE "Activated service list" within variable MBMS_ACTIVATED_SERVICES includes one or more MBMS services with the IE "Service type" set to "Multicast" and;

1> if the IE "CN domain identity" as indicated by the upper layers is set to "CS domain" and;

1> if the variable ESTABLISHED_SIGNALLING_CONNECTIONS does not include the CN domain identity 'PS domain':

2> include the IE "MBMS joined information";

2> include the IE "P-TMSI" within the IE "MBMS joined information" if a valid PTMSI is available.

1> if the variable ESTABLISHMENT_CAUSE_ is initialised:

2> set the IE "Establishment cause" to the value of the variable ESTABLISHMENT_CAUSE;

2> clear the variable ESTABLISHMENT_CAUSE.

1> calculate the START according to subclause 8.5.9 for the CN domain as set in the IE "CN Domain Identity" ; and

1> include the calculated START value for that CN domain in the IE "START".

The UE shall:

1> transmit the INITIAL DIRECT TRANSFER message on the uplink DCCH using AM RLC on signalling radio bearer RB3;

1> when the INITIAL DIRECT TRANSFER message has been submitted to lower layers for transmission:

2> confirm the establishment of a signalling connection to upper layers; and

2> add the signalling connection with the identity indicated by the IE "CN domain identity" in the variable ESTABLISHED_SIGNALLING_CONNECTIONS.

1> when the successful delivery of the INITIAL DIRECT TRANSFER message has been confirmed by RLC:

2> the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.1.5, 8.1.2 and 8.1.8

8.1.1.11.3 Test purpose

1) For the CS domain

To confirm that the UE establishes an RRC connection after it receives a PAGING TYPE 1 message which includes IE "UE identity"(in IE "Paging Record") set to the IMSI of the UE, and responds with a correct INITIAL DIRECT TRANSFER message.

2) For the PS domain

To confirm that the UE establishes an RRC connection after it receives a PAGING TYPE 1 message which includes IE "UE identity"(in IE "Paging Record") set to the P-TMSI allocated by SS at initial attach and responds with a correct INITIAL DIRECT TRANSFER message.

For both CS and PS domain, it is verified that the UE is able to read and interpret the Multiple PLMN list broadcasted on the BCCH. It is also verified that the correct information is inserted into the IE "PLMN Identity" in the INITIAL DIRECT TRANSFER message.

8.1.1.11.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: MM-IDLE state and Updated update status with no TMSI (if CS supported)

GMM-Registered with a P-TMSI assigned (if PS supported)

the UE shall have an IMSI.

Test Procedure

SS transmits BCCH blocks containing SYSTEM INFORMATION (GSM-MAP). The SS transmits a PAGING TYPE 1 message, which includes a matched CN UE identity for the UE in the idle state. During transmission of PAGING TYPE 1 messages, SS selects the correct paging indicator on the PICH in order to allow the UE to respond to paging. Then the UE transmits an RRC CONNECTION REQUEST to the SS, the SS transmits an RRC CONNECTION SETUP to the UE. When the UE receives this message, the UE establishes an RRC connection and transmits an RRC CONNECTION SETUP COMPLETE message and an INITIAL DIRECT TRANSFER message on the uplink DCCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		SYSTEM INFORMATION (GSM-MAP)	Transmit these messages on the BCCH according to reference system configuration (34.108 clause 6.1) with modified MIB according to below.
2	←		PAGING TYPE 1	The SS transmits the message, which includes a matched identity. See default message contents in TS 34.108.
3	→		RRC CONNECTION REQUEST	
4	←		RRC CONNECTION SETUP	SS assigns DPCH resources to allow UE to establish an RRC connection.
5	→		RRC CONNECTION SETUP COMPLETE	
6	→		INITIAL DIRECT TRANSFER	

Specific Message Contents

Use the reference system configuration found in TS 34.108 clause 6.1, with the following modifications:

MASTER INFORMATION BLOCK (Step 1)

- MIB value tag	Set to (Current MIB value tag + 1)
- Supported PLMN types	
- PLMN type	GSM-MAP
- PLMN identity	
- MCC digit	MCC1
- MNC digit	MNC3 (Any valid MNC not equal to MNC1 or MNC2)
- Multiple PLMN List	
- MIB PLMN Identity	FALSE
- Multiple PLMNs (1)	
- MCC	Not Present
- MNC	MNC2 (Any valid MNC not equal to MNC0 or MNC1)
- Multiple PLMNs (2)	
- MCC	Not Present
- MNC	MNC1

PAGING TYPE 1 (Step 2)

Use the default message type found in TS 34.108, clause 9.1.

Note that Separate message types are defined in TS 34.108 for the cases of TM (Speech in CS) and for TM (Packet in PS).

RRC CONNECTION REQUEST (Step 3)

Information Element	
Message Type	
Predefined configuration status information	FALSE
Initial UE identity	Same as the IMSI stored in the TEST USIM card, or the registered P-TMSI depending upon CN domain concerned.
Establishment cause	Check to see if it is set to the same value as "Paging Cause" IE in the PAGING TYPE 1 message transmitted on step 3.
Protocol error indicator	FALSE
>UE Specific Behaviour Information 1 idle	Not present
Measured results on RACH	Not checked
Access stratum release indicator	Not checked

RRC CONNECTION SETUP (Step)

Use the default message found in TS 34.108, clause 9.1.1 (transition to Cell_DCH)

RRC CONNECTION SETUP COMPLETE (Step 5)

Use the default message found in TS 34.108, clause 9.1.1

INITIAL DIRECT TRANSFER (Step 6)

Information Element	
Message Type	
Integrity check info	Not present
PLMN identity	
- MCC	MCC1
- MNC	MNC1
CN domain identity	CS domain or PS domain (as specified by the SS in the PAGING TYPE 1 message of Step 3)
Intra Domain NAS Node Selector	
- CHOICE *version*	R99
- CHOICE *CN type*	GSM-MAP
- CHOICE Routing basis	IMSI (response to IMSI paging) in CS domain or Local (P)-TMSI in PS Domain.
- Routing parameter	If the IE "CN domain identity" is equal to "CS domain", bit string (10) consisting of DecimalToBinary [(IMSI div 10) mod 1000]. The first/ leftmost bit of the bit string contains the most significant bit of the result. If the IE "CN domain identity" is equal to "PS domain": The TMSI/ PTMSI consists of 4 octets (32bits). This can be represented by a string of bits numbered from b0 to b31, with bit b0 being the least significant. The "Routing parameter" is set to bits b14 through b23 of the TMSI/ PTMSI. The first/ leftmost/ most significant bit of the bit string contains bit b23 of the TMSI/ PTMSI.
- Extended parameter	Not checked
NAS message	Not checked
START	Not checked
Establishment cause	Not checked
Measured results on RACH	Not checked
MBMS joined information	Not checked
>P-TMSI	Not checked

8.1.1.11.5 Test requirement

After step 2 the UE shall transmit RRC CONNECTION REQUEST message on the uplink CCCH.

After step 4 the UE shall have an RRC connection based on dedicated physical channel resources and transmit an RRC CONNECTION SETUP COMPLETE message and INITIAL DIRECT TRANSFER message on the uplink DCCH. The INITIAL DIRECT TRANSFER message shall contain PLMN (MCC1, MNC1) in IE "PLMN Identity", and the UE shall remain registered on PLMN(MCC1, MNC1).

8.1.1.12 Paging for Connection in connected mode (CELL_PCH) without HS-SCCH

8.1.1.12.1 Definition and applicability

All UEs which support FDD and HS-PDSCH in CELL_PCH and URA_PCH.

8.1.1.12.2 Conformance requirement

A UE in idle mode, CELL_PCH state or URA_PCH state shall receive the paging information for all its monitored paging occasions. For an UE in idle mode, the paging occasions are specified in 3GPP TS 25.304 and depend on the IE "CN domain specific DRX cycle length coefficient", as specified in subclause 8.6.3.1a. For a UE in CELL_PCH state or URA_PCH state, the paging occasions depend also on the IE "UTRAN DRX cycle length coefficient" and the IE "RRC State Indicator", as specified in subclauses 8.6.3.2 and 8.6.3.3 respectively.

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below:

…

If the UE is in connected mode, for each occurrence of the IE "Paging record" included in the message the UE shall:

1> if the IE "Used paging identity" is a UTRAN single UE identity and if this U-RNTI is the same as the U-RNTI allocated to the UE stored in the UE variable U_RNTI:

2> if the optional IE "CN originated page to connected mode UE" is included:

3> indicate reception of paging; and

3> forward the IE "CN domain identity", the IE "Paging cause" and the IE "Paging record type identifier" to the upper layers.

2> if the IE "Release indicator" in the IE "RRC connection release information" has the value "Release":

…

2> otherwise:

3> perform a cell update procedure with cause "paging response" as specified in subclause 8.3.1.2.

2> ignore any other remaining IE "Paging record" that may be present in the message.

1> if the IE "Used paging identity" is a UTRAN group identity and there is a group identity match according to subclause 8.6.3.13:

…

1> otherwise:

2> ignore that paging record.

…

If the CELL UPDATE CONFIRM message:

- does not include the IE "RB information to release list", nor the IE "RB information to reconfigure list", nor the IE "RB information to be affected list"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI"; or
- includes the IE "Downlink counter synchronisation info" and the IE "New U-RNTI":

NOTE: In the case of a cell update procedure during an ongoing reconfiguration procedure moving the UE into CELL_PCH/URA_PCH the CELL UPDATE CONFIRM message should include the IE "New C-RNTI".

the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

…

When the IE "HS-DSCH paging system information" is included in System Information Block type 5 or System Information Block type 5bis and the UE is in CELL_PCH or URA_PCH state, the UE shall:

1> set the variable HS_DSCH_RECEPTION_GENERAL to TRUE;

1> if variable H_RNTI and variable C_RNTI are set:

…

1> else:

2> if variable H_RNTI or variable C_RNTI are set:

3> clear the variable H_RNTI;

3> clear the variable C_RNTI;

3> clear any stored IE "HARQ Info";

3> reset the MAC-ehs entity [25.321].

2> perform the HS-DSCH reception procedure according to IE "HS-DSCH paging system information" as received in System Information Block type 5 or System Information Block type 5bis, receive the HS-PDSCH applying:

3> a scrambling code as received in the IE "DL Scrambling code";

3> a channelization code selected according to 8.5.41 of 3GPP TS 25.331 in "Number of PCCH transmissions" consecutive TTIs;

3> the Transport block sizes indexed in the IE "Transport Block Size List" for demultiplexing of upper layer PDUs from transport blocks delivered from the physical layer on HS-DSCH, as described in 3GPP TS 25.214; and

3> configure the physical layer to use a virtual IR buffer size of at least 1608 bits for HS-DSCH transmissions.

Reference

3GPP TS 25.331 clauses 8.1.2, 8.3.1.7, 8.5.40.

8.1.1.12.3 Test purpose

To confirm that the UE enters the CELL_FACH state after it receives an HS-SCCH less PAGING TYPE 1 message on the HS-DSCH which indicates that the paging has originated from UTRAN. To verify that the UE performs cell update procedure after entering the CELL_FACH state.

8.1.1.12.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CELL_PCH state (state 6-12) as specified in clause 7.4 of TS 34.108, with a valid U-RNTI already assigned and no dedicated H-RNTI assigned by the SS.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH in CELL_PCH and URA_PCH

Test Procedure

The SS transmits SYSTEM INFORMATION BLOCK TYPE 5 including configuration for HS-DSCH reception in CELL_FACH state, and configuration for HS-DSCH reception in CELL_PCH and URA_PCH states.

During transmission of PAGING TYPE 1 messages, SS selects the correct paging indicator on the PICH in order to allow the UE to respond to paging.

The SS transmits an HS-SCCH less PAGING TYPE 1 message with an unmatched U-RNTI on the HS-DSCH. The UE does not change its state. Then the SS transmits an HS-SCCH less PAGING TYPE 1 message with a matched identifier but which originates from the CN instead of UTRAN, on the HS-DSCH. The UE shall not change state after receiving this message. The SS transmits an HS-SCCH less PAGING TYPE 1 message on the HS-DSCH with a matched U-RNTI. Then the UE enters the CELL_FACH state and performs the cell updating procedure.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		SYSTEM INFORMATION BLOCK TYPE 5/ SYSTEM INFORMATION BLOCK TYPE 5bis	Includes configuration for HS-DSCH reception in CELL_FACH, and configuration for HS-DSCH reception in CELL_PCH and URA_PCH states
2	←		PAGING TYPE 1	The SS transmits an HS-SCCH less PAGING TYPE 1 message on the HS-DSCH including an unmatched U-RNTI. UE shall not respond to the paging.
3	←		PAGING TYPE 1	The SS transmits an HS-SCCH less PAGING TYPE 1 message on the HS-DSCH including a matched identifier but with the used paging identity being a CN identity. UE shall not respond to the paging.
4	←		PAGING TYPE 1	The SS transmits an HS-SCCH less PAGING TYPE 1 message on the HS-DSCH with used paging identity being a UTRAN identity and including the UE's assigned U-RNTI
5	→		CELL UPDATE	The UE enters the CELL_FACH state. UE performs cell updating procedure. The CELL UPDATE message shall contain the value "Cell Update Cause" set to "paging response" and “HS-PDSCH in CELL_FACH” set to TRUE
6	←		CELL UPDATE CONFIRM	See message content.
7	→		UTRAN MOBILITY INFORMATION CONFIRM	
8	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

SYSTEM INFORMATION TYPE 5/ SYSTEM INFORMATION TYPE 5bis

Use the same message as specified for “Only for cells which configure HS-DSCH reception in CELL_FACH “ in 34.108, clause 6.1.0b

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to an arbitrary 16-bit string which is different from the SRNC identity assigned.
- S-RNTI	Set to an arbitrary 20-bit string which is different from the S-RNTI assigned.
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

PAGING TYPE 1 (Step 3)

Same as the PAGING TYPE 1 message as in step 3 of clause 8.1.1.1.4.

PAGING TYPE 1 (Step 4)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to the same SRNC identity as previously assigned.
- S-RNTI	Set to the same S-RNTI as previously assigned.
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

CELL UPDATE (Step 5)

The same message found in TS 34.108, clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
Cell Update Cause	Check to see if set to 'paging response'
HS-PDSCH in CELL_FACH	Check to see if set to TRUE

CELL UPDATE CONFIRM (Step 6)

Use the message sub-type in default message content defined in [9] (TS 34.108) Clause 9, with the following exceptions.

Information Element	Value/Remarks
New C-RNTI	'1010 1010 1010 1010'
New H-RNTI	'0101 0101 0101 0101'

UTRAN MOBILITY INFORMATION CONFIRM (Step 7)

Only the message type is checked.

8.1.1.12.5 Test requirement

After step 2 the UE shall not respond to the PAGING TYPE 1 message sent in step 2.

After step 3 the UE shall not respond to the PAGING TYPE 1 message sent in step 3.

After step 4 the UE shall enter the CELL FACH state and send a CELL UPDATE message with "Cell Update Cause" IE set to "paging response" and “HS-PDSCH in CELL_FACH” set to TRUE.

After step 6 the UE shall be in the CELL_FACH state and shall transmit UTRAN MOBILITY INFORMATION CONFIRM message.

8.1.1.12a Paging for Connection in connected mode (CELL_PCH) without legacy PCH configured (1.28Mcps TDD)

8.1.1.12a.1 Definition and applicability

All UEs which support 1.28Mcps TDD and E-DCH and HS-PDSCH in CELL_PCH and URA_PCH.

8.1.1.12a.2 Conformance requirement

A UE in idle mode, CELL_PCH state or URA_PCH state shall receive the paging information for all its monitored paging occasions. For an UE in idle mode, the paging occasions are specified in 3GPP TS 25.304 and depend on the IE "CN domain specific DRX cycle length coefficient", as specified in subclause 8.6.3.1a. For a UE in CELL_PCH state or URA_PCH state, the paging occasions depend also on the IE "UTRAN DRX cycle length coefficient" and the IE "RRC State Indicator", as specified in subclauses 8.6.3.2 and 8.6.3.3 respectively.

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below:

…

If the UE is in connected mode, for each occurrence of the IE "Paging record" included in the message the UE shall:

1> if the IE "Used paging identity" is a UTRAN single UE identity and if this U-RNTI is the same as the U-RNTI allocated to the UE stored in the UE variable U_RNTI:

2> if the optional IE "CN originated page to connected mode UE" is included:

3> indicate reception of paging; and

3> forward the IE "CN domain identity", the IE "Paging cause" and the IE "Paging record type identifier" to the upper layers.

2> if the IE "Release indicator" in the IE "RRC connection release information" has the value "Release":

3> release all its radio resources;

3> indicate the release of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to the upper layers;

3> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;

3> clear the variable ESTABLISHED_RABS;

3> pass the value of the IE "Release cause" received in the IE "Release information" to upper layers;

3> enter idle mode;

3> perform the actions specified in subclause 8.5.2 when entering idle mode;

3> and the procedure ends.

2> otherwise:

3> if variable HSPA_RNTI_STORED_CELL_PCH is set to TRUE:

4> move to CELL_FACH state as specified in subclause 8.5.56.

3> else:

4> perform a cell update procedure with cause "paging response" as specified in subclause 8.3.1.2.

2> ignore any other remaining IE "Paging record" that may be present in the message.

1> if the IE "Used paging identity" is a UTRAN group identity and there is a group identity match according to subclause 8.6.3.13:

2> if the IE "Release indicator" in the IE "RRC connection release information" has the value "Release":

3> release all its radio resources;

3> indicate the release of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to the upper layers;

3> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;

3> clear the variable ESTABLISHED_RABS;

3> pass the value of the IE "Release cause" received in the IE “Release information” to upper layers;

3> enter idle mode;

3> perform the actions specified in subclause 8.5.2 when entering idle mode;

3> and the procedure ends.

2> otherwise:

3> if variable HSPA_RNTI_STORED_CELL_PCH is set to TRUE:

4> move to CELL_FACH state as specified in subclause 8.5.56.

3> else:

4> perform a cell update procedure with cause "paging response" as specified in subclause 8.3.1.2.

2> ignore any other remaining IE "Paging record" that may be present in the message.

1> otherwise:

2> ignore that paging record.

…

If the CELL UPDATE CONFIRM message:

- does not include the IE "RB information to release list", nor the IE "RB information to reconfigure list", nor the IE "RB information to be affected list"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI"; or
- includes the IE "Downlink counter synchronisation info" and the IE "New U-RNTI":

NOTE: In the case of a cell update procedure during an ongoing reconfiguration procedure moving the UE into CELL_PCH/URA_PCH the CELL UPDATE CONFIRM message should include the IE "New C-RNTI".

the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

…

When the IE "HS-DSCH paging system information" is included in System Information Block type 5 and the UE is in CELL_PCH or URA_PCH state, the UE shall:

1> if variable H_RNTI and variable C_RNTI are set:

2> if the UE is in CELL_PCH state:

3> set the variable HS_DSCH_RECEPTION_GENERAL to TRUE;

3> use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer for DCCH or DTCH reception; and

3> for BCCH reception perform HS-DSCH reception procedures by listening to the first indexed HS-SCCH code listed in the IE "HS-SCCH channelization code" for FDD or first instance in the IE "HS-SCCH Set Configuration" for 1.28 Mcps TDD with "BCCH specific H-RNTI" as received in IE "HS-DSCH common system information" from System Information Block type 5 or System Information Block type 5bis;

3> if the UE detects the value of the variable H_RNTI in the HS-SCCH reception procedure:

4> initiate the enhanced uplink synchronization procedure;

4> move to CELL_FACH;

4> stop timer T319 if it is running.

3> if the UE has uplink RLC data PDU or uplink RLC control PDU on RB1 or upwards to transmit:

4> move to CELL_FACH state;

4> stop timer T319 if it is running.

2> if the UE is in URA_PCH state:

3> clear the variable H_RNTI;

3> clear the variable C_RNTI;

3> clear any stored IE "HARQ Info";

3> reset the MAC-ehs entity [15];

3> if the IE "PICH info" isn't included in IE "Secondary CCPCH system information" in System Information Block type 5 or System Information Block type 6:

4> set the variable HS_DSCH_RECEPTION_GENERAL to TRUE;

4> perform the HS-DSCH reception procedure according to IE "HS-DSCH paging system information" as received in System Information Block type 5:

5> receive the HS-PDSCH applying the configuration according to 8.5.41 in "Paging Sub-Channel Size" * 2 consecutive TTIs and use the Transport block sizes indexed in the IE "Transport Block Size List" for demultiplexing of upper layer PDUs from transport blocks delivered from the physical layer on HS-DSCH, as described in [33].

1> else:

2> if variable H_RNTI or variable C_RNTI are set:

3> clear the variable H_RNTI;

3> clear the variable C_RNTI;

3> clear any stored IE "HARQ Info";

3> reset the MAC-ehs entity [15].

2> if the IE "PICH info" isn't included in IE "Secondary CCPCH system information" in System Information Block type 5 or System Information Block type 6:

3> set the variable HS_DSCH_RECEPTION_GENERAL to TRUE;

3> perform the HS-DSCH reception procedure according to IE "HS-DSCH paging system information" as received in System Information Block type 5, receive the HS-PDSCH applying:

4> HS-PDSCH configuration selected according to 8.5.41 in "Paging Sub-Channel Size" * 2 consecutive TTIs;

4> the Transport block sizes indexed in the IE "Transport Block Size List" for demultiplexing of upper layer PDUs from transport blocks delivered from the physical layer on HS-DSCH, as described in [33].

NOTE : When performing HS-DSCH reception in CELL_PCH and URA_PCH state, the UE shall use the table of transport block size for the HS-DSCH physical layer category 9 as specified in [15].

Reference

3GPP TS 25.331 clauses 8.1.2.3, 8.3.1.7, 8.5.40a.

8.1.1.12a.3 Test purpose

To confirm that the UE enters the CELL_FACH state after it receives an PAGING TYPE 1 message on the HS-DSCH which indicates that the paging has originated from UTRAN. To verify that the UE performs cell update procedure after entering the CELL_FACH state.

8.1.1.12a.4 Method of test

Initial Condition

System Simulator: 1 cell, the IE "PICH info" isn't included in IE "Secondary CCPCH system information" in System Information Block type 5 or System Information Block type 6

UE: CELL_PCH state (state 6-12) as specified in clause 7.4 of TS 34.108, with a valid U-RNTI already assigned and no dedicated H-RNTI assigned by the SS.

Related ICS/IXIT statement(s)

- UE supports 1.28Mcps TDD
- UE supports HS-PDSCH in CELL_PCH and URA_PCH
- UE supports E-DCH in CELL_PCH and URA_PCH

Test Procedure

The SS transmits SYSTEM INFORMATION BLOCK TYPE 5 including configuration for HS-DSCH reception in CELL_FACH state, and configuration for HS-DSCH reception in CELL_PCH and URA_PCH states, no legacy PCH configured

The SS transmits a PAGING TYPE 1 message with an unmatched U-RNTI on the HS-DSCH. The UE does not change its state. Then the SS transmits a PAGING TYPE 1 message with a matched identifier but which originates from the CN instead of UTRAN, on the HS-DSCH. The UE shall not change state after receiving this message. The SS transmits a PAGING TYPE 1 message on the HS-DSCH with a matched U-RNTI. Then the UE enters the CELL_FACH state and performs the cell updating procedure.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		SYSTEM INFORMATION BLOCK TYPE 5/ SYSTEM INFORMATION BLOCK TYPE 5bis	Includes configuration for HS-DSCH reception in CELL_FACH, and configuration for HS-DSCH reception in CELL_PCH and URA_PCH states, no legacy PCH configured
2	←		PAGING TYPE 1	The SS transmits a PAGING TYPE 1 message on the HS-DSCH including an unmatched U-RNTI. UE shall not respond to the paging.
3	←		PAGING TYPE 1	The SS transmits a PAGING TYPE 1 message on the HS-DSCH including a matched identifier but with the used paging identity being a CN identity. UE shall not respond to the paging.
4	←		PAGING TYPE 1	The SS transmits a PAGING TYPE 1 message on the HS-DSCH with used paging identity being a UTRAN identity and including the UE's assigned U-RNTI
5	→		CELL UPDATE	The UE enters the CELL_FACH state. UE performs cell updating procedure. The CELL UPDATE message shall contain the value "Cell Update Cause" set to "paging response" and “HS-PDSCH in CELL_FACH”” Support of common E-DCH” set to TRUE
6	←		CELL UPDATE CONFIRM	See message content.
7	→		UTRAN MOBILITY INFORMATION CONFIRM	
8	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

SYSTEM INFORMATION TYPE 5/ SYSTEM INFORMATION TYPE 5bis

Use the same message as specified for “Only for cells which configure HS-DSCH reception in CELL_FACH “ in 34.108, clause 6.1.0b

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to an arbitrary 16-bit string which is different from the SRNC identity assigned.
- S-RNTI	Set to an arbitrary 20-bit string which is different from the S-RNTI assigned.
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

PAGING TYPE 1 (Step 3)

Use the default message type found in TS 34.108, clause 9.1.

Note that Separate message types are defined in TS 34.108 for the cases of TM (Speech in CS) and for TM (Packet in PS).

PAGING TYPE 1 (Step 4)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to the same SRNC identity as previously assigned.
- S-RNTI	Set to the same S-RNTI as previously assigned.
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

CELL UPDATE (Step 5)

The same message found in TS 34.108, clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
Cell Update Cause	Check to see if set to 'paging response'
HS-PDSCH in CELL_FACH	Check to see if set to TRUE
Support of common E-DCH	Check to see if set to TRUE

CELL UPDATE CONFIRM (Step 6)

Use the message sub-type in default message content defined in [9] (TS 34.108) Clause 9, with the following exceptions.

Information Element	Value/Remarks
New C-RNTI	'1010 1010 1010 1010'
New H-RNTI	'0101 0101 0101 0101'

UTRAN MOBILITY INFORMATION CONFIRM (Step 7)

Only the message type is checked.

8.1.1.12a.5 Test requirement

After step 2 the UE shall not respond to the PAGING TYPE 1 message sent in step 2.

After step 3 the UE shall not respond to the PAGING TYPE 1 message sent in step 3.

After step 4 the UE shall enter the CELL FACH state and send a CELL UPDATE message with "Cell Update Cause" IE set to "paging response" and “HS-PDSCH in CELL_FACH” “ Support of common E-DCH” set to TRUE.

After step 6 the UE shall be in the CELL_FACH state and shall transmit UTRAN MOBILITY INFORMATION CONFIRM message.

8.1.1.13 ETWS primary and secondary notification without security reception via S-CCPCH in idle mode, URA_PCH and CELL_PCH state / CELL_FACH state

8.1.1.13.1 Definition and applicability

All UEs which support FDD and ETWS

8.1.1.13.2 Conformance requirement

Upon modifications of system information blocks using value tags, UTRAN should notify the new value tag for the master information block in the IE "BCCH modification info", transmitted in the following way:

1> to reach UEs in idle mode, and in CELL_PCH state and URA_PCH state with S-CCPCH assigned, the IE "BCCH modification info" is contained in a PAGING TYPE 1 message transmitted on the PCCH in all paging occasions in the cell;

1> to reach UEs in CELL_PCH state and URA_PCH state with HS-DSCH assigned and no dedicated H-RNTI assigned, the IE "BCCH modification info" is contained in a PAGING TYPE 1 message transmitted on the PCCH in all paging occasions in the cell;

1> to reach UEs in CELL_FACH state or TDD UEs in CELL_DCH with S-CCPCH assigned, the IE "BCCH modification info" is contained in a SYSTEM INFORMATION CHANGE INDICATION message transmitted on the BCCH mapped on at least one FACH on every Secondary CCPCH in the cell;

1> for FDD and 1.28 Mcps TDD, to reach UEs in CELL_FACH state with HS-DSCH assigned and in CELL_PCH with HS-DSCH and dedicated H-RNTI assigned, the IE "BCCH modification info" is contained in a SYSTEM INFORMATION CHANGE INDICATION message transmitted on the BCCH mapped on the HS-PDSCH indicated with the first indexed HS-SCCH code by the BCCH specific H-RNTI.

…

UTRAN may also indicate to send Primary Notification for ETWS, by including in the IE "ETWS information" in the PAGING TYPE 1 message. In this case, UTRAN may omit the IEs "Paging record".

…

If the IE "ETWS information" is included and RRC is configured to receive ETWS without security, an ETWS capable UE in idle mode, CELL_PCH or URA_PCH state shall perform the actions as specified in subclause 8.6.8a.1 in addition to any actions caused by the IE "Paging record" or the IE "BCCH modification info" occurrences in the message as specified above.

…

If RRC is configured from upper layers to receive primary notification for ETWS without security, and if the IE "ETWS information" is received in a PAGING TYPE 1 or a SYSTEM INFORMATION CHANGE INDICATION message, an ETWS capable UE shall:

1> if the variable ETWS_DUPLICATE_DETECT_PARAM is set:

2> if the IE "Message Identifier" and the IE "Serial Number" included in the IE "ETWS information" have the same values as the corresponding IEs in an entry of the variable ETWS_DUPLICATE_DETECT_PARAM:

3> discard the IE "ETWS information".

1> otherwise;

2> set the IE "Message Identifier" and IE "Serial Number" in an entry of the variable ETWS_DUPLICATE_DETECT_PARAM;

2> forward the IE "ETWS information" to upper layers and indicate that the associated security information has not been received.

NOTE: The UE may receive the IE "ETWS information" also in an ETWS PRIMARY NOTIFICATION WITH SECURITY message. The UE behaviour is specified in subclause 8.1.17.4.

…

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.

Reference

3GPP TS 25.331 clauses 8.1.1.7, 8.1.2.2, 8.1.2.3, 8.6.8a.1, 3GPP TS23.041 clause 9.1.2.

8.1.1.13.3 Test purpose

To confirm that UE receives a PAGING TYPE 1 message on the S-CCPCH which indicates ETWS primary notification and then receives a PAGING TYPE 1 message on the S-CCPCH and receives P-CCPCH and S-CCPCH which indicates ETWS secondary notification and UE shall not indicate secondary notification after BCCH is changed.

8.1.1.13.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: URA_PCH state (state 6-13) as specified in clause 7.4 of TS 34.108, with a valid U-RNTI assigned by the SS. UE is configured to receive the CBS data messages.

Specific Message Contents

SYSTEM INFORMATION TYPE 5/ SYSTEM INFORMATION TYPE 5bis / SYSTEM INFORMATION TYPE 6

Use the same message as specified in 34.108, clause 6.1.3 with following exception.

Information Element	Value/remark
Secondary CCPCH system information	Second SCCPCH system information in the sCCPCH-SystemInformationList
- FACH/PCH information	Second FACH/PCH information in the fach-PCH-InformationList
- CTCH indicator	FALSE
CBS DRX Level 1 information	Not present

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports ETWS

Test Procedure

The SS transmits a PAGING TYPE 1 message with "ETWS information" on the S-CCPCH. SS transmits PAGING TYPE 1 message with the same "Message Identifier" and the "Serial Number" in "ETWS information" on the S-CCPCH and UE discards the duplicate "ETWS information", no new primary notification indications occur (e.g. audible signal or message appearing on the UI). SS transmits ETWS Secondary notification. The SS transmits PAGING TYPE 1 message on the S-CCPCH and UE enters to CELL_FACH state. Then same steps to URA_PCH state except SYSTEM INFORMATION CHANGE INDICATION. The SS transmits PHYSICAL CHANNEL RECONFIGURATION message and UE enters to CELL_PCH state. Then same steps to URA_PCH state. The SS transmits PAGING TYPE 1 message on the S-CCPCH and UE enters to idle mode state. Then same steps to URA_PCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1			VOID	
2	←		PAGING TYPE 1	SS transmits the message that includes IE "ETWS information"
3				After having received the PAGING TYPE 1, UE shall - indicate the reception of ETWS Data 1 and - alert or activate alerting the user
4	←		PAGING TYPE 1	SS transmits the message that includes IE "ETWS information" which includes same IE "Message Identifier" and the IE "Serial Number" to step 2 in "ETWS information".
5				UE shall - not indicate the reception of ETWS Data 2 and - not alert nor activate alerting the user within 40 seconds after step 4.
6	←		PAGING TYPE 1	SS transmits the message that includes the IE "BCCH modification info" ", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block.
7	←		MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis / SYSTEM INFORMATION BLOCK TYPE 6	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the original setting. At the same time, SS starts to transmit the affected SIB TYPE 5 / SIB TYPE 5bis / SIB TYPE 6 messages which indicate “CTCH Indicator” TRUE in TS 34.108 6.1.2 continuously.
8				SS waits for about 5 s to make sure that the UE has time to read the new system information.
9	←		BMC CBS Message	Activated CBS message with CB Data 1 message content as described by the manufacturer. This message shall be repeated "CPREP" times, Parameter: - Message ID, - Serial Number, - Data coding scheme, - CB-Data 1,
10				After having received the BMC CBS message the UE shall - indicate the reception of CB Data 1 and - alert or activate alerting the user
11	←		PAGING TYPE 1	SS transmits the message that includes the IE "BCCH modification info" ", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block.

12	←	MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis / SYSTEM INFORMATION BLOCK TYPE 6	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the original setting. At the same time, SS starts to transmit the affected SIB TYPE 5 / SIB TYPE 5bis/ SIB TYPE 6 messages which indicate “CTCH Indicator” FALSE continuously.
13	←	BMC CBS Message	Activated CBS message with CB Data 2 message content as described by the manufacturer. This message shall be repeated "CPREP" times, Parameter: - Message ID, - Serial Number(Different from CB-Data 1), - Data coding scheme, - CB-Data 2,
14			UE shall - not indicate the reception of CB Data 2 and - not alert nor activate alerting the user within 50 second after step 13.
15	←	PAGING TYPE 1	SS transmits the message that includes a matched identifier.
16	→	CELL UPDATE	UE enters the CELL_FACH state.
17	←	CELL UPDATE CONFIRM	See message content.
18	→	UTRAN MOBILITY INFORMATION CONFIRM	
19		Void	
20	←	SYSTEM INFORMATION CHANGE INDICATION	SS transmits the message that includes IE "ETWS information"
21			Same procedure from step 3 to step 5 except : - in step 4 replace PAGING TYPE1 with SYSTEM INFORMATION CHANGE INDICATION - the ETWS IE "Serial Number" in SYSTEM INFORMATION CHANGE INDICATION is the same as the one used in step 20
22	←	PHYSICAL CHANNEL RECONFIGURATION	SS transmits the message which includes RRC State Indicator CELL_PCH.
23	→	PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE enters the CELL_PCH state.
24	←	PAGING TYPE 1	SS transmits the message that includes IE "ETWS information"
25			Same procedure from step 3 to step 14 except the values which are different from the IE "Message Identifier" and the IE "Serial Number" and CBS parameters used before.
26	←	PAGING TYPE 1	
27	→	CELL UPDATE	UE transmits CELL UPDATE.
28	←	CELL UPDATE CONFIRM	IE "RRC State Indicator" is set to "CELL_FACH".
29	→	UTRAN MOBILITY INFORMATION CONFIRM	
30	←	DEACTIVATE PDP CONTEXT REQUEST	
31	→	DEACTIVATE PDP CONTEXT ACCEPT	

31a	→	DETACH REQUEST	A non-auto attach UE may (optionally) send a Detach Request. The SS shall wait up to 'T3390' seconds for the Detach Request.
31b	←	DETACH ACCEPT	If the UE transmitted a Detach Request (for non power-off) message in step 31a, then the SS responds with a Detach Accept message.
32	←	RRC CONNECTION RELEASE	
33	→	RRC CONNECTION RELEASE COMPLETE	UE enters the idle mode state.
34		Void	
34a			For Class C UE (PS only UE) steps from 35 to 43 will not be used.
35	←→	CALL C.1	If the test result of C.1 indicates that UE is in Idle Mode state, the test passes, otherwise it fails.
36	←	PAGING TYPE 1	SS transmits the message that includes IE "ETWS information".
37			UE shall - not indicate the reception of ETWS Data 3 and - not alert nor activate alerting the user within 40 seconds after step 36.
38	←	PAGING TYPE 1	SS transmits the message that includes IE "ETWS information".
39			After having received the PAGING TYPE 1, UE shall - indicate the reception of ETWS Data 1 and - alert or activate alerting the user
40			Same procedure from step 7 to step 14 except the values which are different from the IE "Message Identifier" and the IE "Serial Number" in PAGING TYPE 1 and CBS parameters used before.
41	←	PAGING TYPE 1	SS transmits the message that includes a matched identifier.
42	→	RRC CONNECTION REQUEST	
43	←	RRC CONNECTION REJECT	

Note: The data indication and user alerting are the UE implementation issues.

Note: At steps 35 and 41, paging will have to be for CS domain for non-auto attach UEs.

Specific Message Contents

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	Not Present
ETWS information	
Warning Type	Warning Type Value=0000010 Emergency User Alert =1 Popup=1 Padding=0000000
Message Identifier	1102
Serial Number	GS=11 Message Code = 1100000010 Update Number = Update Number of previous message (containing ETWS information) +1

PAGING TYPE 1 (Step 4)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	Not Present
ETWS information	
Warning Type	Warning Type Value=0000010 Emergency User Alert =1 Popup=1 Padding=0000000
Message Identifier	1102
Serial Number	GS=11 Message Code = 1100000010 Update Number = Update Number of previous message (containing ETWS information)

PAGING TYPE 1 (Step 6)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
MIB Value Tag	Set to (Current MIB value tag + 1)
BCCH Modification time	Not Present
ETWS information	Not Present

MASTER INFORMATION BLOCK (Step 7)

Information Element	Value/remark
MIB Value tag	As in PAGING TYPE 1 in step 6
SIB 5 Cell Value tag	Set to (Current SIB5 value tag + 1)

SYSTEM INFORMATION BLOCK TYPE 5 / 5bis and 6 (Step 7)

The contents of SYSTEM INFORMATION TYPE 5/ 5bis and 6 Information Element in this test case are identical to those of the default contents of clause 6.1.2 in 34.108.

BMC CBS Message (Step 9 and 13)

Information Element	Value/remark
Message Type	1 (CBS message)
Message ID	Bitstring (16) CB message ID, it shall fit to the stored Message ID in the SIM inserted in the UE (source and type) [see TS 23.041]
Serial Number	[see TS 23.041]
- Geographic Scope Indicator (2 bit)	11 (Normal Cell wide)
- Message Code (10 bit)	according with the Message ID
- Update Number (4 bit)	for a new message: 0000, incremented by one for each repetition
Data Coding Scheme	Default alphabet, English "00000001"B
CB Data	Octetstring, [see IXIT value: CB-Data 1 and 2]

PAGING TYPE 1 (Step 11)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
MIB Value Tag	Set to (Current MIB value tag + 1)
BCCH Modification time	Not Present
ETWS information	Not Present

SYSTEM INFORMATION BLOCK TYPE 5 / 5bis and 6 (Step 12)

The contents of SYSTEM INFORMATION TYPE 5/ 5bis and 6 Information Element are identical to the contents specified in initial conditions.

PAGING TYPE 1 (Step 15)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to the previously assigned SRNC identity
- S-RNTI	Set to previously assigned S-RNTI
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

PAGING TYPE 1 (Step 41)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	CN identity
- Paging Cause	Terminating Call with one of the supported services
- CN Domain Identity	Supported Domain (PS Domain or CS Domain)
- CHOICE UE Identity	Local (P)TMSI
- Routing parameter	Same as registered TMSI or P-TMSI
BCCH modification info	Not Present

CELL UPDATE CONFIRM (Step 17)

Use the message sub-type in default message content defined in [9] (TS 34.108) Clause 9, with the following exceptions.

Information Element	Value/remark
New C-RNTI	'1010 1010 1010 1010'

SYSTEM INFORMATION CHANGE INDICATION (Step 20)

Information Element	Value/remark
Message Type	
BCCH modification info	
- MIB Value Tag	Not Present
- BCCH Modification time	Not Present
ETWS information	
Warning Type	Warning Type Value=0000000 Emergency User Alert =1 Popup=1 Padding=0000000
Message Identifier	1100
Serial Number	GS=11 Message Code = 1100000000 Update Number = Update Number of previous message (containing ETWS information) +1

PHYSICAL CHANNEL RECONFIGURATION (Step 22)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in Annex A with following exceptions:

Information Element	Value/remark
New C-RNTI	Not Present
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3

PAGING TYPE 1 (Step 24)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
MIB Value Tag	Set to Current MIB value tag
BCCH Modification time	Not Present
ETWS information	
Warning Type	Warning Type Value=0000010 Emergency User Alert =1 Popup=1 Padding=0000000
Message Identifier	1102
Serial Number	GS=11 Message Code = 1100000010 Update Number = Update Number of previous message (containing ETWS information) +1

PAGING TYPE 1 (Step 26)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to the previously assigned SRNC identity
- S-RNTI	Set to previously assigned S-RNTI
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

CELL UPDATE CONFIRM (Step 28)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
RRC State indicator	CELL_FACH
New C-RNTI	'1010 1010 1010 1011'

PAGING TYPE 1 (Step 36)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	Not Present
ETWS information	
Warning Type	Warning Type Value=0000010 Emergency User Alert =1 Popup=1 Padding=0000000
Message Identifier	1103
Serial Number	GS=11 Message Code = 1100000011 Update Number = Update Number of previous message (containing ETWS information) +1

PAGING TYPE 1 (Step 38)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
MIB Value Tag	Set to Current MIB value tag
BCCH Modification time	Not Present
ETWS information	
Warning Type	Warning Type Value=0000010 Emergency User Alert =1 Popup=1 Padding=0000000
Message Identifier	1101
Serial Number	GS=11 Message Code = 1100000001 Update Number = Update Number of previous message (containing ETWS information) +1

8.1.1.13.5 Test requirement

In step 5, UE shall not indicate the reception of ETWS Data 2.

In step10, UE shall indicate the reception of CB Data 1

In step14, UE shall not indicate the reception of CB Data 2

In step 25 and 40, UE shall indicate the reception of CB Data before CTCH FALSE, and UE shall not indicate the reception of CB Data after CTCH FALSE in SYSTEM INFORMATION BLOCK TYPE 5 / 5bis and 6.

In step 21, 25 and 40, UE shall indicate the reception of ETWS Data 1.

In step 37, UE shall not indicate the reception of ETWS Data 3.

8.1.1.14 Void

8.1.1.15 Void

8.1.1.16 Void

8.1.1.17 Void

8.1.1.18 Void

8.1.1.19 ETWS primary and secondary notification / Cell reselection

8.1.1.19.1 Definition and applicability

All UEs which support FDD and ETWS

8.1.1.19.2 Conformance requirement

Upon modifications of system information blocks using value tags, UTRAN should notify the new value tag for the master information block in the IE "BCCH modification info", transmitted in the following way:

1> to reach UEs in idle mode, and in CELL_PCH state and URA_PCH state with S-CCPCH assigned, the IE "BCCH modification info" is contained in a PAGING TYPE 1 message transmitted on the PCCH in all paging occasions in the cell;

1> to reach UEs in CELL_PCH state and URA_PCH state with HS-DSCH assigned and no dedicated H-RNTI assigned, the IE "BCCH modification info" is contained in a PAGING TYPE 1 message transmitted on the PCCH in all paging occasions in the cell;

1> to reach UEs in CELL_FACH state or TDD UEs in CELL_DCH with S-CCPCH assigned, the IE "BCCH modification info" is contained in a SYSTEM INFORMATION CHANGE INDICATION message transmitted on the BCCH mapped on at least one FACH on every Secondary CCPCH in the cell;

1> for FDD and 1.28 Mcps TDD, to reach UEs in CELL_FACH state with HS-DSCH assigned and in CELL_PCH with HS-DSCH and dedicated H-RNTI assigned, the IE "BCCH modification info" is contained in a SYSTEM INFORMATION CHANGE INDICATION message transmitted on the BCCH mapped on the HS-PDSCH indicated with the first indexed HS-SCCH code by the BCCH specific H-RNTI.

…

UTRAN may also indicate to send Primary Notification for ETWS, by including in the IE "ETWS information" in the PAGING TYPE 1 message. In this case, UTRAN may omit the IEs "Paging record".

…

If the IE "ETWS information" is included and RRC is configured to receive ETWS without security, an ETWS capable UE in idle mode, CELL_PCH or URA_PCH state shall perform the actions as specified in subclause 8.6.8a.1 in addition to any actions caused by the IE "Paging record" or the IE "BCCH modification info" occurrences in the message as specified above.

…

If RRC is configured from upper layers to receive primary notification for ETWS without security, and if the IE "ETWS information" is received in a PAGING TYPE 1 or a SYSTEM INFORMATION CHANGE INDICATION message, an ETWS capable UE shall:

1> if the variable ETWS_DUPLICATE_DETECT_PARAM is set:

2> if the IE "Message Identifier" and the IE "Serial Number" included in the IE "ETWS information" have the same values as the corresponding IEs in an entry of the variable ETWS_DUPLICATE_DETECT_PARAM:

3> discard the IE "ETWS information".

1> otherwise;

2> set the IE "Message Identifier" and IE "Serial Number" in an entry of the variable ETWS_DUPLICATE_DETECT_PARAM;

2> forward the IE "ETWS information" to upper layers and indicate that the associated security information has not been received.

NOTE: The UE may receive the IE "ETWS information" also in an ETWS PRIMARY NOTIFICATION WITH SECURITY message. The UE behaviour is specified in subclause 8.1.17.4.

…

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.

Reference

3GPP TS 25.331 clauses 8.1.1.7, 8.1.2.2, 8.1.2.3, 8.6.8a.1, TS 23.041 cl. 9.1.2.

8.1.1.19.3 Test purpose

To confirm that UE reselects a new cell which does not send ETWS primary/secondary notifications after the reception of ETWS primary/secondary notifications on an old cell and then UE behaviour on the new cell is not affected by the reception of ETWS primary/secondary notifications on an old cell.

To confirm that UE reselects a new cell which sends ETWS primary/secondary notifications from a cell which does not send ETWS primary/secondary notifications and then the UE receives ETWS primary/secondary notifications on the new cell.

8.1.1.19.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 and 2

UE: URA_PCH state (state 6-13) as specified in clause 7.4 of TS 34.108, with a valid U-RNTI assigned by the SS. UE is configured to receive the CBS data messages.

Specific Message Contents

SYSTEM INFORMATION TYPE 5/ SYSTEM INFORMATION TYPE 5bis / SYSTEM INFORMATION TYPE 6

For Cell 1, use the same message as specified in 34.108, clause 6.1.3 with following exception.

Information Element	Value/remark
Secondary CCPCH system information	Second SCCPCH system information in the sCCPCH-SystemInformationList
- FACH/PCH information	Second FACH/PCH information in the fach-PCH-InformationList
- CTCH indicator	FALSE
CBS DRX Level 1 information	Not present

For Cell 2, use the same message as specified in 34.108, clause 6.1.0b.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports ETWS

Test Procedure

Table 8.1.1.19

Parameter	Unit	Cell 1			Cell 2		
		T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Mid Range Test Frequency			Mid Range Test Frequency		
CPICH Ec (FDD)	dBm/3.84MHz	-60	-69	-60	-69	-60	-69

The SS transmits PAGING TYPE 1 message with "ETWS information" on the S-CCPCH on Cell1. SS transmits PAGING TYPE 1 message with the same "Message Identifier" and the "Serial Number" in "ETWS information" on the S-CCPCH and UE discards the duplicate "ETWS information", no new primary notification indications occur (e.g. audible signal or message appearing on the UI). SS transmits PAGING TYPE 1 for BCCH modification before Cell1 changes SIB TYPE 5 / SIB TYPE 5bis / SIB TYPE 6 messages to set CTCH indicator to TRUE. SS transmits ETWS Secondary notification on Cell1. SS applies the downlink transmission power settings, according to the values in columns "T1" of Table 8.1.1.19. SS transmits PAGING TYPE 1 message with U-RNTI assigned to the UE on Cell 2. SS transmits CELL UPDATE CONFIRM message in response to CELL UPDATE message from the UE. SS applies the downlink transmission power settings, according to the values in columns "T2" of Table 8.1.1.19. SS transmits PAGING TYPE 1 message with the "Message Identifier" and the "Serial Number" in "ETWS information" on the S-CCPCH. SS transmits ETWS Secondary notification on Cell1. SS transmits PAGING TYPE 1 for BCCH modification. Cell1 changes SIB TYPE 5 / SIB TYPE 5bis / SIB TYPE 6 messages to set CTCH indicator to FALSE. SS transmits PAGING TYPE 1 for paging.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1			Void	
2			Void	
3	←		PAGING TYPE 1	SS transmits the message that includes IE "ETWS information" on Cell1.
4				After having received the PAGING TYPE 1, UE shall - indicate the reception of ETWS Data 1 and - alert or activate alerting the user
5	←		PAGING TYPE 1	SS transmits the message that includes IE "ETWS information" which includes same IE "Message Identifier" and the IE "Serial Number" to step3 in "ETWS information" on Cell1
6				UE shall - not indicate the reception of ETWS Data 2 and - not alert nor activate alerting the user within 40 seconds after step 4.
7	←		PAGING TYPE 1	SS transmits the message that includes the IE "BCCH modification info" ", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block on Cell1.
8			Void	
9			Void	
10			Void	
11	←		MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis / SYSTEM INFORMATION BLOCK TYPE 6	SS starts to transmit the MIB with the "MIB Value Tag" IE same as one included in PAGING TYPE 1 in step 7. At the same time, SS starts to transmit the affected SIB TYPE 5 / SIB TYPE 5bis / SIB TYPE 6 messages which indicate “CTCH Indicator” TRUE in TS 34.108 6.1.2 continuously on Cell1.
12				SS waits for about 5 s to make sure that the UE has time to read the system information.
13	←		BMC CBS Message	Activated CBS message with CB Data 1 message content as described by the manufacturer. This message shall be repeated "CPREP" times, Parameter: - Message ID, - Serial Number, - Data coding scheme, - CB-Data 1,
14				After having received the BMC CBS message the UE shall - indicate the reception of CB Data 1 and - alert or activate alerting the user.
15				SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.1.1.19
15a				SS waits 50s (to ensure that the UE has time to reselect the Cell2)

15b	←	PAGING TYPE 1	The SS transmits the PAGING TYPE 1 message with used paging identity being a UTRAN identity and including the UE's assigned U-RNTI on Cell 2
15c	→	CELL UPDATE	The UE enters the CELL_FACH state. UE performs cell updating procedure. The CELL UPDATE message shall contain the value "Cell Update Cause" set to "paging response".
15d	←	CELL UPDATE CONFIRM	IE "RRC State Indicator" is set to "URA_PCH".
15e			SS waits 5s (to ensure that the UE moves to URA_PCH state)
15f			SS applies the downlink transmission power settings, according to the values in columns "T2" of table 8.1.1.19.
16	←	PAGING TYPE 1	SS transmits the message that includes IE "ETWS information" on Cell1 after 50 seconds from step15f.
17			After having received the PAGING TYPE 1, UE shall - indicate the reception of ETWS Data 3 and - alert or activate alerting the user.
18		Void	
19		Void	
20		Void	
21	←	BMC CBS Message	Activated CBS message with CB Data 2 message content as described by the manufacturer. This message shall be repeated "CPREP" times, Parameter: - Message ID, - Serial Number, - Data coding scheme, - CB-Data 2,
22			After having received the BMC CBS message the UE shall - indicate the reception of CB Data 2 and - alert or activate alerting the user.
23	←	PAGING TYPE 1	SS transmits the message that includes the IE "BCCH modification info" ", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block on Cell1.
24	←	MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis / SYSTEM INFORMATION BLOCK TYPE 6	SS starts to transmit the MIB with the "MIB Value Tag" IE same as one included in PAGING TYPE 1 in step 23. At the same time, SS starts to transmit the affected SIB TYPE 5 / SIB TYPE 5bis/ SIB TYPE 6 messages which indicate “CTCH Indicator” FALSE continuously.
25	←	PAGING TYPE 1	The SS transmits the message with used paging identity being a UTRAN identity and including the UE's assigned U-RNTI

26	→	CELL UPDATE	The UE enters the CELL_FACH state. UE performs cell updating procedure. The CELL UPDATE message shall contain the value "Cell Update Cause" set to "paging response".
27	←	CELL UPDATE CONFIRM	IE "RRC State Indicator" is set to "CELL_FACH".
27a	→	UTRAN MOBILITY INFORMATION CONFIRM	
28	←	RRC CONNECTION RELEASE	
29	→	RRC CONNECTION RELEASE COMPLETE	UE enters the idle mode state

Note: The data indication and user alerting are the UE implementation issues.

Specific Message Contents

PAGING TYPE 1 (Steps 3 and 5)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	Not Present
ETWS information	
Warning Type	Warning Type Value=0000010 Emergency User Alert =1 Popup=1 Padding=0000000
Message Identifier	1102
Serial Number	GS=11 Message Code = 1100000001 Update Number = 0000

PAGING TYPE 1 (Steps 7 and 23)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
MIB Value Tag	Set to (Current MIB value tag + 1)
BCCH Modification time	Not Present
ETWS information	Not Present

PAGING TYPE 1 (Steps 15b and 25)

Use the default message type found in TS 34.108, clause 9.1.

Note that Separate message types are defined in TS 34.108 for the cases of TM (Speech in CS) and for TM (Packet in PS)

MASTER INFORMATION BLOCK for Cell 1 (Step 11)

Information Element	Value/remark
MIB Value tag	As in PAGING TYPE 1 in step 7
SIB 5 Cell Value tag	Set to (Current SIB5 value tag + 1)

SYSTEM INFORMATION BLOCK TYPE 5 / 5bis and 6 for Cell 1 (Step 11)

The contents of SYSTEM INFORMATION TYPE 5/ 5bis and 6 Information Element in this test case are identical to those of the default contents of layer 3 clause 6.1.2 in 34.108.

BMC CBS Message (Steps 13 and 21)

Information Element	Value/remark
Message Type	1 (CBS message)
Message ID	Bitstring (16) CB message ID, it shall fit to the stored Message ID in the SIM inserted in the UE (source and type) [see TS 23.041]
Serial Number	[see TS 23.041]
- Geographic Scope Indicator (2 bit)	11 (Normal Cell wide)
- Message Code (10 bit)	according with the Message ID
- Update Number (4 bit)	for a new message: 0000, incremented by one for each repetition
Data Coding Scheme	Default alphabet, English "00000001"B
CB Data	Octetstring, [see IXIT value: CB-Data 1 and 2]

PAGING TYPE 1 (Step 16)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	Not Present
ETWS information	
Warning Type	Warning Type Value=0000010 Emergency User Alert =1 Popup=1 Padding=0000000
Message Identifier	1100
Serial Number	GS=11 Message Code = 1100000001 Update Number = Update Number of previous message (containing ETWS information) +1

SYSTEM INFORMATION BLOCK TYPE 5 / 5bis and 6 for Cell 1 (Step 24) (FDD)

The contents of SYSTEM INFORMATION TYPE 5/ 5bis and 6 Information Element are identical to the contents specified in initial conditions.

CELL UPDATE (Steps 15c and 26)

Check to see if the same message type found in TS 34.108, clause 9 is received, with the following exceptions:

Information Element	Value/remark
U-RNTI	Checked to see if it is set to the same values as in the Paging Type 1 message.
- SRNC identity	
- S-RNTI	
Cell update cause	Paging response

CELL UPDATE CONFIRM (Step 15d)

Use the same message type found in TS 34.108, clause 9 with the following exceptions.

Information Element	Value/Remarks
RRC State indicator	URA_PCH
UTRAN DRX cycle length coefficient	7

MASTER INFORMATION BLOCK for Cell 1 (Step 24)

Information Element	Value/remark
MIB Value tag	As in PAGING TYPE 1 in step 23
SIB 5 Cell Value tag	Set to (Current SIB5 value tag + 1)

CELL UPDATE CONFIRM (Step 27)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
RRC State indicator	CELL_FACH
New C-RNTI	'1010 1010 1010 1011'

8.1.1.19.5 Test requirement

In step 4, UE shall indicate the reception of ETWS Data 1.

In step 6, UE shall not indicate the reception of ETWS Data 2.

In step14, UE shall indicate the reception of CB Data 1

In step 15c, UE shall transmit the CELL UPDATE message on Cell 2.

In step 17, UE shall indicate the reception of ETWS Data 3.

In step 22, UE shall indicate the reception of CB Data 2

8.1.2 RRC Connection Establishment

8.1.2.1 RRC Connection Establishment in CELL_DCH state: Success

8.1.2.1.1 Definition

8.1.2.1.2 Conformance requirement

The UE shall initiate the procedure when upper layers in the UE requests the establishment of a signalling connection and the UE is in idle mode (no RRC connection exists).

Upon initiation of the procedure, the UE shall:

…

1> set the contents of the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.3;

1> set CFN in relation to SFN of current cell according to TS 25.331 subclause 8.5.15;

1> perform the mapping of the Access Class to an Access Service Class as specified in TS 25.331 subclause 8.5.13, and apply the given Access Service Class when accessing the RACH;

1> submit the RRC CONNECTION REQUEST message for transmission on the uplink CCCH;

1> set counter V300 to 1; and

1> start timer T300 when the MAC layer indicates success or failure to transmit the message;

1> select a Secondary CCPCH according to TS 25.304;

1> start receiving all FACH transport channels mapped on the selected Secondary CCPCH.

….

The UE shall, in the transmitted RRC CONNECTION REQUEST message:

1> set the IE "Establishment cause" to the value of the variable ESTABLISHMENT_CAUSE;

1> set the IE "Initial UE identity" to the value of the variable INITIAL_UE_IDENTITY;

…

The UE shall not include the IE "UE Specific Behaviour Information 1 idle".

….

The UE shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP message with the value of the variable INITIAL_UE_IDENTITY.

If the values are different, the UE shall:

1> ignore the rest of the message.

If the values are identical, the UE shall:

1> stop timer T300, and act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified otherwise in the following:

2> if the UE, according to TS 25.331 subclause 8.6.3.3, will be in the CELL_FACH state at the conclusion of this procedure:

…

1> if the UE, according to TS 25.331 subclause 8.6.3.3, will be in the CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronization procedure A as specified in TS 25.214;

2> enter UTRA RRC connected mode, in a state according to TS 25.331 subclause 8.6.3.3;

1> submit an RRC CONNECTION SETUP COMPLETE message to the lower layers on the uplink DCCH after successful state transition per TS 25.331 subclause 8.6.3.3, with the contents set as specified below:

2> set the IE "RRC transaction identifier" to:

3> the value of "RRC transaction identifier" in the entry for the RRC CONNECTION SETUP message in the table "Accepted transactions" in the variable TRANSACTIONS; and

3> clear that entry.

…

2> retrieve its UTRA UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and then

2> include this in IE "UE radio access capability" and IE "UE radio access capability extension", provided this IE is included in variable UE_CAPABILITY_REQUESTED;

2> retrieve its inter-RAT-specific UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and then

2> include this in IE "UE system specific capability".

When the RRC CONNECTION SETUP COMPLETE message has been submitted to lower layers for transmission the UE shall:

1> consider the procedure to be successful;

And the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.3.2, 8.1.3.3 and 8.1.3.6

8.1.2.1.3 Test purpose

1. To confirm that the UE leaves the Idle Mode and correctly establishes signalling radio bearers on the DCCH.
2. To confirm that the UE indicates the requested UE radio access capabilities and UE system specific capabilities (may be used by UTRAN e.g. to configure inter RAT- measurements).
3. To confirm that the UE does not include the IE "UE Specific Behaviour Information 1 idle" in the RRC CONNECTION REQUEST message.

8.1.2.1.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by attempting to make an outgoing call. After SS receives this message, it assigns the necessary radio resources and U-RNTI to be used by the UE. SS then transmits an RRC CONNECTION SETUP message containing an IE "Initial UE Identity" that does not match the IE "Initial UE Identity" in the most recent RRC CONNECTION REQUEST message sent by the UE. UE receives the RRC CONNECTION SETUP message before timer T300 expires but discards it due to an IE "Initial UE Identity" mismatch. UE shall wait for timer T300 to time out before re-transmitting a RRC CONNECTION REQUEST message to the SS. SS again assigns the necessary radio resources and U-RNTI. SS then transmits a RRC CONNECTION SETUP message containing an IE "Initial UE Identity" that matches the IE "Initial UE Identity" in the most recent RRC CONNECTION REQUEST sent by the UE. SS then waits for the UE to transmit an RRC CONNECTION SETUP COMPLETE message on the DCCH. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	→		RRC CONNECTION REQUEST	By outgoing call operation. See specific message contents.
2	←		RRC CONNECTION SETUP	This message is not addressed to the UE. See specific message contents.
3	→		RRC CONNECTION REQUEST	UE shall re-transmit the request message again after a time out of T300 from step 1.
3a				SS checks IE "UE Specific Behaviour Information 1 idle" is not included in received RRC CONNECTION REQUEST message.
4	←		RRC CONNECTION SETUP	See specific message contents.
5				The UE configures the layer 2 and layer 1.
6	→		RRC CONNECTION SETUP COMPLETE	See specific message contents.
7	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Content

System Information Block type 11 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- Intra-frequency reporting quantity for RACH Reporting	
- SFN-SFN observed time difference reporting indicator	No report
- CHOICE *mode*	
- FDD	
- Reporting quantity	CPICH Ec/N0
- Maximum number of reported cells on RACH	current cell

System Information Block type 11 (TDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- Intra-frequency reporting quantity for RACH Reporting	
- SFN-SFN observed time difference reporting indicator	No report
- CHOICE *mode*	TDD
- Reporting quantity list	
- Reporting quantity	P-CCPCH RSCP
- Maximum number of reported cells on RACH	current cell

RRC CONNECTION REQUEST (Step 1) (FDD)

Use the default message with the same message type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
UE Specific Behaviour Information 1 idle	Check if this IE is absent.
Measured results on RACH	Check to see if set in accordance with the IE "Intra-frequency reporting quantity for RACH Reporting" included in SYSTEM INFORMATION BLOCK Type 11
- Measurement result for current cell	
- CHOICE mode	
- FDD	
- CHOICE measurement quantity	
- CPICH Ec/N0	The actual reported value is not checked

RRC CONNECTION REQUEST (Step 1) (TDD)

Use the default message with the same message type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Measured results on RACH	Check to see if set in accordance with the IE "Intra-frequency reporting quantity for RACH Reporting" included in SYSTEM INFORMATION BLOCK Type 11
- Measurement result for current cell	
- CHOICE mode	TDD
- CHOICE measurement quantity	
- P-CCPCH RSCP	The actual reported value is not checked

RRC CONNECTION SETUP (Step 2)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Initial UE Identity	Set to unmatched identity (incorrect IMSI)

RRC CONNECTION SETUP (Step 4)

Use the default message with the same message type and covering the scenario used in this test (Transition to CELL_DCH) specified in clause 9 of TS 34.108.

RRC CONNECTION SETUP COMPLETE (Step 6)

Use the default message with the same message type specified in clause 9 of TS 34.108 with the following exception.

Information Element	Value/remark
UE Radio Access Capability	Checked to see if compatible with the stated capability in PIXIT/PICS statements.
UE radio access capability extension	Checked to see if compatible with the stated capability in PIXIT/PICS statements.
UE system specific Capability	Checked to see if compatible with the stated capability in PIXIT/PICS statements.

8.1.2.1.5 Test requirement

After step 2 the UE shall re-transmit the RRC CONNECTION REQUEST message again in order to continue the RRC connection establishment procedure.

After step 3 the SS shall check IE "UE Specific Behaviour Information 1 idle" isn't included in received RRC CONNECTION REQUEST message.

After step 6 the UE shall establish an RRC connection and continue the procedure of the outgoing call on the DCCH.

8.1.2.1a RRC Connection Establishment in CELL_DCH state: Success (TDD Only)

8.1.2.1a.1 Definition

The features and operation of Multi-frequency and UpPCH shifting have been introduced to core specification (TS25.331 clause 8.6.6.1, 8.6.6.26, and 8.6.6.43) for LCR TDD.

8.1.2.1a.2 Conformance requirement

The UE shall initiate the procedure when upper layers in the UE requests the establishment of a signalling connection and the UE is in idle mode (no RRC connection exists).

Upon initiation of the procedure, the UE shall:

…

1> set the contents of the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.3;

1> set CFN in relation to SFN of current cell according to TS 25.331 subclause 8.5.15;

1> perform the mapping of the Access Class to an Access Service Class as specified in TS 25.331 subclause 8.5.13, and apply the given Access Service Class when accessing the RACH;

1> submit the RRC CONNECTION REQUEST message for transmission on the uplink CCCH;

1> set counter V300 to 1; and

1> start timer T300 when the MAC layer indicates success or failure to transmit the message;

1> select a Secondary CCPCH according to TS 25.304;

1> start receiving all FACH transport channels mapped on the selected Secondary CCPCH.

….

The UE shall, in the transmitted RRC CONNECTION REQUEST message:

1> set the IE "Establishment cause" to the value of the variable ESTABLISHMENT_CAUSE;

1> set the IE "Initial UE identity" to the value of the variable INITIAL_UE_IDENTITY;

…

The UE shall not include the IE "UE Specific Behaviour Information 1 idle".

….

The UE shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP message with the value of the variable INITIAL_UE_IDENTITY.

If the values are different, the UE shall:

1> ignore the rest of the message.

If the values are identical, the UE shall:

1> stop timer T300, and act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified otherwise in the following:

2> if the UE, according to TS 25.331 subclause 8.6.3.3, will be in the CELL_FACH state at the conclusion of this procedure:

…

1> if the UE, according to TS 25.331 subclause 8.6.3.3, will be in the CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronization procedure A as specified in TS 25.214;

2> enter UTRA RRC connected mode, in a state according to TS 25.331 subclause 8.6.3.3;

1> submit an RRC CONNECTION SETUP COMPLETE message to the lower layers on the uplink DCCH after successful state transition per TS 25.331 subclause 8.6.3.3, with the contents set as specified below:

2> set the IE "RRC transaction identifier" to:

3> the value of "RRC transaction identifier" in the entry for the RRC CONNECTION SETUP message in the table "Accepted transactions" in the variable TRANSACTIONS; and

3> clear that entry.

…

2> retrieve its UTRA UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and then

2> include this in IE "UE radio access capability" and IE "UE radio access capability extension", provided this IE is included in variable UE_CAPABILITY_REQUESTED;

2> retrieve its inter-RAT-specific UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and then

2> include this in IE "UE system specific capability".

When the RRC CONNECTION SETUP COMPLETE message has been submitted to lower layers for transmission the UE shall:

1> consider the procedure to be successful;

And the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.3.2, 8.1.3.3, 8.1.3.6, 8.6.6.1and 8.6.6.43.

8.1.2.1a.3 Test purpose

1. To confirm that the UE leaves the Idle Mode and correctly establishes signalling radio bearers on the DCCH of secondary frequency according to the downlink message sent by the network.
2. To confirm that the UE indicates the requested UE radio access capabilities and UE system specific capabilities (may be used by UTRAN e.g. to configure inter RAT- measurements).
3. To confirm that the UE does not include the IE "UE Specific Behaviour Information 1 idle" in the RRC CONNECTION REQUEST message.

8.1.2.1a.4 Method of test

Initial Condition

System Simulator: 1 cell, 3 frequency (one is primary frequency, others are secondary frequency).

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

Power on the UE, UE shall initialize the access procedure after receiving all system messages (CS: Location Update procedure or PS: GPRS ATTACH procedure). UE shall send SYNC UL in the position according to the indication of Uppch in SIB3, SS return corresponding FPACH message after receiving SYNC UL to indicate UE to send physical layer parameters for RACH. Then, SS send CON_SETUP_REJ message after receive CON_SETUP_REQ from UE to notify UE to end this access procedure.

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by attempting to make an outgoing call. After SS receives this message, it assigns the necessary radio resources and U-RNTI to be used by the UE. SS then transmits an RRC CONNECTION SETUP message containing an IE "Initial UE Identity" that does not match the IE "Initial UE Identity" in the most recent RRC CONNECTION REQUEST message sent by the UE. UE receives the RRC CONNECTION SETUP message before timer T300 expires but discards it due to an IE "Initial UE Identity" mismatch. UE shall wait for timer T300 to time out before re-transmitting a RRC CONNECTION REQUEST message to the SS. SS again assigns the necessary radio resources and U-RNTI. SS then transmits a RRC CONNECTION SETUP message containing an IE "Initial UE Identity" that matches the IE "Initial UE Identity" in the most recent RRC CONNECTION REQUEST sent by the UE. SS then waits for the UE to transmit an RRC CONNECTION SETUP COMPLETE message on the DCCH. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	→		Sync UL code	UE shall send this message according to the indication of mapping-LCR in SIB3, otherwise SS will ignore this message.
2	←		FPACH message	SS indicate UE sent Layer1 messages needed by RACH.
13	→		RRC CONNECTION REQUEST	By outgoing call operation. See specific message contents.
24	←		RRC CONNECTION SETUP	This message is not addressed to the UE. See specific message contents.
35	→		RRC CONNECTION REQUEST	UE shall re-transmit the request message again after a time out of T300 from step 13.
3a				SS checks IE "UE Specific Behaviour Information 1 idle" is not included in received RRC CONNECTION REQUEST message.
46	←		RRC CONNECTION SETUP	See specific message contents.
57				The UE configures the layer 2 and layer 1.
68	→		RRC CONNECTION SETUP COMPLETE	See specific message contents.
79	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Content

System Information Block type 11 3 (FDD1.28Mbps TDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
-v4b0NonCriticalExtensions- Intra-frequency reporting quantity for RACH Reporting	
-sysInfoType3-v4b0ext - SFN-SFN observed time difference reporting indicator	No report
-mapping-LCR - CHOICE *mode*	22
- FDD	
- Reporting quantity	CPICH Ec/N0
- Maximum number of reported cells on RACH	current cell

System Information Block type 11 (TDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- Intra-frequency reporting quantity for RACH Reporting	
- SFN-SFN observed time difference reporting indicator	No report
- CHOICE *mode*	TDD
- Reporting quantity list	
- Reporting quantity	P-CCPCH RSCP
- Maximum number of reported cells on RACH	current cell

RRC CONNECTION REQUEST (Step 1) (FDD)

Use the default message with the same message type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
UE Specific Behaviour Information 1 idle	Check if this IE is absent.
Measured results on RACH	Check to see if set in accordance with the IE "Intra-frequency reporting quantity for RACH Reporting" included in SYSTEM INFORMATION BLOCK Type 11
- Measurement result for current cell	
- CHOICE mode	
- FDD	
- CHOICE measurement quantity	
- CPICH Ec/N0	The actual reported value is not checked

RRC CONNECTION REQUEST (Step 13) (TDD)

Use the default message with the same message type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Measured results on RACH	Check to see if set in accordance with the IE "Intra-frequency reporting quantity for RACH Reporting" included in SYSTEM INFORMATION BLOCK Type 11
- Measurement result for current cell	
- CHOICE mode	TDD
- CHOICE measurement quantity	
- P-CCPCH RSCP	The actual reported value is not checked

RRC CONNECTION SETUP (Step 24)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Initial UE Identity	Set to unmatched identity (incorrect IMSI)
Uplink DPCH info	
-Uplink Timing Advance Control	
-Frequency info	
-UpPCH position info	22

RRC CONNECTION SETUP (Step 6)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
RRCConnectionSetup-r4-TDD128-add-ext-IEs	
frequencyInfo	Secondary frequency
Uplink DPCH info	
-Uplink Timing Advance Control	
-UpPCH position info	22

RRC CONNECTION SETUP (Step 4)

Use the default message with the same message type and covering the scenario used in this test (Transition to CELL_DCH) specified in clause 9 of TS 34.108.

RRC CONNECTION SETUP COMPLETE (Step 68)

Use the default message with the same message type specified in clause 9 of TS 34.108 with the following exception.

Information Element	Value/remark
UE Radio Access Capability	Checked to see if compatible with the stated capability in PIXIT/PICS statements.
UE radio access capability extension	Checked to see if compatible with the stated capability in PIXIT/PICS statements.
UE system specific Capability	Checked to see if compatible with the stated capability in PIXIT/PICS statements.

8.1.2.1a.5 Test requirement

After step 2 4 the UE shall re-transmit the RRC CONNECTION REQUEST message again in order to continue the RRC connection establishment procedure.

After step 3 the SS shall check IE "UE Specific Behaviour Information 1 idle" isn't included in received RRC CONNECTION REQUEST message.

After step 6 the UE shall establish an RRC connection and continue the procedure of the outgoing call on the DCCH of secondary frequency.

8.1.2.2 RRC Connection Establishment: Success after T300 timeout

8.1.2.2.1 Definition

8.1.2.2.2 Conformance requirement

If the UE has not yet received an RRC CONNECTION SETUP message with the value of the IE "Initial UE identity" equal to the value of the variable INITIAL_UE_IDENTITY; and

if expiry of timer T300 occurs:

the UE shall:

1> check the value of V300; and

2> if V300 is equal to or smaller than N300:

3> set the IEs in the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.3;

3> submit a new RRC CONNECTION REQUEST message to lower layers for transmission on the uplink CCCH;

3> increment counter V300;

3> restart timer T300 when the MAC layer indicates success or failure to transmit the message.

2> if V300 is greater than N300:

…

Reference

3GPP TS 25.331 clause 8.1.3.5.

8.1.2.2.3 Test purpose

To confirm that the UE retries to establish the RRC connection until V300 is greater than N300 after the expiry of timer T300 when the SS transmits no response for an RRC CONNECTION REQUEST message.

8.1.2.2.4 Method of test

Initial Condition

System Simulator: 1 cell. SCCPCH configuration as specified in 6.1.0b of TS 34.108.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

NOTE: This test requires that N300 is bigger than 0, which is the case (see default contents of SIB 1, specified in TS 34.108). Expiry of timer T300 is verified only for N300 values exceeding 1.

Test Procedure

Before the test starts, SYSTEM INFORMATION BLOCK TYPE 1, SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis. and SYSTEM INFORMATION BLOCK TYPE 7 message are modified and this modification is notified to the UE. An internal counter K in SS is initialized to a value = 0. Following this, the UE shall transmit an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by use of selected PRACH from the available PRACH No.1 and PRACH No.2, after the operator attempts to make an outgoing call. SS ignores this message, increments K every time such a message is received and waits for T300 timer to expire. This cycle is repeated until K reaches N300. When K is equal to N300, the SS transmits an RRC CONNECTION SETUP message containing an IE "RRC state indicator" set to 'CELL_PCH' as specified in step 6 to the UE. The UE shall send another RRC CONNECTION REQUEST message on the uplink CCCH. SS replies with a valid RRC CONNECTION SETUP message. The UE shall then acknowledge the establishment of RRC connection by sending the RRC CONNECTION SETUP COMPLETE message on uplink DCCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PAGING TYPE 1	SS transmits the paging message which comprises IE "BCCH Modification Information", with the "Value Tag" different from the "MIB Value Tag" of the current Master Information Block. See specific message contents.
1a			Void	
1b	←		MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 1 SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis. SYSTEM INFORMATION BLOCK TYPE 7, SCHEDULING BLOCK 1	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the original setting. At the same time, SS starts to transmit the affected SIB TYPE 1 , SIB TYPE 5 / SIB TYPE 5bis and SIB 7messages. See specific message contents.
1c				SS waits 5s (to ensure that the UE has time to read the new system information)
2				SS initializes counter K to 0. Operator is asked to make an outgoing call and SS starts to wait for RRC CONNECTION REQUEST on uplink CCCH.
3	→		RRC CONNECTION REQUEST	See the clause 9 in TS 34.108 on default message content
4				SS increments K.
5				SS checks to see if K is equal to N300. If so, goes to step 6. Else, continues to execute step 3.
6	←		RRC CONNECTION SETUP	IE “RRC state indicator” is set to ‘CELL_PCH’.
7	→		RRC CONNECTION REQUEST	See specific message contents.
8	←		RRC CONNECTION SETUP	This is a legal message. See the clause 9 in TS 34.108 on default message content for RRC.
9				The UE configures the layer 1 and layer 2.
10	→		RRC CONNECTION SETUP COMPLETE	See clause 9 in TS 34.108 on default message content

Specific Message Contents

PAGING TYPE 1 (Step 1)

Information Element	Value/remark
Message Type	
Paging record list	Not present
BCCH modification info	
- MIB Value Tag	Set to (Current MIB value tag + 1)
- BCCH Modification time	Not Present

MASTER INFORMATION BLOCK (Step 1b)

Information Element	Value/remark
MIB Value tag	As in PAGING TYPE 1 in step 1
SIB 1 Cell Value tag	Set to (Current SIB1 value tag + 1)
SIB 5 Cell Value tag	Set to (Current SIB5 value tag + 1)
SB 1 Cell Value tag	Set to (Current SB1 value tag + 1)

SCHEDULING BLOCK 1(Step 1b)

Information Element	Value/remark
SIB 6 Cell Value tag	Set to (Current SIB 6 value tag + 1)

SYSTEM INFORMATION TYPE 1 (Step 1b)

Use the default parameter values for the system information block with the same type specified in clause 6.1.0b of TS 34.108, with the following exceptions:

- UE Timers and constants in idle mode	
-T300	2000 milliseconds
-N300	3
-T312	10 seconds
- N312	1

SYSTEM INFORMATION TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis (Step 1b) - (FDD)

Use the default parameter values for the system information block with the same type specified in clause 6.1.0b of TS 34.108, with the following exceptions:

Information Element	Value/remark
- SIB6 indicator	FALSE
- PICH Power offset	-5 dB
- CHOICE Mode	FDD
- AICH Power offset	-5 dB
- Primary CCPCH info	Not present
- PRACH system information list	
- PRACH system information	2PRACHs
- PRACH info (PRACH No.1)	
- CHOICE mode	FDD
- Available Signature	'0000 0000 1111 1111'B
- Available SF	64
- Preamble scrambling code number	0
- Puncturing Limit	1.00
- Available Sub Channel number	'1111 1111 1111'B
- Transport Channel Identity	15
- RACH TFS	
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC size	168
- Number of TB and TTI List	
- Number of Transport blocks	1
- CHOICE Mode	FDD
- CHOICE Logical Channel List	Configured
- RLC size	360
- Number of TB and TTI List	
- Number of Transport blocks	1
- CHOICE Mode	FDD
- CHOICE Logical Channel List	Configured
- Semi-static Transport Format information	
- Transmission time interval	20 ms
- Type of channel coding	Convolutional
- Coding Rate	1/2
- Rate matching attribute	150
- CRC size	16
- RACH TFCS	
- Normal	
- TFCI Field 1 information	
- CHOICE TFCS representation	Complete reconfiguration
- TFCS addition information	
- CHOICE CTFC Size	2 bit
- CTFC information	0
- Power offset information	
- CHOICE Gain Factors	Computed Gain Factor
- Reference TFC ID	0
- CHOICE Mode	FDD
- Power offset Pp-m	0dB
- CTFC information	1
- Power offset information	
- CHOICE Gain Factors	Signalled Gain Factor
- Gain factor ßc	11
- Gain factor ßd	15
- Reference TFC ID	0
- CHOICE Mode	FDD
- Power offset Pp-m	0dB
- PRACH partitioning	
- Access Service Class	
- ASC Setting	Not Present
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#1)
- Available signature End Index	7 (ASC#1)
- Assigned Sub-Channel Number	'1111'B

Information Element	Value/remark
	The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number.
- ASC Setting	Not Present
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#3)
- Available signature End Index	7 (ASC#3)
- Assigned Sub-Channel Number	'1111'B
	The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number.
- ASC Setting	Not Present
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#5)
- Available signature End Index	7 (ASC#5)
- Assigned Sub-Channel Number	'1111'B
	The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number.
- ASC Setting	Not Present
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#7)
- Available signature End Index	7 (ASC#7)
- Assigned Sub-Channel Number	'1111'B
	The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number.
- Persistence scaling factor	
- Persistence scaling factor	0.9 (for ASC#2)
- Persistence scaling factor	0.9 (for ASC#3)
- Persistence scaling factor	0.9 (for ASC#4)
- Persistence scaling factor	0.9 (for ASC#5)
- Persistence scaling factor	0.9 (for ASC#6)
- Persistence scaling factor	0.9 (for ASC#7)
- AC-to-ASC mapping table	
- AC-to-ASC mapping	6 (AC0-9)
- AC-to-ASC mapping	5 (AC10)
- AC-to-ASC mapping	4 (AC11)
- AC-to-ASC mapping	3 (AC12)
- AC-to-ASC mapping	2 (AC13)
- AC-to-ASC mapping	1 (AC14)
- AC-to-ASC mapping	0 (AC15)
CHOICE mode	FDD
- Primary CPICH DL TX power	31
- Constant value	–10
- PRACH power offset	
- Power Ramp Step	3dB
- Preamble Retrans Max	4
- RACH transmission parameters	
- Mmax	2
- NB01min	3 slot
- NB01max	10 slot
- AICH info	
- Channelisation code	3
- STTD indicator	FALSE
- AICH transmission timing	0
- PRACH info (PRACH No.2)	
- CHOICE mode	FDD
- Available Signature	'0000 0000 1111 1111'B
- Available SF	64
- Preamble scrambling code number	1
- Puncturing Limit	1.00
- Available Sub Channel number	'1111 1111 1111'B
- Transport Channel Identity	31
- RACH TFS	
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC size	168

Information Element	Value/remark
- Number of TB and TTI List	
- Number of Transport blocks	1
- CHOICE Mode	FDD
- CHOICE Logical Channel List	Configured
- RLC size	360
- Number of TB and TTI List	
- Number of Transport blocks	1
- CHOICE Mode	FDD
- CHOICE Logical Channel List	Configured
- Semi-static Transport Format information	
- Transmission time interval	20 ms
- Type of channel coding	Convolutional
- Coding Rate	1/2
- Rate matching attribute	150
- CRC size	16
- RACH TFCS	
- Normal	
- TFCI Field 1 information	
- CHOICE TFCS representation	Complete reconfiguration
- TFCS addition information	
- CHOICE CTFC Size	2 bit
- CTFC information	0
- Power offset information	
- CHOICE Gain Factors	Computed Gain Factor
- Reference TFC ID	0
- CHOICE Mode	FDD
- Power offset Pp-m	0 dB
- CTFC information	1
- Reference TFC ID	0
- Power offset information	
- CHOICE Gain Factors	Signalled Gain Factor
- Gain factor ßc	11
- Gain factor ßd	15
- Reference TFC ID	0
- CHOICE Mode	FDD
- Power offset Pp-m	0dB
- PRACH partitioning	
- Access Service Class	
- ASC Setting	Not Present
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#1)
- Available signature End Index	7 (ASC#1)
- Assigned Sub-Channel Number	'1111'B The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number.
- ASC Setting	Not Present
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#3)
- Available signature End Index	7 (ASC#3)
- Assigned Sub-Channel Number	'1111'B The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number.
- ASC Setting	Not Present
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#5)
- Available signature End Index	7 (ASC#5)
- Assigned Sub-Channel Number	'1111'B The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number.
- ASC Setting	Not Present
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#7)
- Available signature End Index	7 (ASC#7)

Information Element	Value/remark
- Assigned Sub-Channel Number	'1111'B The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number.
- Persistence scaling factor	
- Persistence scaling factor	0.9 (for ASC#2)
- Persistence scaling factor	0.9 (for ASC#3)
- Persistence scaling factor	0.9 (for ASC#4)
- Persistence scaling factor	0.9 (for ASC#5)
- Persistence scaling factor	0.9 (for ASC#6)
- Persistence scaling factor	0.9 (for ASC#7)
- AC-to-ASC mapping table	
- AC-to-ASC mapping	6 (AC0-9)
- AC-to-ASC mapping	5 (AC10)
- AC-to-ASC mapping	4 (AC11)
- AC-to-ASC mapping	3 (AC12)
- AC-to-ASC mapping	2 (AC13)
- AC-to-ASC mapping	1 (AC14)
- AC-to-ASC mapping	0 (AC15)
CHOICE mode	FDD
- Primary CPICH DL TX power	31
- Constant value	–10
- PRACH power offset	
- Power Ramp Step	3dB
- Preamble Retrans Max	4
- RACH transmission parameters	
- Mmax	2
- NB01min	3 slot
- NB01max	10 slot
- AICH info	
- Channelisation code	13
- STTD indicator	FALSE
- AICH transmission timing	0

SYSTEM INFORMATION TYPE 5 (Step 1b) – 3.84 Mcps TDD

Use the default parameter values for the system information block with the same type specified in clause 6.1.0b of TS 34.108, with the following exceptions:

Information Element	Value/remark
- PRACH system information	2PRACHs
- PRACH info (PRACH No.1)	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Timeslot Number	14
- PRACH Channelisation Code	
- CHOICE SF	8
- Channelisation Code List	
- Channelisation Code	8/1
- Channelisation Code	8/2
- Channelisation Code	8/3
- Channelisation Code	8/4
- PRACH Midamble	Direct
-PNBSCH allocation	Not Present
- Transport Channel Identity	15
- RACH TFS	
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC size	168
- Number of TB and TTI List	
- Transport Time Interval	Not Present
- Number of Transport Blocks	1
- CHOICE Logical Channel List	ALL
- Semi-static Transport Format information	
- Transmission time interval	10 ms
- Type of channel coding	Convolutional
- Coding Rate	1/2
- Rate matching attribute	150
- CRC size	16
- RACH TFCS	Not Present
- PRACH partitioning	
- Access Service Class	
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'11110000'B (ASC#0)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'11110000'B (ASC#1)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'11110000'B (ASC#2)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'11110000'B (ASC#3)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'11110000'B (ASC#4)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'11110000'B (ASC#5)
- CHOICE subchannel size	Size1

Information Element	Value/remark
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'11110000'B (ASC#6)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'11110000'B (ASC#7)
- CHOICE subchannel size	Size1
- Persistence scaling factor	
- Persistence scaling factor	0.9 (for ASC#2)
- Persistence scaling factor	0.9 (for ASC#3)
- Persistence scaling factor	0.9 (for ASC#4)
- Persistence scaling factor	0.9 (for ASC#5)
- Persistence scaling factor	0.9 (for ASC#6)
- Persistence scaling factor	0.9 (for ASC#7)
- AC-to-ASC mapping table	
- AC-to-ASC mapping	6 (AC0-9)
- AC-to-ASC mapping	5 (AC10)
- AC-to-ASC mapping	4 (AC11)
- AC-to-ASC mapping	3 (AC12)
- AC-to-ASC mapping	2 (AC13)
- AC-to-ASC mapping	1 (AC14)
- AC-to-ASC mapping	0 (AC15)
- CHOICE mode	TDD
- PRACH info (PRACH No.2)	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Timeslot Number	14
- PRACH Channelisation Code	
- CHOICE SF	8
- Channelisation Code List	
- Channelisation Code	8/5 where i denotes an unassigned code
- Channelisation Code	8/6 where i denotes an unassigned code
- Channelisation Code	8/7 where i denotes an unassigned code
- Channelisation Code	8/8 where i denotes an unassigned code
- PRACH Midamble	Direct
-PNBSCH allocation	Not Present
- RACH TFS	
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC size	168
- Number of TB and TTI List	
- Transport Time Interval	Not Present
- Number of Transport Blocks	1
- CHOICE Logical Channel List	ALL
- Semi-static Transport Format information	
- Transmission time interval	10 ms
- Type of channel coding	Convolutional
- Coding Rate	1/2
- Rate matching attribute	150
- CRC size	16
- RACH TFCS	Not Present
- PRACH partitioning	
- Access Service Class	
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#0)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#1)
- CHOICE subchannel size	Size1
- ASC Setting	

Information Element	Value/remark
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#2)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#3)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#4)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#5)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#6)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#7)
- CHOICE subchannel size	Size1
- Persistence scaling factor	
- Persistence scaling factor	0.9 (for ASC#2)
- Persistence scaling factor	0.9 (for ASC#3)
- Persistence scaling factor	0.9 (for ASC#4)
- Persistence scaling factor	0.9 (for ASC#5)
- Persistence scaling factor	0.9 (for ASC#6)
- Persistence scaling factor	0.9 (for ASC#7)
- AC-to-ASC mapping table	
- AC-to-ASC mapping	6 (AC0-9)
- AC-to-ASC mapping	5 (AC10)
- AC-to-ASC mapping	4 (AC11)
- AC-to-ASC mapping	3 (AC12)
- AC-to-ASC mapping	2 (AC13)
- AC-to-ASC mapping	1 (AC14)
- AC-to-ASC mapping	0 (AC15)
- CHOICE mode	TDD

SYSTEM INFORMATION TYPE 5 (Step 1b) – 1.28 Mcps TDD

Use the default parameter values for the system information block with the same type specified in clause 6.1.0b of TS 34.108, with the following exceptions:

Information Element	Value/remark
- PRACH system information	2PRACHs
- PRACH info (PRACH No.1)	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- SYNC_UL info	
- SYNC_UL codes bitmap	'11110000'B
- $PRX_{UpPCHdes}$	10
- Power Ramping Step	3
- Max SYNC_UL Transmissions	8
- Mmax	32
- PRACH Definition	
- Timeslot Number	
- CHOICE TDD option	1.28 Mcps TDD
- Timeslot number	1
- PRACH Channelisation Code	
- Channelisation Code List	
- Channelisation Code	8/8
- Midamble shift and burst type	
- CHOICE TDD option	1.28 Mcps TDD
- Midamble Allocation Mode	Default
- Midamble Configuration	8
- Midamble Shift	Not Present
- FPACH info	
- Timeslot number	0
- Channelisation code	16/15
- Midamble Shift and burst type	
- CHOICE TDD option	1.28 Mcps TDD
- Midamble Allocation Mode	Default
- Midamble Configuration	8
- Midamble Shift	Not Present
- WT	4
- PNBSCH allocation	Not Present
- Transport Channel Identity	15
- RACH TFS	
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC size	170
- Number of TB and TTI List	
- Transport Time Interval	Not Present
- Number of Transport Blocks	1
- CHOICE Logical Channel List	ALL
- Semi-static Transport Format information	
- Transmission time interval	10 ms
- Type of channel coding	Convolutional
- Coding Rate	½
- Rate matching attribute	150
- CRC size	16
- RACH TFCS	Not Present
- PRACH partitioning	
- Access Service Class	
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#0)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#1)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD

Information Element	Value/remark
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#2)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#3)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#4)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#5)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#6)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#7)
- CHOICE subchannel size	Size1
- Persistence scaling factor	
- Persistence scaling factor	0.9 (for ASC#2)
- Persistence scaling factor	0.9 (for ASC#3)
- Persistence scaling factor	0.9 (for ASC#4)
- Persistence scaling factor	0.9 (for ASC#5)
- Persistence scaling factor	0.9 (for ASC#6)
- Persistence scaling factor	0.9 (for ASC#7)
- AC-to-ASC mapping table	
- AC-to-ASC mapping	6 (AC0-9)
- AC-to-ASC mapping	5 (AC10)
- AC-to-ASC mapping	4 (AC11)
- AC-to-ASC mapping	3 (AC12)
- AC-to-ASC mapping	2 (AC13)
- AC-to-ASC mapping	1 (AC14)
- AC-to-ASC mapping	0 (AC15)
- CHOICE mode	TDD
- PRACH info (PRACH No.2)	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- SYNC_UL info	
- SYNC_UL codes bitmap	'00001111'B
- $PRX_{UpPCHdes}$	10
- Power Ramping Step	1
- Max SYNC_UL Transmissions	8
- Mmax	32
- PRACH Definition	
- Timeslot Number	
- CHOICE TDD option	1.28 Mcps TDD
- Timeslot number	1
- PRACH Channelisation Code	
- Channelisation Code List	
- Channelisation Code	8/7
- Midamble shift and burst type	
- CHOICE TDD option	1.28 Mcps TDD
- Midamble Allocation Mode	Default
- Midamble Configuration	8
- Midamble Shift	Not Present
- FPACH info	
- Timeslot number	An available down-link timeslot

Information Element	Value/remark
- Channelisation code	16/16
- Midamble Shift and burst type	
- CHOICE TDD option	1.28 Mcps TDD
- Midamble Allocation Mode	Default
- Midamble Configuration	8
- Midamble Shift	Not Present
- WT	4
- PNBSCH allocation	Not Present
- RACH TFS	
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC size	170
- Number of TB and TTI List	
- Transport Time Interval	Not Present
- Number of Transport Blocks	1
- CHOICE Logical Channel List	ALL
- Semi-static Transport Format information	
- Transmission time interval	10 ms
- Type of channel coding	Convolutional
- Coding Rate	½
- Rate matching attribute	150
- CRC size	16
- RACH TFCS	Not Present
- PRACH partitioning	
- Access Service Class	
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#0)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#1)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#2)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#3)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#4)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#5)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#6)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#7)
- CHOICE subchannel size	Size1
- Persistence scaling factor	
- Persistence scaling factor	0.9 (for ASC#2)

Information Element	Value/remark
- Persistence scaling factor	0.9 (for ASC#3)
- Persistence scaling factor	0.9 (for ASC#4)
- Persistence scaling factor	0.9 (for ASC#5)
- Persistence scaling factor	0.9 (for ASC#6)
- Persistence scaling factor	0.9 (for ASC#7)
- AC-to-ASC mapping table	
- AC-to-ASC mapping	6 (AC0-9)
- AC-to-ASC mapping	5 (AC10)
- AC-to-ASC mapping	4 (AC11)
- AC-to-ASC mapping	3 (AC12)
- AC-to-ASC mapping	2 (AC13)
- AC-to-ASC mapping	1 (AC14)
- AC-to-ASC mapping	0 (AC15)
- CHOICE mode	TDD

SYSTEM INFORMATION TYPE 5 (Step 1b) – 3.84 Mcps TDD

Use the default parameter values for the system information block with the same type specified in clause 6.1.0b of TS 34.108, with the following exceptions:

Information Element	Value/remark
- PRACH system information	2PRACHs
- PRACH info (PRACH No.1)	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Timeslot Number	14
- PRACH Channelisation Code list VHCR	
- CHOICE SF	16
- Channelisation Code List	
- Channelisation Code	16/1
- Channelisation Code	16/2
- Channelisation Code	16/3
- Channelisation Code	16/4
- PRACH Midamble	Direct
-PNBSCH allocation	Not Present
- Transport Channel Identity	15
- RACH TFS	
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC size	168
- Number of TB and TTI List	
- Transport Time Interval	Not Present
- Number of Transport Blocks	1
- CHOICE Logical Channel List	ALL
- Semi-static Transport Format information	
- Transmission time interval	10 ms
- Type of channel coding	Convolutional
- Coding Rate	1/2
- Rate matching attribute	150
- CRC size	16
- RACH TFCS	Not Present
- PRACH partitioning	
- Access Service Class	
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Available SYNC_UL codes indices	'1111000000000000'B (ASC#0)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Available SYNC_UL codes indices	'1111000000000000'B (ASC#1)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Available SYNC_UL codes indices	'1111000000000000'B (ASC#2)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Available SYNC_UL codes indices	'1111000000000000'B (ASC#3)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Available SYNC_UL codes indices	'1111000000000000'B (ASC#4)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Available SYNC_UL codes indices	'1111000000000000'B (ASC#5)
- CHOICE subchannel size	Size1

Information Element	Value/remark
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Available SYNC_UL codes indices	'1111000000000000'B (ASC#6)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Available SYNC_UL codes indices	'1111000000000000'B (ASC#7)
- CHOICE subchannel size	Size1
- Persistence scaling factor	
- Persistence scaling factor	0.9 (for ASC#2)
- Persistence scaling factor	0.9 (for ASC#3)
- Persistence scaling factor	0.9 (for ASC#4)
- Persistence scaling factor	0.9 (for ASC#5)
- Persistence scaling factor	0.9 (for ASC#6)
- Persistence scaling factor	0.9 (for ASC#7)
- AC-to-ASC mapping table	
- AC-to-ASC mapping	6 (AC0-9)
- AC-to-ASC mapping	5 (AC10)
- AC-to-ASC mapping	4 (AC11)
- AC-to-ASC mapping	3 (AC12)
- AC-to-ASC mapping	2 (AC13)
- AC-to-ASC mapping	1 (AC14)
- AC-to-ASC mapping	0 (AC15)
- CHOICE mode	TDD
- PRACH info (PRACH No.2)	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Timeslot Number	14
- PRACH Channelisation Code list VHCR	
- CHOICE SF	16
- Channelisation Code List	
- Channelisation Code	16/5 where i denotes an unassigned code
- Channelisation Code	16/6 where i denotes an unassigned code
- Channelisation Code	16/7 where i denotes an unassigned code
- Channelisation Code	16/8 where i denotes an unassigned code
- PRACH Midamble	Direct
-PNBSCH allocation	Not Present
- RACH TFS	
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC size	168
- Number of TB and TTI List	
- Transport Time Interval	Not Present
- Number of Transport Blocks	1
- CHOICE Logical Channel List	ALL
- Semi-static Transport Format information	
- Transmission time interval	10 ms
- Type of channel coding	Convolutional
- Coding Rate	1/2
- Rate matching attribute	150
- CRC size	16
- RACH TFCS	Not Present
- PRACH partitioning	
- Access Service Class	
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Available SYNC_UL codes indices	'0000111100000000'B (ASC#0)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Available SYNC_UL codes indices	'0000111100000000'B (ASC#1)
- CHOICE subchannel size	Size1
- ASC Setting	

Information Element	Value/remark
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Available SYNC_UL codes indices	'0000111100000000'B (ASC#2)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Available SYNC_UL codes indices	'0000111100000000'B (ASC#3)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Available SYNC_UL codes indices	'0000111100000000'B (ASC#4)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Available SYNC_UL codes indices	'0000111100000000'B (ASC#5)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Available SYNC_UL codes indices	'0000111100000000'B (ASC#6)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Available SYNC_UL codes indices	'0000111100000000'B (ASC#7)
- CHOICE subchannel size	Size1
- Persistence scaling factor	
- Persistence scaling factor	0.9 (for ASC#2)
- Persistence scaling factor	0.9 (for ASC#3)
- Persistence scaling factor	0.9 (for ASC#4)
- Persistence scaling factor	0.9 (for ASC#5)
- Persistence scaling factor	0.9 (for ASC#6)
- Persistence scaling factor	0.9 (for ASC#7)
- AC-to-ASC mapping table	
- AC-to-ASC mapping	6 (AC0-9)
- AC-to-ASC mapping	5 (AC10)
- AC-to-ASC mapping	4 (AC11)
- AC-to-ASC mapping	3 (AC12)
- AC-to-ASC mapping	2 (AC13)
- AC-to-ASC mapping	1 (AC14)
- AC-to-ASC mapping	0 (AC15)
- CHOICE mode	TDD

Contents of System Information Block type 7 (FDD) – (Step 1b)

Use the default parameter values for the system information block with the same type specified in clause 6.1.0b of TS 34.108, with the following exceptions:

- PRACHs listed in system information block type5 / system information block type 5bis	
- Dynamic persistence level	(2,2)
- PRACHs listed in system information block type6	Not present

RRC CONNECTION SETUP (Step 6)

SS sends a message containing an invalid RRC State Indicator

Information Element	Value/remark
RRC state indicator	CELL_PCH

RRC CONNECTION REQUEST (Step 7)

Use the default message with the same message type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Protocol Error Indicator	Check to see if set to TRUE

8.1.2.2.5 Test requirement

After step 2 the UE shall select either PRACH No.1 or PRACH No.2 and transmit an RRC CONNECTION REQUEST message.

After step 6 the UE shall re-send another RRC CONNECTION REQUEST message.

After step 9 the UE shall transmit an RRC CONNECTION SETUP COMPLETE message and establish an RRC connection on the DCCH logical channel.

8.1.2.3 RRC Connection Establishment: Failure (V300 is greater than N300)

8.1.2.3.1 Definition

8.1.2.3.2 Conformance requirement

The UE shall initiate the procedure when upper layers in the UE requests the establishment of a signalling connection and the UE is in idle mode (no RRC connection exists).

Upon initiation of the procedure, the UE shall:

1> set the IE "Initial UE identity" in the variable INITIAL_UE_IDENTITY according to TS 25.331 subclause 8.5.1;

1> submit the RRC CONNECTION REQUEST message for transmission on the uplink CCCH;

1> set counter V300 to 1; and

1> start timer T300 when the MAC layer indicates success or failure to transmit the message;

1> select a Secondary CCPCH according to TS 25.304;

1> start receiving all FACH transport channels mapped on the selected Secondary CCPCH.

The UE shall, in the transmitted RRC CONNECTION REQUEST message:

1> set the IE "Initial UE identity" to the value of the variable INITIAL_UE_IDENTITY;

…

1> if the UE has not yet received an RRC CONNECTION SETUP message with the value of the IE "Initial UE identity" equal to the value of the variable INITIAL_UE_IDENTITY; and

1> if cell re-selection or expiry of timer T300 occurs:

the UE shall:

1> check the value of V300; and

2> if V300 is equal to or smaller than N300:

…

3> set the IEs in the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.3;

…

3> submit a new RRC CONNECTION REQUEST message to lower layers for transmission on the uplink CCCH;

3> increment counter V300;

3> restart timer T300 when the MAC layer indicates success or failure to transmit the message.

…

2> if V300 is greater than N300:

3> enter idle mode.

3> consider the procedure to be unsuccessful;

3> Other actions the UE shall perform when entering idle mode from connected mode are specified in TS 25.331 subclause 8.5.2;

3> the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.3.

8.1.2.3.3 Test purpose

To confirm that the UE stops retrying to establish the RRC connection if V300 is greater than N300 and goes back to idle mode.

8.1.2.3.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE. A Class A UE in manual mode will execute this test case on the CS domain.

Specific Message Contents

SYSTEM INFORMATION TYPE 1

Use the default parameter values for the system information block with the same type specified in clause 6.1.0b of TS 34.108, with the following exceptions.

- UE Timers and constants in idle mode	
-T300	2000 milliseconds

Test Procedure

Before the test starts, SS initializes an internal counter K to 0. The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by an outgoing call operation. SS shall not respond to any RRC CONNECTION REQUEST message, instead the counter K is increased by 1 every time such a message is received. To arrive at the verdict, the SS checks that a total of (N300+1) such messages are received. SS calls for generic procedure C.1 to check that UE is in Idle Mode state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				SS initializes counter K to 0 and then prompts the operator to make an outgoing call.
2	→		RRC CONNECTION REQUEST	
3				SS increments K by 1.
4				If K is greater than N300, goes to step 5 else proceed to step 2.
5				SS monitor the uplink CCCH for a time period enough for UE to go back to idle state. SS waits for 5s.
6	←→		CALL C.1	If the test result of C.1 indicates that UE is in Idle Mode state, the test passes, otherwise it fails.

Specific Message Contents

None

8.1.2.3.5 Test requirement

After step 5, counter K shall be equal to (N300+1) and there shall be no uplink transmission in the monitoring period specified in step 5.

8.1.2.4 RRC Connection Establishment: Reject ("wait time" is not equal to 0)

8.1.2.4.1 Definition

8.1.2.4.2 Conformance requirement

When the UE receives an RRC CONNECTION REJECT message on the downlink CCCH, it shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION REJECT message with the value of the variable INITIAL_UE_IDENTITY:

If the values are different, the UE shall ignore the rest of the message;

If the values are identical, the UE shall stop timer T300 and:

1> if the IE "wait time" <> '0'; and

1> if the IE "frequency info" is present and:

2> if V300 is equal to or smaller than N300:

3> initiate cell selection on the designated UTRA carrier;

3> after having selected and camped on a cell:

4> set CFN in relation to SFN of current cell according to TS 25.331 subclause 8.5.15;

4> set the contents of the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.3;

4> perform the mapping of the Access Class to an Access Service Class as specified in TS 25.331 subclause 8.5.13, and apply the given Access Service Class when accessing the RACH;

4> transmit an RRC CONNECTION REQUEST message on the uplink CCCH;

4> reset counter V300;

4> start timer T300 when the MAC layer indicates success or failure in transmitting the message;

4> disable cell reselection to original carrier until the time stated in the IE "wait time" has elapsed;

3> if a cell selection on the designated carrier fails:

4> wait for the time stated in the IE "wait time";

4> set CFN in relation to SFN of current cell according to TS 25.331 subclause 8.5.15;

4> set the IEs in the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.3;

4> perform the mapping of the Access Class to an Access Service Class as specified in TS 25.331 subclause 8.5.13, and apply the given Access Service Class when accessing the RACH;

4> then submit a new RRC CONNECTION REQUEST message to the lower layers for transmission on the uplink CCCH of the original serving cell;

4> increment counter V300;

4> restart timer T300 when the MAC layer indicates success or failure to transmit the message;

2> if V300 is greater than N300:

3> enter idle mode;

3> perform the actions specified in TS 25.331 subclause 8.5.2 when entering idle mode from connected mode;

3> consider the RRC establishment procedure to be unsuccessful;

3> the procedure ends.

…

1> If the IEs "frequency info" not present……:

2> if V300 is equal to or smaller than N300:

3> wait at least the time stated in the IE "wait time";

3> set the IEs in the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.2;

3> perform the mapping of the Access Class to an Access Service Class as specified in TS 25.331 subclause 8.5.13, and apply the given Access Service Class when accessing the RACH;

3> submit a new RRC CONNECTION REQUEST message to the lower layers for transmission on the uplink CCCH;

3> increment counter V300;

3> restart timer T300 when the MAC layer indicates success or failure to transmit the message;

2> if V300 is greater than N300:

3> enter idle mode;

3> perform the actions specified in TS 25.331 subclause 8.5.2 when entering idle mode from connected mode;

3> consider the RRC establishment procedure to be unsuccessful;

3> the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.3.9.

8.1.2.4.3 Test purpose

To confirm that the UE retries to establish the RRC connection after the "wait time" elapses, if the UE receives an RRC CONNECTION REJECT message which includes the IE "wait time" not set to 0.

To confirm that the UE performs a cell reselection when receiving an RRC CONNECTION REJECT message, containing relevant frequency information of the target cell to be re-selected.

8.1.2.4.4 Method of test

Initial Condition

System Simulator: 2 cells – both cell 1 and cell 4 are active and suitable for camping, but cell 1 is transmitted using a larger power. Cell 1 and cell 4 are being transmitted from different 2 UARFCNs. The transmission power of cell 4 is 12 dB smaller than cell 1.

Table 8.1.2.4

Parameter	Unit	Cell 1	Cell 4
UTRA RF Channel Number		Mid Range Test Frequency	High Range Test Frequency
CPICH Ec (FDD)	dBm/3.84 MHz	-60	-72
P-CCPCH (TDD)	dBm	-60	-72

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by an outgoing call operation in cell 1. SS rejects the first request by transmitting an RRC CONNECTION REJECT message which indicates a non-zero wait time. In this message, frequency information for cell 4 is available. SS then waits for RRC CONNECTION REQUEST message on the uplink CCCH of cell 4. SS will also monitor the uplink of cell 1 simultaneously to ensure that all transmission activities from cell 1 have ceased. When the UE has successfully camp onto cell 4, it shall send an RRC CONNECTION REQUEST with the same establishment cause as its previous attempt in cell 1. SS responds with an RRC CONNECTION REJECT message, indicating a non-zero "wait time" and omitting the IE "Redirection Info". The UE shall observe the wait time period indicated. After the wait time has elapsed, the UE shall re-transmit RRC CONNECTION REQUEST again. Finally, SS transmits an RRC CONNECTION SETUP message to establish an RRC connection with the UE, and the UE replies with an RRC CONNECTION SETUP COMPLETE message and enters CELL_DCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	→		RRC CONNECTION REQUEST	SS prompts the operator to make an outgoing call in cell 1.
2	←		RRC CONNECTION REJECT	This message shall includes the IE "wait time" set to 5 seconds and IE "frequency info" set to the UARFCN of cell 4. Note: this wait time would apply after failure of the inter frequency cell re-selection, which is not verified in this test case
3				SS waits for a period of time sufficient for UE to reselect to cell 4. At the same time, it monitors the uplink of cell 1 to make sure that all transmissions have ceased.
4	→		RRC CONNECTION REQUEST	UE shall attempt to re-start an RRC connection establishment procedure in cell 4. The establishment cause shall remain unchanged.
5	←		RRC CONNECTION REJECT	This message shall include the IE "wait time" set to 5 seconds, but with IE "Redirection Info" absent.
6	→		RRC CONNECTION REQUEST	SS waits until the duration specified in IE "wait time" has elapsed and then listens to the uplink CCCH for a second RRC CONNECTION REQUEST message.
7	←		RRC CONNECTION SETUP	SS sends the message to UE to setup an RRC connection with the UE.
8				The UE shall configure the layer 2 and layer 1 in order to access the uplink and downlink DCCH assigned.
9	→		RRC CONNECTION SETUP COMPLETE	

Specific Message Contents

RRC CONNECTION REQUEST (Step 1, step 4 and step 6)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Initial UE Identity	Same as the IMSI stored in the TEST USIM card, or the registered TMSI or P-TMSI
Establishment Cause	Must be "Originating Call"

RRC CONNECTION REJECT (Step 2) - FDD

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Wait time	5 seconds
Redirection Info	
- Frequency Info	
- CHOICE mode	FDD
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink (Nd)	Set to the UARFCN for downlink carrier of cell 4

RRC CONNECTION REJECT (Step 2) – TDD

Information Element	Value/remark
Wait time	5 seconds
Redirection Info	
Frequency Info	
CHOICE Mode	TDD
UARFCN (Nt)	Set to a different UARFCN from the carrier of cell 1

RRC CONNECTION REJECT (Step 5)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Wait time	5 seconds

8.1.2.4.5 Test requirement

After step 3 the UE shall have successfully re-selected to cell 4. UE shall trigger the start of RRC connection establishment by transmitting RRC CONNECTION REQUEST. The establishment cause shall be originating call.

After step 5 the UE shall observe the period specified in IE "wait time" of the RRC CONNECTION REJECT message and not transmit an RRC CONNECTION REQUEST message in this period.

After step 7 the UE shall transmit an RRC CONNECTION SETUP COMPLETE message to SS on uplink DCCH and then establish an RRC connection.

8.1.2.5 RRC Connection Establishment: Reject ("wait time" is not equal to 0 and V300 is greater than N300)

8.1.2.5.1 Definition

8.1.2.5.2 Conformance requirement

When the UE receives an RRC CONNECTION REJECT message on the downlink CCCH, it shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION REJECT message with the value of the variable INITIAL_UE_IDENTITY:

If the values are different, the UE shall ignore the rest of the message;

If the values are identical, the UE shall stop timer T300 and:

1> if the IE "wait time" <> '0'; and

1> if the IE "frequency info" is present and:

2> if V300 is equal to or smaller than N300:

3> initiate cell selection on the designated UTRA carrier;

3> after having selected and camped on a cell:

4> set CFN in relation to SFN of current cell according to TS 25.331 subclause 8.5.15;

4> set the contents of the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.3;

4> perform the mapping of the Access Class to an Access Service Class as specified in TS 25.331 subclause 8.5.13, and apply the given Access Service Class when accessing the RACH;

4> transmit an RRC CONNECTION REQUEST message on the uplink CCCH;

4> reset counter V300;

4> start timer T300 when the MAC layer indicates success or failure in transmitting the message;

4> disable cell reselection to original carrier until the time stated in the IE "wait time" has elapsed;

3> if a cell selection on the designated carrier fails:

4> wait for the time stated in the IE "wait time";

4> set CFN in relation to SFN of current cell according to TS 25.331 subclause 8.5.15;

4> set the IEs in the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.3;

4> perform the mapping of the Access Class to an Access Service Class as specified in TS 25.331 subclause 8.5.13, and apply the given Access Service Class when accessing the RACH;

4> then submit a new RRC CONNECTION REQUEST message to the lower layers for transmission on the uplink CCCH of the original serving cell;

4> increment counter V300;

4> restart timer T300 when the MAC layer indicates success or failure to transmit the message;

2> if V300 is greater than N300:

3> enter idle mode;

3> perform the actions specified in TS 25.331 subclause 8.5.2 when entering idle mode from connected mode;

3> consider the RRC establishment procedure to be unsuccessful;

3> the procedure ends.

…

1> If the IEs "frequency info" not present……:

2> if V300 is equal to or smaller than N300:

3> wait at least the time stated in the IE "wait time";

3> set the IEs in the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.2;

3> perform the mapping of the Access Class to an Access Service Class as specified in TS 25.331 subclause 8.5.13, and apply the given Access Service Class when accessing the RACH;

3> submit a new RRC CONNECTION REQUEST message to the lower layers for transmission on the uplink CCCH;

3> increment counter V300;

3> restart timer T300 when the MAC layer indicates success or failure to transmit the message;

2> if V300 is greater than N300:

3> enter idle mode;

3> perform the actions specified in TS 25.331 subclause 8.5.2 when entering idle mode from connected mode;

3> consider the RRC establishment procedure to be unsuccessful;

3> the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.3.9.

8.1.2.5.3 Test purpose

To confirm that the UE retries to establish the RRC connection after the "wait time" elapses if the UE receives an RRC CONNECTION REJECT message which specifies a non-zero IE "wait time".

To confirm that the UE stops retrying to establish the RRC connection if V300 is greater than N300 and goes back to idle mode.

8.1.2.5.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE

Test Procedure

Before the test starts, SS initializes an internal counter K to 0. The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH, triggered by an outgoing data call operation. SS rejects all requests by transmitting an RRC CONNECTION REJECT message which indicates a non-zero wait time and the counter K is increased by 1 every time such a message is received. To arrive at the verdict, the SS checks that a total of (N300+1) such messages are received and the UE enters idle state. SS calls for generic procedure C.1 to check that UE is in Idle Mode state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				SS initializes counter K to 0 and then prompts the operator to make an outgoing data call.
2	→		RRC CONNECTION REQUEST	Shall be sent on CCCH and contain the correct establishment cause.
3	←		RRC CONNECTION REJECT	This message includes the IE "wait time" set to 15 seconds.
4				SS increments K by 1.
5				If K is greater than N300, goes to step 6. Else SS waits for 15 sec before proceeding to step 2.
6				SS monitor the uplink CCCH for a time period enough for UE to goes back to idle state. SS waits for 5s.
7	←→		CALL C.1	If the test result of C.1 indicates that UE is in Idle Mode state, the test passes, otherwise it fails.

Specific Message Contents

RRC CONNECTION REQUEST (Step 2)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Initial UE Identity	Same as the IMSI stored in the TEST USIM card, or the registered TMSI or P-TMSI
Establishment Cause	Must be "Originating Call"

RRC CONNECTION REJECT (Step 3)

Use the same message type found in TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
Wait time	15 seconds

8.1.2.5.5 Test requirement

After step 6, counter K shall be equals to (N300+1) and there shall be no uplink transmission in the monitoring period specified in step 6.

8.1.2.6 RRC Connection Establishment: Reject ("wait time" is set to 0)

8.1.2.6.1 Definition

8.1.2.6.2 Conformance requirement

When the UE receives an RRC CONNECTION REJECT message on the downlink CCCH, it shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION REJECT message with the value of the variable INITIAL_UE_IDENTITY:

If the values are different, the UE shall ignore the rest of the message;

If the UE has not yet received an RRC CONNECTION SETUP message with the value of the IE "Initial UE identity" equal to the value of the variable INITIAL_UE_IDENTITY; and

if expiry of timer T300 occurs:

the UE shall:

1> check the value of V300; and

2> if V300 is equal to or smaller than N300:

3> set the IEs in the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.3;

3> submit a new RRC CONNECTION REQUEST message to lower layers for transmission on the uplink CCCH;

3> increment counter V300;

3> restart timer T300 when the MAC layer indicates success or failure to transmit the message.

2> if V300 is greater than N300:

…

Reference

3GPP TS 25.331 clause 8.1.3.9.

8.1.2.6.3 Test purpose

To confirm that the UE goes back to idle mode, if the SS transmits an RRC CONNECTION REJECT message which includes IE "wait time" set to 0. To confirm that the UE ignores an RRC CONNECT REJECT message not addressed to it. To confirm that the UE is capable of handling an erroneous RRC CONNECTION REJECT message correctly.

8.1.2.6.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by making an outgoing call. After the SS receives this message, it transmits an RRC CONNECTION REJECT message which is not addressed to the UE. The UE shall disregard this message and proceed to re-transmit RRC CONNECTION REQUEST message upon T300 timer expiry. SS answers the second RRC CONNECTION REQUEST message by transmitting an invalid RRC CONNECTION REJECT message. The UE shall continue to send the third RRC CONNECTION REQUEST message upon expiry of T300 timer. Next, the SS sends a legal RRC CONNECTION REJECT message which includes IE "wait time" which is set to '0'. To confirm that the UE goes back to idle mode immediately after receiving the reject message, SS shall monitor the uplink CCCH for the next 60 seconds and verify that there is no further transmission in the uplink direction.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	→		RRC CONNECTION REQUEST	Test operator is prompted to make an out-going call,
2	←		RRC CONNECTION REJECT	IE "Initial UE identity" contains an identity different from any of the UE identities available.
3	→		RRC CONNECTION REQUEST	UE shall send this message after T300 expires.
4	←		RRC CONNECTION REJECT	
5	→		RRC CONNECTION REQUEST	UE shall send this message after T300 expires.
6	←		RRC CONNECTION REJECT	IE "wait time" is set to 0.
7				The UE goes back to idle mode.

Specific Message Contents

RRC CONNECTION REQUEST (Step 1, 3 and 5)

Information Element	Value/remark
Message Type	
Initial UE Identity	Same as the IMSI stored in the TEST USIM card, or the registered TMSI or P-TMSI
Establishment Cause	Checked to see if set to one of the supported originating call types
Protocol Error Indicator	Checked to see if set to "FALSE"
Measured Results on RACH	Checked to see if it is absent

RRC CONNECTION REJECT (Step 2)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Initial UE Identity	Set to the same type as in RRC CONNECTION REQUEST message (step 1) but with a different value.

RRC CONNECTION REJECT (Step 4)

Information Element	Value/remark
All IEs	Not Present

RRC CONNECTION REJECT (Step 6)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Initial UE Identity	Same as the type and value defined in RRC CONNECTION REQUEST message (step 5)
Reject Cause	Congestion
Wait time	0 second

8.1.2.6.5 Test requirement

After step 2 the UE shall transmit an RRC CONNECTION REQUEST message on uplink CCCH upon expiry of T300 timer.

After step 4 the UE shall re-transmit an RRC CONNECTION REQUEST message on the uplink CCCH upon expiry of T300 timer.

After step 6 the UE shall stop sending an RRC CONNECTION REQUEST message, go back to idle mode immediately and not transmit in the uplink direction again.

8.1.2.7 RRC Connection Establishment in CELL_FACH state: Success

8.1.2.7.1 Definition

8.1.2.7.2 Conformance requirement

The UE shall initiate the procedure when upper layers in the UE requests the establishment of a signalling connection and the UE is in idle mode (no RRC connection exists).

Upon initiation of the procedure, the UE shall:

…

1> set the contents of the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.3;

1> set CFN in relation to SFN of current cell according to TS 25.331 subclause 8.5.15;

1> perform the mapping of the Access Class to an Access Service Class as specified in TS 25.331 subclause 8.5.13, and apply the given Access Service Class when accessing the RACH;

1> submit the RRC CONNECTION REQUEST message for transmission on the uplink CCCH;

1> set counter V300 to 1; and

1> start timer T300 when the MAC layer indicates success or failure to transmit the message;

1> select a Secondary CCPCH according to TS 25.304;

1> start receiving all FACH transport channels mapped on the selected Secondary CCPCH.

….

The UE shall, in the transmitted RRC CONNECTION REQUEST message:

1> set the IE "Establishment cause" to the value of the variable ESTABLISHMENT_CAUSE;

1> set the IE "Initial UE identity" to the value of the variable INITIAL_UE_IDENTITY;

…

The UE shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP message with the value of the variable INITIAL_UE_IDENTITY.

If the values are different, the UE shall:

1> ignore the rest of the message.

If the values are identical, the UE shall:

1> stop timer T300, and act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified otherwise in the following:

2> if the UE, according to TS 25.331 subclause 8.6.3.3, will be in the CELL_FACH state at the conclusion of this procedure:

3> if the IE "Frequency info" is included:

4> select a suitable UTRA cell according to TS 25.304 on that frequency;

3> enter UTRA RRC connected mode;

3> select PRACH according to TS 25.331 subclause 8.5.17;

3> select Secondary CCPCH according to TS 25.331 subclause 8.5.19;

3> ignore the IE "UTRAN DRX cycle length coefficient" and stop using DRX.

1> if the UE, according to subclause 8.6.3.3, will be in the CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronization procedure as specified in TS 25.214 (FDD) or TS 25.224 (TDD);

2> enter UTRA RRC connected mode, in a state according to TS 25.331 subclause 8.6.3.3;

1> submit an RRC CONNECTION SETUP COMPLETE message to the lower layers on the uplink DCCH after successful state transition per TS 25.331 subclause 8.6.3.3, with the contents set as specified below:

2> set the IE "RRC transaction identifier" to:

3> the value of "RRC transaction identifier" in the entry for the RRC CONNECTION SETUP message in the table "Accepted transactions" in the variable TRANSACTIONS; and

3> clear that entry.

….

2> retrieve its UTRA UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and then

2> include this in IE "UE radio access capability" and IE "UE radio access capability extension", provided this IE is included in variable UE_CAPABILITY_REQUESTED;

2> retrieve its inter-RAT-specific UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and then

2> include this in IE "UE system specific capability".

When the RRC CONNECTION SETUP COMPLETE message has been submitted to lower layers for transmission the UE shall:

1> if the UE has entered CELL_FACH state:

2> start timer T305 using its initial value if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in system information block type 1.

….

1> consider the procedure to be successful;

And the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.3.2, 8.1.3.3 and 8.1.3.6.

8.1.2.7.3 Test Purpose

1. To confirm that the UE is able to enter CELL_FACH state and setup signalling radio bearers using common physical channels.

2. To confirm that the UE indicates the requested UE radio access capabilities (used by UTRAN to decide which RAB to establish) and UE system specific capabilities (may be used by UTRAN to configure inter RAT-measurements).

8.1.2.7.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by attempting to make an outgoing call. After the SS receives this message, it assigns the necessary radio resources and U-RNTI to be used by the UE, and then transmits an RRC CONNECTION SETUP message to the UE within timer T300. SS then waits for the UE to transmit an RRC CONNECTION SETUP COMPLETE message on the DCCH. SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	→		RRC CONNECTION REQUEST	Test operator is requested to make an outgoing call. The UE shall transmit this message, indicating the correct establishment cause. See specific message contents.
2	←		RRC CONNECTION SETUP	See specific message contents.
3				The UE shall configure the layer 2 and layer 1.
4	→		RRC CONNECTION SETUP COMPLETE	UE shall send this message on the DCCH, carried by the assigned PRACH resources. See specific message contents. FDD or TDD
5	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Content

RRC CONNECTION REQUEST

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Initial UE identity	Same as the IMSI stored in the TEST USIM card, or the registered TMSI or P-TMSI
Establishment Cause	Originating Conversational Call or Originating Interactive Call or Originating Background Call or Originating Streaming Call or OriginatingSubscribedTrafficCall

RRC CONNECTION SETUP (FDD)

For this message, the contents of the message to be used are basically identical to the message sub-type entitled "RRC CONNECTION SETUP message (Transition to CELL_FACH)" found in TS 34.108, clause 9 with the following exception:

Information Element	Value/remark
Capability update requirement	
UE radio access FDD capability update requirement	TRUE
UE radio access TDD capability update requirement	FALSE
System specific capability update requirement list	gsm

RRC CONNECTION SETUP (3.84 Mcps TDD)

For this message, the contents of the message to be used are basically identical to the message sub-type entitled "RRC CONNECTION SETUP message (Transition to CELL_FACH)" found in TS 34.108, clause 9 with the following exception:

Information Element	Value/remark
Capability update requirement	
UE radio access FDD capability update requirement	FALSE
UE radio access TDD capability update requirement	TRUE
System specific capability update requirement list	gsm

RRC CONNECTION SETUP (1.28 Mcps TDD)

For this message, the contents of the message to be used are basically identical to the message sub-type entitled "RRC CONNECTION SETUP message (Transition to CELL_FACH)" found in TS 34.108, clause 9 with the following exception:

Information Element	Value/remark
Capability update requirement	
UE radio access FDD capability update requirement	FALSE
UE radio access3.84 Mcps TDD capability update requirement	FALSE
UE radio access 1.28 Mcps TDD capability update requirement	TRUE
System specific capability update requirement list	gsm

RRC CONNECTION SETUP (7.68 Mcps TDD)

For this message, the contents of the message to be used are basically identical to the message sub-type entitled "RRC CONNECTION SETUP message (Transition to CELL_FACH)" found in TS 34.108, clause 9 with the following exception:

Information Element	Value/remark
Capability update requirement	
UE radio access FDD capability update requirement	FALSE
UE radio access 3.84 Mcps TDD capability update requirement	FALSE
UE radio access 7.68 Mcps TDD capability update requirement	TRUE
UE radio access 1.28 Mcps TDD capability update requirement	FALSE
System specific capability update requirement list	gsm

RRC CONNECTION SETUP COMPLETE

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
UE Radio Access Capability	Checked to see if compatible with the stated capability in PIXIT/PICS statements.
UE radio access capability extension	Checked to see if compatible with the stated capability in PIXIT/PICS statements.
UE system specific Capability	Checked to see if compatible with the stated capability in PIXIT/PICS statements.

8.1.2.7.5 Test requirements

After step 3 the UE shall establish the RRC connection, and transmit RRC CONNECTION SETUP COMPLETE message on the DCCH using PRACH physical resource specified in system information block messages.

8.1.2.8 Void

8.1.2.9 RRC Connection Establishment: Success after Physical channel failure and Failure after Invalid configuration

8.1.2.9.1 Definition

8.1.2.9.2 Conformance requirement

If the UE failed to establish, per TS 25.331 subclause 8.5.4, the physical channel(s) indicated in the RRC CONNECTION SETUP message.

After having received an RRC CONNECTION SETUP message with the value of the IE "Initial UE identity" equal to the value of the variable INITIAL_UE_IDENTITY.

Before the RRC CONNECTION SETUP COMPLETE message is delivered to lower layers for transmission,

the UE shall:

1> clear the entry for the RRC CONNECTION SETUP message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> check the value of V300, and:

2> if V300 is equal to or smaller than N300:

3> set CFN in relation to SFN of current cell according to TS 25.331 subclause 8.5.15;

3> set the IEs in the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.3;

3> perform the mapping of the Access Class to an Access Service Class as specified in TS 25.331 subclause 8.5.13, and apply the given Access Service Class when accessing the RACH;

3> submit a new RRC CONNECTION REQUEST message to the lower layers for transmission on the uplink CCCH;

3> increment counter V300; and

3> restart timer T300 when the MAC layer indicates success or failure in transmitting the message.

2> if V300 is greater than N300:

…

If the UE receives an RRC CONNECTION SETUP message which contains an IE "Initial UE identity" with a value which is identical to the value of the variable INITIAL_UE_IDENTITY; and

the variable INVALID_CONFIGURATION becomes set to TRUE due to the received RRC CONNECTION SETUP message:

the UE shall:

1> clear the entry for the RRC CONNECTION SETUP message in the table "Accepted transactions" in the variable TRANSACTIONS and proceed as below;

1> if V300 is equal to or smaller than N300:

2> set the variable PROTOCOL_ERROR_INDICATOR to TRUE;

2> set the IEs in the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.3;

2> perform the mapping of the Access Class to an Access Service Class as specified in TS 25.331 subclause 8.5.13; and

2> apply the given Access Service Class when accessing the RACH;

2> submit a new RRC CONNECTION REQUEST message to the lower layers for transmission on the uplink CCCH;

2> increment counter V300; and

2> restart timer T300 when the MAC layer indicates success or failure in transmitting the message.

1> if V300 is greater than N300:

…

Reference

3GPP TS 25.331 clause 8.1.3.

8.1.2.9.3 Test purpose

1. To confirm that the UE retries to establish the RRC connection until V300 is greater than N300 when a physical channel failure occurs because SS does not configure the physical channel that is specified in the transmitted RRC CONNECTION SETUP message.

2. To confirm that the UE retries to establish the RRC connection until V300 is greater than N300 when the transmitted RRC CONNECTION SETUP message causes invalid configuration in the UE.

8.1.2.9.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE. A Class A UE in manual mode will execute this test case on the CS domain.

Test Procedure

Before the test starts, SYSTEM INFORMATION BLOCK TYPE 1 is modified and this modification is notified to the UE. An internal counter K in SS is initialised to a value = 0. Following this, the UE shall transmit an RRC CONNECTION REQUEST message to the SS on the uplink CCCH, after the operator attempts to make an outgoing call. SS increments K every time such a message is received. Then, SS shall send a RRC CONNECTION SETUP message that contains an invalid configuration. UE shall then send RRC CONNECTION REQUEST message to SS again. This cycle is repeated until K reaches N300+1. When K is equal to N300+1, the SS again transmits an RRC CONNECTION SETUP message including an invalid configuration. Upon receiving this message the UE shall not send another RRC CONNECTION REQUEST message.

Next the SS re-initialises the internal counter K to value = 0, after which the operator attempts to make another outgoing call. Following this, the UE shall transmit an RRC CONNECTION REQUEST message to the SS on the uplink CCCH. SS increments K every time such a message is received. SS transmits an RRC CONNECTION SETUP message to make the UE configure the physical channel in order to communicate on the DCCH but SS does not configure the physical channel. Then the UE detects the physical channel failure and transmits an RRC CONNECTION REQUEST message. This cycle is repeated until K reaches N300+1. When K is equal to N300+1, the SS transmits the RRC CONNECTION SETUP message and configures the physical channel. The UE shall detect "in-sync" from physical

layer and then acknowledge the establishment of RRC connection by sending the RRC CONNECTION SETUP COMPLETE message on uplink DCCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0		←	PAGING TYPE 1	SS transmits the paging message which comprises IE "BCCH Modification Information", with the "Value Tag" different from the "MIB Value Tag" of the current Master Information Block. See specific message contents.
0a		←	MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 1	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the original setting. At the same time, SS starts to transmit the affected SIB TYPE 1 messages. See specific message contents.
				SS waits 5s (to ensure that the UE has time to read the new system information)
1				SS initialises counter K to 0. Operator is asked to make an outgoing call and SS starts to wait for RRC CONNECTION REQUEST on uplink CCCH.
2		→	RRC CONNECTION REQUEST	See specific message contents.
2a				SS increments K by 1 for every RRC CONNECTION REQUEST message received in step 2
2b		←	RRC CONNECTION SETUP	See specific message contents.
3				SS checks to see if K is equal to N300+1. If so, goes to step 3a. Else, continues to execute step 2.
3a				SS waits to verify that the UE does not send any further RRC CONNECTION REQUEST message

Step	Direction		Message	Comment
	UE	SS		
3b				SS re-initialises counter K to 0. Operator is asked to make another outgoing call and SS starts to wait for RRC CONNECTION REQUEST on uplink CCCH.
3c	→		RRC CONNECTION REQUEST	See specific message contents.
3d				SS increments K by 1 for every RRC CONNECTION REQUEST message received in step 3c
3e				SS checks to see if K is equal to N300+1. If so, goes to step 6. Else, continues to execute step 4
4	←		RRC CONNECTION SETUP	Use the default message with the same message sub-type specified in clause 9 in TS 34.108. SS does not configure the physical channel.
5				The next step is step 3c.
6	←		RRC CONNECTION SETUP	Use the default message with the same message sub-type specified in clause 9 in TS 34.108. SS configures the physical channel.
7				The UE configures the layer 1 and layer 2.
8	→		RRC CONNECTION SETUP COMPLETE	Use the default message with the same message sub-type specified in clause 9 in TS 34.108.

Specific Message Contents

PAGING TYPE 1 (Step 0)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
- MIB Value Tag	Set to (Current MIB value tag + 1)
- BCCH Modification time	Not Present

MASTER INFORMATION BLOCK (Step 0a)

Information Element	Value/remark
MIB Value tag	As in PAGING TYPE 1 in step 0
SIB 1 Cell Value tag	Set to (Current SIB1 value tag + 1)

SYSTEM INFORMATION TYPE 1 (Step 0a)

Use the default parameter values for the system information block with the same type specified in clause 6.1.0b of TS 34.108, with the following exceptions:

- UE Timers and constants in idle mode -T300 -N300 -T312 - N312	 2000 milliseconds 3 7 seconds 1

RRC CONNECTION REQUEST (Step 2 & step 3c, K=0)

The same message sub-type found in clause 9 of TS 34.108 applies, with the following exceptions:

Information Element	Value/remark
Initial UE identity	Same as the IMSI stored in the TEST USIM card, or the registered TMSI or P-TMSI
Establishment Cause	Originating Interactive Call or Originating Background Call or Originating Streaming Call or Originating Conversational Call or OriginatingSubscribedTrafficCall

RRC CONNECTION REQUEST (Step 2 & step 3c, K>0)

The same message sub-type found in clause 9 of TS 34.108 applies, with the following exceptions:

Information Element	Value/remark
Initial UE identity	Same as the IMSI stored in the TEST USIM card, or the registered TMSI or P-TMSI
Establishment Cause	Originating Interactive Call or Originating Background Call or Originating Streaming Call or Originating Conversational Call or OriginatingSubscribedTrafficCall
Protocol error indicator	Not Checked

RRC CONNECTION SETUP (Step 2b)

Use the same message sub-type found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
RRC State Indicator	CELL_DCH
Uplink DPCH info	Not present

8.1.2.9.5 Test requirement

After step 3a the UE shall not send any further RRC CONNECTION REQUEST message.

After step 8 the UE shall transmit an RRC CONNECTION SETUP COMPLETE message and establish an RRC connection.

8.1.2.10 RRC connection establishment in CELL_DCH on another frequency

8.1.2.10.1 Definition

8.1.2.10.2 Conformance requirement

1. The UE shall, in the transmitted RRC CONNECTION REQUEST message:

   1> set the IE "Establishment cause" to the value of the variable ESTABLISHMENT_CAUSE;

   1> set the IE "Initial UE identity" to the value of the variable INITIAL_UE_IDENTITY;

   1> set the IE "Protocol error indicator" to the value of the variable PROTOCOL_ERROR_INDICATOR;

   1> include a measurement report in the IE "Measured results on RACH", as specified in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in System Information Block type 11; and

   1> include in the IE "Measured results on RACH" all requested reporting quantities for cells for which measurements are reported; and

   1> take care that the maximum allowed message size is not exceeded when forming the IE "Measured results on RACH".

   ….

2. The UE shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP message with the value of the variable INITIAL_UE_IDENTITY.

   …

If the values are identical, the UE shall:

   …

   1> if the UE, according to subclause 8.6.3.3, will be in the CELL_DCH state at the conclusion of this procedure:

      2> perform the physical layer synchronisation procedure A as specified in [29] (FDD only).

Reference

3GPP TS 25.331 clauses 8.1.3.3, 8.1.3.6

8.1.2.10.3 Test Purpose

To confirm that the UE manages to establish an RRC CONNECTION on another frequency when so required by SS in the RRC CONNECTION SETUP message.

8.1.2.10.4 Method of test

Initial condition

System simulator: 2 cells – Cell 1 on UARFCN 1 and Cell 4 on UARFCN 4.

UE: "Registered idle mode on CS" (state 2) or "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE. If the UE supports both CS and PS domains, the initial state shall be "Registered idle mode on CS/PS" (state 7).

Specific Message Content

For system information block 11 for Cell 1 (gives IE's which are different from defaults given in 34.108 sec 6.1) to be transmitted before idle update preamble.

System Information Block type 11

Use same message sub-clause 6.1 of TS34.108, with following exception:

Information Element	Value/remark
SIB12 indicator	FALSE
Measurement control system information	

- Intra-frequency measurement system information	
- Intra-frequency reporting quantity for RACH reporting	
- SFN-SFN observed time difference reporting indicator	No report
- CHOICE mode	FDD
- Reporting quantity	CPICH Ec/No
- Maximum number of reported cells on RACH	Current Cell
- Reporting information for state CELL_DCH	Not present

System Information Block type 11 (TDD)

Use same message sub-clause 6.1 of TS34.108, with following exception:

Information Element	Value/remark
- SIB12 indicator	FALSE
Measurement control system information	
- Intra-frequency measurement system information	
- Intra-frequency reporting quantity for RACH reporting	
- SFN-SFN observed time difference reporting indicator	No report
- CHOICE mode	TDD
- Reporting quantity	Primary CCPCH RSCP
- Maximum number of reported cells on RACH	Current Cell
- Reporting information for state CELL_DCH	Not present

Test procedure

The UE is initially in idle mode and is camping on cell 1. SIB 11 is broadcast in cell 1.

SS prompts the operator to make an outgoing call of a supported traffic class. The UE shall transmit an RRC CONNECTION REQUEST on the CCCH, and SS replies with the RRC CONNECTION SETUP, in which the IEs are set as described below. The UE shall send the RRC CONNECTION SETUP COMPLETE back to SS in cell 4 on the DPCH described in the RRC CONNECTION SET UP message received from the SS. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Note: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	→		RRC CONNECTION REQUEST	By outgoing call operation
2	←		RRC CONNECTION SETUP	Indicating frequency of cell 4 and IE "Primary CPICH info" set to Primary Scrambling Code assigned to P-CPICH of cell 4 for FDD / IE “Cell Parameters ID” set to cell 4 for LCR TDD.
3				The UE configures the layer 2 and layer 1.
4	→		RRC CONNECTION SETUP COMPLETE	This message is sent to SS on the frequency indicated in the RRC CONNECTION SETUP message
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific message content

All messages indicated below shall use the same content as found in TS 34.108 clause 6.1 with the following exceptions:

RRC CONNECTION REQUEST (Step 1) (FDD)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Measured results on RACH	Check that the Ec/No for the cell 1 is reported.

RRC CONNECTION REQUEST (Step 1) (TDD)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Measured results on RACH	Check that the P-CCPCH RSCP for the cell 1 is reported.

RRC CONNECTION SETUP (Step 2) (FDD)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Frequency info - UARFCN uplink(Nu) - UARFCN downlink(Nd) Downlink information for each radio links - Primary CPICH info - Primary Scrambling Code	 Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21] UARFCN downlink of cell 4 Set to same code as used for cell 4

RRC CONNECTION SETUP (Step 2) (TDD)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Frequency info - UARFCN(Nt)	 UARFCN of the cell 4
Downlink information for each radio link list - Downlink information for each radio link - Choice mode TDD - Primary CCPCH info - CHOICE mode TDD - Cell parameters ID	 Cell parameters ID of the cell 4

8.1.2.10.5 Test requirement

In step 4, the UE shall send the RRC CONNECTION SETUP COMPLETE message on the frequency indicated in the RRC CONNECTION SETUP message.

8.1.2.10a RRC connection establishment in CELL_DCH on another frequency in a different frequency band

8.1.2.10a.1 Definition

This test case is identical to test case 8.1.2.10 except that the target cell is on a different frequency band.

8.1.2.10a.2 Conformance requirement

Same conformance requirement as in clause 8.1.2.10.2.

8.1.2.10a.3 Test Purpose

Same test purpose as in clause 8.1.2.10.3 except that the target cell is on a different frequency band.

8.1.2.10a.4 Method of test

Initial condition

Same initial conditions as in clause 8.1.2.10.4 except that cell 1 and cell 4 use the UARFCNs in two different frequency bands. The frequency bands for cell 1 and cell 4 are selected according to PIXIT parameters.

Related ICS/IXIT statement(s)

- UE supports multiple bands simultaneously yes/no

Specific message content

Same specific message content for system information as in clause 8.1.2.10.4.

Test procedure

Same test procedure as in clause 8.1.2.10.4.

Note: If the UE supports more than 2 frequency bands, the test may be executed for various band combinations.

Specific message content

Same specific message content as in clause 8.1.2.10.4.

8.1.2.10a.5 Test requirement

Same test requirement as in clause 8.1.2.10.5.

8.1.2.10b RRC connection establishment in CELL_DCH on another frequency in a different frequency band (TDD a-f band)

8.1.2.10b.1 Definition

This test case is identical to test case 8.1.2.10 except that the target cell is on a different frequency band.

8.1.2.10b.2 Conformance requirement

Same conformance requirement as in clause 8.1.2.10.2.

8.1.2.10b.3 Test Purpose

Same test purpose as in clause 8.1.2.10.3 except that the target cell is on a different frequency band.

8.1.2.10b.4 Method of test

Initial condition

Same initial conditions as in clause 8.1.2.10.4 except that carriers for cell 1 and cell 4 in two different frequency bands. The frequency bands for cell 1 and cell 4 are selected according to PIXIT parameters.

Related ICS/IXIT statement(s)

- UE supports multiple bands simultaneously yes/no

Specific message content

Same specific message content for system information as in clause 8.1.2.10.4.

Test procedure

Same test procedure as in clause 8.1.2.10.4.

Note: If the UE supports more than 2 frequency bands, the test may be executed for various band combinations.

Specific message content

Same specific message content as in clause 8.1.2.10.4.

8.1.2.10b.5 Test requirement

Same test requirement as in clause 8.1.2.10.5.

8.1.2.11 RRC Connection Establishment in FACH state (Frequency modification): Success

8.1.2.11.1 Definition

8.1.2.11.2 Conformance requirement

The UE shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP message with the value of the UE storing "Initial UE identity".

If the values are different, the UE shall:

1> ignore the rest of the message.

If the values are identical, the UE shall:

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified otherwise in the following:

2> if the UE, according to subclause 8.6.3.3, will be in the CELL_FACH state at the conclusion of this procedure:

3> if the IE "Frequency info" is included:

4> select a suitable UTRA cell according to TS25.304 on that frequency;

3> enter UTRA RRC connected mode;

3> select PRACH according to TS25.331 subclause 8.5.17;

3> select Secondary CCPCH according to TS5.331 subclause 8.5.19;

3> ignore the IE "UTRAN DRX cycle length coefficient" and stop using DRX.

1> if the UE, according to subclause 8.6.3.3, will be in the CELL_DCH state at the conclusion of this procedure:

….

2> enter UTRA RRC connected mode, in a state according to TS25.331 subclause 8.6.3.3;

1> submit an RRC CONNECTION SETUP COMPLETE message to the lower layers on the uplink DCCH after successful state transition per TS25.331 subclause 8.6.3.3, with the contents set as specified below:

….

And the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.3.6.

8.1.2.11.3 Test purpose

To confirm that the UE enters to CELL_FACH state and correctly establishes signalling radio bearers using common physical channels of a cell within the frequency band specified by SS in RRC CONNECTION SETUP message.

8.1.2.11.4 Method of test

Initial Condition

System Simulator: 2 cells–Cells 1 is active and cell 6 is inactive.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Specific Message Content

For system information block 3 for Cell 1 (gives IE's which are different from defaults given in 34.108 sec 6.1) to be transmitted before idle update preamble.

System Information Block type 3 (1.28Mcps TDD)

Use same message sub-clause 6.1 of TS34.108, with following exception:

Information Element	Value/remark
- Cell selection and re-selection info	
- CHOICE mode	TDD
-- Qrxlevmin	-103 dBm

For system information block 11 for Cell 1 (gives IE's which are different from defaults given in 34.108 sec 6.1) to be transmitted before idle update preamble.

System Information Block type 11

Use same message sub-clause 6.1 of TS34.108, with following exception:

Information Element	Value/remark
- Intra-frequency reporting quantity for RACH Reporting	
- SFN-SFN observed time difference reporting indicator	No report
- CHOICE *mode*	
- FDD	
- Reporting quantity	CPICH Ec/N0
- Maximum number of reported cells on RACH	current cell

System Information Block type 11 (TDD)

Use same message sub-clause 6.1 of TS34.108, with following exception:

Information Element	Value/remark
- Intra-frequency reporting quantity for RACH Reporting	
-SFN-SFN observed time difference reporting indicator	No report
- CHOICE mode	TDD
- CHOICE measurement quantity	PCCPCH RSCP
- Maximum number of reported cells on RACH	current cell

Test Procedure

Table 8.1.2.11

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-55	-72	Off	-72
P-CCPCH RSCP (TDD)	dBm	-55	-72	Off	-72

Table 8.1.2.11 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings from columns "T0" to "T1", whenever the description in multi-cell condition specifies the transmission power settings for cell 1 and cell 6.

The UE is in Idle mode of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.1.2.11. The SS switches its downlink transmission power settings to columns "T1" and the UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by attempting to make an outgoing call. After SS receives this message, it assigns the necessary radio resources and U-RNTI to be used by the UE. The SS then transmits an RRC CONNECTION SETUP message containing an IE "frequency info" IE "Frequency info" set to uplink/downlink UARFCN as used for cell 6 and IE "Primary CPICH info" set to Primary Scrambling Code assigned to P-CPICH of cell 6 for FDD mode, and UARFCN as used for cell 6 and IE "Primary CCPCH RSCP info" set as assigned in cell 6 for TDD mode. The SS monitors all uplink RACH channels of cell 6.The UE transmitting an RRC CONNECTION SETUP COMPLETE message on the DCCH (mapped onto RACH) of cell 6.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The initial state of UE is in Idle mode of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.1.2.11.
2				The SS switches its downlink transmission power settings to columns "T1" in table 8.1.2.11.
3	→		RRC CONNECTION REQUEST	Operator makes an outgoing call. The UE shall transmit this message, indicating the proper establishment cause.
4	←		RRC CONNECTION SETUP	Including IE "Frequency info" set to frequency information of cell 6 and IE "Primary CPICH info" set to Primary Scrambling Code assigned to P-CPICH of cell 6 for FDD mode, and IE "Primary CCPCH RSCP info" set as assigned in cell 6 for TDD mode.
5	→		RRC CONNECTION SETUP COMPLETE	UE shall send this message on the DCCH, carried by the assigned PRACH resources in cell 6.

Specific Message Content

RRC CONNECTION REQUEST (Step 3) (FDD)

Use the same message type found in clause 9 of TS 34.108, with the following exception:

Information Element	Value/remark
Initial UE identity	Same as the IMSI stored in the TEST USIM card, or the registered TMSI or P-TMSI
Establishment Cause	Originating Interactive Call or Originating Background Call or Originating Streaming Call or Originating Conversational Call or OriginatingSubscribedTrafficCall
Measured results on RACH	Check to see if set in accordance with the IE "Intra-frequency reporting quantity for RACH Reporting" included in SYSTEM INFORMATION BLOCK Type 11
- Measurement result for current cell - CHOICE mode - FDD - CHOICE measurement quantity - CPICH Ec/N0	The actual reported value is not checked

RRC CONNECTION REQUEST (Step 3) (TDD)

Use the same message type found in clause 9 of TS 34.108, with the following exception:

Information Element	Value/remark
Initial UE identity	Same as the IMSI stored in the TEST USIM card, or the registered TMSI or P-TMSI
Establishment Cause	Originating Interactive Call or Originating Background Call or Originating Streaming Call or Originating Conversational Call or OriginatingSubscribedTrafficCall
Measured results on RACH	Check to see if set in accordance with the IE "Intra-frequency reporting quantity for RACH Reporting" included in SYSTEM INFORMATION BLOCK Type 11
- Measurement result for current cell	
- CHOICE mode	TDD
- CHOICE measurement quantity	
- P-CCPCH RSCP	The actual reported value is not checked

RRC CONNECTION SETUP (Step 4) (FDD)

For this message, the contents of the message to be used are basically identical to the message sub-type entitled "RRC CONNECTION SETUP message (Transition to CELL_FACH)" found in [9] TS 34.108 clause 9 with the following exception:

Information Element	Value/remark
Frequency info	
- UARFCN uplink(Nu)	Not Present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6
Downlink information for each radio links	
- Primary CPICH info	
- Primary Scrambling Code	Set to same code as used for cell 6

RRC CONNECTION SETUP (Step 4) (TDD)

For this message, the contents of the message to be used are basically identical to the message sub-type entitled "RRC CONNECTION SETUP message (Transition to CELL_FACH)" found in [9] TS 34.108 clause 9 with the following exception:

Information Element	Value/remark
Frequency info	
- UARFCN (Nt)	Same UARFCN as used for cell 6
Downlink information for each radio links	
- Primary CCPCH info	
- Cell parameters ID	As used for cell 6

RRC CONNECTION SETUP COMPLETE (Step 5)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
UE Radio Access Capability	Checked to see if compatible with the stated capability in PIXIT/PICS statements.
UE radio access capability extension	Checked to see if compatible with the stated capability in PIXIT/PICS statements.
UE system specific Capability	Checked to see if compatible with the stated capability in PIXIT/PICS statements.

8.1.2.11.5 Test requirement

After step 5 the UE shall transmit RRC CONNECTION SETUP COMPLETE message on the uplink DCCH in cell 6.

8.1.2.12 RRC Connection Establishment: Reject with interRATInfo is set to GSM

8.1.2.12.1 Definition

8.1.2.12.2 Conformance requirement

When the UE receives an RRC CONNECTION REJECT message on the downlink CCCH, it shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION REJECT message with the value of the variable INITIAL_UE_IDENTITY:

If the values are different, the UE shall ignore the rest of the message;

If the values are identical, the UE shall:

1> stop timer T300; and

1> clear the entry for the RRC CONNECTION REJECT message in the table "Accepted transactions" in the variable TRANSACTIONS;

...

1> if the IE "inter-RAT info" is present and:

2> if V300 is equal to or smaller than N300:

3> select a suitable cell belonging to the selected PLMN or any PLMN indicated to be equivalent to that PLMN in the designated RAT;

3> after having selected and camped on a suitable cell on the designated RAT:

4> disable cell reselection to the original RAT until the time stated in the IE "wait time" has elapsed.

8.1.2.12.3 Test Purpose

To verify that the UE shall select the GSM cell when RRC Connection Reject with Inter-RAT info set to GSM is received in response to RRC connection request.

Reference

3GPP TS 25.331, section 8.1.3.9

8.1.2.12.4 Method of test

Initial condition

System Simulator: 2 cells - Cell 1 is UTRAN, Cell 9 is GSM. GSM 51.010 clause 40 shall be referenced for the default parameters, and clause 26.6.5.1 shall be referenced for cell allocation of cell 9. The Inter-RAT Cell Info List of Cell 1 refers to Cell 9. The 3G Neighbour Cell Description List of Cell 9 refers to Cell 1.

UE: Idle state (state 2) as specified in clause 7.4 of TS 34.108

Related ICS/IXIT statement(s)

- UE supports both GSM and UTRAN Radio Access Technologies,
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-850, GSM-PCS.
- PS Supported yes/no
- Support of automatic PS attach procedure at switch on yes/no

Test procedure

The UE transmits an RRC CONNECTION REQUEST message for making an MO call. After the SS receives this message, it transmits an RRC CONNECTION REJECT message with interRATInfo set to “GSM” and wait time set to 10 seconds. UE then selects GSM cell specified in SIB11 and sends a CHANNEL REQUEST for making an MO call. RR connection is successfully established. Thereafter an MO call is established in the GSM cell.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				Prompt the operator to make an outgoing call.
2	→		RRC CONNECTION REQUEST	
3	←		RRC CONNECTION REJECT	See specific message contents.
4	UE			UE selects the GSM cell specified in the SIB11.
5	→		CHANNEL REQUEST	UE requests for RR connection to establish the MO call.
6	←		IMMEDIATE ASSIGNMENT	RR connection is established. Thereafter UE proceeds with the MO call establishment. SS completes the call establishment procedure.
7	SS			It is verified that the MO call is successfully established by sending a STATUS ENQUIRY message. The UE shall respond with a STATUS message indicating that it is in state U10.

Specific message contents

RRC CONNECTION REJECT in step 4:

Wait time	10 seconds
Redirectioninfo	
InterRATInfo	GSM

8.1.2.12.5 Test requirement

1) At step 5, UE should respond on GSM cell.

2) At step 7, UE should be in CC state U10 in the GSM cell.

8.1.2.13 RRC Connection Establishment: Reject with InterRATInfo is set to GSM and selection to the designated system fails

8.1.2.13.1 Definition

8.1.2.13.2 Conformance requirement

When the UE receives an RRC CONNECTION REJECT message on the downlink CCCH, it shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION REJECT message with the value of the variable INITIAL_UE_IDENTITY:

If the values are different, the UE shall ignore the rest of the message;

If the values are identical, the UE shall:

1> stop timer T300; and

1> clear the entry for the RRC CONNECTION REJECT message in the table "Accepted transactions" in the variable TRANSACTIONS;

...

1> if the IE "inter-RAT info" is present and:

2> if V300 is equal to or smaller than N300:

3> if no suitable cell in the designated RAT is found:

4> wait at least the time stated in the IE "wait time";

4> set CFN in relation to SFN of current cell according to subclause 8.5.15;

4> set the IEs in the RRC CONNECTION REQUEST message according to subclause 8.1.3.2.

4> perform the mapping of the Access Class to an Access Service Class as specified in subclause 8.5.13, and apply the given Access Service Class when accessing the RACH;

4> then submit a new RRC CONNECTION REQUEST message to the lower layers for transmission on the uplink CCCH;

4> increment counter V300;

4> restart timer T300 when the MAC layer indicates success or failure to transmit the message;

....

2> if V300 is greater than N300:

3> enter idle mode;

3> perform the actions specified in subclause 8.5.2 when entering idle mode from connected mode;

3> consider the RRC establishment procedure to be unsuccessful;

3> the procedure ends.

8.1.2.13.3 Test Purpose

To verify that the UE upon receiving RRC Connection Reject with Inter-RAT info set to GSM and failing to select the designated GSM system shall reselect UTRAN cell only after the wait time specified in RRC Connection Reject. The UE shall then continue with the RRC CONNECTION establishment procedure.

Reference

3GPP TS 25.331, section 8.1.3.9

8.1.2.13.4 Method of test

Initial conditions

System Simulator: 2 cells - Cell 1 is UTRAN, the value of N300 is set to 1. Cell 9 is GSM. GSM 51.010 clause 40 shall be referenced for the default parameters, and clause 26.6.5.1 shall be referenced for cell allocation of cell 9. The Inter-RAT Cell Info List of Cell 1 refers to Cell 9. The 3G Neighbour Cell Description List of Cell 9 refers to Cell 1.

UE: Idle state (state 2) as specified in clause 7.4 of TS 34.108

Related ICS/IXIT statement(s)

- UE supports both GSM and UTRAN Radio Access Technologies,
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-850, GSM-PCS.
- PS Supported yes/no
- Support of automatic PS attach procedure at switch on yes/no

Test procedure

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by making an outgoing call. After the SS receives this message, it transmits an RRC CONNECTION REJECT message with interRATInfo set to “GSM” and wait time set to 10 seconds. The GSM cell is switched off; therefore UE fails to select the GSM cell. UE reselects UTRAN cell only after waiting for duration specified in wait time. It then retransmits RRC CONNECTION REQUEST.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				Prompt the operator to make an outgoing call.
2	→		RRC CONNECTION REQUEST	Shall be sent on CCCH and contain the correct establishment cause.
3	←		RRC CONNECTION REJECT	See specific message contents.
4				Cell 9 is switched off
5	→		RRC CONNECTION REQUEST	SS verifies that RRC connection is received only after wait time.
6	←		RRC CONNECTION REJECT	SS sends the message to bring the UE to idle mode.

Specific message contents

RRC CONNECTION REJECT in step 3:

Wait time	10 seconds
Redirectioninfo	
InterRATInfo	GSM

8.1.2.13.5 Test requirement

1) At step 5, RRC connection request is received after wait time.

8.1.2.14 RRC Connection Establishment using the default configuration for 3.4 kbps signalling bearers

8.1.2.14.1 Definition

8.1.2.14.2 Conformance requirement

The UE shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP message with the value of the variable INITIAL_UE_IDENTITY.

If the values are different, the UE shall:

1> ignore the rest of the message.

If the values are identical, the UE shall:

2> if IE "Specification mode" is set to "Preconfiguration" and IE "Preconfiguration mode" is set to "Default configuration":

3> initiate the radio bearer and transport channel configuration in accordance with the default parameters identified by the IE "Default configuration mode" and IE "Default configuration identity";

3> initiate the physical channels in accordance with the received physical channel information elements.

NOTE: IE "Default configuration mode" specifies whether the FDD or TDD version of the default configuration shall be used.

Reference

3GPP TS 25.331 clause 8.1.3.6, clause 13.7

8.1.2.14.3 Test purpose

To confirm that the UE establishes the radio bearer and transport channel configuration for 3.4kbps signalling radio bearers in accordance with the stored default parameters as identified by the IE "Default configuration identity" specified in the RRC Connection Setup Message

8.1.2.14.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE shall transmit a RRC CONNECTION REQUEST message to the SS on the uplink CCCH, after the operator attempts to make an outgoing call. SS shall send a RRC CONNECTION SETUP message that contains the stored default configuration identity 0 (for 3.4kbps signalling radio bearers). The UE accepts the message, configuring the radio bearer and transport channel configuration in accordance with the stored default parameters and acknowledges the establishment of RRC connection by sending the RRC CONNECTION SETUP COMPLETE message on uplink DCCH.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1				Operator is asked to make an outgoing call.
2	→		RRC CONNECTION REQUEST	
3	←		RRC CONNECTION SETUP	DefaultConfigIdentity used is '0'
4	→		RRC CONNECTION SETUP COMPLETE	
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state the test passes, otherwise it fails.

Specific Message Contents

RRC CONNECTION REQUEST (Step 2)

The same message sub-type found in clause 9 of TS 34.108 applies, with the following exceptions:

Information Element	Value/remark
Initial UE identity	Same as the IMSI stored in the TEST USIM card, or the registered TMSI or P-TMSI
Establishment Cause	Originating Interactive Call or Originating Background Call or Originating Streaming Call or Originating Conversational Call or OriginatingSubscribedTrafficCall

RRC CONNECTION SETUP (Step 3) (FDD)

Use the same message sub-type found in clause 9 of TS 34.108 (Transition to CELL_DCH), with the following exceptions:

Information Element	Value/remark
Choice Specification Mode	Preconfiguration
- Choice Preconfig Mode	Default Config
- Default Config Mode	FDD
-Default Config Identity	0
Uplink DPCH info	
- Uplink DPCH power control info	
- DPCCH power offset	-40 (-80 dB)
- PC Preamble	1 frame
- SRB delay	7 frames
- Power Control Algorithm	Algorithm1
- TPC step size	0 (1 dB)
- Scrambling code type	Long
- Scrambling code number	0 (0 to 16777215)
- Number of DPDCH	Not Present(1)
- Spreading factor	According to clause 6.10.2.4.1.2 (standalone 3.4 kbps signalling radio bearer)
- TFCI existence	According to clause 6.10.2.4.1.2 (standalone 3.4 kbps signalling radio bearer)
- Number of FBI bit	According to clause 6.10.2.4.1.2 (standalone 3.4 kbps signalling radio bearer)
- Puncturing Limit	According to clause 6.10.2.4.1.2 (standalone 3.4 kbps signalling radio bearer)
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing Indication	Initialize
- CFN-targetSFN frame offset	Not Present
- CHOICE mode	FDD
- Downlink DPCH power control information	
- DPC mode	0 (single)
- Power offset P Pilot-DPDCH	0
- DL rate matching restriction information	Not Present
- Spreading factor	According to clause 6.10.2.4.1.2 (standalone 3.4 kbps signalling radio bearer)
- Fixed or Flexible Position	According to clause 6.10.2.4.1.2 (standalone 3.4 kbps signalling radio bearer)
- TFCI existence	According to clause 6.10.2.4.1.2 (standalone 3.4 kbps signalling radio bearer)
- CHOICE SF	According to clause 6.10.2.4.1.2 (standalone 3.4 kbps signalling radio bearer)
- DPCH compressed mode info	Not Present
- TX Diversity mode	None
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512
Downlink information for each radio links list	
- Downlink information for each radio links	
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Reference to clause 6.1 "Default settings (FDD)"
- Downlink DPCH info for each RL	
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- DPCH frame offset	Set to value: Default DPCH Offset Value mod 38 400
- Secondary CPICH info	Not Present
- DL channelization code	
- Secondary scrambling code	1
- Spreading factor	According to clause 6.10.2.4.1.2 (standalone 3.4 kbps signalling radio bearer)
- Code number	0
- Scrambling code change	Not Present
- TPC combination index	0
- Closed loop timing adjustment mode	Not Present

RRC CONNECTION SETUP (Step 3)(1.28Mcps TDD)

Use the same message sub-type found in clause 9 of TS 34.108 (Transition to CELL_DCH), with the following exceptions:

Information Element	Value/remark
Choice Specification Mode	Preconfiguration
- Choice Preconfig Mode	Default Config
- Default Config Mode	TDD
-Default Config Identity	0

RRC CONNECTION SETUP COMPLETE (Step 4)

Use the same message sub-type found in clause 9 of TS 34.108.

8.1.2.14.5 Test requirement

In step 4 the UE shall transmit a RRC CONNECTION SETUP COMPLETE message on Radio Bearer Id: 2 and establish a RRC connection.

8.1.2.15 RRC Connection Establishment using the default configuration for 13.6 kbps signalling bearers

8.1.2.15.1 Definition

8.1.2.15.2 Conformance requirement

The UE shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP message with the value of the variable INITIAL_UE_IDENTITY.

If the values are different, the UE shall:

1> ignore the rest of the message.

If the values are identical, the UE shall:

2> if IE "Specification mode" is set to "Preconfiguration" and IE "Preconfiguration mode" is set to "Default configuration":

3> initiate the radio bearer and transport channel configuration in accordance with the default parameters identified by the IE "Default configuration mode" and IE "Default configuration identity";

3> initiate the physical channels in accordance with the received physical channel information elements.

NOTE: IE "Default configuration mode" specifies whether the FDD or TDD version of the default configuration shall be used.

Reference

3GPP TS 25.331 clause 8.1.3.6, clause 13.7

8.1.2.15.3 Test purpose

To confirm that the UE establishes the radio bearer and transport channel configuration for 13.6kbps signalling radio bearers in accordance with the stored default parameters as identified by the IE "Default configuration identity" specified in the RRC Connection Setup Message

8.1.2.15.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE shall transmit a RRC CONNECTION REQUEST message to the SS on the uplink CCCH, after the operator attempts to make an outgoing call. SS shall send a RRC CONNECTION SETUP message that contains the stored default configuration identity 1 for Rel-5, or 22 for Rel-6 onwards (for 13.6kbps signalling radio bearers). The UE accepts the message, configuring the radio bearer and transport channel configuration in accordance with the stored default parameters and acknowledge the establishment of RRC connection by sending the RRC CONNECTION SETUP COMPLETE message on uplink DCCH.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1				Operator is asked to make an outgoing call.
2	→		RRC CONNECTION REQUEST	
3	←		RRC CONNECTION SETUP	DefaultConfigIdentity used is '1' for Rel-5, or '22' for Rel-6 onwards
4	→		RRC CONNECTION SETUP COMPLETE	
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state the test passes, otherwise it fails.

Specific Message Contents

RRC CONNECTION REQUEST (Step 2)

The same message sub-type found in clause 9 of TS 34.108 applies, with the following exceptions:

Information Element	Value/remark
Initial UE identity	Same as the IMSI stored in the TEST USIM card, or the registered TMSI or P-TMSI
Establishment Cause	Originating Interactive Call or Originating Background Call or Originating Streaming Call or Originating Conversational Call or OriginatingSubscribedTrafficCall

RRC CONNECTION SETUP (Step 3, Rel-5) (FDD)

Use the same message sub-type found in clause 9 of TS 34.108 (Transition to CELL_DCH), with the following exceptions:

Information Element	Value/remark
Choice Specification Mode	Preconfiguration
- Choice Preconfig Mode	Default Config
- Default Config Mode	FDD
-Default Config Identity	1

RRC CONNECTION SETUP (Step 3, Rel-6 onwards) (FDD)

Use the same message sub-type found in clause 9 of TS 34.108 (Transition to CELL_DCH), with the following exceptions:

Information Element	Value/remark
Choice Specification Mode	Preconfiguration
- Choice Preconfig Mode	Default Config
- Default Config Mode	FDD
-Default Config Identity	22

RRC CONNECTION SETUP (Step 3)(1.28Mcps TDD)

Use the same message sub-type found in clause 9 of TS 34.108 (Transition to CELL_DCH), with the following exceptions:

Information Element	Value/remark
Choice Specification Mode	Preconfiguration
- Choice Preconfig Mode	Default Config
- Default Config Mode	TDD
-Default Config Identity	22

RRC CONNECTION SETUP COMPLETE (Step 4)

Use the same message sub-type found in clause 9 of TS 34.108

8.1.2.15.5 Test requirement

In step 4 the UE shall transmit a RRC CONNECTION SETUP COMPLETE message on Radio Bearer Id: 2 and establish an RRC connection.

8.1.2.16 RRC Connection Establishment / Domain Specific Access Control: Success

8.1.2.16.1 Definition

This test case is applicable for Rel-5 UEs supporting DSAC and Rel-6 or later UEs.

8.1.2.16.2 Conformance requirement

Access Class related cell access restrictions shall be checked by the UE before sending an RRC CONNECTION REQUEST message when entering Connected Mode from UTRAN Idle mode.

…

With respect to Domain Specific Access Control, the UE shall:

1> if the IE "Multiple PLMN List" is not included in the Master Information Block:

2> apply the domain specific access restrictions as indicated by the IE "Domain Specific Access Restriction Parameters for PLMN of MIB".

…

The UE shall apply the following handling with respect to any Access Class Barring information:

1> if in idle mode and any Access Class Barring information is indicated:

2> if no Domain Specific Access Restriction Parameters are included in System Information Block Type 3, the UE shall:

3> act on the IE "Access Class Barred list" when initiating RRC Connection establishment as specified in [4] (TS25.304).

2> if the Domain Specific Access Restriction Parameters to be applied are included in System Information Block Type 3 the UE shall:

3> act on the IE "Domain Specific Access Class Barred List" if indicated in the IE "CS Domain Specific Access Restriction" when initiating RRC Connection establishment to send an INITIAL DIRECT TRANSFER message to the CS domain, as specified in [4] (TS25.304);

3> act on the IE "Domain Specific Access Class Barred List" if indicated in the IE "PS Domain Specific Access Restriction" when initiating RRC Connection establishment to send an INITIAL DIRECT TRANSFER message to the PS domain, as specified in [4] (TS25.304);

3> upon transition to UTRA RRC connected, the UE shall:

4> store that Domain Specific Access Restriction Parameters to the variable "DSAC_PARAM" and maintain the variable until it is cleared, the PLMN chosen by the UE is changed or the RRC connection is released;

4> act on the stored IE "Domain Specific Access Class Barred List" if indicated in the IE "CS Domain Specific Access Restriction" when initiating an INITIAL DIRECT TRANSFER message to the CS domain, as specified in [4] (TS25.304);

4> act on the stored IE "Domain Specific Access Class Barred List" if indicated in the IE "PS Domain Specific Access Restriction" when initiating an INITIAL DIRECT TRANSFER message to the PS domain, as specified in [4] (TS25.304);

1> if in connected mode:

2> if no Access Class Barring information is indicated:

3> if the variable "DSAC_PARAM" is set, the UE shall

4> clear the variable "DSAC_PARAM";

4> act as if no Access Class is barred.

2> else if the Domain Specific Access Restriction Parameters to be applied is not included in System Information Block Type 3:

3> if the variable "DSAC_PARAM" is set, the UE shall:

4> clear the variable "DSAC_PARAM";

4> act as if no Access Class is barred.

2> else if the Domain Specific Access Restriction Parameters to be applied are included in the System Information Block Type 3:

3> if the variable "DSAC_PARAM is not set, the UE shall:

4> store that Domain Specific Access Restriction Parameters to the variable "DSAC_PARAM" and maintain the variable until it is cleared, the PLMN chosen by the UE is changed or the RRC connection is released;

4> act on the stored IE "Domain Specific Access Class Barred List" if indicated in the IE "CS Domain Specific Access Restriction" when initiating an INITIAL DIRECT TRANSFER message to the CS, as specified in [4] (TS25.304);

4> act on the stored IE "Domain Specific Access Class Barred List" if indicated in the IE "PS Domain Specific Access Restriction" when initiating an INITIAL DIRECT TRANSFER message to the PS domain, as specified in [4] (TS25.304).

3> else (the access class barring information is stored) UE shall:

4> update the variable "DSAC_PARAM" with that Domain Specific Access Restriction Parameters;

4> act on the updated IE "Domain Specific Access Class Barred List" if indicated in the IE "CS Domain Specific Access Restriction" when initiating an INITIAL DIRECT TRANSFER message to the CS domain, as specified in [4] (TS25.304);

4> act on the updated IE "Domain Specific Access Class Barred List" if indicated in the IE "PS Domain Specific Access Restriction" when initiating an INITIAL DIRECT TRANSFER message to the PS domain, as specified in [4] (TS25.304).

….

Reference

3GPP TS25.304 clause 5.3.1.2, TS 25.331 clause 8.1.1.6.3

8.1.2.16.3 Test purpose

To confirm that the UE establishes a RRC Connection on the non-barred domain under the Domain Specific Access Restriction.

8.1.2.16.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Idle state (state 7) as specified in clause 7.4 of TS 34.108

Related ICS/IXIT statements

The- Support of DSAC Yes/No.

Support of DSAC Yes/No.Test Procedure

The UE is in idle mode. The SS transmits a PAGING TYPE 1 message to inform the UE to change the system information and it needs to read new blocks of SYSTEM INFORMATION, in which the IE "Domain Specific Access Restriction Parameters" to be applied are included in SYSTEM INFORMATION BLOCK TYPE 3. The UE transmits a RRC CONNECTION REQUEST message to the SS on the uplink CCCH by an outgoing call operation on the other non-barred domain. Then the SS transmits a RRC CONNECTION SETUP message to establish a RRC Connection with the UE and the UE replies to send a RRC CONNECTION SETUP COMPLETE message and an INITIAL DIRECT TRANSFER message.

This test case shall be run twice:

Case1) The system information block type 3 indicates that only the CS domain is barred at step2.

Case2) The system information block type 3 indicates that only the PS domain is barred at step2.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1		←	PAGING TYPE1	The SS transmits the message including the IE "BCCH Modification Information".
2		←	MASTER INFORMATION BLOCK	The SS starts to transmit the MIB with the "MIB value tag" IE different from the original setting.
		←	SYSTEM INFORMATION BLOCK TYPE3	The SS transmits the new SIB3 to indicate that one of the supported domains in the cell is barred.
3				The SS waits 5 sec (to ensure that the UE has time to read the new system information).
4		→	RRC CONNECTION REQUEST	The SS prompts the test operator to make an outgoing call on the other non-barred domain.
5		←	RRC CONNECTION SETUP	
6		→	RRC CONNECTION SETUP COMPLETE	
7		→	INITIAL DIRECT TRANSFER	

Specific Message Content

PAGING TYPE 1 (Step 1)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
- MIB Value Tag	Set to (Current MIB value tag + 1)
- BCCH Modification time	Not Present

MASTER INFORMATION BLOCK (Step 2)

Information Element	Value/remark
MIB Value tag	As in PAGING TYPE 1 in step 1
SIB 3 Cell Value tag	Set to (Current SIB3 value tag + 1)

System Information Block type 3 (Step 2)

For Case 1 i.e. when only the CS domain is barred.

Use the same message type found in clause 6.1 of TS 34.108, with the following exceptions:

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	restriction
-Domain Specific Access Class Barred List	
-Access Class Barred List	
- Access Class Barred0	not barred
- Access Class Barred1	not barred
- Access Class Barred2	not barred
- Access Class Barred3	not barred
- Access Class Barred4	not barred
- Access Class Barred5	not barred
- Access Class Barred6	not barred
- Access Class Barred7	not barred
- Access Class Barred8	not barred
- Access Class Barred9	not barred
- Access Class Barred10	not barred
- Access Class Barred11	not barred
- Access Class Barred12	not barred
- Access Class Barred13	not barred
- Access Class Barred14	not barred
- Access Class Barred15	not barred

System Information Block type 3 (Step 2)

For Case 2 i.e. when only the PS domain is barred

Use the same message type found in clause 6.1 of TS 34.108, with the following exceptions:

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	not barred
- Access Class Barred1	not barred
- Access Class Barred2	not barred
- Access Class Barred3	not barred
- Access Class Barred4	not barred
- Access Class Barred5	not barred
- Access Class Barred6	not barred
- Access Class Barred7	not barred
- Access Class Barred8	not barred
- Access Class Barred9	not barred
- Access Class Barred10	not barred
- Access Class Barred11	not barred
- Access Class Barred12	not barred
- Access Class Barred13	not barred
- Access Class Barred14	not barred
- Access Class Barred15	not barred
-PS 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

INITIAL DIRECT TRANSFER (Step 7)

Use the same message type found in clause 9.1 of TS 34.108, with the following exception:

Information Element	Value/remark
CN domain identity	Check to see if it is not the barred domain.

8.1.2.16.5 Test requirement

At step4, the UE transmits a RRC CONNECTION REQUEST message to the SS for establishing the non-barred domain service.

At step6, the UE transmits a RRC CONNECTION SETUP COMPLETE message to the SS on uplink DCCH.

8.1.2.17 RRC Connection Establishment for transition from Idle Mode to CELL_DCH: Success (start of E-DCH transmission)

8.1.2.17.1 Definition and applicability

All UEs which support FDD and HS-PDSCH and E-DCH and fully support F-DPCH or all UEs which support TDD and HS-PDSCH and E-PUCH.

8.1.2.17.2 Conformance requirement

In case the procedure was triggered by reception of a RRC CONNECTION SETUP message, the UE shall:

1> transmit a RRC CONNECTION SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable E_DCH_TRANSMISSION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in Idle Mode;

1> the variable E_RNTI includes either the Primary E-RNTI or the Secondary E-RNTI or both the Primary and the Secondary E-RNTI;

1> For FDD:

2> the UE has stored the following IEs:

- IE "E-DCH Transmission Time Interval";
- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-DPCCH info" and the IE "E-DPDCH info".
- one of the radio links in the active set is configured as the serving E-DCH radio link, and for this radio link the UTRAN has configured the IE "E-HICH configuration" and the IE "E-AGCH info".

1> For TDD:

2> for non-scheduled transmission, the UE has stored the following IEs:

- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-PUCH info";
- IE "Non-scheduled transmission grant info";

2> for scheduled transmission, the UE has stored the following IEs:

- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-RUCCH info" and the IE "E-PUCH info";
- IE "E-HICH info";
- IE "E-AGCH info".

1> there is at least one logical channel mapped to E-DCH for which:

2> the corresponding E-DCH MAC-d flow is configured, i.e. the IEs "E-DCH MAC-d flow power offset" and "E-DCH MAC-d flow maximum number of retransmissions", and the transmission grant type are configured.

If any of the above conditions is not met and the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1> set the variable E_DCH_TRANSMISSION to FALSE;

1> stop any E-AGCH, E-HICH and E-RGCH reception procedures;

1> For FDD:

2> stop any E-RGCH reception procedures.

1> For FDD:

2> stop any E-DPCCH and E-DPDCH transmission procedures.

1> For TDD:

2> stop any E-RUCCH and E-PUCH transmission procedures.

1> clear the variable E_RNTI;

1> release all E-DCH HARQ resources;

1> no longer consider any radio link to be the serving E-DCH radio link.

Whenever the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1>For FDD:

2> perform E_AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New Primary E-RNTI" and the IE "New Secondary E-RNTI".

2> perform E-HICH reception procedures for all radio links in the active set for which an E-HICH configuration has been provided;

2> perform E-RGCH reception procedures for all radio links in the active set for which an E-RGCH configuration has been provided;

2> perform E-DPCCH transmission procedures according to the stored E-DPCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-DPCCH Info";

2> perform E-DPDCH transmission procedures according to the stored E-DPDCH configuration as stated in:

3> subclause 8.6.5.16 for the IE "E-DCH Transmission Time Interval";

3> subclause 8.6.5.17 for the IE "HARQ info for E-DCH".

3> subclause 8.6.6.37 for the IE "E-DPDCH Info".

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH/E-RGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

1>For TDD:

2> if scheduled transmission is configured, perform E-AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New Primary E-RNTI".

2> Perform E-HICH reception;

2> for 3.84/7.68 Mcps TDD, perform E-RUCCH transmission procedures according to the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

2> for 1.28 Mcps TDD, if scheduled transmission is configured, perform E-RUCCH transmission procedure according to the stored PRACH configuration (see [60]) and the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

NOTE 1: The PRACH configuration is signalled directly to the UE in "E-RUCCH Info" IE in case of E-DCH serving cell change.

2> Perform E-PUCH transmission procedures according to the stored E-PUCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-PUCH Info".

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

2> obtain and format the appropriate information on E-UCCH (see [15]). For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, the UE shall use the lowest E-DCH capability category, as specified in [35], to signal the UL control information on E-UCCH.

NOTE 2: For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, UTRAN should use the lowest E-DCH capability category when performing configuration, scheduling and reading the control information on E-UCCH, as it is not possible for Node B to be aware of the UE's E-DCH capability category during this period.

Whenever the variable E_DCH_TRANSMISSION is set to FALSE, the UE shall:

1> not perform E-AICH, E-HICH and E-RGCH reception procedures;

1> not perform E-DPCCH and E-DPDCH transmission procedures.

…

If the IE "New Primary E-RNTI" and/or the IE "New Secondary E-RNTI" are/is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the new value(s) in the variable E_RNTI;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> for FDD:

2>use the value of the Primary E-RNTI and/or Secondary E-RNTI stored in the variable E_RNTI as UE identities in the E-AGCH reception procedure in the physical layer.

1> for TDD:

2> use the value of New Primary E-RNTI stored in the variable E_RNTI as the UE identity in the E-AGCH reception procedure and the E-RUCCH transmission procedure in the physical layer.

…

If the IE "Added or Reconfigured UL TrCH information" is included then the UE shall:

1> for the transport channel identified by the IE "UL Transport Channel Identity" and IE "Uplink transport channel type":

2> perform the actions for the IE "Transport Format Set" as specified in subclause 8.6.5.1.

NOTE: The UE stores the UL transport channel configuration until it is explicitly deleted by a message containing the IE "Deleted UL TrCH information" or the UE leaves RRC Connected mode.

1> if the choice "UL parameters" is set to 'EDCH':

2> for FDD:

3> apply the values of the IE "E-DCH Transmission Time Interval" and the IE "HARQ info for E-DCH" to all E-DCH MAC-d flows.

2> for TDD:

3> apply the value of the IE "HARQ info for E-DCH" to all E-DCH MAC-d flows.

2> if the IE "HARQ Info" is included:

3> perform the actions specified in subclause 8.6.5.17.

2> if the IE "Added or Reconfigured E-DCH MAC-d Flow" is included:

3> for each MAC-d flow identified by the IE "Mac-d flow identity":

4> perform the actions as specified in subclause 8.6.5.18.

2> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

NOTE: In case of multiple E-DCH MAC-d flows, IE "Added or Reconfigured UL TrCH information" is only included once. If the IE "Added or Reconfigured UL TrCH information" is included more than once with the IE "Uplink transport channel type" set to 'E-DCH', the UE behaviour is unspecified.

…

If the IE "E-DCH Transmission Time Interval" is included, the UE shall:

1> store the received TTI;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> apply the TTI as signalled in the IE "E-DCH Transmission Time Interval" on the E-DPDCH.

If the received "E-DCH Transmission Time Interval" is 2 ms and the previously stored TTI was 10 ms:

1> not send any data on E-DPDCH in first 8 TTIs after activation time of new TTI.

…

If the IE "HARQ Info for E-DCH" is included, the UE shall:

1> store the received configuration;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> use a redundancy version for each HARQ transmission as configured by the IE "HARQ RV Configuration".

…

If the IE "Added or reconfigured E-DCH MAC-d flow" is included, the UE shall:

1> if the IE "E-DCH MAC-d flow power offset" is included:

2> configure the power offset indicated in the IE "E-DCH MAC-d flow power offset" for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> if the IE "E-DCH MAC-d flow maximum number of retransmissions" is included:

2> configure the maximum number of retransmissions indicated in the IE "E-DCH MAC-d flow maximum number of retransmissions" for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> for 1.28 Mcps TDD, if the IE "E-DCH MAC-d flow retransmission timer" is included:

2> configure the retransmission timer for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> if the IE "E-DCH MAC-d flow multiplexing list" is included:

2> only multiplex MAC-d PDU's from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU's from E-DCH MAC-d flows with which multiplexing in the same MAC-e PDU is allowed in accordance to the IE "E-DCH MAC-d flow multiplexing list".

1> else:

2> if previously the IE "E-DCH MAC-d flow multiplexing list" was already received for this E-DCH MAC-d flow:

3> continue to only multiplex E-DCH PDU's from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU's from E-DCH MAC-d flows with which multiplexing in the same MAC-e PDU is allowed according to the previously received IE "E-DCH MAC-d flow multiplexing list".

2> else (never received the IE "E-DCH MAC-d flow multiplexing list" for this E-DCH MAC-d flow):

3> allow multiplexing of MAC-d PDU's from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU's from any other E-DCH MAC-d flow in the same MAC-e PDU.

1> for FDD:

2> if the IE "Non-scheduled transmission grant info" is included:

3> if the TTI configured on the E-DCH equals 2ms, and the IE "2ms non-scheduled transmission grant HARQ process allocation" is configured for this MAC-d flow:

4> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e or MAC-i PDU transmitted by HARQ processes allowed by the IE "2ms non-scheduled transmission grant HARQ process allocation", with a total contribution from this MAC-d flow (i.e. including MAC-e/es or MAC-i/is headers) not exceeding the size as signalled by the IE "Max MAC-e PDU contents size".

3> else:

4> MAC-d PDU's for logical channels belonging to this MAC-d flow shall be included in a MAC-e or MAC-i PDU transmitted by any HARQ process, with a total contribution from this MAC-d flow (i.e. including MAC-e/es or MAC-i/is headers) not exceeding the size as signalled by the IE "Max MAC-e PDU contents size".

2> if the IE "Scheduled transmission grant info" is included:

3> transmission of MAC-d PDU's for logical channels belonging to this MAC-d flow shall be in accordance with the received scheduled grant on E-AGCH/E-RGCH (see [15]).

1> for TDD:

2> if the IE "Non-scheduled transmission grant info" is included:

3> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e or MAC-i PDU transmitted by HARQ processes designated as non scheduled (Ids 4 – 7) in the TTIs indicated (for 3.84 Mcps TDD and 7.68 Mcps TDD, as determined from the IEs "Activation Time", "Resource Duration" and "Resource Periodicity"; for 1.28Mcps TDD, as determined from the IEs "Activation Time", "Subframe number", "Resource Duration" and "Resource Periodicity", and the calculation of assigned Non-scheduled transmission grant is specified in subclause 8.6.6.16a).

2> if the IE "Scheduled transmission grant info" is included:

3> transmission of MAC-d PDUs for logical channels belonging to this MAC-d flow shall be in accordance with the received scheduled grant on E-AGCH (see [15]).

1> perform the actions as specified in subclause 8.5.21;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

…

If the IE "Downlink information for each radio link" is included in a received message, the UE shall:

1> if the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> if the UE is in TDD mode and shared transport channels are assigned to the UE:

3> start to receive the indicated Secondary CCPCH.

2> if the UE is in TDD mode and no shared transport channels are assigned to the UE:

3> set the variable UNSUPPORTED_CONFIGURATION to TRUE.

2> For FDD:

3> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving HS-DSCH radio link and no longer consider any other radio link as serving HS-DSCH radio link.

2> For FDD:

3> if the IE "Serving E-DCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving E-DCH radio link and no longer consider any other radio link as serving E-DCH radio link.

3> if the IE "E-AGCH Info" is included for the serving E-DCH radio link:

4> store the newly received E-AGCH configuration.

NOTE: The UTRAN should always include the IE "E-AGCH info" if the serving E-DCH radio link indicated in the message is another radio link than the serving E-DCH radio link prior to the procedure.

3> if the IE "E-HICH information" is included:

4> store this E-HICH configuration for the concerning radio link.

3> if the IE "E-HICH information" is included or previously stored:

4> store this E-RGCH configuration for the concerning radio link, if included.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> for TDD:

3> if the IE "E-AGCH Info" is included:

4> store the newly received E-AGCH configuration.

3> if the IE "E-HICH information" is included:

4> store the E-HICH configuration.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> act on the other IEs contained in the IE "Downlink information for each radio link" as specified in subclause 8.6 applied on this radio link.

1> in addition, if the message was received in CELL_DCH state and the UE remains in CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> For FDD:

3> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving HS-DSCH radio link;

4> if the serving HS-DSCH radio link was another radio link than this radio link prior to reception of the message and the IE "H-RNTI" is not included:

5> clear the variable H_RNTI.

3> if the IE "Serving HS-DSCH radio link indicator" is set to 'FALSE' and this radio link was considered the serving HS-DSCH radio link prior to reception of this message:

4> no longer consider this radio link as the serving HS-DSCH radio link.

3> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25;

3> if the IE "Serving E-DCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving E-DCH radio link;

4> if the serving E-DCH radio link was another radio link than this radio link prior to reception of the message:

5> if the IE "New Primary E-RNTI" is not included:

6> clear the Primary E-RNTI stored in the variable E_RNTI.

5> if the IE "New Secondary E-RNTI" is not included:

6> clear the Secondary E-RNTI stored in the variable E_RNTI.

3> if the IE "Serving E-DCH radio link indicator" is set to 'FALSE' and this radio link was considered the serving E-DCH radio link prior to reception of this message:

4> no longer consider this radio link as the serving E-DCH radio link.

3> if the IE "E-HICH release indicator" is present:

4> delete the stored E-HICH, E-AGCH and E-RGCH (if any) configurations.

3> if the IE "E-RGCH release indicator" is present:

4> delete the stored E-RGCH configuration for this RL.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> For TDD:

3> if the IE "H-RNTI" is not included and the primary CCPCH has changed:

4> clear the variable H_RNTI.

3> determine the value for the HS-DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

2> for TDD:

3> if the IE "New Primary E-RNTI" is not included:

4> clear the variable E_RNTI.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> for each optional IE part of the IE "Downlink information for each radio link" that is not present:

3> do not change its current downlink physical channel configuration corresponding to the IE, which is absent, if not stated otherwise elsewhere.

NOTE: The Release '99 RADIO BEARER RECONFIGURATION message always includes at least one IE "Downlink information for each radio link" containing the mandatory IEs, even if UTRAN does not require the reconfiguration of any radio link.

1> if the UE would enter either the CELL_FACH, CELL_PCH or URA_PCH state according to subclause 8.6.3.3 applied on the received message:

2> if IEs other than the IE "Primary CPICH info" (for FDD) or the IE "Primary CCPCH info" (for TDD) are included in the IE "Downlink information for each radio link":

3> ignore these IEs.

2> act on the other IEs contained in the IE "Downlink information for each radio link" as specified in subclause 8.6 applied on this radio link.

…

If the IE "E-DCH Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> for FDD:

2> if the IE "E-DPCCH Info" is included:

3> store the newly received E-DPCCH configuration.

2> if the IE "E-DPDCH Info" is included:

3> store the newly received E-DPDCH configuration.

2> if the IE "UL 16QAM settings" is not included:

3> indicate to lower layers to stop any operation in 16QAM mode.

1> for 3.84/7.68 Mcps TDD:

2> if the IE "E-RUCCH Info" is included:

3> store the newly received E-RUCCH configuration.

2> if the IE "E-PUCH Info" is included:

NOTE 1: The UTRAN should ensure the ordering of the E-TFCI table in strictly increasing order of transmission power prior to quantization, by correct setting of the reference E-TFCI power offsets otherwise the UE behaviour is unspecified.

NOTE 2: If a reference E-TFCI signalled to the UE is outside the UE physical channel capability, the UE behaviour is unspecified.

NOTE 2a: If E-TFCI boost is signalled to the UE and a reference E-TFCI <= E-TFCI Boost is signalled to the UE with a Reference E-TFCI PO of value 30 or 31, the UE behaviour is unspecified.

1> if the IE "MAC-es/e reset indicator" is included:

2> reset the MAC-es/e or MAC-i/is entity [15].

NOTE 3: If the IE "MAC-es/e reset indicator" is not set to TRUE in case the IE "E-DCH Transmission Time Interval" is reconfigured, the UE behaviour is unspecified.

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> for FDD:

2> configure the UL E-DPCCH in accordance with the stored IE "E-DPCCH" configuration;

2> configure the MAC with the stored IE "E-DPDCH" configuration and/or the information contained in IE "Scheduled Transmission configuration".

1> for TDD:

2> configure the E-RUCCH with the stored E-RUCCH configuration;

2> configure the MAC with the stored E-PUCH configuration.

Reference

3GPP TS 25.331 clauses 8.5.28, 8.6.3.14, 8.6.5.5, 8.6.5.16, 8.6.5.17, 8.6.5.18, 8.6.6.4, 8.6.6.37

8.1.2.17.3 Test purpose

To confirm that the UE establishes a signalling radio bearer mapped to HS-DSCH and E-DCH according to the received RRC CONNECTION SETUP message.

8.1.2.17.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: Registered Idle Mode on PS (state 3), or CS/PS (state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH
- UE supports E-DPDCH (FDD) or E-PUCH (TDD)
- UE fully supports F-DPCH (FDD only)

Test Procedure

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH, after the test operator makes an out-going call. The SS transmits a RRC CONNECTION SETUP message to the UE. This message requests the establishment of a signalling radio bearer with SRB mapping to HS-DSCH and E-DCH. After the UE receives this message, it establishes a signalling radio bearer and maps it to the HS-DSCH and E-DCH. Finally the UE transmits a RRC CONNECTION SETUP COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	→		RRC CONNECTION REQUEST	The SS prompts the operator makes an out-going call. The UE shall transmit this message, indicating the proper establishment cause.
2	←		RRC CONNECTION SETUP	
3	→		RRC CONNECTION SETUP COMPLETE	
4	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RRC CONNECTION REQUEST (Step 1)

The same message sub-type found in clause 9 of TS 34.108 applies, with the following exceptions:

Information Element	Value/remark
Initial UE identity	Registered TMSI or P-TMSI
Establishment Cause	Originating Interactive Call or Originating Background Call or Originating Streaming Call or OriginatingSubscribedTrafficCall.

RRC CONNECTION SETUP (Step 2)

Use the same message as specified for "Stand-alone SRBs mapped on E-DCH and HS-DSCH" in 34.108.

RRC CONNECTION SETUP COMPLETE (Step 3)

Use the same message sub-type found in clause 9 of TS 34.108

8.1.2.17.5 Test requirements

After step 2, the UE shall transmit a RRC CONNECTION SETUP COMPLETE message.

8.1.2.18 RRC Connection Establishment using the default configuration for HS-DSCH / E-DCH signalling bearers

8.1.2.18.1 Definition

All UEs which support FDD and HS-PDSCH and E-DCH and fully support F-DPCH or all UEs which support TDD and HS-PDSCH and E-PUCH.

8.1.2.18.2 Conformance requirement

The UE shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP message with the value of the variable INITIAL_UE_IDENTITY.

If the values are different, the UE shall:

1> ignore the rest of the message.

If the values are identical, the UE shall:

2> if IE "Specification mode" is set to "Preconfiguration" and IE "Preconfiguration mode" is set to "Default configuration":

3> initiate the radio bearer and transport channel configuration in accordance with the default parameters identified by the IE "Default configuration mode" and IE "Default configuration identity";

3> initiate the physical channels in accordance with the received physical channel information elements.

NOTE: IE "Default configuration mode" specifies whether the FDD or TDD version of the default configuration shall be used.

Reference

3GPP TS 25.331 clause 8.1.3.6, clause 13.7

8.1.2.18.3 Test purpose

To confirm that the UE establishes the radio bearer and transport channel configuration for HS-DSCH / E-DCH signalling radio bearers in accordance with the stored default parameters as identified by the IE “Default configuration identity” specified in the RRC Connection Setup Message

8.1.2.18.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: Idle state (state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH
- UE supports E-DPDCH (FDD) or E-PUCH (1.28Mcps TDD)
- UE fully supports F-DPCH (FDD only)

Test Procedure

The UE shall transmit a RRC CONNECTION REQUEST message to the SS on the uplink CCCH, after the operator attempts to make an outgoing call. SS shall send a RRC CONNECTION SETUP message that contains the stored default configuration identity 17 (for standalone HS-DSCH / E-DCH signalling radio bearers). The UE accepts the message, configuring the radio bearer and transport channel configuration in accordance with the stored default parameters and acknowledge the establishment of RRC connection by sending the RRC CONNECTION SETUP COMPLETE message on uplink DCCH.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1				Operator is asked to make an outgoing call.
2	→		RRC CONNECTION REQUEST	
3	←		RRC CONNECTION SETUP	DefaultConfigIdentity used is ‘17’
4	→		RRC CONNECTION SETUP COMPLETE	
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state the test passes, otherwise it fails.

Specific Message Contents

RRC CONNECTION REQUEST (Step 2)

The same message sub-type found in clause 9 of TS 34.108 applies, with the following exceptions:

Information Element	Value/remark
Initial UE identity	Same as the registered TMSI or P-TMSI
Establishment Cause	Originating Interactive Call or Originating Background Call or Originating Streaming Call or OriginatingSubscribedTrafficCall.

RRC CONNECTION SETUP (Step 3) (FDD)

Use the same message sub-type found in clause 9 of TS 34.108 (Transition to CELL_DCH), for condition "Stand-alone SRBs mapped on E-DCH and HS-DSCH" with the following exceptions:

Information Element	Value/remark
Choice Specification Mode	Preconfiguration
- Choice Preconfig Mode	Default Config
- Default Config Mode	FDD
-Default Config Identity	17

RRC CONNECTION SETUP (Step 3) (1.28Mcps TDD)

Use the same message sub-type found in clause 9 of TS 34.108 (Transition to CELL_DCH), for condition "Stand-alone SRBs mapped on E-DCH and HS-DSCH" with the following exceptions:

Information Element	Value/remark
Choice Specification Mode	Preconfiguration
- Choice Preconfig Mode	Default Config
- Default Config Mode	TDD
-Default Config Identity	17

RRC CONNECTION SETUP COMPLETE (Step 4)

Use the same message sub-type found in clause 9 of TS 34.108

8.1.2.18.5 Test requirement

At step 4 the UE shall transmit a RRC CONNECTION SETUP COMPLETE message on Radio Bearer Id: 2 and establish an RRC connection.

8.1.2.19 RRC Connection Establishment for transition from Idle Mode to CELL_DCH: Success (start of discontinuous uplink transmission and downlink reception)

8.1.2.19.1 Definition and applicability

All UEs which support FDD and UL DTX.

8.1.2.19.2 Conformance requirement

The UE shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP message with the value of the variable INITIAL_UE_IDENTITY.

If the values are different, the UE shall:

1> ignore the rest of the message.

If the values are identical, the UE shall:

…

1> submit an RRC CONNECTION SETUP COMPLETE message to the lower layers on the uplink DCCH after successful state transition per subclause 8.6.3.3, with the contents set as specified below:

…

If the UE receives RRC CONNECTION SETUP, ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message:

1> the UE shall determine the value for the DTX_DRX_STATUS variable.

The variable DTX_DRX_STATUS shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> both variables HS_DSCH RECEPTION and E_DCH_TRANSMISSION are set to TRUE;

1> no DCH transport channel is configured;

1> the variable DTX_DRX_PARAMS is set;

1> the UE has received the IE "DTX-DRX timing information".

If any of the above conditions is not met and the variable DTX_DRX_STATUS is set to TRUE, the UE shall:

1> set the variable DTX_DRX_STATUS to FALSE;

1> clear the variable DTX_DRX_PARAMS;

1> stop DTX-DRX mode related activities.

If variable DTX_DRX_STATUS is set to true and the serving HS-DSCH cell was changed as a result of the received message the UE shall instruct the physical layer to consider HS-SCCH orders were never received.

Whenever the variable DTX_DRX_STATUS is set to TRUE after receiving this message and the value of IE "DTX-DRX timing information" included in this message is not "Continue", the UE shall:

1> if the variable DTX_DRX_STATUS was set to TRUE before receiving this message:

2> re-configure the physical layer to perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration;

2> let the MAC layer continue with the current restriction on E-DCH transmission and monitoring of absolute and relative grant channels from the frame boundary where the uplink transmission starts with the new configuration and for the duration of the IE "Enabling Delay".

1> else:

2> perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations by configuring the physical layer according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration.

1> configure the MAC layer to start restricting E-DCH transmissions and monitor absolute and relative grant channels at the CFN corresponding to the frame boundary that is offset by the value of IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration taking into account the IEs "UE DTX DRX Offset", "MAC DTX Cycle", "MAC Inactivity Threshold" and "Inactivity Threshold for UE Grant Monitoring".

…

If the IE "DTX-DRX timing information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> if the CHOICE "timing" is set to "New timing":

2> use the newly received DTX-DRX timing configuration.

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34.

…

If the IE "DTX–DRX information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the contents of the IE in the variable DTX_DRX_PARAMS;

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34;

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple of the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple or a divisor of the value of the IE "CQI Feedback cycle, k"; or

1> if the value of the IE "UE DPCCH burst 1" is greater than the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DPCCH burst 2" is greater than the value of the IE "UE DTX cycle 2"; or

1> if the IE "UE DTX long preamble length" is set to 4 or 15 slots and the value of the IE "Inactivity Threshold for UE DTX cycle 2" is less than 4 TTIs (for 10ms E-DCH TTI) or 8 TTIs (for 2ms E-DCH TTI); or

1> if the IE "UE DRX cycle" is not an integer multiple or a divisor of the value of the IE "UE DTX cycle 1"; or

1> if the IE "DRX Information" is included in this message while the IE "DTX information" is not included in this message; or

1> if the value of the IE "UE DTX cycle 1" is not an integer multiple or a divisor of the value of the IE "MAC DTX cycle":

2> the UE behaviour is unspecified.

Reference

3GPP TS 25.331 clauses 8.1.3.6, 8.5.34, 8.6.6.38, 8.6.6.39

8.1.2.19.3 Test purpose

To confirm that the UE establishes a signalling radio bearer mapped to HS-DSCH and E-DCH, with discontinuous transmission and reception according to the received RRC CONNECTION SETUP message.

8.1.2.19.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: Registered Idle Mode on PS (state 3), or CS/PS (state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports DPCCH Discontinuous Transmission

Test Procedure

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH, after the test operator makes an out-going call. The SS transmits a RRC CONNECTION SETUP message to the UE. This message requests the establishment of a signalling radio bearer with SRB mapping to HS-DSCH and E-DCH and provides DTX and DRX parameters. After the UE receives this message, it establishes a signalling radio bearer and maps it to the HS-DSCH (with DRX enabled if supported) and E-DCH (with DTX enabled). Finally the UE transmits a RRC CONNECTION SETUP COMPLETE message using AM RLC. The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 400ms. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	→		RRC CONNECTION REQUEST	The SS prompts the operator makes an out-going call. The UE shall transmit this message, indicating the proper establishment cause.
2	←		RRC CONNECTION SETUP	Requests establishment of SRBs mapped to HS-DSCH/E-DCH with DTX-DRX information,
3	→		RRC CONNECTION SETUP COMPLETE	
4	SS			The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 400ms (i.e. duration of 10 consecutive DTX cycle 2).
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RRC CONNECTION REQUEST (Step 1)

The same message sub-type found in clause 9 of TS 34.108 applies, with the following exceptions:

Information Element	Value/remark
Initial UE identity	Registered TMSI or P-TMSI
Establishment Cause	Originating Interactive Call or Originating Background Call or Originating Streaming Call or OriginatingSubscribedTrafficCall.

RRC CONNECTION SETUP (Step 2)

Use the same message as specified for "Stand-alone SRBs mapped on E-DCH and HS-DSCH" in 34.108, with the following exceptions:

Information Element	Value/remark
Added or Reconfigured UL TrCH information	
- Uplink transport channel type	E-DCH
- CHOICE UL parameters	E-DCH
- E-DCH Transmission Time Interval	10ms
DTX-DRX timing information CHOICE *timing* - New timing - Enabling Delay - UE DTX DRX Offset DTX-DRX Information DTX information - CHOICE *E-DCH TTI length* - UE DTX cycle 1 - UE DTX cycle 2 - MAC DTX cycle - Inactivity Threshold for UE DTX cycle 2 - UE DTX long preamble length - MAC Inactivity Threshold - CQI DTX Timer - UE DPCCH burst_1 - UE DPCCH burst_2 DRX Information - UE DRX cycle - Inactivity Threshold for UE DRX cycle - Inactivity Threshold for UE Grant Monitoring - UE DRX Grant Monitoring Uplink DPCCH slot format information	 16 0 10ms 10 20 10 8 4 8 32 1 1 10 32 8 TRUE 1

RRC CONNECTION SETUP COMPLETE (Step 3)

Use the same message sub-type found in clause 9 of TS 34.108

8.1.2.19.5 Test requirements

At step 3, the UE shall transmit a RRC CONNECTION SETUP COMPLETE message.

At step 4 the time between 11 consecutive CQI indications shall be 400ms.

8.1.2.20 RRC Connection Establishment for transition from Idle Mode to CELL_FACH: Success (Start of HS-DSCH Reception)

8.1.2.20.1 Definition and applicability

All UEs which support FDD and HS-PDSCH in CELL_FACH.

8.1.2.20.2 Conformance requirement

The UE shall, in the transmitted RRC CONNECTION REQUEST message:

…

1> if the UE supports HS-DSCH reception in CELL_FACH state:

2> include the IE "HS-PDSCH in CELL_FACH" and set it to TRUE.

…

The UE shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP message with the value of the variable INITIAL_UE_IDENTITY.

If the values are different, the UE shall:

1> ignore the rest of the message.

If the values are identical, the UE shall:

…

2> if IE "Specification mode" is set to "Complete specification":

…

3> if the IE "HS-DSCH common system information" is not included in System Information Block type 5 or System Information Block type 5bis:

4> select Secondary CCPCH according to subclause 8.5.19;

3> else:

4> set variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED to FALSE;

4> if the RBs have the multiplexing option with transport channel type "HS-DSCH" for the DL and transport channel type “RACH” in the UL; and

4> if "new H-RNTI" and "new C-RNTI" are included:

5> store the "new H-RNTI" according to subclause 8.6.3.1b;

5> store the "new C-RNTI" according to subclause 8.6.3.9;

5> and start to receive HS-DSCH according to the procedure in subclause 8.5.36.

4> else:

5> clear variable C_RNTI and delete any stored C-RNTI value;

5> clear variable H_RNTI and delete any stored H-RNTI value;

5> clear any stored IE "HARQ Info";

5> set the variable INVALID_CONFIGURATION to TRUE.

…

1> submit an RRC CONNECTION SETUP COMPLETE message to the lower layers on the uplink DCCH after successful state transition per subclause 8.6.3.3, with the contents set as specified below:

2> set the IE "RRC transaction identifier" to:

3> the value of "RRC transaction identifier" in the entry for the RRC CONNECTION SETUP message in the table "Accepted transactions" in the variable TRANSACTIONS; and

3> clear that entry.

2> if the USIM or SIM is present:

3> set the "START" for each CN domain in the IE "START list" in the RRC CONNECTION SETUP COMPLETE message with the corresponding START value that is stored in the USIM [50] if present, or as stored in the UE if the SIM is present; and then

3> set the START value stored in the USIM [50] if present, and as stored in the UE if the SIM is present for any CN domain to the value "THRESHOLD" of the variable START_THRESHOLD.

…

The variable HS_DSCH_RECEPTION_CELL_FACH_STATE shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_FACH;

1> the variable H_RNTI is set;

1> the variable C_RNTI is set;

1> System Information Block type 5 or System Information Block type 5bis includes IE "HS-DSCH common system information".

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION_CELL_FACH_STATE to FALSE;

1> if the UE is in CELL_FACH and variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED is set to FALSE:

2> set the variable HS_DSCH_RECEPTION_GENERAL to FALSE;

2> stop any HS_SCCH reception procedures;

2> stop any HS-DSCH reception procedures;

2> clear the variable H_RNTI and remove any stored H-RNTI;

2> reset the MAC-ehs entity [15];

2> release all HARQ resources;

2> clear any stored IEs "HARQ info";

Whenever the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION_GENERAL to TRUE;

1> use the IE "HS-DSCH common system information" in System Information Block type 5 or System Information Block type 5bis;

1> receive the HS-SCCH(s) according to the IE "HS-SCCH channelization code" on the serving cell applying the scrambling code as received in the IE "DL Scrambling code" as received in IE "HS-DSCH common system information";

1> perform HS-DSCH reception procedures:

2> if the UE has a stored IE "HARQ info":

3> act on subclause 8.6.5.6b for the stored IE "HARQ info".

2> else:

3> act on subclause 8.6.5.20 for the IE "HARQ System info" as received in IE "HS-DSCH common system information".

2> and use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

1> and for BCCH reception perform HS-DSCH reception procedures by listening to the first indexed HS-SCCH code listed in the IE "HS-SCCH channelization code" with "BCCH specific H-RNTI" as received in IE "HS-DSCH common system information".

Whenever the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to FALSE, the UE shall:

1> if the UE is in CELL_FACH and variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED is set to FALSE:

2> not perform HS_SCCH reception procedures;

2> not perform HS-DSCH reception procedures.

…

When UE does not support HS-DSCH reception or when the IE "HS-DSCH common system information" is not included in System Information Block type 5 or System Information Block type 5bis, the UE shall:

1> set HS_DSCH_RECEPTION_OF_CCCH_ENABLED to FALSE;

1> set the variable HS_DSCH_RECEPTION_GENERAL to FALSE.

When HS_DSCH_RECEPTION_OF_CCCH_ENABLED is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION_GENERAL to TRUE;

1> use the IE "HS-DSCH common system information" in System Information Block type 5 or System Information Block type 5bis;

1> configure the HARQ according to IE "HARQ System info" as defined in subclause 8.6.5.20;

1> configure the common MAC-ehs reordering queues according to IE "Common MAC-ehs reordering queues" as defined in subclauses 8.6.5.22; and then

1> receive the CCCH according to IE "CCCH mapping info" as defined in subclause 8.6.5.21;

1> if the UE is RRC Connected mode:

2> select a common H-RNTI as specified in 8.5.38;

2> receive the SRB1 according to IE "SRB1 mapping info" as defined in subclause 8.6.5.19.

1> else:

2> select a common H-RNTI as specified in [4].

1> and start to receive the HS-SCCH(s) with selected H-RNTI according to the IE "HS-SCCH channelization code" on the selected cell applying the scrambling code as received in the IE "DL Scrambling code";

1> configure the MAC flow for BCCH reception as specified in [15];

1> and start to receive the first indexed HS-SCCH code listed in the IE "HS-SCCH channelization code" with "BCCH specific H-RNTI" as received in IE "HS-DSCH common system information".

Reference

3GPP TS 25.331 clauses 8.1.3.3, 8.1.3.6, 8.5.36, 8.5.37

8.1.2.20.3 Test purpose

To confirm that the UE establishes a signalling radio bearer mapped to HS-DSCH and RACH according to the received RRC CONNECTION SETUP message.

8.1.2.20.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: Registered Idle Mode on PS (state 3), or CS/PS (state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH in CELL_FACH

Test Procedure

The SS transmits System Information Type 5 including configuration for HS-DSCH reception in CELL_FACH state.

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH, after the test operator makes an out-going call.

The SS transmits a RRC CONNECTION SETUP message to the UE on RB0 mapped to HS-DSCH. This message requests the establishment of a signalling radio bearer with SRB mapping to HS-DSCH and RACH. After the UE receives this message, it establishes a signalling radio bearer and maps it to the HS-DSCH and RACH. Finally the UE transmits a RRC CONNECTION SETUP COMPLETE message using AM RLC on the RACH channel.

SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←		SYSTEM INFORMATION TYPE 5	Includes configuration for HS-DSCH reception in CELL_FACH state
1	→		RRC CONNECTION REQUEST	The SS prompts the operator makes an out-going call. The UE shall transmit this message, indicating the correct establishment cause and support of HS-PDSCH in CELL_FACH
2	←		RRC CONNECTION SETUP	Transmitted on HS-DSCH, requests establishment of SRBs mapped to HS-DSCH/RACH,
3	→		RRC CONNECTION SETUP COMPLETE	
4	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

SYSTEM INFORMATION TYPE 5

Use default message in 34.108 section 6.1.0b, condition B1.RRC CONNECTION REQUEST (Step 1)

Use the same message type found in clause 9 of TS 34.108, with the following exceptions.

Information Element	Value/remark
Initial UE identity	Same as the registered TMSI or P-TMSI
Establishment Cause	Originating Interactive Call or Originating Background Call or Originating Streaming Call or OriginatingSubscribedTrafficCall
HS-PDSCH in CELL_FACH	Check to see if set to TRUE

RRC CONNECTION SETUP (Step 2)

Use default message in 34.108 section 9.1.1, condition A4.RRC CONNECTION SETUP COMPLETE (Step 3)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
UE Radio Access Capability	Checked to see if compatible with the stated capability in PIXIT/PICS statements.
UE radio access capability extension	Checked to see if compatible with the stated capability in PIXIT/PICS statements.
UE system specific Capability	Checked to see if compatible with the stated capability in PIXIT/PICS statements.

8.1.2.20.5 Test requirements

After step 3 the UE shall establish the RRC connection, and transmit RRC CONNECTION SETUP COMPLETE message on the DCCH using PRACH physical resource specified in system information block messages.

8.1.2.21 RRC Connection Establishment: Reject with Frequency Info set to the same frequency band – Successful case

8.1.2.21.1 Definition

8.1.2.21.2 Conformance requirement

When the UE receives an RRC CONNECTION REJECT message on the downlink CCCH, it shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION REJECT message with the value of the variable INITIAL_UE_IDENTITY:

If the values are different, the UE shall ignore the rest of the message;

If the values are identical, the UE shall:

1> stop timer T300 or T318, whichever one is running; and

1> clear the entry for the RRC CONNECTION REJECT message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> if the UE has disabled cell reselection to a UTRA carrier due to an earlier RRC CONNECTION REJECT message, the UE shall resume cell reselection to that UTRA carrier;

1> if the Rejection Cause is 'unspecified' and the IE "Counting Completion" is present, the UE shall terminate an ongoing MBMS counting procedure according to subclause 8.7.4.4;

1> if the IE "wait time" <> '0'; and

1> if the IE "frequency info" is present and:

2> if V300 is equal to or smaller than N300:

3> select a suitable UTRA cell according to [4] on that frequency;

3> after having selected and camped on a suitable cell on the designated UTRA carrier:

4> set CFN in relation to SFN of current cell according to subclause 8.5.15;

4> set the contents of the RRC CONNECTION REQUEST message according to subclause 8.1.3.3;

4> perform the mapping of the Access Class to an Access Service Class as specified in subclause 8.5.13, and apply the given Access Service Class when accessing the RACH or the common E-DCH (for the Enhanced Uplink in CELL_FACH and Idle mode);

4> transmit an RRC CONNECTION REQUEST message on the uplink CCCH;

4> reset counter V300;

4> start timer T300 when the MAC layer indicates success or failure in transmitting the message;

4> disable cell reselection to original UTRA carrier until the time stated in the IE "wait time" has elapsed or until the RRC connection establishment procedure ends, whichever occurs first;

Reference

3GPP TS 25.331 clause 8.1.3.9.

8.1.2.21.3 Test purpose

To confirm that the UE retries to establish RRC connection in a suitable cell on the designated UTRA carrier, if it receives an RRC CONNECTION REJECT message including the optional IE "redirection info" referencing frequencies in the same band, but having different Qrxlevmin values and if a suitable cell on the designated UTRA carrier is found.8.1.2.21.4 Method of test

Initial Condition

System Simulator: 2 cells – both cell 1 and cell 4 are active and suitable for camping, but cell 1 is transmitted using a larger power. The Qrxlevmin of cell 4 is 10dB higher than that of cell 1.

Table 8.1.2.21

Parameter	Unit	Cell 1			Cell 4		
		T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Mid Range Test Frequency			High Range Test Frequency		
CPICH Ec (FDD)	dBm/3.84 MHz	-60	-60	-60	--70	Off	-70
Qrxlevmin	dBm	-89			-79		

UE: Switched off (state 1 as specified in clause 7.4 of TS 34.108).

Related ICS/IXIT statement(s)

None

Specific message content

For system information block 11 for Cell 1 (gives IE's which are different from defaults given in 34.108 sec 6.1) to be transmitted before idle update preamble.

System Information Block type 11

Use same message sub-clause 6.1 of TS34.108, with following exception:

Information Element	Value/remark
SIB12 indicator	FALSE
Measurement control system information	
- Intra-frequency measurement system information	
- Intra-frequency reporting quantity for RACH reporting	
- SFN-SFN observed time difference reporting indicator	No report
- CHOICE mode	FDD
- Reporting quantity	CPICH Ec/N0
- Maximum number of reported cells on RACH	Current Cell
- Reporting information for state CELL_DCH	Not present

Test Procedure

SS adjusts the power setting for the cells according to "T0" in table 8.1.2.21. The UE is switched on.

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH for registration on cell 1. SS rejects the first request by transmitting an RRC CONNECTION REJECT message which includes the IE "Redirection Info" indicating frequency information for cell 4. SS then waits for RRC CONNECTION REQUEST message on the uplink CCCH of cell 4. SS will also monitor the uplink of cell 1 simultaneously to ensure that all transmission activities from cell 1 have ceased. When the UE has successfully selected cell 4, it shall send an RRC CONNECTION REQUEST with the same establishment cause as its previous attempt in cell 1. Finally, SS transmits an RRC CONNECTION SETUP message to establish an RRC connection with the UE, and the UE replies with an RRC CONNECTION SETUP COMPLETE message. UE is brought to Idle state (state 2 or state 3 or state 7) in cell 4 as

specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE. SS adjust the power setting for cells according to "T1" in table 8.1.2.21.

SS adjusts the power setting for the cells accordingly to "T2" in table 8.1.2.21. The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by an outgoing call operation in cell 1. SS rejects the first request by transmitting an RRC CONNECTION REJECT message which includes the IE "Redirection Info" indicating frequency information for cell 4. SS will also monitor the uplink of cell 1 simultaneously to ensure that all transmission activities from cell 1 have ceased. When the UE has successfully selected cell 4, it shall send an RRC CONNECTION REQUEST with the same establishment cause as its previous attempt in cell 1. Finally, SS transmits an RRC CONNECTION SETUP message to establish an RRC connection with the UE, and the UE replies with an RRC CONNECTION SETUP COMPLETE message.

NOTE: If the UE fails the test because of a failure to reselect to the right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	UE			The UE is powered up or switched on, (see ICS)
2	→		RRC CONNECTION REQUEST	The establishment cause must be "Registration"
3	←		RRC CONNECTION REJECT	This message shall include the IE "wait time" set to 5 seconds and IE "frequency info" set to the UARFCN of cell 4. Note: this wait time would apply after failure of the inter frequency cell re-selection, which is not verified in this test case
4				SS waits for a period of time sufficient for UE to select to cell 4. At the same time, it monitors the uplink of cell 1 to make sure that all transmissions have ceased.
5	→		RRC CONNECTION REQUEST	UE shall attempt to re-start an RRC connection establishment procedure in cell 4. The establishment cause shall remain unchanged.
6	←		RRC CONNECTION SETUP	SS sends the message to UE to setup an RRC connection with the UE.
7				The UE shall configure the layer 2 and layer 1 in order to access the uplink and downlink DCCH assigned.
8	→		RRC CONNECTION SETUP COMPLETE	
9				UE is brought to Idle state (state 2 or state 3 or state 7) in cell 4 as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE
10				The SS switches its downlink transmission power settings to columns "T1" in table 8.1.2.21.
11				The UE will reselect to cell 1. The SS switches its downlink transmission power settings to columns "T2" in table 8.1.2.21.
12	→		RRC CONNECTION REQUEST	SS prompts the operator to make an outgoing call in cell 1.
13	←		RRC CONNECTION REJECT	This message shall includes the IE "wait time" set to 5 seconds and IE "frequency info" set to the UARFCN of cell 4. Note: this wait time would apply after failure of the inter frequency cell re-selection, which is not verified in this test case
14				SS waits for a period of time sufficient for UE to select to cell 4. At the same time, it monitors the uplink of cell 1 to make sure that all transmissions have ceased.
15	→		RRC CONNECTION REQUEST	UE shall attempt to start an RRC connection establishment procedure in cell 4. The establishment cause shall be same as the one sent in step 10.

16	←	RRC CONNECTION SETUP	SS sends the message to UE to setup an RRC connection with the UE.
17			The UE shall configure the layer 2 and layer 1 in order to access the uplink and downlink DCCH assigned.
18	→	RRC CONNECTION SETUP COMPLETE	
19	←→	CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RRC CONNECTION REQUEST (Step 2 and Step 5)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Initial UE Identity	Same as the IMSI stored in the TEST USIM card, or the previously registered TMSI or P-TMSI
Establishment Cause	Must be "Registration"

RRC CONNECTION REJECT (Step 3 and Step 13)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Rejection cause	Congestion
Wait time	5 seconds
Redirection Info	
- Frequency Info	
- CHOICE mode	FDD
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink (Nd)	Set to the UARFCN for downlink carrier of cell 4

RRC CONNECTION REQUEST (Step 12 and Step 15)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Initial UE Identity	Same as the registered TMSI or P-TMSI
Establishment Cause	Must be "Originating Call"

8.1.2.21.5 Test requirement

After step 4 the UE shall have successfully selected cell 4. UE shall trigger the start of RRC connection establishment by transmitting RRC CONNECTION REQUEST. The establishment cause shall be registration.

In step 8, the UE shall send the RRC CONNECTION SETUP COMPLETE message on the frequency indicated in the RRC CONNECTION SETUP message.

After step 14 the UE shall have successfully selected to cell 4. UE shall trigger the start of RRC connection establishment by transmitting RRC CONNECTION REQUEST. The establishment cause shall be originating call.

In step 18, the UE shall send the RRC CONNECTION SETUP COMPLETE message on the frequency indicated in the RRC CONNECTION SETUP message.

8.1.2.21a RRC Connection Establishment: Reject with Frequency Info set to a different frequency band – Successful case

8.1.2.21a.1 Definition

This test case is identical to test case 8.1.2.21 except that the RRC CONNECTION REJECT message shall indicate a cell on a different frequency band and a different IE "Wait time".

8.1.2.21a.2 Conformance requirement

Same conformance requirement as in clause 8.1.2.21.2.

8.1.2.21a.3 Test purpose

Same test purpose as in clause 8.1.2.21.3 except that the optional IE "redirection info" is on a different frequency band.

8.1.2.21a.4 Method of test

Initial Condition

Same initial conditions as in clause 8.1.2.21.4 except that cells 1 and 4 use the UARFCNs in two different frequency bands. The frequency bands for cell 1 and cell 4 are selected according to PIXIT parameter.

Related ICS/IXIT statement(s)

- UE supports multiple bands simultaneously yes/no

Specific message content

Same specific message content for system information as in clause 8.1.2.21.4.

Test Procedure

Same test procedure as in clause 8.1.2.21.4.

NOTE: If the UE supports more than 2 frequency bands, the test may be executed for various band combinations.

Specific Message Contents

Same specific message content as in clause 8.1.2.21.4 except:

RRC CONNECTION REJECT (Step 3 and Step 13)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Rejection cause	Congestion
Wait time	15 seconds
Redirection Info	
- Frequency Info	
- CHOICE mode	FDD
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink (Nd)	Set to the UARFCN for downlink carrier of cell 4

8.1.2.21a.5 Test requirement

Same test requirement as in clause 8.1.2.21.5.

8.1.2.22 RRC Connection Establishment: Reject with Frequency Info set to the same frequency band – Unsuccessful case

8.1.2.22.1 Definition

8.1.2.22.2 Conformance requirement

When the UE receives an RRC CONNECTION REJECT message on the downlink CCCH, it shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION REJECT message with the value of the variable INITIAL_UE_IDENTITY:

If the values are different, the UE shall ignore the rest of the message;

If the values are identical, the UE shall:

1> stop timer T300 or T318, whichever one is running; and

1> clear the entry for the RRC CONNECTION REJECT message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> if the UE has disabled cell reselection to a UTRA carrier due to an earlier RRC CONNECTION REJECT message, the UE shall resume cell reselection to that UTRA carrier;

1> if the Rejection Cause is 'unspecified' and the IE "Counting Completion" is present, the UE shall terminate an ongoing MBMS counting procedure according to subclause 8.7.4.4;

1> if the IE "wait time" <> '0'; and

1> if the IE "frequency info" is present and:

2> if V300 is equal to or smaller than N300:

3> select a suitable UTRA cell according to [4] on that frequency;

3> after having selected and camped on a suitable cell on the designated UTRA carrier:

4> set CFN in relation to SFN of current cell according to subclause 8.5.15;

4> set the contents of the RRC CONNECTION REQUEST message according to subclause 8.1.3.3;

4> perform the mapping of the Access Class to an Access Service Class as specified in subclause 8.5.13, and apply the given Access Service Class when accessing the RACH or the common E-DCH (for the Enhanced Uplink in CELL_FACH and Idle mode);

4> transmit an RRC CONNECTION REQUEST message on the uplink CCCH;

4> reset counter V300;

4> start timer T300 when the MAC layer indicates success or failure in transmitting the message;

4> disable cell reselection to original UTRA carrier until the time stated in the IE "wait time" has elapsed or until the RRC connection establishment procedure ends, whichever occurs first;

3> if no suitable cell on the designated UTRA carrier is found:

4> wait for at least the time stated in the IE "wait time";

4> set CFN in relation to SFN of current cell according to subclause 8.5.15;

4> set the IEs in the RRC CONNECTION REQUEST message according to subclause 8.1.3.3;

4> perform the mapping of the Access Class to an Access Service Class as specified in subclause 8.5.13, and apply the given Access Service Class when accessing the RACH or the common E-DCH (for the Enhanced Uplink in CELL_FACH and Idle mode);

4> then submit a new RRC CONNECTION REQUEST message to the lower layers for transmission on the uplink CCCH of the original serving cell;

4> increment counter V300;

4> restart timer T300 when the MAC layer indicates success or failure to transmit the message;

2> if V300 is greater than N300:

3> enter idle mode;

3> perform the actions specified in subclause 8.5.2 when entering idle mode from connected mode;

3> consider the RRC establishment procedure to be unsuccessful;

3> the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.3.9.

8.1.2.22.3 Test purpose

To confirm that the UE retries to establish RRC connection in the original serving cell, if it receives an RRC CONNECTION REJECT message including the optional IE "redirection info" referencing frequencies in the same band, but having different Qrxlevmin values and if no suitable cell on the designated UTRA carrier is found. 8.1.2.22.4 Method of test

Initial Condition

System Simulator: 2 cells – cell 1 is active and suitable for camping and cell 4 is non-suitable cell. Cell 1 is transmitted using a larger power. The transmission power of cell 4 is 6 dB lower than the default and the Qrxlevmin of cell 4 is 10dB higher than that of cell 1.

Table 8.1.2.22

Parameter	Unit	Cell 1	Cell 4
UTRA RF Channel Number		Mid Range Test Frequency	High Range Test Frequency
CPICH Ec (FDD)	dBm/3.84 MHz	-60	-66
Qrxlevmin	dBm	-69	-59

Switched off (state 1 as specified in clause 7.4 of TS 34.108).

Related ICS/IXIT statement(s)

None.

Specific message content

For system information block 11 for Cell 1 (gives IE's which are different from defaults given in 34.108 sec 6.1) to be transmitted before idle update preamble.

System Information Block type 11

Use same message sub-clause 6.1 of TS34.108, with following exception:

Information Element	Value/remark
SIB12 indicator	FALSE
Measurement control system information	
- Intra-frequency measurement system information	
- Intra-frequency reporting quantity for RACH reporting	
- SFN-SFN observed time difference reporting indicator	No report
- CHOICE mode	FDD
- Reporting quantity	CPICH Ec/N0
- Maximum number of reported cells on RACH	Current Cell
- Reporting information for state CELL_DCH	Not present

Test Procedure

The UE is switched on.

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH for registration on cell 1. The SS rejects the first request by transmitting an RRC CONNECTION REJECT message which includes the IE "Redirection Info" indicating frequency information for cell 4. UE will not reselect to cell 4 as cell 4 does not satisfy cell selection criteria. It then waits for a second RRC CONNECTION REQUEST message and ensures that it is on the uplink CCCH of cell 1 and ensures that the "wait time" has been observed. Finally, the SS transmits an RRC CONNECTION SETUP message to establish an RRC connection with the UE, and the UE replies with an RRC CONNECTION SETUP COMPLETE message and enters CELL_DCH state. UE is brought to Idle state (state 2 or state 3 or state 7) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by an outgoing call operation in cell 1. SS rejects the first request by transmitting an RRC CONNECTION REJECT message which includes the IE "Redirection Info" indicating frequency information for cell 4. It then waits for a second RRC CONNECTION REQUEST message and ensures that it is on the uplink CCCH of cell 1 and ensures that the "wait time" has been observed. Finally, the SS transmits an RRC CONNECTION SETUP message to establish an RRC connection with the UE, and the UE replies with an RRC CONNECTION SETUP COMPLETE message and enters CELL_DCH state.

NOTE: If the UE fails the test because of a failure to select to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	UE			The UE is powered up or switched on, (see ICS)
2	→		RRC CONNECTION REQUEST	The establishment cause must be "Registration"
3	←		RRC CONNECTION REJECT	This message shall includes the IE "wait time" set to 5 seconds and IE "frequency info" set to the UARFCN of cell 4.
4				UE will not reselect to cell 4 as cell 4 does not satisfy cell selection criteria. SS checks that UE does not select cell 4 and send any access request on cell 4. The SS monitors the uplink of cell 1 for the duration specified in the IE "wait time" to make sure that all transmissions have ceased.
5	→		RRC CONNECTION REQUEST	UE shall send a second RRC connection request to cell 1. The establishment cause shall remain unchanged.
6	←		RRC CONNECTION SETUP	SS sends the message to UE to setup an RRC connection with the UE.
7				The UE shall configure the layer 2 and layer 1 in order to access the uplink and downlink DCCH assigned.
8	→		RRC CONNECTION SETUP COMPLETE	
9				UE is brought to Idle state (state 2 or state 3 or state 7) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE
10	→		RRC CONNECTION REQUEST	SS prompts the operator to make an outgoing call in cell 1.
11	←		RRC CONNECTION REJECT	This message shall includes the IE "wait time" set to 5 seconds and IE "frequency info" set to the UARFCN of cell 4.
12				UE will not reselect to cell 4 as cell 4 does not satisfy cell selection criteria. SS checks that UE does not select cell 4 and send any access request on cell 4. The SS monitors the uplink of cell 1 for the duration specified in the IE "wait time" to make sure that all transmissions have ceased.
13	→		RRC CONNECTION REQUEST	UE shall attempt to start an RRC connection establishment procedure in cell 1. The establishment cause shall be same as the one sent in step 10.
14	←		RRC CONNECTION SETUP	SS sends the message to UE to setup an RRC connection with the UE.

15			The UE shall configure the layer 2 and layer 1 in order to access the uplink and downlink DCCH assigned.
16	→	RRC CONNECTION SETUP COMPLETE	
17	←→	CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RRC CONNECTION REQUEST (Step 2 and Step 5)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Initial UE Identity	Same as the IMSI stored in the TEST USIM card, or the previously registered TMSI or P-TMSI
Establishment Cause	Must be "Registration"

RRC CONNECTION REJECT (Step 3 and Step 11)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Rejection cause	Congestion
Wait time	5 seconds
Redirection Info	
- Frequency Info	
- CHOICE mode	FDD
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink (Nd)	Set to the UARFCN for downlink carrier of cell 4

RRC CONNECTION REQUEST (Step 10 and Step 13)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Initial UE Identity	Same as the registered TMSI or P-TMSI
Establishment Cause	Must be "Originating Call"

8.1.2.22.5 Test requirement

After step 3 the UE shall have determined that the redirection is not possible and adhere to the “wait time” before re-transmitting an RRC CONNECTION REQUEST. The establishment cause shall be registration.

In step 8, the UE shall send the RRC CONNECTION SETUP COMPLETE message on the frequency indicated in the RRC CONNECTION SETUP message.

After step 11 the UE shall have determined that the redirection is not possible and adhere to the “wait time” before re-transmitting an RRC CONNECTION REQUEST. The establishment cause shall be originating call.

In step 16, the UE shall send the RRC CONNECTION SETUP COMPLETE message on the frequency indicated in the RRC CONNECTION SETUP message.

8.1.2.22a RRC Connection Establishment: Reject with Frequency Info set to a different frequency band – Unsuccessful case

8.1.2.22a.1 Definition

This test case is identical to test case 8.1.2.22 except that the RRC CONNECTION REJECT message shall indicate a cell on a different frequency band and a different IE "Wait time".

8.1.2.22a.2 Conformance requirement

Same conformance requirement as in clause 8.1.2.22.2.

8.1.2.22a.3 Test purpose

Same test purpose as in clause 8.1.2.22.3 except that the optional IE "redirection info" is on a different frequency band.

8.1.2.22a.4 Method of test

Initial Condition

Same initial conditions as in clause 8.1.2.22.4 except that cells 1and 4 use the UARFCNs in two different frequency bands. The frequency bands for cell 1 and cell 4 are selected according to PIXIT parameter.

Related ICS/IXIT statement(s)

- UE supports multiple bands simultaneously yes/no

Specific message content

Same specific message content for system information as in clause 8.1.2.22.4.

Test Procedure

Same test procedure as in clause 8.1.2.22.4.

NOTE: If the UE supports more than 2 frequency bands, the test may be executed for various band combinations.

Specific Message Contents

Same specific message content as in clause 8.1.2.22.4 except:

RRC CONNECTION REJECT (Step 3 and Step 11)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Rejection cause	Congestion
Wait time	15 seconds
Redirection Info	
- Frequency Info	
- CHOICE mode	FDD
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink (Nd)	Set to the UARFCN for downlink carrier of cell 4

8.1.2.22a.5 Test requirement

Same test requirement as in clause 8.1.2.22.5.

8.1.2.23 Void

8.1.2.23a Void

8.1.2.24 Void

8.1.2.24a Void

8.1.2.25 RRC Connection Establishment for transition from Idle Mode to CELL_FACH: Success (Start of E-DCH and HS-DSCH Reception)

8.1.2.25.1 Definition and applicability

All UEs which support 1.28Mcps TDD and E-DCH and HS-PDSCH in CELL_FACH.

8.1.2.25.2 Conformance requirement

The UE shall, in the transmitted RRC CONNECTION REQUEST message:

…

1> if the UE supports MAC-ehs:

2> include the IE "MAC-ehs support" and set it to TRUE.

1> if the UE supports HS-DSCH reception in CELL_FACH state:

2> include the IE "HS-PDSCH in CELL_FACH" and set it to TRUE.

1> if the UE supports Enhanced Uplink in CELL_FACH state and Idle mode:

2> include the IE "Support of common E-DCH" and set it to TRUE.

NOTE: In 1.28 Mcps TDD, UE supporting HS-DSCH reception in CELL_FACH state always supports Enhanced Uplink in CELL_FACH state and Idle mode, and vice versa.

1> if the UE supports MAC-i/is:

2> include the IE "Support of MAC-i/is" and set it to TRUE.

…

The UE shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP message with the value of the variable INITIAL_UE_IDENTITY.

If the values are different, the UE shall:

1> ignore the rest of the message.

If the values are identical, the UE shall:

…

1> if IE "Default configuration for CELL_FACH" is set:

2> act in accordance with the default parameters according to section 13.8.

1> clear the variable ESTABLISHMENT_CAUSE;

1> for FDD and 1.28 Mcps TDD, if the HS_DSCH_RECEPTION_OF_CCCH_ENABLED is set to TRUE:

2> set the variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED to FALSE.

1> stop timer T300 or T318, whichever one is running, and act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following:

2> if the UE, according to subclause 8.6.3.3, will be in the CELL_FACH state at the conclusion of this procedure:

3> if the IE "Frequency info" is included:

4> select a suitable UTRA cell according to [4] on that frequency.

3> enter UTRA RRC connected mode;

3> determine the value for the READY_FOR_COMMON_EDCH variable and take the corresponding actions as described in subclause 8.5.47;

3> determine the value for the COMMON_E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.46;

3> if variable READY_FOR_COMMON_EDCH is set to FALSE:

4> select PRACH according to subclause 8.5.17;

3> else:

4> configure the Enhanced Uplink in CELL_FACH state and Idle mode as specified in subclause 8.5.45 for FDD and 8.5.45a for 1.28 Mcps TDD.

3> for 3.84 Mcps and 7.68 Mcps TDD; or

3> for FDD and 1.28 Mcps TDD, if the UE does not support HS-DSCH reception in CELL_FACH state; or

3> if the IE "HS-DSCH common system information" is not included in System Information Block type 5 or System Information Block type 5bis; or

3> for 1.28 Mcps TDD, if the IE "Common E-DCH system info" is not included in System Information Block type 5:

4> select Secondary CCPCH according to subclause 8.5.19;

3> else:

4> set variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED to FALSE;

4> For FDD if variable READY_FOR_COMMON_EDCH is set to FALSE:

5> if the RBs have the multiplexing option with transport channel type "HS-DSCH" for the DL and transport channel type “RACH” in the UL; and

5> if "new H-RNTI" and "new C-RNTI" are included:

6> store the "new H-RNTI" according to subclause 8.6.3.1b;

6> store the "new C-RNTI" according to subclause 8.6.3.9;

6> and start to receive HS-DSCH according to the procedure in subclause 8.5.36.

5> else:

6> clear variable C_RNTI and delete any stored C-RNTI value;

6> clear variable H_RNTI and delete any stored H-RNTI value;

6> clear any stored IE "HARQ Info";

6> set the variable INVALID_CONFIGURATION to TRUE.

4> else:

5> if the RBs have the multiplexing option with transport channel type "HS-DSCH" for the DL and transport channel type "E-DCH" in the UL; and

5> if the IEs "new Primary E-RNTI", "new H-RNTI" and "new C-RNTI" are included:

6> store the "new Primary E-RNTI" according to subclause 8.6.3.14;

6> store the "new H-RNTI" according to subclause 8.6.3.1b;

6> store the "new C-RNTI" according to subclause 8.6.3.9;

6> configure Enhanced Uplink in CELL_FACH state and Idle mode according to subclause 8.5.45 for FDD and 8.5.45a for 1.28 Mcps TDD;

6> and start to receive HS-DSCH according to the procedure in subclause 8.5.36.

5> else:

6> clear variable C_RNTI and delete any stored C-RNTI value;

6> clear variable H_RNTI and delete any stored H-RNTI value;

6> clear variable E_RNTI and delete any stored E-RNTI value;

6> clear any stored IE "HARQ Info";

6> set the variable INVALID_CONFIGURATION to TRUE.

3> ignore the IE "UTRAN DRX cycle length coefficient" and stop using DRX.

…

1> submit an RRC CONNECTION SETUP COMPLETE message to the lower layers on the uplink DCCH after successful state transition per subclause 8.6.3.3, with the contents set as specified below:

2> set the IE "RRC transaction identifier" to:

3> the value of "RRC transaction identifier" in the entry for the RRC CONNECTION SETUP message in the table "Accepted transactions" in the variable TRANSACTIONS; and

3> clear that entry.

2> if the USIM or SIM is present:

3> set the "START" for each CN domain in the IE "START list" in the RRC CONNECTION SETUP COMPLETE message with the corresponding START value that is stored in the USIM [50] if present, or as stored in the UE if the SIM is present; and then

3> set the START value stored in the USIM [50] if present, and as stored in the UE if the SIM is present for any CN domain to the value "THRESHOLD" of the variable START_THRESHOLD.

…

The variable HS_DSCH_RECEPTION_CELL_FACH_STATE shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_FACH;

1> the variable H_RNTI is set;

1> the variable C_RNTI is set;

1> System Information Block type 5 or System Information Block type 5bis includes IE "HS-DSCH common system information";

1> for 1.28 Mcps TDD, System Information Block type 5 includes IE "Common E-DCH system info".

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION_CELL_FACH_STATE to FALSE;

1> if the UE is in CELL_FACH and variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED is set to FALSE:

2> set the variable HS_DSCH_RECEPTION_OF_ETWS_ENABLED to FALSE;

2> set the variable HS_DSCH_RECEPTION_GENERAL to FALSE;

2> stop any HS-SCCH reception procedures;

2> stop any HS-DSCH reception procedures;

2> clear the variable H_RNTI and remove any stored H-RNTI;

2> reset the MAC-ehs entity [15];

2> release all HARQ resources;

2> clear any stored IEs "HARQ info";

Whenever the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION_GENERAL to TRUE;

1> use the IE "HS-DSCH common system information" in System Information Block type 5 or System Information Block type 5bis;

1> for FDD, receive the HS-SCCH(s) according to the IE "HS-SCCH channelization code" on the serving cell applying the scrambling code as received in the IE "DL Scrambling code" as received in IE "HS-DSCH common system information";

1> for 1.28 Mcps TDD, receive the HS-SCCH(s) according to the stored HS-SCCH configuration, applying the HS-PDSCH midamble code according to the stored HS-PDSCH midamble configuration;

1> perform HS-DSCH reception procedures:

2> if the UE has a stored IE "HARQ info":

3> act on subclause 8.6.5.6b for the stored IE "HARQ info".

2> else:

3> act on subclause 8.6.5.20 for the IE "HARQ System info" as received in IE "HS-DSCH common system information".

2> and use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

1> and for FDD, for BCCH reception perform HS-DSCH reception procedures by listening to the first indexed HS-SCCH code listed in the IE "HS-SCCH channelization code" with "BCCH specific H-RNTI" as received in IE "HS-DSCH common system information".

1> and for 1.28 Mcps TDD, for BCCH reception perform HS-DSCH reception procedures by listening to the first indexed HS-SCCH according to the stored HS-SCCH configuration with "BCCH specific H-RNTI" as received in IE "HS-DSCH common system information".

NOTE : For 1.28 Mcps TDD, when performing HS-DSCH reception in CELL_FACH state, the UE shall use the table of transport block size for the HS-DSCH physical layer category 9 as specified in [15].

Whenever the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to FALSE, the UE shall:

1> if the UE is in CELL_FACH and variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED is set to FALSE:

2> not perform HS-SCCH reception procedures;

2> not perform HS-DSCH reception procedures.

…

When UE does not support HS-DSCH reception in CELL_FACH state or when the IE "HS-DSCH common system information" is not included in System Information Block type 5 or System Information Block type 5bis, the UE shall:

1> set the variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED to FALSE;

1> set the variable HS_DSCH_RECEPTION_OF_ETWS_ENABLED to FALSE;

1> set the variable HS_DSCH_RECEPTION_GENERAL to FALSE.

When the variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED or the variable HS_DSCH_RECEPTION_OF_ETWS_ENABLED is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION_GENERAL to TRUE;

1> use the IE "HS-DSCH common system information" in System Information Block type 5 or System Information Block type 5bis;

1> configure the HARQ according to IE "HARQ System info" as defined in subclause 8.6.5.20;

1> configure the common MAC-ehs reordering queues according to IE "Common MAC-ehs reordering queues" as defined in subclauses 8.6.5.22; and then

1> receive the CCCH according to IE "CCCH mapping info" as defined in subclause 8.6.5.21;

1> if the UE is RRC Connected mode:

2> select a common H-RNTI as specified in 8.5.38;

2> if the variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED is set to TRUE:

3> receive the SRB1 according to IE "SRB1 mapping info" as defined in subclause 8.6.5.19.

1> else:

2> select a common H-RNTI as specified in [4].

1> and for FDD, start to receive the HS-SCCH(s) with selected H-RNTI according to the IE "HS-SCCH channelization code" on the selected cell applying the scrambling code as received in the IE "DL Scrambling code";

1> and for 1.28 Mcps TDD, start to receive the HS-SCCH(s) with selected H-RNTI according to the IE "HS-SCCH system info" on primary frequency in the selected cell applying the midamble code as received in the IE "HS-PDSCH Midamble Configuration";

1> configure the MAC flow for BCCH reception as specified in [15];

1> and for FDD, start to receive the first indexed HS-SCCH code listed in the IE "HS-SCCH channelization code" with "BCCH specific H-RNTI" as received in IE "HS-DSCH common system information".

1> and for 1.28 Mcps TDD, for BCCH reception perform HS-DSCH reception procedures by listening to the first indexed HS-SCCH according to the IE "HS-SCCH system info" with "BCCH specific H-RNTI" as received in IE "HS-DSCH common system information".

NOTE : For 1.28 Mcps TDD, when performing HS-DSCH reception in CELL_FACH state, the UE shall use the table of transport block size for the HS-DSCH physical layer category 9 as specified in [15].

Reference

3GPP TS 25.331 clauses 8.1.3.3, 8.1.3.6, 8.5.36, 8.5.37

8.1.2.25.3 Test purpose

To confirm that the UE establishes a signalling radio bearer mapped to HS-DSCH and E-DCH according to the received RRC CONNECTION SETUP message.

8.1.2.25.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: Registered Idle Mode on PS (state 3), or CS/PS (state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Related ICS/IXIT statement(s)

- UE supports 1.28Mcps TDD
- UE supports HS-PDSCH in CELL_FACH
- UE supports E-DCH in CELL_FACH

Test Procedure

The SS transmits System Information Type 5 including configuration for E-DCH and HS-DSCH reception in CELL_FACH state.

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH, after the test operator makes an out-going call.

The SS transmits a RRC CONNECTION SETUP message to the UE on RB0 mapped to HS-DSCH. This message requests the establishment of a signalling radio bearer with SRB mapping to HS-DSCH and E-DCH. After the UE receives this message, it establishes a signalling radio bearer and maps it to the HS-DSCH and E-DCH. Finally the UE transmits a RRC CONNECTION SETUP COMPLETE message using AM RLC on the E-DCH channel.

SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←		SYSTEM INFORMATION TYPE 5	Includes configuration for E-DCH and HS-DSCH reception in CELL_FACH state
1	→		RRC CONNECTION REQUEST	The SS prompts the operator makes an out-going call. The UE shall transmit this message, indicating the correct establishment cause and support of E-DCH and HS-PDSCH in CELL_FACH
2	←		RRC CONNECTION SETUP	Transmitted on HS-DSCH, requests establishment of SRBs mapped to HS-DSCH/E-DCH,
3	→		RRC CONNECTION SETUP COMPLETE	
4	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

SYSTEM INFORMATION TYPE 5

Use default message in 34.108 section 6.1.0b, condition B1.RRC CONNECTION REQUEST (Step 1)

Use the same message type found in clause 9 of TS 34.108, with the following exceptions.

Information Element	Value/remark
Initial UE identity	Same as the registered TMSI or P-TMSI
Establishment Cause	Originating Interactive Call or Originating Background Call or Originating Streaming Call or OriginatingSubscribedTrafficCall
HS-PDSCH in CELL_FACH	Check to see if set to TRUE
MAC-ehs support	Check to see if set to TRUE
Support of common E-DCH	Check to see if set to TRUE
Support of MAC-i/is	Check to see if set to TRUE

RRC CONNECTION SETUP (Step 2)

Use default message in 34.108 section 9.1.1, condition A4.RRC CONNECTION SETUP COMPLETE (Step 3)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
UE Radio Access Capability	Checked to see if compatible with the stated capability in PIXIT/PICS statements.
UE radio access capability extension	Checked to see if compatible with the stated capability in PIXIT/PICS statements.
UE system specific Capability	Checked to see if compatible with the stated capability in PIXIT/PICS statements.

8.1.2.25.5 Test requirements

After step 3 the UE shall establish the RRC connection, and transmit RRC CONNECTION SETUP COMPLETE message on the DCCH using common E-DCH physical resource specified in system information block messages.

8.1.2.26 RRC Connection Establishment / Paging Permission with Access Control: Success

8.1.2.26.1 Definition

This test case is applicable for Rel-8 or later UEs.

8.1.2.26.2 Conformance requirement

Access Class related cell access restrictions shall be checked by the UE before sending an RRC CONNECTION REQUEST message when entering Connected Mode from UTRAN Idle mode. Access Class related cell access restrictions, if it is sent as a part of Domain Specific Access Restriction parameters, shall also be checked by the UE before sending INITIAL DIRECT TRANSFER message. Access Class related cell access restrictions, if it is sent as a part of Paging Permission with Access Control Parameters, shall be checked by the UE before sending a response to Paging message or before initiating a Location/Registration procedure. Otherwise, cell access restrictions associated with the Access Classes shall not apply for a UE which already is in Connected Mode.

…

With respect to Domain Specific Access Control and Paging Permission with Access Control, the UE shall:

1> if the IE "Multiple PLMN List" is not included in the Master Information Block:

2> apply the domain specific access restrictions as indicated by the IE "Domain Specific Access Restriction Parameters For PLMN Of MIB", and the paging permission with access control as indicated by the IE "Paging Permission with Access Control Parameters for PLMN Of MIB".

…

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.

Reference

3GPP TS25.304 clause 5.3.1.2, TS 25.331 clause 8.1.1.6.3

8.1.2.26.3 Test purpose

To confirm that the UE responds to a paging request even when under access class barring.

8.1.2.26.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Idle state (state 7) as specified in clause 7.4 of TS 34.108

Test Procedure

The UE is in idle mode. The SS transmits a PAGING TYPE 1 message to inform the UE to change the system information and it needs to read new blocks of SYSTEM INFORMATION, in which the IE "Paging Permission with Access Control Parameters" to be applied are included in SYSTEM INFORMATION BLOCK TYPE 3. The SS transmits a PAGING TYPE 1 message, which includes a matched CN UE identity for the UE in the idle state. During transmission of PAGING TYPE 1 messages, SS selects the correct paging indicator on the PICH in order to allow the UE to respond to paging. Then the UE transmits an RRC CONNECTION REQUEST to the SS on the uplink CCCH by a terminating call operation on the other non-barred domain. Then the SS transmits a RRC CONNECTION SETUP message to establish a RRC Connection with the UE and the UE replies to send an RRC CONNECTION SETUP COMPLETE message and an INITIAL DIRECT TRANSFER message. The SS releases the RRC connection: The SS pages the UE for the barred domain, and the UE does not respond to the paging by sending a RRC CONNECTION REQUEST.

This test case shall be run twice:

Case 1) The system information block type 3 indicates that the UE is only allowed to respond to paging from PS domain at step 2.

Case 2) The system information block type 3 indicates that the UE is only allowed to respond to paging from CS domain at step 2.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1		←	PAGING TYPE1	The SS transmits the message including the IE "BCCH Modification Information".
2		←	MASTER INFORMATION BLOCK	The SS starts to transmit the MIB with the "MIB value tag" IE different from the original setting.
		←	SYSTEM INFORMATION BLOCK TYPE3	The SS transmits the new SIB3 to indicate that one of the supported domains in the cell is barred.
3				The SS waits 5 sec (to ensure that the UE has time to read the new system information).
4		←	PAGING TYPE 1	The SS transmits the message, which includes a matched identity.
5		→	RRC CONNECTION REQUEST	
6		←	RRC CONNECTION SETUP	The SS assigns DPCH resources to allow UE to establish an RRC connection.
7		→	RRC CONNECTION SETUP COMPLETE	
8		→	INITIAL DIRECT TRANSFER	
9		←	RRC CONNECTION RELEASE	The SS releases the RRC CONNECTION.
10		→	RRC CONNECTION RELEASE COMPLETE	SS waits for the arrival of N308 + 1 such message with an interval time of T308, using unacknowledged mode.
11		←	PAGING TYPE 1	SS pages the UE for the barred domain
12		→		No RRC CONNECTION REQUEST sent to the SS as the domain is barred. The SS waits 30 seconds.

Specific Message Content

PAGING TYPE 1 (Step 1)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
- MIB Value Tag	Set to (Current MIB value tag + 1)
- BCCH Modification time	Not Present

MASTER INFORMATION BLOCK (Step 2)

Information Element	Value/remark
MIB Value tag	As in PAGING TYPE 1 in step 1
SIB 3 Cell Value tag	Set to (Current SIB3 value tag + 1)

System Information Block type 3 (Step 2)

For Case 1 i.e. when the UE is only allowed to respond to paging from PS domain.

Use the same message type found in clause 6.1 of TS 34.108, with the following exceptions:

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	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
Paging Permission with Access Control Parameters For PLMN Of MIB	
- Paging Response Restriction Indication	CS
- Location/Registration Restriction Indicator	All
- Location/Registration	
- Location/Registration Access Restriction	no restriction

System Information Block type 3 (Step 2)

For Case 2 i.e. when the UE is only allowed to respond to paging from CS domain.

Use the same message type found in clause 6.1 of TS 34.108, with the following exceptions:

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	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
Paging Permission with Access Control Parameters For PLMN Of MIB	
- Paging Response Restriction Indication	PS
- Location/Registration Restriction Indicator	All
- Location/Registration	
- Location/Registration Access Restriction	no restriction

PAGING TYPE 1 (Step 4)

For Case 1 i.e. when the UE is only allowed to respond to paging from PS domain.

Use the same message type found in clause 9.1 Contents of PAGING TYPE 1 message: TM (Packet in PS) of TS 34.108:

PAGING TYPE 1 (Step 4)

For Case 2 i.e. when the UE is only allowed to respond to paging from CS domain.

Use the same message type found in clause 9.1 Contents of PAGING TYPE 1 message: TM (Speech in CS) of TS 34.108:

PAGING TYPE 1 (Step 10)

For Case 1 i.e. when the UE should NOT respond to paging from CS domain.

Use the same message type found in clause 9.1 Contents of PAGING TYPE 1 message: TM (Speech in CS) of TS 34.108

PAGING TYPE 1 (Step 10)

For Case 2 i.e. when the UE should NOT respond to paging from PS domain.

Use the same message type found in clause 9.1 Contents of PAGING TYPE 1 message: TM (Packet in PS) of TS 34.108:

INITIAL DIRECT TRANSFER (Step 8)

Use the same message type found in clause 9.1 of TS 34.108, with the following exception:

Information Element	Value/remark
CN domain identity	Check to see if it is not the barred domain.

8.1.2.26.5 Test requirement

At step 5, the UE transmits an RRC CONNECTION REQUEST message to the SS for establishing the non-barred domain service on uplink CCCH.

At step 7, the UE transmits an RRC CONNECTION SETUP COMPLETE message to the SS on uplink DCCH.

At step 12, the UE does not transmit an RRC CONNECTION REQUEST message to the SS.

8.1.2.27 RRC Connection Establishment using the default configuration#23 for HS-DSCH / E-DCH signalling bearers

8.1.2.27.1 Definition

All UEs which support FDD and HS-PDSCH and E-DCH and fully support F-DPCH or all UEs which support TDD and HS-PDSCH and E-PUCH. This test is applicable for Rel-9 onwards UEs.

8.1.2.27.2 Conformance requirement

The UE shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP message with the value of the variable INITIAL_UE_IDENTITY.

If the values are different, the UE shall:

1> ignore the rest of the message.

If the values are identical, the UE shall:

...

2> if IE "Specification mode" is set to "Preconfiguration" and IE "Preconfiguration mode" is set to "Default configuration":

3> initiate the radio bearer and transport channel configuration in accordance with the default parameters identified by the IE "Default configuration mode" and IE "Default configuration identity";

3> initiate the physical channels in accordance with the received physical channel information elements.

NOTE: IE "Default configuration mode" specifies whether the FDD or TDD version of the default configuration shall be used.

Reference

3GPP TS 25.331 clause 8.1.3.6, clause 13.7

8.1.2.27.3 Test purpose

To confirm that the UE establishes the radio bearer and transport channel configuration (HS-DSCH / E-DCH) for signalling radio bearers in accordance with the stored default parameters identified by the IE "Default configuration identity" specified as 23 in the RRC Connection Setup Message

8.1.2.27.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: Idle state (state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH
- UE supports E-DPDCH (FDD) or E-PUCH (1.28Mcps TDD)
- UE fully supports F-DPCH (FDD only)

Test Procedure

The UE shall transmit a RRC CONNECTION REQUEST message to the SS on the uplink CCCH, after the operator attempts to make an outgoing call. SS shall send a RRC CONNECTION SETUP message that contains the stored default configuration identity 23 (for standalone HS-DSCH / E-DCH signalling radio bearers). The UE accepts the message, configuring the radio bearer and transport channel configuration in accordance with the stored default parameters and acknowledge the establishment of RRC connection by sending the RRC CONNECTION SETUP COMPLETE message on uplink DCCH.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1				Operator is asked to make an outgoing call.
2	→		RRC CONNECTION REQUEST	
3	←		RRC CONNECTION SETUP	DefaultConfigIdentity used is '23'
4	→		RRC CONNECTION SETUP COMPLETE	
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state the test passes, otherwise it fails.

Specific Message Contents

RRC CONNECTION REQUEST (Step 2)

The same message sub-type found in clause 9 of TS 34.108 applies, with the following exceptions:

Information Element	Value/remark
Initial UE identity	Same as the registered TMSI or P-TMSI
Establishment Cause	Originating Interactive Call or Originating Background Call or Originating Streaming Call or OriginatingSubscribedTrafficCall.

RRC CONNECTION SETUP (Step 3) (FDD)

Use the same message sub-type found in clause 9 of TS 34.108 (Transition to CELL_DCH), for condition "Stand-alone SRBs mapped on E-DCH and HS-DSCH" with the following exceptions:

Information Element	Value/remark
Choice Specification Mode	Preconfiguration
- Choice Preconfig Mode	Default Config
- Default Config Mode	FDD
-Default Config Identity	23

RRC CONNECTION SETUP (Step 3) (1.28Mcps TDD)

Use the same message sub-type found in clause 9 of TS 34.108 (Transition to CELL_DCH), for condition "Stand-alone SRBs mapped on E-DCH and HS-DSCH" with the following exceptions:

Information Element	Value/remark
Choice Specification Mode	Preconfiguration
- Choice Preconfig Mode	Default Config
- Default Config Mode	TDD
-Default Config Identity	23

RRC CONNECTION SETUP COMPLETE (Step 4)

Use the same message sub-type found in clause 9 of TS 34.108

8.1.2.27.5 Test requirement

At step 4 the UE shall transmit a RRC CONNECTION SETUP COMPLETE message on Radio Bearer Id: 2 and establish an RRC connection successfully.

8.1.3 RRC Connection Release

8.1.3.1 RRC Connection Release in CELL_DCH state: Success

8.1.3.1.1 Definition

8.1.3.1.2 Conformance requirement

1. The UE shall receive and act on an RRC CONNECTION RELEASE message in states CELL_DCH and CELL_FACH. Furthermore this procedure can interrupt any ongoing procedures with the UE in the above listed states.

   When the UE receives the first RRC CONNECTION RELEASE message, it shall:

   …

   - in state CELL_DCH:

     - initialise the counter V308 to zero;

     …

- submit an RRC CONNECTION RELEASE COMPLETE message to the lower layers for transmission using UM RLC on the DCCH to the UTRAN;

…

- start timer T308 when the RRC CONNECTION RELEASE COMPLETE message is sent on the radio interface.

2. When in state CELL_DCH and the timer T308 expires, the UE shall:

- increment V308 by one;
- if V308 is equal to or smaller than N308:
  - retransmit the RRC CONNECTION RELEASE COMPLETE message, without incrementing "Uplink RRC Message sequence number" for signalling radio bearer RB1 in the variable INTEGRITY_PROTECTION_INFO;
- if V308 is greater than N308:
  - release all its radio resources;

…

  - enter idle mode;
  - perform the actions specified in TS 25.331 clause 8.5.2 when entering idle mode;
  - and the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.4.3, 8.1.4.6

8.1.3.1.3 Test purpose

To verify:

1. that the UE when receiving an RRC CONNECTION RELEASE message transmits N308+1 RRC CONNECTION RELEASE COMPLETE messages before release of radio resources and entering into idle mode
2. that the time between UE transmissions of the RRC CONNECTION RELEASE COMPLETE message is equal to the value of the T308 timer.

8.1.3.1.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CELL_DCH state (state 6-1 or state 6-3) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE

Test Procedure

The UE is brought to the CELL_DCH state by prompting the operator to initiate an outgoing call. After the DCCH is established, on reception of (CM) service request message from the UE, the SS will Send CM Service Reject message (for state 6-1) or Service Reject message (for state 6-3) to complete the (CM) service Request procedure. After the UE is brought into the stable state, SS transmits an RRC CONNECTION RELEASE message to the UE to disconnect the connection. SS then waits for the UE to transmit an RRC CONNECTION RELEASE COMPLETE message using unacknowledged mode. SS checks to see if UE re-transmit this message at each expiry of T308 timer and if N308+1 RRC CONNECTION RELEASE COMPLETE message have been received. SS calls for generic procedure C.1 to check that UE is in Idle Mode state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in the CELL_DCH state after a successful RRC connection establishment by virtue of the operator making an outgoing call.
2	←		RRC CONNECTION RELEASE	SS disconnect the connection established. The value in IE "N308" is arbitrarily chosen from 1 to 8.
3	→		RRC CONNECTION RELEASE COMPLETE	SS waits for the arrival of N308 + 1 such message with an interval time of T308, using unacknowledged mode.
4				SS verifies that the UE release its L2 signalling radio bearer and dedicated resources and enters idle mode.
5	←→		CALL C.1	If the test result of C.1 indicates that UE is in Idle Mode state, the test passes, otherwise it fails.

Specific Message Content

RRC CONNECTION RELEASE (Step 2)

Use the same message type found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
N308	Arbitrarily chosen between 1 and 8

8.1.3.1.5 Test requirement

After step 2 the UE shall transmit N308 + 1 RRC CONNECTION RELEASE COMPLETE messages. The time between the transmissions shall be equal to the T308 timer value.

After step 3 the UE shall initiate the release of the L2 signalling radio bearer and dedicated resources and enter idle mode.

8.1.3.2 RRC Connection Release using on DCCH in CELL_FACH state: Success

8.1.3.2.1 Definition

8.1.3.2.2 Conformance requirement

The UE shall receive and act on an RRC CONNECTION RELEASE message in states CELL_DCH and CELL_FACH. Furthermore this procedure can interrupt any ongoing procedures with the UE in the above listed states.

When the UE receives the first RRC CONNECTION RELEASE message; and

1> if the message is received on the CCCH, and IE "U-RNTI" is present and has the same value as the variable U_RNTI; or

1> if the message is received on DCCH:

the UE shall:

…

1> in state CELL_FACH:

2> if the RRC CONNECTION RELEASE message was received on the DCCH:

3> set the IE "RRC transaction identifier" in the RRC CONNECTION RELEASE COMPLETE message to the value of "RRC transaction identifier" in the entry for the RRC CONNECTION RELEASE message in the table "Accepted transactions" in the variable TRANSACTIONS;

3> submit an RRC CONNECTION RELEASE COMPLETE message to the lower layers for transmission using AM RLC on the DCCH to the UTRAN.

3> when the successful transmission of the RRC CONNECTION RELEASE COMPLETE message has been confirmed by the lower layers:

4> release all its radio resources; and

4> indicate the release of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to upper layers; and

4> clear any entry for the RRC CONNECTION RELEASE message in the tables "Accepted transactions" and "Rejected transactions" in the variable TRANSACTIONS;

4> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;

4> clear the variable ESTABLISHED_RABS;

4> pass the value of the IE "Release cause" received in the RRC CONNECTION RELEASE message to upper layers;

4> enter idle mode;

4> perform the actions specified in TS 25.331 subclause 8.5.2 when entering idle mode.

3> and the procedure ends.

…

Reference

3GPP TS 25.331 clause 8.1.4.3.

8.1.3.2.3 Test purpose

To confirm that the UE releases the L2 signalling radio bearer and resources and goes back to the idle state after it receives an RRC CONNECTION RELEASE message on downlink DCCH from the SS. It shall transmit an RRC CONNECTON RELEASE COMPLETE message using acknowledged mode on uplink DCCH to the SS.

8.1.3.2.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_FACH state (state 6-2 or state 6-4) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is brought to an initial state of CELL_FACH. After the successful establishment of the RRC connection, on reception of (CM) service request message from the UE, the SS will send CM Service Reject message (for state 6-2) or Service Reject message (for state 6-4) to complete the (CM) service Request procedure. After the UE is brought into the stable state, the SS transmits an RRC CONNECTION RELEASE message to the UE to disconnect the radio link. When the UE receives this message the UE transmits an RRC CONNECTION RELEASE COMPLETE message using acknowledged mode to the SS. Finally, SS checks that the UE performs proper release of all radio resources and then goes back to idle mode.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to the CELL_FACH state.
2	←		RRC CONNECTION RELEASE	SS sends this message using unacknowledged mode RLC operations on the uplink DCCH.
3	→		RRC CONNECTION RELEASE COMPLETE	The UE transmits this message using acknowledged mode.
4				The UE releases L2 signalling radio bearer and radio resources. Then the UE goes to idle mode.

Specific Message Contents

None.

8.1.3.2.5 Test requirement

After step 2 the UE shall transmit an RRC CONNECTION RELEASE COMPLETE message using acknowledged mode then it shall receive a response for this message from the SS-RLC.

After step 3 the UE shall release its L2 signalling radio bearers and radio resources, and then it shall go back to idle mode.

8.1.3.3 RRC Connection Release using on CCCH in CELL_FACH state: Success

8.1.3.3.1 Definition

8.1.3.3.2 Conformance requirement

The UE shall receive and act on an RRC CONNECTION RELEASE message in states CELL_DCH and CELL_FACH. Furthermore this procedure can interrupt any ongoing procedures with the UE in the above listed states.

When the UE receives the first RRC CONNECTION RELEASE message; and

1> if the message is received on the CCCH, and IE "U-RNTI" is present and has the same value as the variable U_RNTI; or

1> if the message is received on DCCH:

the UE shall:

…

1> in state CELL_FACH:

…

2> if the RRC CONNECTION RELEASE message was received on the CCCH:

3> release all its radio resources;

3> indicate the release of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to the upper layers;

3> clear any entry for the RRC CONNECTION RELEASE message in the tables "Accepted transactions" and "Rejected transactions" in the variable TRANSACTIONS;

3> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;

3> clear the variable ESTABLISHED_RABS;

3> pass the value of the IE "Release cause" received in the RRC CONNECTION RELEASE message to upper layers;

3> enter idle mode;

3> perform the actions specified in TS 25.331 subclause 8.5.2 when entering idle mode;

3> and the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.4.3.

8.1.3.3.3 Test purpose

To confirm that the UE releases all its radio resources upon the reception of a RRC CONNECTION RELEASE message on the downlink CCCH, without transmitting RRC CONNECTION RELEASE COMPLETE message on the uplink.

8.1.3.3.4 Method of test

Initial Condition

System Simulator: 1 cell.
UE: CELL_FACH state (state 6-2 or state 6-4) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is brought to an initial state of CELL_FACH. After the successful establishment of the RRC connection, on reception of (CM) service request message from the UE, the SS will send CM Service Reject message (for state 6-2) or Service Reject message (for state 6-4) to complete the (CM) service Request procedure. After the UE is brought into the stable state, the SS transmits an RRC CONNECTION RELEASE message on the downlink CCCH. The UE shall terminate the RRC connection and release all radio resources allocated to it. SS monitors the uplink DCCH and CCCH to verify that no transmission is detected. SS calls for generic procedure C.1 to check that UE is in Idle Mode state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to the CELL_FACH state.
2	←		RRC CONNECTION RELEASE	SS transmits this message with the contents identical to that found in TS 34.108 clause 9 on downlink CCCH.
3				SS waits for a period equivalent to 60 seconds. The UE shall not send any response message on uplink direction during this period. It shall release the radio resources allocated and return to idle mode.
4	←→		CALL C.1	If the test result of C.1 indicates that UE is in Idle Mode state, the test passes, otherwise it fails.

Specific Message Contents

None.

8.1.3.3.5 Test requirement

After step 2 the UE shall release all its radio resources, return to idle mode, without transmitting RRC CONNECTION RELEASE COMPLETE message on the uplink direction.

8.1.3.4 RRC Connection Release in CELL_FACH state: Failure

8.1.3.4.1 Definition

8.1.3.4.2 Conformance requirement

When acknowledged mode was used and RLC does not succeed in transmitting the RRC CONNECTION RELEASE COMPLETE message, the UE shall:

1> release all its radio resources;

1> indicate the release of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to upper layers;

1> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;

1> clear the variable ESTABLISHED_RABS;

1> enter idle mode;

1> perform the actions specified in TS 25.331 subclause 8.5.2 when entering idle mode;

1> and the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.4.9.

8.1.3.4.3 Test purpose

To confirm that the UE releases all its radio resources and enters idle mode when the UE does not succeed in transmitting the RRC CONNECTION RELEASE COMPLETE message using acknowledged mode to the SS (i.e. the UE-RLC does not receive an acknowledgement for the transmission of the RRC CONNECTION RELEASE COMPLETE message from SS).

8.1.3.4.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CELL_FACH state (state 6-2 or state 6-4) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE

Test Procedure

At the start of the test, the UE is brought to CELL_FACH state. When the RRC connection has been established, on reception of (CM) service request message from the UE, the SS will send CM Service Reject message (for state 6-2) or Service Reject message (for state 6-4) to complete the (CM) service Request procedure. After the UE is brought into the stable state, the SS transmits an RRC CONNECTION RELEASE message to the UE to disconnect the radio link. When the UE receives this message the UE transmits an RRC CONNECTION RELEASE COMPLETE message using acknowledged mode to the SS. The SS ignores the message and does not transmit an RLC STATUS PDU to acknowledge this message. SS checks to see that UE continues to release all its radio resources and then enters idle mode.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought into CELL_FACH state by asking the operator to perform an outgoing call attempt.
2	←		RRC CONNECTION RELEASE	SS ask to disconnect the radio link
3	→		RRC CONNECTION RELEASE COMPLETE	The UE transmits this message using acknowledged mode. The SS shall not transmit an RLC STATUS PDU to acknowledge this message.
4				SS checks to make sure that UE releases all its radio resources and enters idle mode.
5	←→		CALL C.1	If the test result of C.1 indicates that UE is in Idle Mode state, the test passes, otherwise it fails.

Specific Message Contents

None

8.1.3.4.5 Test requirement

After step 3 the UE shall release its L2 signalling radio bearers and radio resources then it shall go to idle mode.

8.1.3.5 RRC Connection Release in CELL_FACH state: Invalid message

8.1.3.5.1 Definition

8.1.3.5.2 Conformance requirement

If the RRC CONNECTION RELEASE message contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to TS 25.331 clause 9, and if the "protocol error cause" in PROTOCOL_ERROR_INFORMATION is set to any cause value except "ASN.1 violation or encoding error", the UE shall perform procedure specific error handling as follows:

The UE shall:

1> ignore any IE(s) causing the error but treat the rest of the RRC CONNECTION RELEASE message as normal according to TS 25.331 subclause 8.1.4.3, with an addition of the following actions:

2> if the RRC CONNECTION RELEASE message was received on the DCCH:

3> set the IE "RRC transaction identifier" in the RRC CONNECTION RELEASE COMPLETE message to the value of "RRC transaction identifier" in the entry for the RRC CONNECTION RELEASE message in the table "Rejected transactions" in the variable TRANSACTIONS;

3> include the IE "Error indication" in the RRC CONNECTION RELEASE COMPLETE message with:

4> the IE "Failure cause" set to the cause value "Protocol error"; and

4> the IE "Protocol error information" set to the value of the variable PROTOCOL_ERROR_INFORMATION.

…

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent via a radio access technology other than UTRAN, containing an undefined critical message extension, the UE shall:

1> set the variable PROTOCOL_ERROR_REJECT to TRUE;

1> set the IE "Protocol error cause" in the variable PROTOCOL_ERROR_INFORMATION to "Message extension not comprehended";

1> if the IE "Message Type" of the received message is not present in the table "Rejected transactions" in the variable TRANSACTIONS:

2> store the IE "Message type" of the received message in the table "Rejected transactions" in the variable TRANSACTIONS; and

2> set the IE "RRC transaction identifier" to zero in that table entry.

1> perform procedure specific error handling according to TS 25.331 clause 8.

Reference

3GPP TS 25.331 clause 8.1.4 and 9.3b.

8.1.3.5.3 Test purpose

When the UE receives an invalid RRC CONNECTION RELEASE message on the downlink DCCH, it shall transmit an RRC CONNECTION RELEASE COMPLETE message that includes the appropriate error cause on the uplink DCCH.

8.1.3.5.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CELL_FACH state (state 6-2 or state 6-4) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is initially in CELL FACH state. on reception of (CM) service request message from the UE, the SS will Send CM Service Reject message (for state 6-2) or Service Reject message (for state 6-4) to complete the (CM) service Request procedure. After the UE is brought into the stable state, the SS transmits an RRC CONNECTION RELEASE message containing an unexpected critical message extension on the DCCH to request the UE to disconnect the RRC connection. The UE shall transmit an RRC CONNECTION RELEASE COMPLETE message on the uplink DCCH, which includes the IE "Error indication". This IE shall contain the "Protocol error information" IE which in turn contains the IE "Protocol error cause" set to "Message extension not comprehended". Upon completion of the procedure, the SS calls for generic procedure C.1 to check that UE is in IDLE state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1			Void	
2			Void	
3			Void	
4			Void	
5			Void	

6		Void	
7		Void	
8	←	RRC CONNECTION RELEASE	See specific message contents for this message
9	→	RRC CONNECTION RELEASE COMPLETE	See specific message contents for this message This message is sent using acknowledged mode.
10		Void	
11		Void	
12		Void	
13	←→	CALL C.1	If the test result of C.1 indicates that UE is in IDLE state, the test passes, otherwise it fails.

Specific Message Contents

RRC CONNECTION RELEASE (Step 8)

This message must be recognised by the UE as an RRC CONNECTION RELEASE message. However, it shall be constructed (see TS 25.331 clause 10.1.1) such that the UE will detect critical extensions not defined for the protocol release supported by the UE:

Information Element	Value/remark
Message Type	
RRC transaction identifier Integrity check info Critical extensions	Arbitrarily selects an integer between 0 and 3 Not present 'FF'H

RRC CONNECTION RELEASE COMPLETE (Step 9)

Check to see if the same message type found in clause 9 of TS 34.108 is received, with the following exceptions:

Information Element	Value/remark
Error indication - Failure cause - Protocol error information - CHOICE diagnostics type - Protocol error cause	 'Protocol error' Protocol error cause Check to see if set to 'Message extension not comprehended'

8.1.3.5.5 Test requirement

After step 8 the UE shall transmit an RRC CONNECTION RELEASE COMPLETE message which includes the appropriate cause values in IE "Protocol error information".

After step 12 the UE shall be in IDLE state.

8.1.3.6 RRC Connection Release in CELL_DCH state (Frequency modification): Success

8.1.3.6.1 Definition

8.1.3.6.2 Conformance requirement

If the UE first receives an RRC CONNECTION RELEASE message in CELL_DCH state, it shall:

- initialize the counter V308 to zero;
- submit an RRC CONNECTION RELEASE COMPLETE message to the lower layers for transmission using UM RLC on the DCCH to the UTRAN;
- start timer T308 when the RRC CONNECTION RELEASE COMPLETE message is sent on the radio interface.

If the timer T308 expires, the UE shall:

- increment V308 by one;
- if V308 is equal to or smaller than N308:
  - retransmit the RRC CONNECTION RELEASE COMPLETE message;
- if V308 is greater than N308:
  - release all its radio resources;
  - enter idle mode;
  - perform cell-selection according to TS25.304;
  - procedure end;

Reference

3GPP TS 25.331 clause 8.1.4.

8.1.3.6.3 Test purpose

To confirm that when the UE receives an RRC CONNECTION RELEASE message the UE transmits N308+1 RRC CONNECTION RELEASE COMPLETE messages using UM on DCCH.

To confirm that the UE enters into idle mode with performing cell-selection and selecting new cell configured by SS.

8.1.3.6.4 Method of test

Initial Condition

System Simulator: 2 cells–Cell 1 is active and cell 6 is inactive

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE

Specific Message Content

For system information block 11 for Cell 1 (gives IE's which are different from defaults given in 34.108 sec 6.1) to be transmitted before idle update preamble.

System Information Block type 11

Use same message sub-clause 6.1 of TS 34.108, with following exception:

Information Element	Value/remark
- SIB12 indicator	FALSE
- Intra-frequency measurement system information	Not Present
- Inter-frequency measurement system information	
- Inter-frequency cell info list	
- New inter-frequency cell id	
- Inter frequency cell id	6
- Frequency info	
- CHOICE mode	FDD
- UARFCN uplink(Nu)	Not present Absence of this IE is equivalent to apply the default duplex distance defined for the operating frequency according to 25.101
- UARFCN downlink(Nd)	Reference to table 6.1.2 of TS34.108 for Cell 6
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not present
- Read SFN indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.6 (FDD)" in clause 6.1.4 of TS34.108
- Primary CPICH Tx power	Not present
- Cell Selection and Re-selection Info	
- $Qoffset1_{s,n}$	0dB
- Qoffset2s,n	Not present
- Maximum allowed UL TX power	Reference to table 6.1.1
- HCS neighbouring cell information	Not present
- CHOICE mode	FDD
- Qqualmin	Reference to table 6.1.1
- Qrxlevmin	Reference to table 6.1.1
- Cells for measurement	Not present

System Information Block type 11 (TDD)

Use same message sub-clause 6.1 of TS34.108, with following exception:

Information Element	Value/remark
- SIB12 indicator	FALSE
- Intra-frequency measurement system information	Not Present
- Inter-frequency measurement system information	
- Inter-frequency cell info list	
- New inter-frequency cell id	
- Inter frequency cell id	4
- Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	Reference to TS34.108 for Cell 4
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not present
- Read SFN indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH info	Reference clause 6.1,TS34.108,Default settings for cell 4
- Cell parameters ID	Reference clause 6.1,TS34.108,Default settings for cell 4
- Primary CPICH TX power	Not present
- Timeslot list	Not present
- Cell Selection and Re-selection Info	Not present For neighbouring cell, if HCS is not used and all the parameters in cell selection and re-selection info are Default value, this IE is absent.
- $Qoffset1_{s,n}$	0dB
- Maximum allowed UL TX power	Reference to table 6.1.6, TS34.108
- HCS neighbouring cell information	Not present
- CHOICE mode	TDD
- Qrxlevmin	Reference to table 6.1.6, TS 34.108
- Cells for measurement	Not present

Test Procedure

Table 8.1.3.6

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-55	-55	Off	-55
P-CCPCH RSCP (TDD)	dBm	-55	-55	Off	-55

Table 8.1.3.6 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0" and "T1", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for cell 1 and cell 6.

The UE is in CELL_DCH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.1.3.6. The SS switches its downlink transmission power settings to columns "T1". The SS modify contents of SIB3 in cell 6. The SS transmits an RRC CONNECTION RELEASE message. After the SS transmits an RRC CONNECTION RELEASE message to the UE, the SS waits for the UE to transmit RRC CONNECTION RELEASE COMPLETE messages using UM on DCCH and checks to see if N308+1 such messages has been received. The UE leaves connected mode and enters idle mode in cell 1. The UE shall perform cell reselection and camp on cell 6 after reading the system information. The SS calls for generic procedure C.1 to check that UE is in Idle state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in the CELL_DCH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.1.3.6.
2				The SS switches its downlink transmission power settings to columns "T1" in table 8.1.3.6.
3			Void	
4			Void	
5	←		System Information Block type 3	The SS modifies SIB 3 in cell 1 to indicate that the cell is barred.
6				The SS waits for 5 s.
7	←		RRC CONNECTION RELEASE	
8	→		RRC CONNECTION RELEASE COMPLETE	The SS waits for the arrival of N308+1 such messages send on UM RLC.
9				The UE releases signalling radio bearer and dedicated resources. Then the UE goes to idle mode in cell 1.
10				The UE selects cell 6 and camp on it.
11				The SS waits for 15 s after receiving the last RRC CONNECTION RELEASE COMPLETE message.
12	←→		CALL C.1	If the test result of C.1 indicates that UE is in idle mode state, the test passes, otherwise it fails.

Specific Message Content

System Information Block type 3 (Step 5)

Use the same message type found in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- Cell Access Restriction	
- Cell barred	Barred
- Intra-frequency cell re-selection indicator	Not allowed
- Tbarred	10[s]
- Cell Reserved for operator use	Not reserved
- Cell Reservation Extension	Not reserved
- 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 Barred10	barred
- Access Class Barred11	barred
- Access Class Barred12	barred
- Access Class Barred13	barred
- Access Class Barred14	barred
- Access Class Barred15	barred

RRC CONNECTION RELEASE (Step 6)

Use the same message type found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
N308	Arbitrarily chosen between 1 and 8

8.1.3.6.5 Test requirement

After step 6 the UE shall start to transmit N308 + 1 times RRC CONNECTION RELEASE COMPLETE messages using UM on DCCH.

After step 11 the UE shall be in Idle mode in cell 6.

8.1.3.7 RRC Connection Release in CELL_FACH state (Frequency modification): Success

8.1.3.7.1 Definition

8.1.3.7.2 Conformance requirement

When the UE receives the first RRC CONNECTION RELEASE message

the UE shall:

1> in state CELL_FACH:

2> if the RRC CONNECTION RELEASE message was received on the DCCH:

3> when the successful transmission of the RRC CONNECTION RELEASE COMPLETE message has been confirmed by the lower layers:

4> release all its radio resources; and

4> indicate the release of the established signalling connections; and

4> pass the value of the IE "Release cause" received in the RRC CONNECTION RELEASE message to upper layers;

4> enter idle mode;

4> perform the actions specified in TS25.331 subclause 8.5.2 when entering idle mode.

a) 3> and the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.4.

8.1.3.7.3 Test purpose

To confirm that when the UE receives an RRC CONNECTION RELEASE message, the UE releases signalling radio bearer and its radio resources and goes back to the idle.

To confirm that the UE enters into idle mode with by performing cell-selection and selecting other cell than the UE selecting cell in connected mode.

8.1.3.7.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 is active and cell 6 is inactive

UE: "Registered idle mode on CS" (state 2) or "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS" (state 7).

Test Procedure

Table 8.1.3.7

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-60	off	-60
P-CCPCH RSCP (TDD)	dBm	-60	-60	off	-60

Table 8.1.3.7 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0" and "T1", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for cell 1 and cell 6.

The UE is in idle mode of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.1.3.7. SS request operator to make an outgoing call. The SS and UE execute procedure P4 or P6. Next The SS and the UE execute procedure P8 or P10. The SS switches its downlink transmission power settings to columns "T1" and then modifies SIB 3 to indicate that cell 1 is barred. The SS transmits an RRC CONNECTION RELEASE message on DCCH. The UE shall transmit an RRC CONNECTION RELEASE COMPLETE message using AM on DCCH and try to enter idle mode state in cell 1. On selecting cell 1 the UE reads system information block 3 and is aware that cell 1 is barred cell. Hence the UE selects cell 6 and camp on cell 6. Upon completion of the procedure, the SS calls for generic procedure C.1 to check that UE is in idle mode.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in the CELL_FACH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.1.3.7. SS requests operator to make an outgoing call.
2			SS executes procedure P4 (clause 7.4.2.1.2) or P6 (clause 7.4.2.2.2) specified in TS 34.108.	
3			SS executes procedure P8 (clause 7.4.2.3.2) or P10 (clause 7.4.2.4.2) specified in TS 34.108.	
4				The SS switches its downlink transmission power settings to columns "T1" in table 8.1.3.7.
5	←		System Information Block type 3	The SS modifies SIB 3 in cell 1 to indicate that the cell is barred.
6				The SS waits for 5 s
7	←		RRC CONNECTION RELEASE	
8	→		RRC CONNECTION RELEASE COMPLETE	
9				The SS waits for 5s
10	←→		CALL C.1	If the test result of C.1 indicates that UE is in idle mode, the test passes, otherwise it fails.

Specific Message Content

System Information Block type 3 (Step 5)

Use the same message type found in clause 6 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- Cell Access Restriction	
- Cell barred	Barred
- Intra-frequency cell re-selection indicator	Not allowed
- Tbarred	10[s]
- Cell Reserved for operator use	Not reserved
- Cell Reservation Extension	Not reserved
- 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 Barred10	barred
- Access Class Barred11	barred
- Access Class Barred12	barred
- Access Class Barred13	barred
- Access Class Barred14	barred
- Access Class Barred15	barred

8.1.3.7.5 Test requirement

After step 3 the UE shall transmit RRC CONNECTION RELEASE COMPLETE messages using AM on DCCH.

After step 9 the UE shall be in idle mode of cell 6.

8.1.3.8 Void

8.1.3.9 RRC Connection Release in CELL_DCH state (Network Authentication Failure): Success

8.1.3.9.1 Definition

8.1.3.9.2 Conformance requirement

1. TS 25.331

If the upper layers request the release of the RRC connection, the UE shall:

1> release all its radio resources;

1> enter idle mode;

1> perform other actions when entering idle mode from connected mode as specified in subclause 8.5.2;

1> if the UE was in CELL_DCH state prior to entering idle mode:

2> consider all cells that were in the active set prior to entering idle mode to be barred according to [4]; and

2> consider the barred cells as using the value "allowed" in the IE "Intra-frequency cell re-selection indicator", and the maximum value in the IE "T_{barred}".

2. TS 24.008

Following a UMTS authentication challenge, the MS may reject the core network on the grounds of an incorrect AUTN parameter (see 3GPP TS 33.102). This parameter contains two possible causes for authentication failure:

….

SQN failure:

If the MS considers the SQN (supplied by the core network in the AUTN parameter) to be out of range, it shall send a AUTHENTICATION FAILURE message to the network, with the reject cause 'Synch failure' and a re-synchronization token AUTS provided by the SIM (see 3GPP TS 33.102). The MS shall then follow the procedure described in clause 4.3.2.6 (d) of TS 24.008.

….

Authentication failure (reject cause 'synch failure'):

The MS shall send an AUTHENTICATION FAILURE message, with reject cause 'synch failure,' to the network and start the timer T3216.

….

If the timer T3216 expires, then the MS shall behave as described in clause 4.3.2.6.1 of TS 24.008.

Reference

3GPP TS 25.331 clause 8.1.4a.

3GPP TS 24.008 clause 4.3.2.5.1, 4.3.2.6

8.1.3.9.3 Test purpose

To confirm that when the upper layers request the release of the RRC connection, the UE releases signalling radio bearer and its radio resources and goes back to idle mode.

To confirm that the UE enters idle mode, bars the cell for a period T_{barred} and hence performs cell-selection to another (non-barred) cell.

8.1.3.9.4 Method of test

Initial Condition

System Simulator: 3 cells – Cell 1, 2 and 3 are active.

UE: "CS-DCCH+DTCH_DCH" (state 6-9) or " PS-DCCH+DTCH_DCH " (state 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

Test Procedure

Table 8.1.3.9 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Column marked "T0" denotes the initial conditions, while columns marked "T1" are to be applied subsequently. The exact instants on which these values shall be applied are described in the text in this clause.

Table 8.1.3.9

Parameter	Unit	Cell 1		Cell 2		Cell 3	
		T0	T1	T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec	dBm/3.84 MHz	-60	-60	-85	-62	-85	-65
PCCPCH RSCP	dBm	-60	-60	-85	-62	-85	-65

SS switches the downlink transmission power of the 3 cells to the columns "T1" in Table 8.1.3.9. UE transmits a MEASUREMENT REPORT message which includes the primary scrambling code for cell 2 and 3 according to IE "Intra-frequency event identity", which is set to '1a' for FDD mode in the SYSTEM INFORMATION BLOCK TYPE 11. For FDD, in steps 2 and 3, after the MEASUREMENT REPORT message is received, the SS configures the new radio link to be added from cell 2 and then the SS transmits to the UE in cell 1 an ACTIVE SET UPDATE message which includes IE "Radio Link Addition Information", indicating the addition of cell 2 into the active set, on DCCH using AM RLC.

When the UE receives this message, the UE shall configure layer 1 to begin reception without affecting the current uplink and downlink activities of existing radio links. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC.

The SS transmits a DOWNLINK DIRECT TRANSFER message. This message contains a NAS message (AUTHENTICATION REQUEST for CS domain or AUTHENTICATION AND CIPHERING REQUEST for PS domain) and an invalid SQN. The UE shall transmit an UPLINK DIRECT TRANSFER message using AM on DCCH. After SS acknowledges the UPLINK DIRECT TRANSFER message, SS shall wait for T3216 or T3320 to expire in the UE. The UE shall then deem that the network has failed the authentication check, release the RRC connection, enter idle mode, bar cell 1 and 2 and perform cell re- selection. Then SS wait for 5 s. SS transmits PAGING TYPE 1 message. The UE shall respond with RRC CONNECTION REQUEST message in cell 3. SS then transmit RRC CONNECTION REJECT message back to UE. SS then waits for T_{barred} to expire (22 minutes) before SS execute generic procedure C.1 in cell 1 to check that UE is in idle mode in cell 1.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	→		MEASUREMENT REPORT	See specific message contents for this message. This step will be only applicable for FDD.
2	←		ACTIVE SET UPDATE	The SS transmit this message on downlink DCCH using AM RLC which includes IE "Radio Link Addition Information" for cell 2. This step will be only applicable for FDD.
3	→		ACTIVE SET UPDATE COMPLETE	The UE adds the radio link in cell 2. This step will be only applicable for FDD.
4	←		DOWNLINK DIRECT TRANSFER	Depending on supported CN domain, AUTHENTICATION AND CIPHERING REQUEST message (PS domain) or AUTHENTICATION REQUEST (CS domain) message is embedded in DOWNLINK DIRECT TRANSFER message. An invalid SQN is provided in this message.
5	→		UPLINK DIRECT TRANSFER	After SS acknowledged this message, SS waits for T3216 or T3320 to expire.
6				The SS waits for 5s
7	←		PAGING TYPE 1	
8	→		RRC CONNECTION REQUEST	SS checks that the UE sends this message in cell 3
9	←		RRC CONNECTION REJECT	
10				SS waits 22 minutes for T_{barred} to expire.
11	←→		CALL C.1	SS execute this generic procedure in cell 1. If the test result of C.1 indicates that UE is in idle mode, the test passes, otherwise it fails.

Specific Message Content

MEASUREMENT REPORT (Step 1) (FDD)

Note1: UE may send the Measured Results for Cell 1, 2 and 3 in any order.

Note2: UE may include the Cell Measurement Event Results for cell 3.

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- SFN-SFN observed time difference	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- SFN-SFN observed time difference	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- SFN-SFN observed time difference	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE (Step 2) (FDD only)

The message to be used in this test is defined in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark	Version
Radio link addition information		
- Primary CPICH Info		
- Primary Scrambling Code	Set to same code as assigned for cell 2	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH can be used.	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not Present	
- DL channelization code	This IE is repeated for all existing downlink DPCHs allocated to the UE	
- Secondary scrambling code	1	
- Spreading factor	Refer to TS 34.108 clause 6.10.2.4 "Typical radio parameter sets"	
- Code Number	For each DPCH, assign the same code number in the current code given in cell 1.	
- Scrambling code change	Not Present	
- TPC Combination Index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Close loop timing adjustment mode	Not Present	
- TFCI Combining Indicator	FALSE	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

ACTIVE SET UPDATE COMPLETE (Step 3) (FDD only)

Only the message type of this message is checked.

DOWNLINK DIRECT TRANSFER (Step 4)

Use the same message sub-type as found in TS 34.108 clause 9, with the following exceptions.

Information Element	Value/remark
CN domain identity	CS domain or PS domain
NAS message	AUTHENTICATION REQUEST (CS domain) or AUTHENTICATION AND CIPHERING REQUEST (PS domain) with an invalid SQN value.

UPLINK DIRECT TRANSFER (Step 5)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
CN domain identity	CS domain or PS domain
NAS message	AUTHENTICATION FAILURE(CS domain) or AUTHENTICATION AND CIPHERING FAILURE (PS domain)
Measured results on RACH	Not checked

8.1.3.9.5 Test requirement

At step 1 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

After step 2 the UE shall transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH.

After step 4 the UE shall transmit an UPLINK DIRECT TRANSFER messages using AM on DCCH.

After step 7, the UE shall transmit RRC CONNECTION REQUEST message using TM RLC on CCCH in cell 3.

After step 10 the UE shall be in idle mode in cell 1.

8.1.4 Void

8.1.5 UE capability

8.1.5.1 UE Capability in CELL_DCH state: Success

8.1.5.1.1 Definition

8.1.5.1.2 Conformance requirement

The UE shall initiate the UE capability update procedure in the following situations:

1> the UE receives a UE CAPABILITY ENQUIRY message from the UTRAN;

…

If the UE CAPABILITY INFORMATION message is sent in response to a UE CAPABILITY ENQUIRY message, the UE shall:

1> include the IE "RRC transaction identifier"; and

1> set it to the value of "RRC transaction identifier" in the entry for the UE CAPABILITY ENQUIRY message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> retrieve its UTRA UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and

1> include this in IE "UE radio access capability" and in IE "UE radio access capability extension", provided this IE is included in variable UE_CAPABILITY_REQUESTED;

1> retrieve its inter-RAT-specific UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and

1> include this in IE "UE system specific capability".

The UE RRC shall submit the UE CAPABILITY INFORMATION message to the lower layers for transmission on the uplink DCCH using AM RLC. When the message has been delivered to lower layers for transmission the UE RRC shall start timer T304 and set counter V304 to 1.

Upon reception of a UE CAPABILITY INFORMATION CONFIRM message, the UE shall:

1> stop timer T304;

…

1> and the procedure ends.

If the UE receives a UE CAPABILITY INFORMATION CONFIRM message, which contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to TS 25.331 clause 9, the UE shall perform procedure specific error handling as follows:

1> stop timer T304;

1> transmit an RRC STATUS message on the uplink DCCH using AM RLC;

1> include the IE "Identification of received message"; and

1> set the IE "Received message type" to UE CAPABILITY INFORMATION CONFIRM; and

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the UE CAPABILITY INFORMATION CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION;

1> when the RRC STATUS message has been submitted to lower layers for transmission:

2> restart timer T304 and continue with any ongoing procedures or processes as if the invalid UE CAPABILITY INFORMATION CONFIRM message has not been received.

…

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent via a radio access technology other than UTRAN, containing an undefined critical message extension, the UE shall:

1> set the variable PROTOCOL_ERROR_REJECT to TRUE;

1> set the IE "Protocol error cause" in the variable PROTOCOL_ERROR_INFORMATION to "Message extension not comprehended";

1> if the IE "Message Type" of the received message is not present in the table "Rejected transactions" in the variable TRANSACTIONS:

2> store the IE "Message type" of the received message in the table "Rejected transactions" in the variable TRANSACTIONS; and

2> set the IE "RRC transaction identifier" to zero in that table entry.

1> perform procedure specific error handling according to TS 25.331 clause 8.

Reference

3GPP TS 25.331 clauses 8.1.6, 8.1.7 and 9.3b.

8.1.5.1.3 Test purpose

1. To confirm that the UE transmits a UE CAPABILITY INFORMATION message after it receives a UE CAPABILITY ENQUIRY message from the SS.

2. To confirm that the UE indicates an invalid message reception when invalid UE CAPABILITY ENQUIRY and UE CAPABILITY INFORMATION CONFIRM messages are received. The UE shall transmit RRC STATUS message with the correct error cause value to SS.

8.1.5.1.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_DCH state (state 6-9 or state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is brought to the CELL_DCH state after a successful outgoing call attempt. The SS transmits a UE CAPABILITY ENQUIRY message containing an unexpected critical message extension. After receiving such a message, the UE shall report the error using RRC STATUS message with the appropriate error cause specified. Then SS transmits a correct UE CAPABILITY ENQUIRY message, the UE receives this message and transmits a UE CAPABILITY INFORMATION message on the uplink DCCH which includes the requested capabilities. The SS transmits a UE CAPABILITY INFORMATION CONFIRM message to the UE to complete the UE capability enquiry procedure.

Then SS initiates another UE capability enquiry procedure. The UE shall reply with a UE CAPABILITY INFORMATION message on the uplink DCCH. When SS receives this message, it transmits a UE CAPABILITY INFORMATION CONFIRM message containing an unexpected critical message extension. The UE shall detect an error and send an RRC STATUS message to report this event. After submitting this message to lower layers for transmission, the UE shall re-transmit a UE CAPABILITY INFORMATION message on the uplink DCCH after the expiry of restarted T304. SS then hen transmits an error-free UE CAPABILITY INFORMATION CONFIRM message similar to the message sent in step 6.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_DCH state after an outgoing call has been established successfully.
2	←		UE CAPABILITY ENQUIRY	See specific message contents for this message
3	→		RRC STATUS	See specific message contents for this message
4	←		UE CAPABILITY ENQUIRY	See specific message contents for this message.
5	→		UE CAPABILITY INFORMATION	See specific message contents for this message.
6	←		UE CAPABILITY INFORMATION CONFIRM	Use default message.
7	←		UE CAPABILITY ENQUIRY	Same as in step 4.
8	→		UE CAPABILITY INFORMATION	Shall be the same message content as in step 5.
9	←		UE CAPABILITY INFORMATION CONFIRM	See specific message contents for this message
10	→		RRC STATUS	UE shall detect an error and then transmit this message.
11	→		UE CAPABILITY INFORMATION	UE shall re-transmit this message after the restarted T304 expires.
12	←		UE CAPABILITY INFORMATION CONFIRM	SS sends an error-free message to acknowledge the receipt of the uplink message.

Specific Message Contents

UE CAPABILITY ENQUIRY (Step 2)

SS sends a message containing a critical extension not defined for the protocol release supported by the UE, as indicated in the IE "Access stratum release indicator":

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Critical extensions	'FF'H

RRC STATUS (Step 3)

Check to see if the same message type found in TS 34.108, clause 9 is received, with the following exceptions:

Information Element	Value/remark
Identification of received message	
- Received message type	UE Capability Enquiry
- RRC transaction identifier	0
Protocol Error Information	Message extension not comprehended
- Protocol Error Cause	

Information Element	Value/remark
Identification of received message	
- Received message type	UE Capability Enquiry
- RRC transaction identifier	Checked to see if the value is identical to the same IE in the downlink UE CAPABILITY ENQUIRY message.
Protocol Error Information	
- Protocol Error Cause	Message extension not comprehended

UE CAPABILITY ENQUIRY (Steps 4) (FDD)

Use the UE CAPABILITY ENQUIRY message as defined in [9] (TS 34.108) Clause 9, with the following exceptions:

Information Element	Value/remark
Capability update requirement	
- UE radio access FDD capability update requirement	TRUE
- UE radio access TDD capability update requirement	FALSE
- System specific capability update requirement list	Gsm

UE CAPABILITY ENQUIRY (Steps 4) (3.84 Mcps TDD)

Use the UE CAPABILITY ENQUIRY message as defined in [9] (TS 34.108) Clause 9, with the following exceptions:

Information Element	Value/remark
Capability update requirement	
- UE radio access FDD capability update requirement	FALSE
- UE radio access TDD capability update requirement	TRUE
- System specific capability update requirement list	Gsm

UE CAPABILITY ENQUIRY (Steps 4) (1.28 Mcps TDD)

Use the UE CAPABILITY ENQUIRY message as defined in [9] (TS 34.108) Clause 9, with the following exceptions.

Information Element	Value/remark
Capability update requirement - UE radio access FDD capability update requirement - UE radio access TDD capability update requirement UE radio access 1.28 Mcps TDD capability update requirement	 FALSE TRUE TRUE
- System specific capability update requirement list	Gsm

UE CAPABILITY ENQUIRY (Steps 4) (7.68 Mcps TDD)

Use the UE CAPABILITY ENQUIRY message as defined in [9] (TS 34.108) Clause 9, with the following exceptions:

Information Element	Value/remark
Capability update requirement - UE radio access FDD capability update requirement - UE radio access 3.84 Mcps TDD capability update requirement - UE radio access 7.68 Mcps TDD capability update requirement	 FALSE FALSE TRUE
- UE radio access 1.28 Mcps TDD capability update requirement	FALSE
- System specific capability update requirement list	Gsm

UE CAPABILITY INFORMATION (Step 5)

Check to see if the same message type found in [9] (TS 34.108) Clause 9 is received, with the following exceptions:

Information Element	Value/remark
UE system specific capability	Presence and value will be checked. Stated capability must be compatible with 34.123-2 (ICS statements) and the user settings

UE CAPABILITY INFORMATION CONFIRM (Step 9)

SS sends a message containing a critical extension not defined for the protocol release supported by the UE, as indicated in the IE "Access stratum release indicator". Use the UE CAPABILITY INFORMATION CONFIRM message as defined in [9] (TS 34.108) Clause 9, with the following addition:

Information Element	Value/remark
Critical extensions	'FF'H

RRC STATUS (Step 10)

Check to see if the same message type found in TS 34.108, clause 9 is received, with the following exceptions:

Information Element	Value/remark
Identification of received message - Received message type - RRC transaction identifier Protocol Error Information - Protocol Error Cause	 UE Capability Information Confirm 0 Message extension not comprehended

8.1.5.1.5 Test requirement

After step 2, the UE shall transmit a RRC STATUS message on the uplink DCCH, reporting the error with protocol error cause set to "Message extension not comprehended" correct transaction identifier.

After step 4 and 7 the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH to respond to the UE CAPABILITY ENQUIRY message with correct contents.

After step 9, the UE shall transmit a RRC STATUS message on the uplink DCCH. The protocol error cause shall be set to "Message extension not comprehended" and the transaction identifier set to the same value as used in the UE CAPABILITY ENQUIRY message of step 7.

After step 10, the UE shall re-transmit the UE CAPABILITY INFORMATION message with a similar content as in step 8 after the expiry of restarted T304.

8.1.5.2 UE Capability in CELL_DCH state: Success after T304 timeout

8.1.5.2.1 Definition

8.1.5.2.2 Conformance requirement

The UE shall initiate the UE capability update procedure in the following situations:

1> the UE receives a UE CAPABILITY ENQUIRY message from the UTRAN on the DCCH using UM or AM RLC;

1> while in connected mode the UE capabilities change compared to those stored in the variable UE_CAPABILITY_TRANSFERRED.

If the UE CAPABILITY INFORMATION message is sent in response to a UE CAPABILITY ENQUIRY message, the UE shall:

1> include the IE "RRC transaction identifier"; and

1> set it to the value of "RRC transaction identifier" in the entry for the UE CAPABILITY ENQUIRY message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> retrieve its UTRA UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and

1> include this in IE "UE radio access capability" and in IE "UE radio access capability extension", provided this IE is included in variable UE_CAPABILITY_REQUESTED;

1> retrieve its inter-RAT-specific UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and

1> include this in IE "UE system specific capability".

If the UE CAPABILITY INFORMATION message is sent because one or more of the UE capabilities change compared to those stored in the variable UE_CAPABILITY_TRANSFERRED while in connected state, the UE shall include the information elements associated with the capabilities that have changed in the UE CAPABILITY INFORMATION message.

…

The UE RRC shall submit the UE CAPABILITY INFORMATION message to the lower layers for transmission on the uplink DCCH using AM RLC. When the message has been delivered to lower layers for transmission the UE RRC shall start timer T304 and set counter V304 to 1.

Upon expiry of timer T304, the UE shall check the value of V304 and:

1> if V304 is smaller than or equal to N304:

2> prior to retransmitting the UE CAPABILITY INFORMATION message:

3> if the IE "Status" in the variable INTEGRITY_PROTECTION_INFO has the value "Started":

4> include the same IEs as in the last unsuccessful attempt of this message, except for the IE "Integrity check info", which is modified as follows:

5> increment the "Uplink RRC Message sequence number" for signalling radio bearer RB2 in the variable INTEGRITY_PROTECTION_INFO by one;

5> set the IE "RRC Message sequence number" in the IE "Integrity check info" by the value of the "Uplink RRC Message sequence number" for signalling radio bearer RB2 in the variable INTEGRITY_PROTECTION_INFO in this message;

5> recalculate the IE "Message authentication code" in the IE "Integrity check info" in this message, in accordance with TS 25.331 subclause 8.5.10.3.

3> else:

4> include the same IEs as in the last unsuccessful attempt of this message.

2> send the UE CAPABILITY INFORMATION message on signalling radio bearer RB2;

2> restart timer T304;

2> increment counter V304.

…

Reference

3GPP TS 25.331 clause 8.1.6 and 8.1.7.

8.1.5.2.3 Test purpose

To confirm that the UE re-transmits a UE CAPABILITY INFORMATION message until V304 is greater than N304, after the expiry of timer T304 when the UE cannot receive a UE CAPABILITY INFORMATION CONFIRM message in response to a UE CAPABILITY INFORMATION message.

8.1.5.2.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_DCH state (state 6-9 or state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is brought to CELL_DCH state. When the SS transmits a UE CAPABILITY ENQUIRY message which includes the "Capability update requirement" IE, the UE shall reply with a UE CAPABILITY INFORMATION message on the uplink DCCH which includes the "UE radio access capability" IE. The SS does not transmit a UE CAPABILITY INFORMATION CONFIRM message to the UE, resulting in the T304 timer to expire. SS shall observe that the UE attempts to transmit a UE CAPABILITY INFORMATION message again. The UE shall re-transmit N304 times, and SS transmits a UE CAPABILITY INFORMATION CONFIRM message to answer the last request and completes this test procedure.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_DCH state. SS sets internal counter K =0
2	←		UE CAPABILITY ENQUIRY	Including the IE "Capability update requirement".
3	→		UE CAPABILITY INFORMATION	Including the "UE radio access capability".
4				If K is equal to N304, then proceed to step 6.
5				The SS does not transmit a response and wait for T304 timer to expire. K=K+1 and goes to step 3.
6	←		UE CAPABILITY INFORMATION CONFIRM	Use default message contents

Specific Message Contents

None

8.1.5.2.5 Test requirement

After step 3 the UE shall re-transmits a UE CAPABILITY INFORMATION message on the uplink DCCH, after each expiry of timer T304. The UE CAPABILITY INFORMATION message shall contain IE "UE radio access capability" indicating the settings found in PIC/PIXIT statements. After (N304) re-transmissions, the UE shall receive a UE CAPABILITY INFORMATION CONFIRM message.

8.1.5.3 UE Capability in CELL_DCH state: Failure (After N304 re-transmissions)

8.1.5.3.1 Definition

8.1.5.3.2 Conformance requirement

The UE shall initiate the UE capability update procedure in the following situations:

1> the UE receives a UE CAPABILITY ENQUIRY message from the UTRAN on the DCCH using UM or AM RLC;

1> while in connected mode the UE capabilities change compared to those stored in the variable UE_CAPABILITY_TRANSFERRED.

If the UE CAPABILITY INFORMATION message is sent in response to a UE CAPABILITY ENQUIRY message, the UE shall:

1> include the IE "RRC transaction identifier"; and

1> set it to the value of "RRC transaction identifier" in the entry for the UE CAPABILITY ENQUIRY message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> retrieve its UTRA UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and

1> include this in IE "UE radio access capability" and in IE "UE radio access capability extension", provided this IE is included in variable UE_CAPABILITY_REQUESTED;

1> retrieve its inter-RAT-specific UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and

1> include this in IE "UE system specific capability".

If the UE CAPABILITY INFORMATION message is sent because one or more of the UE capabilities change compared to those stored in the variable UE_CAPABILITY_TRANSFERRED while in connected state, the UE shall include the information elements associated with the capabilities that have changed in the UE CAPABILITY INFORMATION message.

…

The UE RRC shall submit the UE CAPABILITY INFORMATION message to the lower layers for transmission on the uplink DCCH using AM RLC. When the message has been delivered to lower layers for transmission the UE RRC shall start timer T304 and set counter V304 to 1.

Upon expiry of timer T304, the UE shall check the value of V304 and:

1> if V304 is smaller than or equal to N304:

2> prior to retransmitting the UE CAPABILITY INFORMATION message:

3> if the IE "Status" in the variable INTEGRITY_PROTECTION_INFO has the value "Started":

4> include the same IEs as in the last unsuccessful attempt of this message, except for the IE "Integrity check info", which is modified as follows:

5> increment the "Uplink RRC Message sequence number" for signalling radio bearer RB2 in the variable INTEGRITY_PROTECTION_INFO by one;

5> set the IE "RRC Message sequence number" in the IE "Integrity check info" by the value of the "Uplink RRC Message sequence number" for signalling radio bearer RB2 in the variable INTEGRITY_PROTECTION_INFO in this message;

5> recalculate the IE "Message authentication code" in the IE "Integrity check info" in this message, in accordance with TS 25.331 subclause 8.5.10.3.

3> else:

4> include the same IEs as in the last unsuccessful attempt of this message.

2> send the UE CAPABILITY INFORMATION message on signalling radio bearer RB2;

2> restart timer T304;

2> increment counter V304.

1> if V304 is greater than N304:

2> initiate the Cell update procedure as specified in TS 25.331 subclause 8.3.1, using the cause "Radio link failure".

Reference

3GPP TS 25.331 clauses 8.1.6 and 8.1.7.

8.1.5.3.3 Test purpose

To confirm that the UE stops retrying to transmit a UE CAPABILITY INFORMATION message if V304 is greater than N304. It then initiates cell update procedure.

8.1.5.3.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_DCH state (state 6-9 or state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is brought to CELL_DCH state. When the SS transmits a UE CAPABILITY ENQUIRY message which includes the "Capability update requirement" IE, the UE receives this message and transmits a UE CAPABILITY INFORMATION message on the uplink DCCH which includes the "UE radio access capability" IE. The SS does not

respond with a UE CAPABILITY INFORMATION CONFIRM message but keeps a count on the number of messages received. When the T304 timer expires, the UE shall transmit a UE CAPABILITY INFORMATION message again. After sending (N304+1) messages, the UE shall stop sending UE CAPABILITY INFORMATION messages and initiates the cell update procedure. SS allows UE to return to "connected state" by issuing CELL UPDATE CONFIRM message on the downlink DCCH. Then the UE shall reconfigure its physical channel according to the CELL UPDATE CONFIRM message and respond with PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to SS.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE starts from CELL_DCH state. SS sets counter K to 0
2	←		UE CAPABILITY ENQUIRY	Use default message
3	→		UE CAPABILITY INFORMATION	Use default message
4				The SS does not transmit a response and allows T304 timer to expire. SS increments counter K If K is greater than N304, proceeds to step 5 else returns to 3.
5	→		CELL UPDATE	The UE assumes that radio link failure has occurred and transmits this message which includes IE "Cell update cause" set to "radio link failure".
6	←		CELL UPDATE CONFIRM	This message includes IE "Physical channel information elements".
7				The SS configure the dedicated physical channel according to the IE "Physical channel information elements" included in the CELL UPDATE CONFIRM message.
8	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	

Specific Message Contents

CELL UPDATE CONFIRM (Step 6) - FDD

The contents of CELL UPDATE CONFIRM message are identical as "CELL UPDATE CONFIRM message" as found in clause 9 of TS 34.108 with the following exceptions:

Information Element	Value/remark	Version
U-RNTI	Same as CELL UPDATE message in step 5	
RRC State indicator	CELL_DCH	
Frequency info		
- CHOICE mode	FDD	
- UARFCN uplink(Nu)	Reference to TS34.108 clause 5.1 Test frequencies	
- UARFCN downlink(Nd)	Reference to TS34.108 clause 5.1 Test frequencies	
Maximum allowed UL TX power	33dBm	
CHOICE Mode	FDD	
Downlink information for each radio links		
- Primary CPICH info		
- Primary scrambling code	100	
- PDSCH with SHO DCH info	Not Present	R99 and Rel-4 only
- PDSCH code mapping	Not Present	R99 and Rel-4 only
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	0 chips	
- Secondary CPICH info	Not Present	
- DL channelization code		
- Secondary scrambling code	2	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	SF-1(SF is reference to TS34.108 clause 6.10 Parameter Set)	
- Scrambling code change	No change	
- TPC combination index	0	
- SSDT Cell Identity	-a	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

CELL UPDATE CONFIRM (Step 6) – 3.84 Mcps TDD

The contents of CELL UPDATE CONFIRM message are identical as "CELL UPDATE CONFIRM message" as found in clause 9 of TS 34.108 with the following exceptions:

Information Element	Value/remark
U-RNTI	Same as CELL UPDATE message in step 5
RRC State indicator	CELL_DCH
Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	Reference to TS34.108 clause 5.1 Test frequencies
Maximum allowed UL TX power	30dBm
CHOICE Mode	TDD
Downlink information for each radio links	
- Primary CCPCH info	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- CHOICE SyncCase	Not Present
- Cell Parameters ID	Not Present
- Block STTD indicator	FALSE
- Downlink DPCH info for each RL	
- CHOICE mode	TDD
- DL CCTrCh List	
- TFCS ID	1
- Time info	
- Activation time	Not Present (default)
- Duration	Not Present (default)
- Common timeslot info	Not Present (default)
- Downlink DPCH timeslots and codes	Not Present (default)
- UL CCTrCH TPC List	Not Present (default)

CELL UPDATE CONFIRM (Step 6) – 1.28 Mcps TDD

The contents of CELL UPDATE CONFIRM message are identical as "CELL UPDATE CONFIRM message" as found in clause 9 of TS 34.108 with the following exceptions:

Information Element	Value/remark
U-RNTI	Same as CELL UPDATE message in step 5
RRC State indicator	CELL_DCH
Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	Reference to TS34.108 clause 5.1 Test frequencies
Maximum allowed UL TX power	30dBm
CHOICE Mode	TDD
Downlink information for each radio links	
- Primary CCPCH info	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- TSTD indicator	FALSE
- Cell Parameters ID	Not Present
- Block STTD indicator	FALSE
- Downlink DPCH info for each RL	
- CHOICE mode	TDD
- DL CCTrCh List	
- TFCS ID	1
- Time info	
- Activation time	Not Present (default)
- Duration	Not Present (default)
- Common timeslot info	Not Present (default)
- Downlink DPCH timeslots and codes	Not Present (default)
- UL CCTrCH TPC List	Not Present (default)

CELL UPDATE CONFIRM (Step 6) – 7.68 Mcps TDD

The contents of CELL UPDATE CONFIRM message are identical as "CELL UPDATE CONFIRM message" as found in clause 9 of TS 34.108 with the following exceptions:

Information Element	Value/remark
U-RNTI	Same as CELL UPDATE message in step 5
RRC State indicator	CELL_DCH
Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	Reference to TS34.108 clause 5.1 Test frequencies
Maximum allowed UL TX power	30dBm
CHOICE Mode	TDD
Downlink information for each radio links	
- Primary CCPCH info	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- CHOICE SyncCase	Not Present
- Cell Parameters ID	Not Present
- Block STTD indicator	FALSE
- Downlink DPCH info for each RL	
- CHOICE mode	TDD
- DL CCTrCh List	
- TFCS ID	1
- Time info	
- Activation time	Not Present (default)
- Duration	Not Present (default)
- Common timeslot info	Not Present (default)
- Downlink DPCH timeslots and codes	Not Present (default)
- UL CCTrCH TPC List	Not Present (default)

8.1.5.3.5 Test requirement

After step 2, the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH. The UE shall re-transmit this message for N304 times.

After step 4, the UE shall initiate the cell update procedure.

After step 6, UE shall respond with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message after it has configured L1 according to the CELL UPDATE CONFIRM message in step 6.

8.1.5.4 UE Capability in CELL_FACH state: Success

8.1.5.4.1 Definition

8.1.5.4.2 Conformance requirement

The UE shall initiate the UE capability update procedure in the following situations:

1> the UE receives a UE CAPABILITY ENQUIRY message from the UTRAN;

…

If the UE CAPABILITY INFORMATION message is sent in response to a UE CAPABILITY ENQUIRY message, the UE shall:

1> include the IE "RRC transaction identifier"; and

1> set it to the value of "RRC transaction identifier" in the entry for the UE CAPABILITY ENQUIRY message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> retrieve its UTRA UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and

1> include this in IE "UE radio access capability" and in IE "UE radio access capability extension", provided this IE is included in variable UE_CAPABILITY_REQUESTED;

1> retrieve its inter-RAT-specific UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and

1> include this in IE "UE system specific capability".

The UE RRC shall submit the UE CAPABILITY INFORMATION message to the lower layers for transmission on the uplink DCCH using AM RLC. When the message has been delivered to lower layers for transmission the UE RRC shall start timer T304 and set counter V304 to 1.

Upon reception of a UE CAPABILITY INFORMATION CONFIRM message, the UE shall:

1> stop timer T304;

…

1> and the procedure ends.

If the UE receives a UE CAPABILITY INFORMATION CONFIRM message, which contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to TS 25.331 clause 9, the UE shall perform procedure specific error handling as follows:

1> stop timer T304;

1> transmit an RRC STATUS message on the uplink DCCH using AM RLC;

1> include the IE "Identification of received message"; and

1> set the IE "Received message type" to UE CAPABILITY INFORMATION CONFIRM; and

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the UE CAPABILITY INFORMATION CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION;

1> when the RRC STATUS message has been submitted to lower layers for transmission:

2> restart timer T304 and continue with any ongoing procedures or processes as if the invalid UE CAPABILITY INFORMATION CONFIRM message has not been received.

…

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent via a radio access technology other than UTRAN, containing an undefined critical message extension, the UE shall:

1> set the variable PROTOCOL_ERROR_REJECT to TRUE;

1> set the IE "Protocol error cause" in the variable PROTOCOL_ERROR_INFORMATION to "Message extension not comprehended";

1> if the IE "Message Type" of the received message is not present in the table "Rejected transactions" in the variable TRANSACTIONS:

2> store the IE "Message type" of the received message in the table "Rejected transactions" in the variable TRANSACTIONS; and

2> set the IE "RRC transaction identifier" to zero in that table entry.

1> perform procedure specific error handling according to TS 25.331 clause 8.

Reference

3GPP TS 25.331 clauses 8.1.6, 8.1.7 and 9.3b.

8.1.5.4.3 Test purpose

1. To confirm that the UE transmits a UE CAPABILITY INFORMATION message after it receives a UE CAPABILITY ENQUIRY message from the SS.

2. To confirm that the UE indicates an invalid message reception when invalid UE CAPABILITY ENQUIRY and UE CAPABILITY INFORMATION CONFIRM messages are received. The UE shall transmit RRC STATUS message with the correct error cause value to SS.

8.1.5.4.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_FACH state (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is brought to the CELL_FACH state after a successful outgoing call attempt. The SS transmits a UE CAPABILITY ENQUIRY message containing an unexpected critical message extension. After receiving such a message, the UE shall report an error using RRC STATUS message with the appropriate error cause specified. Then SS transmits a UE CAPABILITY ENQUIRY message which includes the IE "Capability update requirement". After UE receives this message, it transmits a UE CAPABILITY INFORMATION message on the uplink DCCH, which includes the requested capabilities. The SS transmits a UE CAPABILITY INFORMATION CONFIRM message to the UE to complete the UE capability enquiry procedure.

Then SS initiates another UE capability enquiry procedure. The UE shall reply with a UE CAPABILITY INFORMATION message on the uplink DCCH. When SS receives this message, it transmits a UE CAPABILITY INFORMATION CONFIRM message containing an unexpected critical message extension. The UE shall detect an error and send an RRC STATUS message to report this event. After submitting this message to lower layers for transmission, the UE shall re-transmit a UE CAPABILITY INFORMATION message on the uplink DCCH upon the expiry of restarted T304. SS completes this test by sending an error-free UE CAPABILITY INFORMATION CONFIRM message similar to the message sent in step 6.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_FACH state after an outgoing call has been established successfully.
2	←		UE CAPABILITY ENQUIRY	See specific message contents for this message
3	→		RRC STATUS	See specific message contents for this message.
4	←		UE CAPABILITY ENQUIRY	Use default message.
5	→		UE CAPABILITY INFORMATION	Use default message.
6	←		UE CAPABILITY INFORMATION CONFIRM	Use default message.
7	←		UE CAPABILITY ENQUIRY	Same as in step 4.
8	→		UE CAPABILITY INFORMATION	The message content shall be the same as in step 5.
9	←		UE CAPABILITY INFORMATION CONFIRM	See specific message contents for this message
10	→		RRC STATUS	UE shall detect an error and then transmit this message on uplink DCCH.
11	→		UE CAPABILITY INFORMATION	UE shall re-transmit this message after the restarted T304 expires.
12	←		UE CAPABILITY INFORMATION CONFIRM	SS sends an error-free message to acknowledge the receipt of the uplink message.

Specific Message Contents

UE CAPABILITY ENQUIRY (Step 2)

Use the UE CAPABILITY ENQUIRY message as defined in [9] (TS 34.108) Clause 9, with the following exceptions:

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Critical extensions	'FF'H

RRC STATUS (Step 3)

Check to be the same message type found in TS 34.108, clause 9 is received, with the following exceptions:

Information Element	Value/remark
Identification of received message	
- Received message type	UE Capability Enquiry
RRC transaction identifier	0
Protocol Error Information	
- Protocol Error Cause	Message extension not comprehended

UE CAPABILITY INFORMATION CONFIRM (Step 9)

SS sends a message containing a critical extension not defined for the protocol release supported by the UE, as indicated in the IE "Access stratum release indicator". Use the UE CAPABILITY INFORMATION CONFIRM message as defined in [9] (TS 34.108) Clause 9, with the following addition:

Information Element	Value/remark
Critical extensions	'FF'H

RRC STATUS (Step 10)

Check to see if the same message type found in TS 34.108, clause 9 is received, with the following exceptions:

Information Element	Value/remark
Identification of received message	
- Received message type	UE Capability Information Confirm
- RRC transaction identifier	0
Protocol Error Information	
- Protocol Error Cause	Message extension not comprehended

8.1.5.4.5 Test requirement

After step 2, the UE shall transmit a RRC STATUS message on the uplink DCCH, reporting the error with protocol error cause set to "Message extension not comprehended" correct transaction identifier.

After step 4 and 7 the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH to respond to the downlink UE CAPABILITY ENQUIRY message with correct contents.

After step 9, the UE shall transmit a RRC STATUS message on the uplink DCCH. The protocol error cause shall be set to "Message extension not comprehended" and the transaction identifier set to the same value as used in the UE CAPABILITY ENQUIRY message of step 7.

After step 10, the UE shall re-transmit the UE CAPABILITY INFORMATION message with a similar content as in step 8 upon the expiry of restarted T304.

8.1.5.5 UE Capability in CELL_FACH state: Success after T304 timeout

8.1.5.5.1 Definition

8.1.5.5.2 Conformance requirement

The UE shall initiate the UE capability update procedure in the following situations:

1> the UE receives a UE CAPABILITY ENQUIRY message from the UTRAN on the DCCH using UM or AM RLC;

1> while in connected mode the UE capabilities change compared to those stored in the variable UE_CAPABILITY_TRANSFERRED.

If the UE CAPABILITY INFORMATION message is sent in response to a UE CAPABILITY ENQUIRY message, the UE shall:

1> include the IE "RRC transaction identifier"; and

1> set it to the value of "RRC transaction identifier" in the entry for the UE CAPABILITY ENQUIRY message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> retrieve its UTRA UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and

1> include this in IE "UE radio access capability" and in IE "UE radio access capability extension", provided this IE is included in variable UE_CAPABILITY_REQUESTED;

1> retrieve its inter-RAT-specific UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and

1> include this in IE "UE system specific capability".

If the UE CAPABILITY INFORMATION message is sent because one or more of the UE capabilities change compared to those stored in the variable UE_CAPABILITY_TRANSFERRED while in connected state, the UE shall include the information elements associated with the capabilities that have changed in the UE CAPABILITY INFORMATION message.

…

The UE RRC shall submit the UE CAPABILITY INFORMATION message to the lower layers for transmission on the uplink DCCH using AM RLC. When the message has been delivered to lower layers for transmission the UE RRC shall start timer T304 and set counter V304 to 1.

Upon expiry of timer T304, the UE shall check the value of V304 and:

1> if V304 is smaller than or equal to N304:

2> prior to retransmitting the UE CAPABILITY INFORMATION message:

3> if the IE "Status" in the variable INTEGRITY_PROTECTION_INFO has the value "Started":

4> include the same IEs as in the last unsuccessful attempt of this message, except for the IE "Integrity check info", which is modified as follows:

5> increment the "Uplink RRC Message sequence number" for signalling radio bearer RB2 in the variable INTEGRITY_PROTECTION_INFO by one;

5> set the IE "RRC Message sequence number" in the IE "Integrity check info" by the value of the "Uplink RRC Message sequence number" for signalling radio bearer RB2 in the variable INTEGRITY_PROTECTION_INFO in this message;

5> recalculate the IE "Message authentication code" in the IE "Integrity check info" in this message, in accordance with TS 25.331 subclause 8.5.10.3.

3> else:

4> include the same IEs as in the last unsuccessful attempt of this message.

2> send the UE CAPABILITY INFORMATION message on signalling radio bearer RB2;

2> restart timer T304;

2> increment counter V304.

…

Reference

3GPP TS 25.331 clauses 8.1.6 and 8.1.7.

8.1.5.5.3 Test purpose

To confirm that the UE re-transmits a UE CAPABILITY INFORMATION message until V304 is greater than N304, after the expiry of timer T304 when it fails to receive a downlink UE CAPABILITY INFORMATION CONFIRM message in response to the uplink UE CAPABILITY INFORMATION message sent.

8.1.5.5.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_FACH state (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is brought to CELL_FACH state. When the SS transmits a UE CAPABILITY ENQUIRY message which includes the IE "Capability update requirement", the UE shall reply with a UE CAPABILITY INFORMATION message on the uplink DCCH that contains the IE "UE radio access capability". The SS waits and does not transmit a UE CAPABILITY INFORMATION CONFIRM message to the UE, resulting in the T304 timer to expire. SS shall observe that the UE attempts to transmit a UE CAPABILITY INFORMATION message again. The UE shall re-transmit N304 times, and SS transmits a UE CAPABILITY INFORMATION CONFIRM message to answer the last request and completes this test procedure.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_FACH state. SS sets internal counter K =0
2	←		UE CAPABILITY ENQUIRY	Including the IE "Capability update requirement".
3	→		UE CAPABILITY INFORMATION	Including the IE "UE radio access capability".
4				If K equals N304, then proceeds to step 6. Else, continue with step 5.
5				The SS does not transmit a response and wait for T304 timer to expire. K=K+1 and goes to step 3.
6	←		UE CAPABILITY INFORMATION CONFIRM	Use default message contents

Specific Message Contents

None

8.1.5.5.5 Test requirement

After step 3 the UE shall re-transmit a UE CAPABILITY INFORMATION message on the uplink DCCH, after each expiry of timer T304. The UE CAPABILITY INFORMATION message shall contain IE "UE radio access capability" with the value matching those stated in the ICS/IXIT statements. After (N304) re-transmissions, the UE shall receive a UE CAPABILITY INFORMATION CONFIRM message.

8.1.5.6 UE Capability Information/ Reporting Of InterRAT Specific UE RadioAccessCapability.

8.1.5.6.1 Definition

8.1.5.6.2 Conformance requirement

The UE shall initiate the UE capability update procedure in the following situations:

1> the UE receives a UE CAPABILITY ENQUIRY message from the UTRAN;

…

If the UE CAPABILITY INFORMATION message is sent in response to a UE CAPABILITY ENQUIRY message, the UE shall:

1> include the IE "RRC transaction identifier"; and

1> set it to the value of "RRC transaction identifier" in the entry for the UE CAPABILITY ENQUIRY message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> retrieve its UTRA UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and

1> include this in IE "UE radio access capability" and in IE "UE radio access capability extension", provided this IE is included in variable UE_CAPABILITY_REQUESTED;

1> retrieve its inter-RAT-specific UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and

1> include this in IE "UE system specific capability".

Reference

3GPP TS 25.331 clauses 8.1.6

8.1.5.6.3 Test purpose

To confirm that a multi-RAT UE responds with a UE CAPABILITY INFORMATION message after it receives a UE CAPABILITY ENQUIRY message from the UTRAN and it includes the inter-RAT-specific UE radio access capability information element.

8.1.5.6.4 Method of test

Initial Condition

System Simulator: 1 cell - Cell 1 is UTRAN.

UE: CELL_DCH state (state 6-9) as specified in clause 7.4 of TS 34.108

Related ICS/IXIT statement(s)

- UE supports both GSM and UTRAN Radio Access Technologies,
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480.

Test Procedure

The SS starts the UTRAN cell .The UE is brought into the CELL_DCH state after a successful outgoing call attempt on the UTRAN cell. The SS transmits a UE CAPABILITY ENQUIRY message with System Specific Cap Update Req set to GSM. The UE shall respond with a UE CAPABILITY INFORMATION message on the uplink DCCH that includes the requested capabilities. The SS transmits a UE CAPABILITY INFORMATION CONFIRM message to the UE to complete the UE capability enquiry procedure.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_DCH 6-9 state after an outgoing call has been established successfully.
2	←		UE CAPABILITY ENQUIRY	See specific message contents
3	→		UE CAPABILITY INFORMATION	See specific message contents
4	←		UE CAPABILITY INFORMATION CONFIRM	Use default message.

Specific Message Contents

UE CAPABILITY ENQUIRY (Step 2)

Use the UE CAPABILITY ENQUIRY message as defined in (TS 34.108) Clause 9, with the following exceptions:

Information Element	Value/remark
Capability update requirement	
- UE radio access FDD capability update requirement	TRUE
- UE radio access TDD capability update requirement	FALSE
- System specific capability update requirement list	GSM

UE CAPABILITY INFORMATION (Step 3)

Check to see if the same message type found in (TS 34.108) Clause 9 is received, with the following exceptions:

Information Element	Value/remark
UE_RadioAccessCapability	This IE should reflect the corresponding fdd capability and the IE UE_MultimodeRATCapability should indicate GSM capability according to PICS.
InterRAT_UE_RadioAccessCapability	GSM GSM Classmark 2 GSM Classmark 3 Presence and value will be checked. Stated capability must be compatible with 34.123-3 (ICS statements) and the user settings

8.1.5.6.5 Test requirement

After step 2 the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH to respond to the UE CAPABILITY ENQUIRY message as per the specific message contents.

8.1.5.7 UE Capability Information / Audit of UE Capabilities

8.1.5.7.1 Definition

8.1.5.7.2 Conformance requirement

The UE shall, in the transmitted RRC CONNECTION REQUEST message:

…

1> if the UE only supports HS-DSCH but not E-DCH:

2> include the IE "UE capability indication" and set it to the "HS-DSCH" value.

1> if the UE supports HS-DSCH and E-DCH:

2> include the IE "UE capability indication" and set it to the "HS-DSCH+E-DCH" value.

1> if, according to [4], the High-mobility state is applicable and it has been detected by the UE:

2> include the IE "UE Mobility State Indicator" and set it to the "High-MobilityDetected" value.

…

1> if the UE supports MAC-ehs:

2> include the IE "MAC-ehs support" and set it to TRUE.

1> if the UE supports HS-DSCH reception in CELL_FACH state:

2> include the IE "HS-PDSCH in CELL_FACH" and set it to TRUE.

1> if the UE supports Enhanced Uplink in CELL_FACH state and Idle mode:

2> include the IE "Support of common E-DCH" and set it to TRUE.

NOTE: In 1.28 Mcps TDD, UE supporting HS-DSCH reception in CELL_FACH state always supports Enhanced Uplink in CELL_FACH state and Idle mode, and vice versa.

1> if the UE supports MAC-i/is:

2> include the IE "Support of MAC-i/is" and set it to TRUE.

1> if the UE supports E-UTRA:

2> if the variable EUTRA_FREQUENCY_INFO_LIST contains no E-UTRA frequencies:

3> include the IE "Pre-Redirection info";

3> if the UE supports E-UTRA FDD:

4> set the IE "Support of E-UTRA FDD" to TRUE.

3> if the UE supports E-UTRA TDD:

4> set the IE "Support of E-UTRA TDD" to TRUE.

2> if the UE supports any of the bands that the E-UTRA frequencies included in the variable EUTRA_FREQUENCY_INFO_LIST belong to:

3> include the IE "Pre-Redirection info";

3> if the UE supports any of the bands that the E-UTRA FDD frequencies included in the variable EUTRA_FREQUENCY_INFO_LIST belong to:

4> set the IE "Support of E-UTRA FDD" to TRUE.

3> if the UE supports any of the bands that the E-UTRA TDD frequencies included in the variable EUTRA_FREQUENCY_INFO_LIST belong to:

4> set the IE "Support of E-UTRA TDD" to TRUE.

1> if the UE supports dual cell operation on adjacent frequencies

2> include the IE "Multi cell support" and set it to TRUE.

1> if the UE supports CS voice over HSPA

2> include the IE "Support for CS Voice over HSPA" and set it to TRUE.

The UE shall not include the IE "UE Specific Behaviour Information 1 idle".

The UE shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP message with the value of the variable INITIAL_UE_IDENTITY.

…

1> submit an RRC CONNECTION SETUP COMPLETE message to the lower layers on the uplink DCCH after successful state transition per subclause 8.6.3.3, with the contents set as specified below:

2> …

2> retrieve its UTRA UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and then

2> include this in IE "UE radio access capability" and IE "UE radio access capability extension", provided this IE is included in variable UE_CAPABILITY_REQUESTED;

2> retrieve its inter-RAT-specific UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and then

2> include this in IE "UE system specific capability";

…

The UE shall initiate the UE capability update procedure in the following situations:

1> the UE receives a UE CAPABILITY ENQUIRY message from the UTRAN;

…

If the UE CAPABILITY INFORMATION message is sent in response to a UE CAPABILITY ENQUIRY message, the UE shall:

1> include the IE "RRC transaction identifier"; and

1> set it to the value of "RRC transaction identifier" in the entry for the UE CAPABILITY ENQUIRY message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> for the UE capabilities defined prior to REL-6:

2> retrieve its UTRA UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and

2> include this in IE "UE radio access capability" and in IE "UE radio access capability extension", provided this IE is included in variable UE_CAPABILITY_REQUESTED;

2> retrieve its inter-RAT-specific UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and

2> include this in IE "UE system specific capability".

1> for the UE capabilities defined in REL-6 or later:

2> include the information elements associated with the capabilities included in the variable UE_CAPABILITY_REQUESTED and the variable UE_CAPABILITY_TRANSFERRED.

…

If the UE is MAC-ehs or dual cell capable, the UE shall signal a value in the "HS-DSCH physical layer category extension" IE.

If the UE signals an "HS-DSCH physical layer category extension" of 13, 15, 17 or 19, it shall signal an "HS-DSCH physical layer category" of 9.

If the UE signals an "HS-DSCH physical layer category extension" of 14, 16, 18 or 20, it shall signal an "HS-DSCH physical layer category" of 10.

If the UE is dual cell capable, the UE shall signal a value in the "HS-DSCH physical layer category extension 2" IE.

If the UE signals an "HS-DSCH physical layer category extension 2" of 21, it shall signal an "HS-DSCH physical layer category extension" of 9, 10, 13, 14, 15, 16, 17 or 18.

If the UE signals an "HS-DSCH physical layer category extension 2" of 22, it shall signal an "HS-DSCH physical layer category extension" of 10, 14, 16 or 18.

If the UE signals an "HS-DSCH physical layer category extension 2" of 23, it shall signal an "HS-DSCH physical layer category extension" of 13, 14, 17, 18, 19 or 20.

If the UE signals an "HS-DSCH physical layer category extension 2" of 24, it shall signal an "HS-DSCH physical layer category extension" of 14, 18 or 20.

The UE shall use the "Total number of soft channel bits" (defined in Table 5.1a of [35]) for the category it has signalled, as follows:

1> If MAC-hs is configured, the UE uses the category it has signalled in the IE "HS-DSCH physical layer category";

1> If MAC-ehs is configured without dual cell operation, the UE uses the category it has signalled in the IE "HS-DSCH physical layer category extension";

1> If dual cell operation is configured, the UE uses the category it has signalled in the IE "HS-DSCH physical layer category extension 2".

Reference

3GPP TS 25.331 clauses 8.1.3.3, 8.1.3.6, 8.1.6.2

8.1.5.7.3 Test purpose

To check that the entire UE capabilities the UE reported in RRC CONNECTION REQUEST, RRC CONNECTION SETUP COMPLETE and UE CAPABILITY INFORMATION messages are compatible with the ICS statements in 3GPP TS 34.123-2[3], TS 36.523-2[46], TS 51.010-2[45] and with IXIT statements in TS 34.123-3[12]and TS 36.523-3[47].

8.1.5.7.4 Method of test

Initial Condition

System Simulator: 1 cell - Cell 1 is UTRAN.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by attempting to make an outgoing call. SS then transmits a RRC CONNECTION SETUP message containing an IE "Initial UE Identity" that matches the IE "Initial UE Identity". SS then waits for the UE to transmit an RRC CONNECTION SETUP COMPLETE message on the DCCH. The SS transmits a UE CAPABILITY ENQUIRY message. The UE shall respond with a UE CAPABILITY INFORMATION message on the uplink DCCH that includes the requested capabilities. The SS transmits a UE CAPABILITY INFORMATION CONFIRM message to the UE to complete the UE capability enquiry procedure.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	→		RRC CONNECTION REQUEST (CCCH)	
2	←		RRC CONNECTION SETUP	
3	→		RRC CONNECTION SETUP COMPLETE	See specific message contents
4	←		UE CAPABILITY ENQUIRY	See specific message contents
5	→		UE CAPABILITY INFORMATION	See specific message contents
6	←		UE CAPABILITY INFORMATION CONFIRM	Use default message.

Step 2 is release-branched (R99, Rel-5, Rel-6, Rel-7, Rel-8, Rel-9).Specific Message Contents

RRC CONNECTION REQUEST (Step 1) (FDD)

Information Element	Value/remark	Version
Message Type		
Predefined configuration status information	Not checked	Rel-5
Initial UE identity		
- CHOICE UE id type		
- TMSI and LAI (GSM-MAP)	Set to the UE's TMSI and LAI.	
Establishment cause	To be checked against requirement if specified	
Protocol error indicator	FALSE	
UE Specific Behaviour Information 1 idle	Not present	
UE capability indication	To be checked against ICS statements pc_HSDPA and pc_HSUPA	Rel-6
MBMS Selected Services	Not present	Rel-6
Support for F-DPCH	To be checked against ICS statements pc_Full_FDPCH	Rel-6
UE Mobility State Indicator	Not Present	Rel-7
Support for Enhanced F-DPCH	To be checked against ICS statements pc_EnhancedF_DPCH	Rel-7
HS-PDSCH in CELL_FACH	To be checked against ICS statements pc_HS_FACH	Rel-7
MAC-ehs support	To be checked against ICS statements pc_MAC_ehs	Rel-7
DPCCH Discontinuous Transmission support	To be checked against ICS statements pc_UL_DTX	Rel-7
Support of common E-DCH	To be checked against ICS statements pc_HS_RACH_EDCH	Rel-8
Multi cell support	To be checked against ICS statements pc_DualCell	Rel-8
Dual cell MIMO support	To be checked against ICS statements pc_DualCellMIMO	Rel-9
More than two cell support	To be checked against ICS statements pc_MultiCell, pc_ThreeCellMIMO, pc_FourCellMIMO, pc_ThreeCell, pc_FourCell	Rel-10
Pre-redirection info	To be checked against ICS statements in 36.523-2 pc_eFDD / pc_eTDD	Rel-8
Support of MAC-i/is	To be checked against ICS statements pc_MAC_iis	Rel-8
Support of SPS operation	TDD not checked	Rel-8
Support for CS Voice over HSPA	To be checked against ICS statements pc_CSVoHS	Rel-7
Measured results on RACH	Not checked	
Access stratum release indicator	Value used for test case execution	Rel-4

RRC CONNECTION SETUP COMPLETE (Step 3) (FDD)

Information Element	Value/remark	Version
Message Type		
RRC transaction identifier	The value of this IE is checked to see that it matches the	

	value of the same IE transmitted in the downlink RRC CONNECTION SETUP message.	
START list	This IE is checked to see if it is present.	
UE radio access capability	See detail content below	
UE radio access capability extension	See detail content below	Rel-5
UE system specific capability		
>Inter-RAT UE radio access capability	See detail content below	
Deferred measurement control reading	Not checked	Rel-7
Logged Meas Available	Not checked	Rel-10
ANR Logging Results Available	Not checked	Rel-10

UE CAPABILITY ENQUIRY (Step 4) (FDD)

Use the UE CAPABILITY ENQUIRY message as defined in (TS 34.108) Clause 9, with the following exceptions:

Information Element	Value/remark
Capability update requirement	
- UE radio access FDD capability update requirement	TRUE
- UE radio access 3.84 Mcps TDD capability update requirement	TRUE
- UE radio access 7.68 Mcps TDD capability update requirement	TRUE
- UE radio access 1.28 Mcps TDD capability update requirement	TRUE
- System specific capability update requirement list	GSM, GERAN Iu, E-UTRA

UE CAPABILITY INFORMATION (Step 5) (FDD)

Check to see if the same message type found in (TS 34.108) Clause 9 is received, with the following exceptions:

Information Element	Value/remark
UE_RadioAccessCapability	See detail content below
UE radio access capability extension	See detail content below
UE system specific capability	See detail content below
>InterRAT_UE_RadioAccessCapability	See detail content below

UE radio access capability content (Step 3 and 5) (FDD)

Information Element	Value/remark	Version
Access stratum release indicator	Shall be the same value as in RRC CONNECTION REQUEST received in step 1.	Rel-4
DL capability with simultaneous HS-DSCH configuration	To be checked against ICS statements pc_CapabilityWithSimultaneousHS_DSCHConfig	Rel-5
PDCP capability		
> Support for lossless SRNS relocation	To be checked against ICS statements pc_LosslessSRNS_Reloc	
> Support for lossless DL RLC PDU size change	Not checked	Rel-5
> Support for RFC2507	To be checked against ICS statements pc_RFC2507	
> Max HC context space	To be checked against ICS statements pc_MaxHcContextSpace_r5_ext	
> Support for RFC 3095	To be checked against ICS statements pc_RFC3095	Rel-4
>> Maximum number of ROHC context sessions	To be checked against IXIT statements px_MaxNumberROHC_ContextSessions	Rel-4
>>Reverse decompression depth	Not checked	Rel-4
>>Support for RFC 3095 context relocation	To be checked against ICS statements pc_SupportForRfc3095ContextRelocation	Rel-5
> Support for CS Voice over HSPA	To be checked against ICS statements pc_CSVoHS	Rel-7
RLC capability	To be checked against ICS/IXIT statements px_TotalRLC_AM_BufferSize px_MaxRLC_WindowSize px_MaxAM_EntityNumberRLC_Cap	

Transport channel capability	To be checked against ICS/IXIT statements px_DL_MaxTB_Bits px_DL_MaxCC_TB_Bits pc_DL_TC px_DL_MaxTrCHs px_DL_MaxCCTrCH px_DL_MaxTTI_TB px_DL_MaxTFS px_DL_MaxTF px_UL_MaxTB_Bits px_UL_MaxCC_TB_Bits pc_UL_TC px_UL_MaxTrCHs px_UL_MaxTTI_TB px_UL_MaxTFS px_UL_MaxTF	
RF capability FDD > UE power class > Tx/Rx frequency separation	 To be checked against IXIT statements px_UE_PowerClass default TxRx separation	
RF capability TDD	TDD Not checked	Rel-4
RF capability TDD 1.28 Mcps	TDD Not checked	Rel-4
Physical channel capability > FDD downlink physical channel capability >>Max no DPCH codes >>Max no physical channel bits received >>Support for SF 512 and 80 ms TTI for DPCH >>CHOICE *Support of HS-PDSCH* >>>Supported >>>>HS-DSCH physical layer category >>>>HS-DSCH physical layer category extension >>>>HS-DSCH physical layer category extension 2 >>>>HS-DSCH physical layer category extension 3 >>>HS-DSCH physical layer category extension 4 >>>HS-DSCH physical layer category extension 5 >>>HS-SCCHless HS-DSCH operation support >>>Enhanced F-DPCH support >>>HS-PDSCH in CELL_FACH >>>HS-PDSCH in CELL_PCH and URA_PCH >>>Target Cell Pre-Configuration >>>Support of HS-DSCH DRX operation >>>Support of MIMO only with single stream restriction >3.84 Mcps TDD downlink physical channel capability >7.68 Mcps TDD downlink physical channel capability >1.28 Mcps TDD downlink physical channel capability > Uplink physical channel capability information	 To be checked against IXIT statements px_MaxNoDPCH_PDSCH_Codes To be checked against IXIT statements px_MaxNoPhysChBitsReceived To be checked against ICS statements pc_SupportForSF_512 To be checked against ICS statements pc_HSDPA To be checked against ICS statements pc_HSDSCH_UE_Category To be checked against ICS statements pc_HSDSCH_UE_Category_Extension pc_MAC_ehs To be checked against ICS statements pc_HSDSCH_UE_Category_Extension2 pc_DualCell To be checked against ICS statements pc_HSDSCH_UE_Category_Extension3 To be checked against ICS statements pc_HSDSCH_UE_Category_Extension4 To be checked against ICS statements pc_HSDSCH_UE_Category_Extension5 To be checked against ICS statements pc_HS_SCCH_less To be checked against ICS statements pc_EnhancedF_DPCH To be checked against ICS statements pc_HS_FACH To be checked against ICS statements pc_HS_PCH To be checked against ICS statements pc_TargetCell_PreConf_HSDSCH To be checked against ICS statements pc_HS_FACH_DRX Not checked TDD Not checked TDD Not checked	 Rel-5 Rel-5 Rel-7 Rel-8 Rel-9 Rel-10 Rel-10 Rel-7 Rel-7 Rel-7 Rel-7 Rel-8 Rel-8 Rel-9 Rel-5 Rel-7 Rel-4

elements		
>> FDD uplink physical channel capability		
>>> Maximum number of DPDCH bits transmitted per 10 ms	To be checked against IXIT statements px_MaxNoDPDCH_BitsTransmitted	
>>>CHOICE *Support of E-DCH*	To be checked against ICS statements pc_HSUPA	Rel-6
>>>>Supported		Rel-6
>>>>>E-DCH physical layer category	To be checked against ICS statements pc_EDCH_UE_Category	Rel-6
>>>>>E-DCH physical layer category extension	To be checked against ICS statements pc_UL_16QAM	Rel-7
>>>E-DCH physical layer category extension 2	To be checked against ICS statements pc_EDCH_UE_Category_ Extension2	Rel-9
>>>>>DPCCH Discontinuous Transmission support	To be checked against ICS statements pc_UL_DTX	Rel-7
>>>>Slot Format #4 support	To be checked against ICS statements pc_SlotFormat4	Rel-7
>>3.84 Mcps TDD uplink physical channel capability	TDD Not checked	Rel-4
>>7.68 Mcps TDD uplink physical channel capability	TDD Not checked	Rel-7
>>1.28 Mcps TDD uplink physical channel capability	TDD Not checked	Rel-4
UE multi-mode/multi-RAT capability		
> Support of GSM	To be checked against ICS statements pc_UMTS_GSM	
> Support of multi-carrier	To be checked against ICS statements pc_SupportOfMultiCarrier	
> Multi-mode capability	Fdd	
> Support of UTRAN to GERAN NACC	To be checked against ICS statements pc_SupportOfUTRAN_ToGERAN_NACC	Rel-5
> Support of Handover to GAN	To be checked against ICS statements in 51.010-2 TSPC_UTRAN_TO_GAN_CS_Handover	Rel-6
> Support of Inter-RAT PS handover	To be checked against ICS statements in 51.010-2 TSPC_PS_Handover	Rel-6
> Support of PS Handover to GAN	To be checked against ICS statements TSPC_PS_Handover_To_GAN	Rel-7
> Support of E-UTRA FDD	To be checked against ICS statements in 36.523-2 pc_eFDD	Rel-8
> Support of Inter-RAT PS Handover to E-UTRA FDD	To be checked against ICS statements pc_HO_from_UTRA pc_eFDD in 36.523-2	Rel-8
> Support of E-UTRA TDD	To be checked against ICS statements in 36.523-2 pc_eTDD	Rel-8
> Support of Inter-RAT PS Handover to E-UTRA TDD	To be checked against ICS statements pc_HO_from_UTRA pc_eTDD in 36.523-2	
> EUTRA Feature Group Indicators	To be checked against ICS statements pc_PCH_StatesToEUTRA_IdleReselection pc_EUTRAN_MeasurementInConnected	Rel-8
Security capability	To be checked against ICS statements pc_UEA2_UIA2	
UE positioning capability	To be checked against ICS/IXIT statements pc_UE_PositioningStandaloneLocMethodsSup pc_UE_PositioningBasedOTDOA_Sup px_UE_PositioningNetworkAssistedGPS_Sup pc_UE_PositioningGPS_TimingOfCellFramesSup pc_UE_PositioningIPDL_Sup	
Measurement capability		
> Need for downlink compressed mode		
>> FDD measurements	Checked it is present pc_InterFreq_DL_CompressedModeRequired	
>>3.84 Mcps TDD measurements	TDD Not checked	Rel-4
>>7.68 Mcps TDD measurements	TDD Not checked	Rel-7
>>1.28 Mcps TDD measurements	TDD Not checked	Rel-4
>> GSM measurements		
>>>GSM 900	To be checked against ICS statements pc_DL_CompressedModeRequiredForGSM_900P	
>>>DCS 1800	To be checked against ICS statements	

	pc_DL_CompressedModeRequiredForDCS_1800	
>>>GSM 1900	To be checked against ICS statements pc_DL_CompressedModeRequiredForGSM_1900	
>>Multi-carrier measurement	To be checked against ICS statements pc_DL_CompressedModeRequiredForMultiCarrier_Meas	
>>Adjacent Frequency measurements without compressed mode	To be checked against ICS statements pc_DL_CompressedModeRequiredForAdjacentCarriers	Rel-8
>>Inter-band Frequency measurements without compressed mode	Not checked	Rel-9
>>Enhanced inter-frequency measurements without compressed mode	Not checked	Rel-10
>> Frequency specific compressed mode	Not checked	Rel-10
>Need for uplink compressed mode		
>>FDD measurements	Checked it is present pc_InterFreq_UL_CompressedModeRequired	
>>3.84 Mcps TDD measurements	TDD Not checked	Rel-4
>>7.68 Mcps TDD measurements	TDD Not checked	Rel-7
>>1.28 Mcps TDD measurements	TDD Not checked	Rel-4
>> GSM measurements		
>>>GSM 900	To be checked against ICS statements pc_UL_CompressedModeRequiredForGSM_900P	
>>>DCS 1800	To be checked against ICS statements pc_UL_CompressedModeRequiredForDCS_1800	
>>>GSM 1900	To be checked against ICS statements pc_UL_CompressedModeRequiredForGSM_1900	
>> Multi-carrier measurement	To be checked against ICS statements pc_ UL_CompressedModeRequiredForMultiCarrier_Meas	
Measurement capability TDD	TDD Not checked	Rel-8
Device type	To be checked against ICS statements pc_DeviceType	Rel-6
Support for System Information Block type 11bis	To be checked against ICS statements pc_SupportSIB11bis	Rel-6
Support for F-DPCH	To be checked against ICS statements pc_Full_FDPCH	Rel-6
MAC-ehs support	To be checked against ICS statements pc_MAC_ehs	Rel-7
UE specific capability Information LCR TDD	TDD Not checked	Rel-7
Support for E-DPCCH Power Boosting	Not checked	Rel-7
Support of common E-DCH	To be checked against ICS statements pc_HS_RACH_EDCH	Rel-8
Support of MAC-i/is	To be checked against ICS statements pc_MAC_iis	Rel-8
Support of SPS operation	TDD Not checked	Rel-8
Support of Control Channel DRX operation	TDD Not checked	Rel-8
Support of CSG	To be checked against ICS statements pc_CSG	Rel-8
Support for Two DRX schemes in URA_PCH and CELL_PCH	To be checked against ICS statements pc_TwoDRX_InPCH_States	Rel-7
Support for E-DPDCH power interpolation formula	Not checked	Rel-7
Support for absolute priority based cell re-selection in UTRAN	To be checked against ICS statements pc_AbsolutePriorityReselection	Rel-8
Support of MU-MIMO	Not checked	Rel-10
Radio Access Capability Band Combination List		Rel-9
>Band Combination	To be checked against ICS statements pc_DB_DC_HSDPA_Band1_8 pc_DB_DC_HSDPA_Band2_4 pc_DB_DC_HSDPA_Band1_5	Rel-9
>Supported Carrier Combination		
>>Carrier Combination (1,2)	Not checked	Rel-10
>>Carrier Combination (2,1)	Not checked	Rel-10
>>Carrier Combination (1,3)	Not checked	Rel-10
>>Carrier Combination (3,1)	Not checked	Rel-10
>>Carrier Combination (2,2)	Not checked	Rel-10
Support of TX Diversity on DL Control Channels	Not checked	Rel-7

by MIMO Capable UE when MIMO operation is active		
Support of enhanced TS0	TDD Not checked	Rel-9
Support for cell-specific Tx diversity configuration for dual-cell operation	Not checked	Rel-8
CSG proximity indication capability		Rel-9
> Support of intra-frequency proximity indication	To be checked against ICS statements pc_Indicating_CSG_Proximity_intra-F	Rel-9
> Support of inter-frequency proximity indication	To be checked against ICS statements pc_Indicating_CSG_Proximity_inter-F	Rel-9
> Support of E-UTRA proximity indication	Not checked	Rel-9
Neighbour Cell SI acquisition capability		Rel-9
> Support of intra-frequency SI acquisition for HO	To be checked against ICS statements pc_Acquiring_IntraF_SI	Rel-9
> Support of inter-frequency SI acquisition for HO	To be checked against ICS statements pc_Acquiring_InterF_SI	Rel-9
> Support of E-UTRA SI acquisition for HO	Not checked	Rel-9
Extended measurements Support	Not checked	Rel-10
Support for dual cell with MIMO operation in different bands	Not checked	Rel-10
UE based network performance measurements parameters		Rel-10
>Support of Logged Measurements Idle PCH	pc_Loggedmeasurements_idle_PCH	Rel-10
Support of UTRAN ANR	To be checked against ICS statements pc_UTRAN ANR	Rel-10

UE radio access capability extension (Step 3 and 5) (FDD)

Information Element	Value/remark	Version
Frequency band specific capability list		
>Frequency band	To be checked against ICS statements pc_BandXX_Supp (indicating the coded supporting bands) It is not checked against ICS statement pc_Band6_Supp (indicating the coded supporting band VI)	
>Frequency band 2	To be checked against ICS statements pc_BandXX_Supp (indicating the coded supporting bands)	
>Frequency band 3	To be checked against ICS statements pc_BandXX_Supp (indicating the coded supporting bands)	Rel-10
>RF capability FDD extension >> UE power class >> Tx/Rx frequency separation	 To be checked against IXIT statements px_UE_PowerClass default TxRx separation	
>Measurement capability extension >> FDD measurements >>>FDD Frequency band >>>FDD Frequency band 2 >>>FDD Frequency band 3 >>>Need for DL compressed mode >>>Need for UL compressed mode >> TDD measurements >> GSM measurements >>>GSM Frequency band	 To be checked against ICS statements pc_BandXX_Supp (indicating the coded supporting bands) It is not checked against ICS statement pc_Band6_Supp (indicating the coded supporting band VI) To be checked against ICS statements pc_BandXX_Supp (indicating the coded supporting bands) To be checked against ICS statements pc_BandXX_Supp (indicating the coded supporting bands) Not checked Not checked TDD Not checked To be checked against ICS statements in 51.010-2 [45] with the exception mentioned below TSPC_Type_GSM_450_Band TSPC_Type_GSM_480_Band	 Rel-10

	TSPC_Type_GSM_850_Band If (TSPC_Type_GSM_P_Band is TRUE and TSPC_Type_GSM_E_Band is FALSE) GSM900P must be present in the list of supported GSM frequency bands ELSE the settings of TSPC_Type_GSM_P_Band and the presence of GSM900P is not checked against each other TSPC_Type_GSM_E_Band TSPC_Type_DCS_Band TSPC_Type_PCS_Band	
>>>Need for DL compressed mode	Not checked	
>>>Need for UL compressed mode	Not checked	
>> Multi-carrier measurement		
>>>Need for DL compressed mode	Not checked	
>>>Need for UL compressed mode	Not checked	
>> E-UTRA measurements		Rel-8
>>>E-UTRA Frequency band	To be checked against ICS statements in 36.523-2 [46] pc_eBandX_Supp	Rel-8
>>>Need for compressed mode	Checked it is present	Rel-8
>Additional Secondary Cells		Rel-10
>Non-contiguous multi-cell		Rel-10
>>Aggregated cells	Not checked	Rel-10
>>Gap size	Not checked	Rel-10
>>Non-contiguous multi-cell Combination (2,2)	Not checked	Rel-10
>>Non-contiguous multi-cell Combination (3,1) (1,3)	Not checked	Rel-10

Inter-RAT UE radio access capability (Step 3 and 5) (FDD)

Information Element	Value/remark	Version
CHOICE *system*		
>GSM		
>>Mobile Station Classmark 2	To be checked against ICS/IXIT statements px_MS_ClsmkRevLvl px_MS_ClsmkESIND pc_UMTS_GSM pc_MS_ClsmkPS_Cap pc_SS_Phase2Supp pc_MS_ClsmkSM_Cap pc_MS_ClsmkVBS pc_MS_ClsmkVGCS pc_MS_ClsmkCM3 pc_MS_ClsmkLCSVA_Cap pc_MS_ClsmkUCS2 pc_MS_ClsmkSoLSA pc_MS_ClsmkCMSP pc_MS_ClsmkA5_3_CS	
>>Mobile Station Classmark 3	To be checked against ICS statements pc_FDD, pc_TDD, pc_UTRAN384_TDD pc_CDMA2000 pc_SupportOfEUTRA_FDD pc_SupportOfEUTRA_TDD pc_P_GSM_900_BAND pc_E_GSM_900_BAND pc_R_GSM_900_BAND pc_DCS_1800_BAND pc_PCS_1900_BAND pc_GSM_450_BAND pc_GSM_480_BAND pc_GSM_710_BAND, pc_GSM_750_BAND, pc_T_GSM_810_BAND, pc_GSM_850_BAND, pc_Feat_A54, pc_DTM_SingleSlotAllocation,	

	pc_EOTD_Assist, pc_UeAssistedAgps, pc_UeBasedAgps, pc_Conv_GPS, pc_EOTD_MS_Based, pc_GERANFeaturePackage1, pc_GERANFeaturePackage2, pc_FLOIuCapability, pc_DTMEnhancedCap, pc_TAOffset, pc_8PSK_Struct, pc_8PSKPowerProfile1, pc_8PSKPowerProfile2, pc_8PSKPowerProfile3, pc_GMSKPowerProfile1, pc_GMSKPowerProfile2, pc_GMSKPowerProfile3, pc_EGPRS_8PSK_uplink, pc_CipherModeSetCap, pc_AddPositionCap, pc_EUTRA_MeasReporting, pc_PriorityBasedCellReselection, pc_G_HSCSD_MultislotClass, pc_ECSD_MultislotClass, pc_SMS_Value, pc_SM_Value, pc_GERANIuModeCapability, pc_TypeDCSClass1 pc_TypeDCSClass2 pc_TypeDCSClass3 pc_TypeGSMClass2 pc_TypeGSMClass3 pc_TypeGSMClass4 pc_TypeGSMClass5 pc_DTM_Multislotclass5 pc_DTM_Multislotclass6 pc_DTM_Multislotclass9 pc_DTM_Multislotclass10 pc_DTM_Multislotclass11 pc_DTM_Multislotclass31 pc_DTM_Multislotclass32 pc_DTM_Multislotclass33 pc_DTM_Multislotclass36 pc_DTM_Multislotclass37 pc_DTM_Multislotclass38 pc_DTM_Multislotclass41 pc_DTM_Multislotclass42 pc_DTM_Multislotclass43 pc_DTM_Multislotclass44 pc_DTM_EGPRS_Multislotclass5 pc_DTM_EGPRS_Multislotclass9 pc_DTM_EGPRS_Multislotclass11 pc_EGPRS_Multislotclass31 pc_EGPRS_Multislotclass32 pc_EGPRS_Multislotclass36 pc_EGPRS_Multislotclass37 pc_EGPRS_Multislotclass33 pc_EGPRS_Multislotclass38 px_ExtDTM_EGPRS_MultiSlotClass px_HighMultiSlotCap pc_TypeGSMClassE1 pc_TypeGSM850ClassE1 pc_TypeGSMClassE2 pc_TypeGSM850ClassE2 pc_TypeGSMClassE3 pc_TypeGSM850ClassE3 pc_TypeDCSClassE1 pc_TypePCSClassE1 pc_TypeDCSClassE2		

	pc_TypePCSClassE2 pc_TypeDCSClassE3 pc_TypePCSClassE3 pc_DARP_Phase1 pc_DARP_Phase2 pc_ExtMeasCap, pc_MS_ClsmkUCS2, pc_RepeatedFACCH pc_RepeatedSACCH pc_TypeGSM400Class2 pc_TypeGSM400Class3 pc_TypeGSM400Class4 pc_TypeGSM400Class5 pc_TypeTGSM400Class2 pc_TypeTGSM400Class3 pc_TypeTGSM400Class4 pc_TypeTGSM400Class5 pc_TypeGSM710Class2 pc_TypeGSM710Class3 pc_TypeGSM710Class4 pc_TypeGSM710Class5 pc_TypeGSM750Class2 pc_TypeGSM750Class3 pc_TypeGSM750Class4 pc_TypeGSM750Class5 pc_TypeTGSM810Class2 pc_TypeTGSM810Class3 pc_TypeTGSM810Class4 pc_TypeTGSM810Class5 pc_TypeGSM850Class2 pc_TypeGSM850Class3 pc_TypeGSM850Class4 pc_TypeGSM850Class5 pc_TypePCSClass1 pc_TypePCSClass2 pc_TypePCSClass3 pc_T_GSM_380_BAND, pc_T_GSM_410_BAND	
>>MS Radio Access Capability	See detail content below	Rel-6
>GERAN Iu		Rel-5
>>MS GERAN Iu mode Radio Access Capability	See detail content below	Rel-5
>cdma2000	CDMA Not checked	
>E-UTRA		Rel-8
>>UE E-UTRA Capability		
>>> accessStratumRelease	Shall be the same value as in RRC CONNECTION REQUEST received in step 1.	
>>> ue-Category	To be checked against IXIT statements in 36.523-3 px_eUE_Category_Type	
>>> pdcp-Parameters		
>>>> supportedROHC-Profiles	Checked it is present	
>>>> maxNumberROHC-ContextSessions	Checked it is present	
>>> phyLayerParameters		
>>>> ul-AntennaSelectionSupported	Checked it is present	
>>>> ue-SpecificRefSigsSupported	Checked it is present	
>>> rf-Parameters		
>>>> supportedEUTRA-BandList		
>>>>> eutra-Band	To be checked against ICS statements in 36.523-2 pc_eBandXX_Supp (indicating the coded supporting bands)	
>>>>> halfDuplex	Checked it is present	
>>> measParameters		
>>>> eutra-BandList		
>>>>> interFreqBandList	Checked it is present	
>>>>> interRAT-BandList	Not checked	
>>> featureGroupIndicators	To be checked against ICS statements pcFeatGrp_1 to pcFeatGrp_27, other bits shall be set to 0.	

>>> interRAT-Parameters		
>>>> utraFDD	To be checked against ICS statements pc_FDD pc_BandXX (indicating the coded supporting bands)	
>>>> utraTDD128	TDD Not checked	
>>>> utraTDD384	TDD Not checked	
>>>> utraTDD768	TDD Not checked	
>>>> geran	To be checked against ICS statements pc_UMTS_GSM	
>>>> cdma2000-HRPD	CDMA Not checked	
>>>> cdma2000-1xRTT	CDMA Not checked	

MS Radio Access Capability (Step 3 and 5) (FDD)

Information Element	Value/remark	Version

if Access Technology Type exclude 1111:	Value not checked	
Access Capabilities:		
> Length	Not checked	
> RF Power Capability	px_GMSK_PowerCap	
> **A5 Bits:**		
>> A5/1	'0'B	
>> A5/2	The MS shall set this bit to '0'.	
>> A5/3	TSPC_Feat_A53	
>> A5/4	TSPC_Feat_A54	
>> A5/5	not checked does not exist	
>> A5/6	not checked does not exist	
>> A5/7	not checked does not exist	
> ESIND	px_MS_ClsmkESIND	
> PS	pc_MS_ClsmkPS_Cap	
> VGCS	pc_MS_ClsmkVGCS	
> VBS	pc_MS_ClsmkVBS	
> **MultiSlot Capability:**		
>> HSCSD Multislot Class	pc_G_HSCSD_MultislotClass	
>> GPRS Multislot Class	px_GPRS_MultislotClass	
>>> GPRS Extended Dynamic Allocation Capability	if (TSPC_Type_GPRS_Multislot_Class11, TSPC_Type_GPRS_Multislot_Class32, TSPC_Type_GPRS_Multislot_Class33, TSPC_Type_GPRS_Multislot_Class37, TSPC_Type_GPRS_Multislot_Class38, TSPC_Type_GPRS_Multislot_Class42, TSPC_Type_GPRS_Multislot_Class43 or TSPC_Type_GPRS_Multislot_Class44) then 1	
>> SMS Value	TSPC_SMS_VALUE_SMS	
>>> SM Value	TSPC_SMS_VALUE_SM	
>> ECSD Multislot Class	TSPC_Type_ECSD_Multislot_Class	
>> EGPRS Multislot Class	px_EGPRS_MultislotClass	
>>> EGPRS Extended Dynamic Allocation Capability	if (TSPC_Type_EGPRS_Multislot_Class11, TSPC_Type_EGPRS_Multislot_Class32, TSPC_Type_EGPRS_Multislot_Class33, TSPC_Type_EGPRS_Multislot_Class37, TSPC_Type_EGPRS_Multislot_Class38, TSPC_Type_EGPRS_Multislot_Class42, TSPC_Type_EGPRS_Multislot_Class43 or TSPC_Type_EGPRS_Multislot_Class44) then 1	
>> DTM GPRS Multislot Class	TSPC_DTM_GPRS_Multislot_Class_5, TSPC_DTM_GPRS_Multislot_Class_9 TSPC_DTM_GPRS_Multislot_Class_11	
>>> Single Slot DTM	TSPC_DTM_GPRS_Singleslot_Allocation	
>>> DTM EGPRS Multislot Class	TSPC_DTM_EGPRS_Multislot_Class_xx (indicating the coded supporting class)	
> 8PSK Power Capability	px_8PSK_PowerCap	
> COMPACT Interference Measurement Capability	TSPC_COMPACT	
> Revision Level Indicator	'1'B	
> UMTS FDD Radio Access Technology Capability	'1'B	
> UMTS 3.84 Mcps TDD Radio Access Technology Capability	pc_TDD_HCR	
> CDMA 2000 Radio Access Technology Capability	CDMA not checked	
> UMTS 1.28 Mcps TDD Radio Access Technology Capability	pc_TDD	
> GERAN Feature Package 1	TSPC_GERAN_FEATURE_PACKAGE_1	
> Extended DTM GPRS Multislot Class	TSPC_DTM_GPRS_Multislot_Class_xx (indicating the coded supporting class) as in CLSMK3	
>> Extended DTM EGPRS Multislot Class	px_ExtDTM_EGPRS_MultiSlotClass	
> Modulation Based Multislot Class Support	TSPC_Type_EGPRS_8PSK_uplink	
> High Multislot Capability	px_HighMultiSlotCap	
> **GERAN Iu Mode Capabilities:**		
>> Length	Not checked	

>> FLO Iu Capability	TSPC_FLO_Iu_Capability	
> GMSK Multislot Power Profile	pc_GMSKPowerProfile1, pc_GMSKPowerProfile2, pc_GMSKPowerProfile3	
> 8-PSK Multislot Power Profile	pc_8PSKPowerProfile1, pc_8PSKPowerProfile2, pc_8PSKPowerProfile3	
> Multiple TBF Capability	TSPC_Multiple_TBF	
> Downlink Advanced Receiver Performance	pc_DARP_Phase1, pc_DARP_Phase2	
> Extended RLC/MAC Control Message Segmentation Capability	TSPC_Xtd_Ctrl_Message_Segmentation	
> DTM Enhancements Capability	TSPC_Enhanced_DTM_CS	
> DTM GPRS high Multi Slot Class	TSPC_DTM_GPRS_Multislot_Class_xx (indicating the coded supporting class)	
>> DTM EGPRS high Multi Slot Class	TSPC_DTM_EGPRS_Multislot_Class_XX (indicating the coded supporting class)	
> PS Handover Capability	TSPC_PS_Handover	
> DTM Handover Capability	Not checked	
> Multislot Capability Reduction for Downlink Dual Carrier	px_Multislot_Capability_Reduction_for_Downlink_Dual_Carrier	
>> Downlink Dual Carrier for DTM Capability	TSPC_Downlink_DualCarrier	
> Flexible Timeslot Assignment	TSPC_Flexible_Timeslot	
> GAN PS Handover Capability	Not checked	
> RLC Non-persistent Mode	Not checked	
> Reduced Latency Capability	TSPC_Latency_Reductions	
> Uplink EGPRS2	Not checked	
> Downlink EGPRS2	Not checked	
> E-UTRA FDD support	pc_SupportOfEUTRA_FDD	
> E-UTRA TDD support	pc_SupportOfEUTRA_TDD	
> GERAN to E-UTRA support in GERAN packet transfer mode	px_GERAN_to_EUTRA_Support	
> Priority-based reselection support	TSPC_Priority_Based_Cell_Reselection	
> **Enhanced Flexible Timeslot Assignment:**		
>> Alternative EFTA Multislot Class	Not checked	
> Indication of Upper Layer PDU Start Capability for RLC UM	TSPC_UpperLayer_PDU_Start_Ind	
> EMST Capability	TSPC_EMST	
MTTI capability	TSPC_MTTI	
if Access Technology Type equals 1111:	1111	
Length		
Additional Access Technologies:	Repeated Structure	
> Access Technology Type	Value not checked	
> GMSK Power Class	px_GMSK_PowerCap	
> 8-PSK Power Class	px_8PSK_PowerCap	

MS GERAN Iu mode Radio Access Capability (Step 3 and 5) (FDD)

Information Element	Value/remark	Version

MS GERAN Iu Mode Radio Access Capability length	Not checked	
MS RF Capability GSM:		
> MS RF Capability Length	Not checked	
> **RF Capability Group:**		
>> Access Technology Type	Value not checked	
>> Additional Acess Technology Type	Value not checked	
>> **Common Access Capabilities:**		
>>> Access Capabilities Length	Not checked	
>>> GMSK Power Capability	px_GMSK_PowerCap	
>>>> 8-PSK Power Capability	px_8PSK_PowerCap	
>>> Pseudo Synchronisation	TSPC_AddInfo_PseudoSynch	
>>> **Multislot Capability:**	If both values are the same, the combined option will be present, otherwise, both values are included separately	
>>>> Combined GMSK and 8-PSK Multislot Class	px_GPRS_MultislotClass	
>>>> GMSK Multislot Class	px_GPRS_MultislotClass	
>>>>> 8-PSK Multislot Class	px_EGPRS_MultislotClass	
>> **Additional Access Technology:**	Repeated structure	
>>> Additional Access Technology Length	Not checked	
>>> Access Technology Type	Value not checked	
>>> GMSK Power Class	px_GMSK_PowerCap	
>>> 8-PSK Power Class	px_8PSK_PowerCap	
> **Additional RF Capability Group.**	repeat of above structure	
MS GERAN Iu Mode RLC Capability:		
> MS GERAN Iu Mode RLC Capability length	Not checked	
> Maximum number of RLC-AM entities	Not checked	
> Maximum number of RLC-UM entities	Not checked	
> Maximum number of RLC-T entities	Not checked	
PDCP Capability:		
> PDCP Capability length	Not checked	
> Support for lossless serving BSC relocation	pc_LosslessSRNS_Reloc	
> Support for RFC2507	pc_RFC2507	
>> Max HC context space	px_MaxHcContextSpace	
> Support for RFC3095	pc_RFC3095	
>> Maximum number of ROHC context sessions	px_MaxROHC_ContextSession	
>> Reverse decompression depth	pc_ReverserDecompressionDepth	
>> Support for RFC 3095 context relocation	pc_SupportForRfc3095ContextRelocation	
MS Multi-Mode and Multi-RAT Capability:		
> Support of GERAN A/Gb	pc_UMTS_GSM	
> Support of Multi-Carrier	pc_SupportOfMultiCarrier	
> Support of UMTS FDD	pc_FDD	
> Support of UMTS 1.28 Mcps TDD	pc_TDD_LCR	
> Support of UMTS 3.84 Mcps TDD	pc_TDD_HCR	
> Support of CDMA 2000	TSPC_CDMA2000	
Security Capability:		
> Security Capability Length	Not checked	
> **Iu Mode Ciphering algorithm capability:**		
>> UEA0 support	TRUE	
>> UEA0 support	TRUE	
> **Iu Mode Integrity protection algorithm capability:**		
>> UIA1 support	TRUE	
MS Positioning Capability:		
> MS Positioning Capability Length	Not checked	
> OTD-A support	TSPC_EOTD_ASSIST	
> OTD-B support	TSPC_EOTD_MS_BASED	
> GPS-A support	TSPC_A_GPS_Assist	
> GPS-B support	TSPC_A_GPS_Based	
> GPS-C support	TSPC_Conv-GPS	
> RRLP Positioning Indication support	TSPC_MS_RRLP_RELEASE	
MS Measurement Capability:		
> MS Measurement Capability Length	Not checked	
> Extended Measurement Capability	TSPC_Extended_Measurement_Capability	
> SMS value	TSPC_SMS_VALUE_SMS	

> SM value	TSPC_SMS_VALUE_SM	
FLO Iu Capability	TSPC_FLO_Iu_Capability	

8.1.5.7.5 Test requirement

At step 5 the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH to respond to the UE CAPABILITY ENQUIRY message as per the specific message contents.

All ICS and IXIT parameters concerned shall be correctly set to those values which are reported by the UE so that the whole ICS / IXIT values can be used as the audit file of the UE entire capabilities.

8.1.6 Direct Transfer

8.1.6.1 Direct Transfer in CELL DCH state (invalid message reception and no signalling connection exists)

8.1.6.1.1 Definition

8.1.6.1.2 Conformance requirement

If the UE receives a DOWNLINK DIRECT TRANSFER message, and the signalling connection identified with the IE "CN domain identity" does not exist according to the variable ESTABLISHED_SIGNALLING_CONNECTIONS, the UE shall:

1> ignore the content of the DOWNLINK DIRECT TRANSFER message;

1> transmit an RRC STATUS message on the uplink DCCH using AM RLC;

1> include the IE "Identification of received message"; and

1> set the IE "Received message type" to DOWNLINK DIRECT TRANSFER; and

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the DOWNLINK DIRECT TRANSFER message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> include the IE "Protocol error information" with the IE "Protocol error cause" set to "Message not compatible with receiver state".

…

If the UE receives a DOWNLINK DIRECT TRANSFER message, which contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to TS 25.331 clause 9, the UE shall perform procedure specific error handling as follows:

1> transmit an RRC STATUS message on the uplink DCCH using AM RLC;

1> include the IE "Identification of received message"; and

1> set the IE "Received message type" to DOWNLINK DIRECT TRANSFER; and

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the DOWNLINK DIRECT TRANSFER message in the table "Rejected transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.

When the RRC STATUS message has been submitted to lower layers for transmission, the UE shall:

1> continue with any ongoing processes and procedures as if the DOWNLINK DIRECT TRANSFER message has not been received.

…

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent via a radio access technology other than UTRAN, containing an undefined critical message extension, the UE shall:

1> set the variable PROTOCOL_ERROR_REJECT to TRUE;

1> set the IE "Protocol error cause" in the variable PROTOCOL_ERROR_INFORMATION to "Message extension not comprehended";

Reference

3GPP TS 25.331 clause 8.1.9.3a, 8.1.9.4, 9.3b.

8.1.6.1.3 Test purpose

To confirm that the UE transmits an RRC STATUS message on the DCCH using AM RLC if it receives a DOWNLINK DIRECT TRANSFER message with a non comprehended critical extension. To confirm that the UE transmits an RRC STATUS message on the DCCH using AM RLC if it receives a DOWNLINK DIRECT TRANSFER message which includes an invalid IE "CN domain identity".

8.1.6.1.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_DCH (state 6-9 or state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in the CELL_DCH state. The SS transmits an invalid DOWNLINK DIRECT TRANSFER message to the UE. The UE shall transmit an RRC STATUS message on the DCCH using AM RLC. The error type "Message extension not comprehended" shall be indicated in IE "Protocol error cause". The SS transmits a DOWNLINK DIRECT TRANSFER message that contains an invalid IE "CN domain identity" to the UE. The UE shall transmit an RRC STATUS message on the DCCH using AM RLC. The error type "Message not compatible with receiver state" shall be indicated in IE "Protocol error cause".

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		DOWNLINK DIRECT TRANSFER	See specific message content
2	→		RRC STATUS	
3	←		DOWNLINK DIRECT TRANSFER	Sent from a new CN domain.
4	→		RRC STATUS	

Specific Message Contents

DOWNLINK DIRECT TRANSFER (Step 1)

Use the same message content as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Critical extensions	'FF'H

RRC STATUS (Step 2)

Message content is the same as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Identification of received message type - Received message type - RRC transaction identifier Protocol error information – Protocol error cause	 DOWNLINK DIRECT TRANSFER 0 Message extension not comprehended

DOWNLINK DIRECT TRANSFER (Step 3)

Use the same message content as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
CN domain identity NAS message	CS domain or PS domain as unselected domain Arbitrary message.

RRC STATUS (Step 4)

Message content is the same as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Identification of received message type - Received message type - RRC transaction identifier Protocol error information – Protocol error cause	 DOWNLINK DIRECT TRANSFER Same value in the DOWNLINK DIRECT TRANSFER message in step 3. Message not compatible with receiver state

8.1.6.1.5 Test requirement

After step 1 the UE shall transmit an RRC STATUS message on the DCCH using AM RLC setting "Message extension not comprehended" in IE "Protocol error cause" and "DOWNLINK DIRECT TRANSFER" in IE "Received message type".

After step 3 the UE shall transmit a n RRC STATUS message on the DCCH using AM RLC setting "Message not compatible with receiver state" in IE "Protocol error cause" and "DOWNLINK DIRECT TRANSFER" in IE "Received message type".

8.1.6.2 Direct Transfer in CELL FACH state (invalid message reception and no signalling connection exists)

8.1.6.2.1 Definition

8.1.6.2.2 Conformance requirement

If the UE receives a DOWNLINK DIRECT TRANSFER message, and the signalling connection identified with the IE "CN domain identity" does not exist according to the variable ESTABLISHED_SIGNALLING_CONNECTIONS, the UE shall:

1> ignore the content of the DOWNLINK DIRECT TRANSFER message;

1> transmit an RRC STATUS message on the uplink DCCH using AM RLC;

1> include the IE "Identification of received message"; and

1> set the IE "Received message type" to DOWNLINK DIRECT TRANSFER; and

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the DOWNLINK DIRECT TRANSFER message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> include the IE "Protocol error information" with the IE "Protocol error cause" set to "Message not compatible with receiver state".

…

If the UE receives a DOWNLINK DIRECT TRANSFER message, which contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to TS 25.331 clause 9, the UE shall perform procedure specific error handling as follows:

1> transmit an RRC STATUS message on the uplink DCCH using AM RLC;

1> include the IE "Identification of received message"; and

1> set the IE "Received message type" to DOWNLINK DIRECT TRANSFER; and

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the DOWNLINK DIRECT TRANSFER message in the table "Rejected transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.

When the RRC STATUS message has been submitted to lower layers for transmission, the UE shall:

1> continue with any ongoing processes and procedures as if the DOWNLINK DIRECT TRANSFER message has not been received.

…

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent via a radio access technology other than UTRAN, containing an undefined critical message extension, the UE shall:

1> set the variable PROTOCOL_ERROR_REJECT to TRUE;

1> set the IE "Protocol error cause" in the variable PROTOCOL_ERROR_INFORMATION to "Message extension not comprehended";

Reference

3GPP TS 25.331 clause 8.1.9.3a, 8.1.9.4, 9.3b.

8.1.6.2.3 Test purpose

To confirm that the UE transmits an RRC STATUS message on the DCCH using AM RLC if it receives a DOWNLINK DIRECT TRANSFER message which does not include any IEs except IE "Message Type". To confirm that the UE transmits an RRC STATUS message on the DCCH using AM RLC if it receives a DOWNLINK DIRECT TRANSFER message which includes an invalid IE "CN domain identity".

8.1.6.2.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CS-DCCH_FACH (state 6-6) or PS_DCCH_FACH (state 6-8) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in the CELL_FACH state. The SS transmits an invalid DOWNLINK DIRECT TRANSFER message to the UE. The UE shall transmit an RRC STATUS message on the DCCH using AM RLC. The error type "Message extension not comprehended" shall be indicated in IE "Protocol error cause". The SS transmits a DOWNLINK DIRECT TRANSFER message that contains an invalid IE "CN domain identity" to the UE. The UE shall transmit an RRC STATUS message on the DCCH using AM RLC. The error type "Message not compatible with receiver state" shall be indicated in IE "Protocol error cause".

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		DOWNLINK DIRECT TRANSFER	See specific message content
2	→		RRC STATUS	
3	←		DOWNLINK DIRECT TRANSFER	Sent from a new CN domain.
4	→		RRC STATUS	

Specific Message Contents

DOWNLINK DIRECT TRANSFER (Step 1)

Use the same message content as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Critical extensions	'FF'H

RRC STATUS (Step 2)

Message content is the same as found in Clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Identification of received message type - Received message type - RRC transaction identifier Protocol error information – Protocol error cause	 DOWNLINK DIRECT TRANSFER 0 Message extension not comprehended

DOWNLINK DIRECT TRANSFER (Step 3)

Use the same message content as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
CN domain identity NAS message	CS domain or PS domain as unselected domain Arbitrary message.

RRC STATUS (Step 4)

Message content is the same as found in Clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Identification of received message type - Received message type - RRC transaction identifier Protocol error information – Protocol error cause	 DOWNLINK DIRECT TRANSFER Same value in the DOWNLINK DIRECT TRANSFER message in step 3. Message not compatible with receiver state

8.1.6.2.5 Test requirement

After step 1 the UE shall transmit an RRC STATUS message on the DCCH using AM RLC setting "Message extension not comprehended" in IE "Protocol error cause" and "DOWNLINK DIRECT TRANSFER" in IE "Received message type".

After step 3 the UE shall transmit a n RRC STATUS message on the DCCH using AM RLC setting "Message not compatible with receiver state" in IE "Protocol error cause" and "DOWNLINK DIRECT TRANSFER" in IE "Received message type".

8.1.6.3 Measurement Report on INITIAL DIRECT TRANSFER message and UPLINK DIRECT TRANSFER message

8.1.6.3.1 Definition

8.1.6.3.2 Conformance requirement

In CELL_FACH state, the UE shall:

1> include a measurement report in the IE "Measured results on RACH", as specified in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in System Information Block type 12 (or "System Information Block Type 11" if "System Information Block Type 12" is not being broadcast);

1> include in the IE "Measured results on RACH" all requested reporting quantities for cells for which measurements are reported.

Reference

3GPP TS 25.331, clause 8.1.8.2, 8.1.10.2

8.1.6.3.3 Test Purpose

To confirm that the UE reports measured results on RACH messages, if it receives IE "Intra-frequency reporting quantity for RACH reporting" and IE "Maximum number of reported cells on RACH" from System Information Block Type 11 or 12 upon a transition from idle mode to CELL_FACH state.

8.1.6.3.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108. If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS" (state 7).

Related ICS/IXIT statement(s)

- Support of automatic PS attach procedure at switch on yes/no

Specific Message Content

For system information block 11 for Cell 1 (gives IE's which are different from defaults given in 34.108 sec 6.1) to be transmitted before idle update preamble.

System Information Block type 11 (Step 1) (FDD)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception:

Information Element	Value/remark
SIB12 indicator	FALSE
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	5
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency cells	
- Intra-frequency cell id	0
- Cell info	
- Cell individual offset	0 (0 dB)
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 1
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell selection and Re-selection info	Not present
- Intra-frequency Measurement quantity	
- Filter Coefficient	0
- Measurement quantity	CPICH RSCP
- Intra-frequency measurement for RACH reporting	
- SFN-SFN observed time difference	No report
- Reporting quantity	CPICH RSCP
- Maximum number of reported cells on RACH	Current cell
- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	TRUE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not present
- Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged mode RLC
- Periodic Reporting/Event Trigger Reporting Mode	Event trigger
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each event	
- Intra-frequency event identity	1a
- Triggering condition 1	Not Present
- Triggering condition 2	Monitored set cells
- Reporting Range Constant	29 (15 dB)
- Cells forbidden to affect reporting range	Not Present
- W	0.0
- Hysteresis	2 (1.0 dB)
- Threshold used frequency	Not Present
- Reporting deactivation threshold	0
- Replacement activation threshold	Not Present
- Time to trigger	60 ms
- Amount of reporting	Infinity
- Reporting interval	16 seconds
- Reporting Cell Status	

- CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within active and/or monitored set on non-used frequency
- Maximum number of reported cells	2
- Inter-frequency measurement system information	Not Present
- Traffic volume measurement system information	Not Present

System Information Block type 11 (Step 1) (TDD)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception:

Information Element	Value/remark
SIB12 indicator	FALSE
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	5
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency cells	
- Intra-frequency cell id	0
- Cell info	
- Cell individual offset	0 (0 dB)
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	Set to same as used for cell 1
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell selection and Re-selection info	Not present
- Intra-frequency Measurement quantity	
- Filter Coefficient	0
- Measurement quantity	PCCPCH RSCP
- Intra-frequency measurement for RACH reporting	
- SFN-SFN observed time difference	No report
- Reporting quantity	PCCPCH RSCP
- Maximum number of reported cells on RACH	Current cell
- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- PCCPCH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	TRUE
- Cell identity reporting indicator	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not present
- Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged mode RLC
- Periodic Reporting/Event Trigger Reporting Mode	Event trigger
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each event	
- Intra-frequency event identity	1g
- Reporting Range Constant	29 (15 dB)
- Cells forbidden to affect reporting range	Not Present
- W	0 (0.0)
- Hysteresis	2 (1.0 dB)
- Time to trigger	60 ms
- Amount of reporting	Infinity
- Reporting interval	16 seconds
- Reporting Cell Status	
- CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within active and/or monitored set on non-used frequency
- Maximum number of reported cells	2
- Inter-frequency measurement system information	Not Present
- Traffic volume measurement system information	Not Present

Test Procedure

The UE is initially in idle mode and camps on cell 1. SS prompts the operator to make an outgoing call for one of the traffic classes supported by the UE. SS and UE shall execute out going call procedure. During this procedure UE transmits INITIAL DIRECT TRANSFER and UPLINK DIRECT TRANSFER messages with IE "Measured results on RACH" which is set to measured CPICH RSCP" (for FDD) or "Primary CCPCH info" (for TDD) in the current cell. After that SS releases a RRC connection.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in idle mode and camps onto cell 1.
2				SS prompts the test operator to make an outgoing call.
3	→		RRC CONNECTION REQUEST	
4	←		RRC CONNECTION SETUP	See default message content (Transition to CELL_FACH)
5	→		RRC CONNECTION SETUP COMPLETE	See default message content
6	→		INITIAL DIRECT TRANSFER (SERVICE REQUEST)	See specific message content
7	←		DOWNLINK DIRECT TRANSFER(AUTHENTICATION AND CIPHERING REQUEST)	
8	→		UPLINK DIRECT TRANSFER(AUTHENTICATION AND CIPHERING RESPONSE)	See specific message content
9	←		SECURITY MODE COMMAND	See default message content
10	→		SECURITY MODE COMPLETE	See default message content
11	→		UPLINK DIRECT TRANSFER(ACTIVATE PDP CONTEXT REQUEST)	See specific message content
11a	←		DOWNLINK DIRECT TRANSFER (ACTIVATE PDP CONTEXT REJECT)	Cause set to “Activation rejected, unspecified”
A11a	→		UPLINK DIRECT TRANSFER (DETACH REQUEST)	This step is performed only when UE is in manual attach mode: The UE may (optionally) send a Detach Request (only Note 1).
A11b	←		DOWNLINK DIRECT TRANSFER (DETACH ACCEPT)	This step is performed only when UE is in manual attach mode: SS responds with DETACH ACCEPT message as a Detach Request was transmitted by the UE.
12	←		RRC CONNECTION RELEASE	See default message content
13	→		RRC CONNECTION RELEASE COMPLETE	See default message content
Note 1: Support of automatic PS attach procedure at switch on – no				

Specific Message Content

RRC CONNECTION REQUEST (Step 3) (FDD)

Use the default message with the same message type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Measured results on RACH	
- Measurement result for current cell	
- CHOICE measurement quantity	Check to see if set to 'CPICH RSCP'
- CPICH RSCP	Checked to see if set to within an acceptable range.
- Measurement results for monitored cells	Checked to see if this IE is absent.

RRC CONNECTION REQUEST (Step 3) (TDD)

Use the default message with the same message type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Measured results on RACH - Measurement result for current cell - CHOICE measurement quantity - PCCPCH RSCP - Measurement results for monitored cells	 Check to see if set to 'PCCPCH RSCP' Checked to see if set to within an acceptable range. Checked to see if this IE is absent.

INITIAL DIRECT TRANSFER (SERVICE REQUEST) (Step 6) (FDD)

Use the default message with the same message type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Measured results on RACH - Measurement result for current cell - CHOICE measurement quantity - CPICH RSCP - Measurement results for monitored cells	 Check to see if set to 'CPICH RSCP' Checked to see if set to within an acceptable range. Checked to see if this IE is absent.

INITIAL DIRECT TRANSFER (SERVICE REQUEST) (Step 6) (TDD)

Use the default message with the same message type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Measured results on RACH - Measurement result for current cell - CHOICE measurement quantity - PCCPCH RSCP - Measurement results for monitored cells	 Check to see if set to 'PCCPCH RSCP' Checked to see if set to within an acceptable range. Checked to see if this IE is absent.

UPLINK DIRECT TRANSFER (AUTHENTICATION AND CIPHERING RESPONSE) (Step 8)

Use the default message with the same message type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Measured results on RACH - Measurement result for current cell - CHOICE measurement quantity - CPICH RSCP - Measurement results for monitored cells	 Check to see if set to 'CPICH RSCP' Checked to see if set to within an acceptable range. Checked to see if this IE is absent.

UPLINK DIRECT TRANSFER (AUTHENTICATION AND CIPHERING RESPONSE) (Step 8) (TDD)

Use the default message with the same message type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Measured results on RACH - Measurement result for current cell - CHOICE measurement quantity - PCCPCH RSCP - Measurement results for monitored cells	 Check to see if set to 'PCCPCH RSCP' Checked to see if set to within an acceptable range. Checked to see if this IE is absent.

UPLINK DIRECT TRANSFER (ACTIVATE PDP CONTEXT REQUEST) (Step 11) (FDD)

Use the default message with the same message type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Measured results on RACH - Measurement result for current cell - CHOICE measurement quantity - CPICH RSCP - Measurement results for monitored cells	 Check to see if set to 'CPICH RSCP' Checked to see if set to within an acceptable range. Checked to see if this IE is absent.

UPLINK DIRECT TRANSFER (ACTIVATE PDP CONTEXT REQUEST) (Step 11) (TDD)

Use the default message with the same message type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Measured results on RACH - Measurement result for current cell - CHOICE measurement quantity - PCCPCH RSCP - Measurement results for monitored cells	 Check to see if set to 'PCCPCH RSCP' Checked to see if set to within an acceptable range. Checked to see if this IE is absent.

8.1.6.3.5 Test Requirement

After step 2 the UE shall transmit a RRC CONNECTION REQUEST message which includes IE "measured results on RACH", containing the measurement value for cell 1's CPICH RSCP (FDD mode) or PCCPCH RSCP (TDD mode).

After step 5 the UE shall transmit a INITIAL DIRECT TRANSFER (SERVICE REQUEST) message which includes IE " measured results on RACH", containing the measurement value for cell 1's CPICH RSCP.

After step 7 the UE shall transmit a UPLINK DIRECT TRANSFER(AUTHENTICATION AND CIPHERING RESPONSE) message which includes IE " measured results on RACH", containing the measurement value for cell 1's CPICH RSCP (FDD mode) or PCCPCH RSCP (TDD mode).

After step 10 the UE shall transmit a UPLINK DIRECT TRANSFER(ACTIVATE PDP CONTEXT REQUEST) message which includes IE " measured results on RACH", containing the measurement value for cell 1's CPICH RSCP (FDD mode) or PCCPCH RSCP (TDD mode).

8.1.6.4 UPLINK Direct Transfer (RLC re-establishment)

8.1.6.4.1 Definition

8.1.6.4.2 Conformance requirement

If signalling radio bearer RB n (where n equals to 3 or 4) was used when transmitting the UPLINK DIRECT TRANSFER message and a re-establishment of RLC on same signalling radio bearer RB n occurs before the successful delivery of the UPLINK DIRECT TRANSFER message has been confirmed by RLC, the UE shall:

1> retransmit the UPLINK DIRECT TRANSFER message on the uplink DCCH using AM RLC on signalling radio bearer RB n.

Reference

3GPP TS 25.331 clause 8.1.10.2a.

8.1.6.4.3 Test purpose

To confirm that the UE transmits a second UPLINK DIRECT TRANSFER message after the re-establishment of RLC on RB3 which occurs before the successful delivery of the first UPLINK DIRECT TRANSFER message.

8.1.6.4.4 Method of test

Initial Condition

System Simulator: 1 cell – Cell 1 is active.

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108.

Specific Message Contents

For RRC CONNECTION SETUP message to be transmitted in the initial setup, use the default message given in TS 34.108 subclause 9 with the following exceptions:

RRC CONNECTION SETUP

Information Element	Value/Remarks
Signalling RB information to setup	(AM DCCH for NAS_DT High priority)
- RB identity	Not Present
- CHOICE RLC info type	
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	1
- Polling info	
- Timer_poll_prohibit	1000
- Timer_poll	1000
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	5
- Logical channel identity	3
- CHOICE RLC size list	Configured
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit List
- RLC size index	According to TS34.108 clause 6.10.2.4.1.3 for FDD, 6.10.3.4.1.3 for TDD 3.84 Mcps option or 6.11.5.4.1.3 for TDD 1.28 Mcps option or 6.11.6. 4.1.3 for TDD 7.68 Mcps option (standalone 13.6 kbps signalling radio bearer)
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3

Test Procedure

UE is in CELL_DCH. SS set the RLC entity for SRB3 to stop. SS requests operator to deactivate the established PDP context. Then the UE shall transmit an UPLINK DIRECT TRANSFER message on the uplink DCCH. SS does not acknowledge the AM PDUs carrying UPLINK DIRECT TRANSFER message. The SS then sends a UTRAN MOBILITY INFORMATION message on SRB1 requesting the UE to do a SRNS relocation, 5s after asking the operator to deactivate the established PDP context. The UE shall send a UTRAN MOBILITY INFORMATION CONFIRM message on SRB2. The SS set the RLC entity for SRB3 to continue upon receiving UTRAN MOBILITY INFORMATION CONFIRM message. Then UE shall retransmit an UPLINK DIRECT TRANSFER message on the uplink DCCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				SS set the RLC entity for SRB3 to stop. SS requests the operator to initiate a PDP context deactivation.
2	→		UPLINK DIRECT TRANSFER	.
3	←		UTRAN MOBILITY INFORMATION	
4	→		UTRAN MOBILITY INFORMATION CONFIRM	UE sends this message on uplink DCCH on AM RLC. After the reception, SS configures RB 3 to continue.
5	→		UPLINK DIRECT TRANSFER	DEACTIVATE PDP CONTEXT REQUEST message is embedded in UPLINK DIRECT TRANSFER message.

Specific Message Contents

UTRAN MOBILITY INFORMATION (Step 3)

Use the same message sub-type found in [9] TS 34.108 clause 9 with the following exception:

Information Element	Value/remark
Ciphering mode info	This presence of this IE is dependent on IXIT statements in TS 34.123-2. If ciphering is indicated to be active, this IE presents with the values of the sub IEs as stated below. Else, this IE is omitted.
- Ciphering mode command	Start/restart
- Ciphering algorithm	UEA0 or UEA1. The indicated algorithm must be one of the algorithms supported by the UE as indicated in the IE "security capability" in the RRC CONNECTION SETUP COMPLETE message.
- Ciphering activation time for DPCH	(256+CFN-(CFN MOD 8 + 8)) MOD 256, this IE is set to "Not present" if only PS RABs are established during the initial setup procedure.
- Radio bearer downlink ciphering activation time info	
- Radio bearer activation time	
- RB identity	1
- RLC sequence number	Current RLC SN + 2
- RB identity	2
- RLC sequence number	Current RLC SN + 2
- RB identity	3
- RLC sequence number	Current RLC SN + 2
- RB identity	4
- RLC sequence number	Current RLC SN + 2
- RB identity	20, this IE is set to "Not present" if PS RAB is not established during the initial setup procedure.
- RLC sequence number	Current RLC SN + 2
Integrity protection mode info	
- Integrity protection mode command	Start
- Downlink integrity protection activation info	Not Present
- Integrity protection algorithm	UIA1
- Integrity protection initialisation number	SS selects an arbitrary 32 bits number for FRESH. The first/ leftmost bit of the bit string contains the most significant bit of the FRESH.
New U-RNTI	
- SRNC identity	0000 0000 0010B
- S-RNTI	0000 0000 0000 0000 0001B

UTRAN MOBILITY INFORMATION CONFIRM (Step 4)

Check that the UE uses the same message sub-type found in TS 34.108 clause 9.

UPLINK DIRECT TRANSFER (Step 5)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
CN domain identity	PS domain
NAS message	DEACTIVATE PDP CONTEXT REQUEST
Measured results on RACH	Not checked

8.1.6.4.5 Test requirement

After step 3, the UE shall transmit UTRAN MOBILITY INFORMATION CONFIRM message using uplink DCCH on AM RLC and then retransmit UPLINK DIRECT TRANSFER message on the uplink DCCH.

8.1.6.5 Initial Direct Transfer: Inclusion of establishment cause

8.1.6.5.1 Definition

8.1.6.5.2 Conformance requirement

In the UE, the initial direct transfer procedure shall be initiated, when the upper layers request establishment of a signalling connection. This request also includes a request for the transfer of a NAS message.

Upon initiation of the initial direct transfer procedure the UE shall:

1> set the variable ESTABLISHMENT_CAUSE to the cause for establishment indicated by upper layers.

…

The UE shall, in the INITIAL DIRECT TRANSFER message:

1> set the IE "NAS message" as received from upper layers; and

1> set the IE "CN domain identity" as indicated by the upper layers; and

1> set the IE "Intra Domain NAS Node Selector" as follows:

2> derive the IE "Intra Domain NAS Node Selector" from TMSI/PMTSI, IMSI, or IMEI; and

2> provide the coding of the IE "Intra Domain NAS Node Selector" according to the following priorities:

1. Derive the routing parameter for IDNNS from TMSI (CS domain) or PTMSI (PS domain) whenever a valid TMSI/PTMSI is available;
2. base the routing parameter for IDNNS on IMSI when no valid TMSI/PTMSI is available;
3. base the routing parameter for IDNNS on IMEI only if no (U)SIM is inserted in the UE.

1> if the variable ESTABLISHMENT_CAUSE_ is initialised:

2> set the IE "Establishment cause" to the value of the variable ESTABLISHMENT_CAUSE;

2> clear the variable ESTABLISHMENT_CAUSE.

Reference

3GPP TS 25.331 clause 8.1.8.2

8.1.6.5.3 Test purpose

To confirm that, in the case the UE wants to start a new signalling connection while the UE is already in CELL_DCH state, the UE shall include the IE “Establishment cause” in the Initial Direct Transfer message.

8.1.6.5.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH DCH (state 6-10) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports PS+CS

Test Procedure

The UE has a PS radio bearer set up in CELL_DCH state. Then, the test operator is prompted to make an out-going CS call. The UE shall transmit an Initial Direct Transfer message with the IE “Establishment cause” set to “Originating

conversational call". After reception of CM Service Request message from the UE, the SS will send CM Service Reject to complete the Service Request procedure.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				SS prompts the test operator to make an outgoing CS call.
2	→		INITIAL DIRECT TRANSFER (CM SERVICE REQUEST)	The UE sets the IE "Establishment cause" to "Originating conversational call".
3	←		DOWNLINK DIRECT TRANSFER (CM SERVICE REJECT)	
4	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

INITIAL DIRECT TRANSFER (Step 2)

Use the default message with the same message type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
CN Domain Identity	CS domain
Establishment cause	Originating conversational call

8.1.6.5.5 Test requirements

At step 2, the UE shall transmit an Initial Direct Transfer message with the IE "Establishment cause" set to "Originating conversational call".

8.1.7 Security mode command

8.1.7.1 Security mode command in CELL_DCH state (CS Domain)

8.1.7.1.1 Definition

8.1.7.1.2 Conformance requirement

1. This procedure is used to trigger or start of ciphering or to command the restart of ciphering with the new ciphering configuration for the signalling radio bearers and any radio bearers of a particular CN Domain. It is also used to start integrity protection or modify integrity protection configuration for the signalling radio bearers.

2. When the UE receives a SECURITY MODE COMMAND message from the UTRAN, which indicates a downlink activation time for each effected SRB and RB, and new ciphering mode configuration, the UE shall apply the old ciphering configuration, for a particular SRB or RB, before the stated downlink activation time. It shall start to decipher using the new ciphering configuration at the downlink activation time.

3. After the UE has transmitted a SECURITY MODE COMPLETE message using the new integrity protection configuration which includes uplink activation time, it shall start to cipher transmission in the uplink using the new configuration at the respective uplink activation time for each SRB or RB.

Reference

3GPP TS 25.331 clauses 8.1.12, 8.6.3.4, 8.6.3.5.

8.1.7.1.3 Test purpose

To confirm that the UE activates the new ciphering configurations after the stated activation time. To confirm that after the UE receives a SECURITY MODE COMMAND message, it transmits a SECURITY MODE COMPLETE message to the UTRAN using the old ciphering configuration together with the application of the new integrity protection

configuration. To confirm that UE send SECURITY MODE FAILURE message when SS transmits a SECURITY MODE COMMAND message that causes an invalid configuration. To confirm that the UE sends a SECURITY MODE FAILURE message when the UE receives an invalid SECURITY MODE COMMAND message.

8.1.7.1.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_DCH (state 6-9) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_DCH state. The SS initiates an Authentication procedure, which will result in the generation of a new security keyset (CK/IK). The SS transmits a SECURITY MODE COMMAND message which contains an unexpected critical message extension. The UE shall respond by sending SECURITY MODE FAILURE message on the DCCH. Then SS transmits a SECURITY MODE COMMAND message with IE's "Ciphering mode info" and "Integrity protection mode info both omitted". Again the UE shall not trigger any ciphering algorithm and it shall respond by sending SECURITY MODE FAILURE message on the DCCH. Next, the SS transmits a valid SECURITY MODE COMMAND message which includes the correct downlink activation times and "Integrity check info" IE. Then the UE shall check the integrity check info and shall start to configure ciphering in downlink according to the first valid SECURITY MODE COMMAND message. The UE shall transmit a SECURITY MODE COMPLETE message which contains the correct uplink activation times and also "Integrity check info" IE using the new integrity protection configuration. The SS records the uplink ciphering activation time for RB 2. Next, the SS transmits UE CAPABILITY ENQUIRY message repeatedly on the downlink DCCH using RLC-AM mode. The UE shall respond to each downlink message with a UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM. SS then send UE CAPABILITY INFORMATION CONFIRM message to the UE. This cycle repeats itself until both the uplink and downlink ciphering activation time for RB 2 has elapsed. SS checks all uplink UE CAPABILITY INFORMATION messages are integrity-protected by UIA algorithm, and that the messages contain the correct values for "Integrity check info" IE. This can be verified in the SS through the reception of a correctly ciphered and integrity-protected UE CAPABILITY INFORMATION message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				RRC connected state on DCH_state.
1a	←		AUTHENTICATION REQUEST	MM message which will result in the generation of a new security keyset
1b	→		AUTHENTICATION RESPONSE	MM
2	←		SECURITY MODE COMMAND	See message content.
3	→		SECURITY MODE FAILURE	IE "Failure Cause" shall be set to "Protocol Error" and IE "Protocol Error Information" shall be set to "Message extension not comprehended".
4	←		SECURITY MODE COMMAND	See message content.
5	→		SECURITY MODE FAILURE	IE "Failure Cause" shall be set to "invalid configuration".
6	←		SECURITY MODE COMMAND	See specific message contents.
7			Void	
8			Void	
9	→		SECURITY MODE COMPLETE	SS verifies that this message is sent using the old ciphering configuration. SS records the uplink ciphering activation time for RB 2.
10	←		UE CAPABILITY ENQUIRY	SS repeats step 10, 11 and 12 until its internal uplink and downlink RLC SN have both surpassed the uplink and downlink ciphering activation time specified for RB2. This message is sent on the downlink DCCH using RLC-AM.
11	→		UE CAPABILITY INFORMATION	UE shall send this message on the uplink DCCH using RLC-AM. SS verifies that the last UE CAPABILITY INFORMATION message is both integrity-protected and ciphered correctly.
12	←		UE CAPABILITY INFORMATION CONFIRM	

Specific Message Contents

SECURITY MODE COMMAND (Step 2)

Information Element	Value/remark
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Next RRC SN
Critical extensions	'FF'H

SECURITY MODE FAILURE (Step 3)

The same message found in TS 34.108, clause 9 shall be transmitted by the UE on the uplink DCCH, with the exception of the following IEs:

Information Element	Value/remark
Failure cause	
Failure cause	Protocol error
Protocol error information	
Protocol error cause	Message extension not comprehended

SECURITY MODE COMMAND (Step 4)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Next RRC SN
Security Capability	Same as originally sent by UE (and stored in SS)
Ciphering mode info	Not Present
- Ciphering mode command	
Integrity protection mode info	Not Present
CN domain identity	CS Domain
UE system specific security capability	Not Present in condition A1
UE system specific security capability	Present In condition A2
- Inter-RAT UE security capability	
- CHOICE *system*	GSM
- GSM security capability	The indicated algorithms must be the same as the algorithms supported by the UE as indicated in the IE " UE system specific capability " in the RRC CONNECTION SETUP COMPLETE message.

Condition	Explanation
A1	UE not supporting GSM
A2	UE supporting GSM

SECURITY MODE FAILURE (Step 5)

The same message found in TS 34.108, clause 9 shall be transmitted by the UE on the uplink DCCH, with the exception of the following IEs:

Information Element	Value/remark
Failure cause	
Failure cause	Invalid configuration

SECURITY MODE COMMAND (Step 6)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Next RRC SN
Security Capability	Same as originally sent by UE (and stored in SS)
Ciphering mode info	
Ciphering mode command	Start/restart
Ciphering algorithm	UEA1
Activation time for DPCH	(256+CFN-(CFN MOD 8 + 8)) MOD 256
Radio bearer downlink ciphering activation time info	
RB Identity	1
RLC sequence number	Current RLC SN
RB Identity	2
RLC sequence number	Current RLC SN + 2
RB Identity	3
RLC sequence number	Current RLC SN
RB Identity	4
RLC sequence number	Current RLC SN
Integrity protection mode info	
Integrity protection mode command	Modify
Downlink integrity protection activation info	
	Current RRC SN for SRB0 Current RRC SN for SRB1 Current RRC SN for SRB2 Current RRC SN for SRB3 Current RRC SN for SRB4
Integrity protection algorithm	UIA1
CN domain identity	CS Domain
UE system specific security capability	Not Present in condition A1
UE system specific security capability	Present In condition A2
- Inter-RAT UE security capability	
- CHOICE *system*	GSM
- GSM security capability	The indicated algorithms must be the same as the algorithms supported by the UE as indicated in the IE " UE system specific capability " in the RRC CONNECTION SETUP COMPLETE message.

Condition	Explanation
A1	UE not supporting GSM
A2	UE supporting GSM

SECURITY MODE COMPLETE (Step 9)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
- Message Authentication code	Checked to see if present. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	Checked to see if present
Uplink integrity protection activation info	
- RRC message sequence number list	Check to see if the RRC SN for RB 0 to RB 4 are present
Radio bearer uplink ciphering activation info	
- RB Identity other than RB2	Check to see if the RLC SN for RB1, 3 and 4 are present
- RB Identity	2
- RLC sequence number	SS records this value. See step 10 in 'expected sequence'

8.1.7.1.5 Test requirement

After step 2 the UE shall transmit a SECURITY MODE FAILURE message to report the protocol error detected in the first SECURITY MODE COMMAND message.

After step 4 the UE shall transmit a SECURITY MODE FAILURE message to report on the invalid configuration detected in the second SECURITY MODE COMMAND message.

After step 8 the SS checks that the SECURITY MODE COMPLETE message is received ciphered using the old configuration and that the calculated "integrity check info" IE is correct.

After step 9 SS verifies that all uplink signalling messages on RB2 are integrity protected with UIA1 algorithm.

After uplink ciphering activation time has lapsed, SS verifies that the UE CAPABILITY INFORMATION message received is integrity protected with UIA algorithm and ciphered with the new ciphering configuration and algorithm indicated in the SECURITY MODE COMMAND (Step 6) message.

After downlink ciphering activation time has lapsed, SS shall apply ciphering to all downlink messages using the new configuration. At least one more cycle between step 10 and step 12 shall be repeated correctly after activation time on both directions has lapsed and the messages on both directions shall be ciphered and integrity protected.

8.1.7.1b Security mode command in CELL_DCH state (PS Domain)

8.1.7.1b.1 Definition

8.1.7.1b.2 Conformance requirement

Upon reception of the SECURITY MODE COMMAND message, the UE shall:

1> if neither IE "Ciphering mode info" nor IE "Integrity protection mode info" is included in the SECURITY MODE COMMAND:

2> set the variable INVALID_CONFIGURATION to TRUE.

…

1> prior to sending the SECURITY MODE COMPLETE message:

…

2> if the SECURITY MODE COMMAND message contained the IE "Integrity protection mode info":

3> include and set the IE "Uplink integrity protection activation info" to the value of the variable INTEGRITY_PROTECTION_ACTIVATION_INFO for each signalling radio bearer;

…

2> start applying the new integrity protection configuration in the uplink for signalling radio bearer RB2 from and including the transmitted SECURITY MODE COMPLETE message;

2> transmit the SECURITY MODE COMPLETE message on the uplink DCCH in AM RLC;

…

If the IE "Ciphering mode info" is present and if the IE "Reconfiguration" in the variable CIPHERING_STATUS is set to FALSE, the UE shall:

…

1> apply the new ciphering configuration in the lower layers for all RBs that belong to a CN domain for which the IE "Status" of the variable SECURITY_MODIFICATION is set to "Affected" and all signalling radio bearers:

1> apply the new ciphering configuration as follows:

2> consider an activation time in downlink to be pending:

…

3> for AM-RLC until all AMD PDUs with sequence numbers up to and including activation time – 1 have been received;

2> if the IE "Radio bearer downlink ciphering activation time info" is present:

3> apply the following procedure for each radio bearer and signalling radio bearers using RLC-AM or RLC-UM indicated by the IE "RB identity":

…

4> select an "RLC send sequence number" at which (activation) time the new ciphering configuration shall be applied in uplink for that radio bearer according to the following:

…

6> set a suitable value that would ensure a minimised delay in the change to the latest security configuration.

…

5> use the old ciphering configuration for the transmitted and received RLC PDUs with RLC sequence numbers smaller than the corresponding RLC sequence numbers indicated in the IE "Radio bearer uplink ciphering activation time info" sent to UTRAN and in the received IE "Radio bearer downlink ciphering activation time info" received from UTRAN, respectively;

5> use the new ciphering configuration for the transmitted and received RLC PDUs with RLC sequence numbers greater than or equal to the corresponding RLC sequence numbers indicated in the IE "Radio bearer uplink ciphering activation time info" sent to UTRAN and in the received IE "Radio bearer downlink ciphering activation time info" received from UTRAN, respectively;

…

If the IE "Integrity protection mode info" is present and if the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO is set to FALSE, the UE shall:

…

1> if IE "Integrity protection mode command" has the value "modify" and the IE "Status" in the variable INTEGRITY_PROTECTION_INFO has the value "Started" and this IE was included in SECURITY MODE COMMAND:

…

2> start applying the new integrity protection configuration in the downlink at the RRC sequence number, for each signalling radio bearer n, indicated by the entry for signalling radio bearer n in the "RRC message sequence number list" in the IE "Downlink integrity protection activation info", included in the IE "Integrity protection mode info";

…

4> select a value of the RRC sequence number at which (activation) time the new integrity protection configuration shall be applied in uplink for that signalling radio bearer according to the following:

…

6> set a suitable value that would ensure a minimised delay in the change to the latest integrity protection configuration.

…

2> start applying the new integrity protection configuration in the uplink at the RRC sequence number, for each RBn, except for signalling radio bearer RB2, indicated by the entry for signalling radio bearer n in the "RRC message sequence number list" in the IE "Uplink integrity protection activation info", included in the variable INTEGRITY_PROTECTION_ACTIVATION_INFO;

2> start applying the new integrity protection configuration in the uplink at the RRC sequence number for signalling radio bearer RB2, as specified for the procedure initiating the integrity protection reconfiguration;

2> start applying the new integrity protection configuration in the downlink at the RRC sequence number, for each RBn, except for signalling radio bearer RB2, indicated by the entry for signalling radio bearer n in the "RRC message sequence number list" in the IE "Downlink integrity protection activation info";

NOTE: For signalling radio bearers that have a pending activation time as set for integrity protection by a previous procedure changing the integrity protection configuration, UTRAN should set this value in IE "Downlink integrity protection activation info".

2> start applying the new integrity protection configuration in the downlink at the RRC sequence number for signalling radio bearer RB2, as specified for the procedure initiating the integrity protection reconfiguration.

Reference

3GPP TS 25.331 clauses 8.1.12.3, 8.6.3.4, 8.6.3.5.

8.1.7.1b.3 Test purpose

To confirm that the UE modifies an integrity protection configuration and applies new keys on reception of a correct SECURITY MODE COMMAND message.

To confirm that the UE modifies a ciphering configuration in the uplink and downlink and applies new keys according to transmitted activation times. Also confirms that the UE accepts a new ciphering configuration for a RB when ciphering is started for SRBs.

To confirm that after the UE receives a SECURITY MODE COMMAND message, it transmits a SECURITY MODE COMPLETE message to the UTRAN using the old ciphering configuration and new integrity protection configuration.

To confirm that UE send SECURITY MODE FAILURE message when SS transmits a SECURITY MODE COMMAND message with a non comprehended critical extension.

To confirm that the UE sends a SECURITY MODE FAILURE message when UE receives an invalid SECURITY MODE COMMAND message.

8.1.7.1b.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_DCH state with integrity protection and ciphering started for SRBs. The SS initiates an Authentication and Ciphering procedure, which will result in the generation of a new security keyset (CK/IK).

The SS transmits a SECURITY MODE COMMAND message which contains an unexpected critical message extension. The UE shall respond by sending SECURITY MODE FAILURE message on the DCCH.

Then SS transmits a SECURITY MODE COMMAND message with IEs "Ciphering mode info" and "Integrity protection mode info both omitted". Again the UE shall not trigger any ciphering algorithm and it shall respond by sending SECURITY MODE FAILURE message on the DCCH.

Next, the SS transmits a valid SECURITY MODE COMMAND message which includes the correct downlink activation times and "Integrity check info" IE. The UE shall check the integrity check info and shall start to configure ciphering in downlink according to the SECURITY MODE COMMAND message.

Then UE shall transmit a SECURITY MODE COMPLETE message which contains uplink activation times and also the correct "Integrity check info" IE using the new integrity protection configuration. SS records the uplink ciphering activation time for RB 2.

Next, the SS transmits UE CAPABILITY ENQUIRY message repeatedly on the downlink DCCH using RLC-AM mode. The UE shall respond to each downlink message with a UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM. SS shall send UE CAPABILITY INFORMATION CONFIRM messages to the UE for each received UE CAPABILITY INFORMATION message from the UE.

This cycle repeats itself until both the uplink and downlink ciphering activation time for RB 2 has elapsed. SS checks all uplink UE CAPABILITY INFORMATION messages are integrity-protected by UIA algorithm, and that the messages contain the correct values for "Integrity check info" IE. This can be verified in the SS through the reception of a correctly ciphered and integrity-protected UE CAPABILITY INFORMATION message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				RRC connected state on DCH_state.
1a		←	AUTHENTICATION AND CIPHERING REQUEST	GMM message which will result in the generation of a new security keyset
1b		→	AUTHENTICATION AND CIPHERING RESPONSE	GMM
2		←	SECURITY MODE COMMAND	See message content.
3		→	SECURITY MODE FAILURE	IE "Failure Cause" shall be set to "Protocol Error" and IE "Protocol Error Information" shall be set to "Message extension not comprehended".
4		←	SECURITY MODE COMMAND	See message content.
5		→	SECURITY MODE FAILURE	IE "Failure Cause" shall be set to "invalid configuration".
6		←	SECURITY MODE COMMAND	See specific message contents.
7	→		SECURITY MODE COMPLETE	SS verifies that this message is sent using the old ciphering configuration and with the new integrity protection configuration. SS records the uplink ciphering activation time for RB 2.
8	←		UE CAPABILITY ENQUIRY	SS repeats step 8, 9 and 10 until its internal uplink and downlink RLC SN have both surpassed the uplink and downlink ciphering activation time specified for RB2. This message is sent on the downlink DCCH using RLC-AM.
9	→		UE CAPABILITY INFORMATION	UE shall send this message on the uplink DCCH using RLC-AM. SS verifies that the last UE CAPABILITY INFORMATION message is both integrity-protected and ciphered correctly.
10	←		UE CAPABILITY INFORMATION CONFIRM	

Specific Message Contents

SECURITY MODE COMMAND (Step 2)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Next RRC SN
Critical extensions	'FF'H

SECURITY MODE FAILURE (Step 3)

Message content is the same as found in Clause 9 of TS 34.108, with the exception of the following IEs:

Information Element	Value/remark
Failure cause	
Failure cause	Protocol error
Protocol error information	
Protocol error cause	Message extension not comprehended

SECURITY MODE COMMAND (Step 4)

Use the same message content as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Next RRC SN
Security Capability	Same as originally sent by UE (and stored in SS)
Ciphering mode info	Not Present
Integrity protection mode info	Not Present
CN domain identity	PS Domain

SECURITY MODE FAILURE (Step 5)

Message content is the same as found in Clause 9 of TS 34.108, with the exception of the following IEs:

Information Element	Value/remark
Failure cause	
Failure cause	Invalid configuration

SECURITY MODE COMMAND (Step 6)

Information Element	Condition	Value/remark
RRC transaction identifier	A1, A2	0
Integrity check info		
Message authentication code		Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number		Next RRC SN
Security Capability		Same as originally sent by UE (and stored in SS)
Ciphering mode info		
Ciphering mode command		Start/restart
Ciphering algorithm		UEA1
Activation time for DPCH		Not Present
Radio bearer downlink ciphering activation time info		
RB Identity		1
RLC sequence number		Current RLC SN
RB Identity		2
RLC sequence number		Current RLC SN + 2
RB Identity		3
RLC sequence number		Current RLC SN
RB Identity		4
RLC sequence number		Current RLC SN
RB Identity		20
RLC sequence number		Current RLC SN
Integrity protection mode info		
Integrity protection mode command		Modify
Downlink integrity protection activation info		Current RRC SN for SRB0 Current RRC SN for SRB1 0 Current RRC SN for SRB3 Current RRC SN for SRB4
Integrity protection algorithm		UIA1
CN domain identity		PS Domain
UE system specific security capability	A1	Not Present
UE system specific security capability	A2	
- Inter-RAT UE security capability		
- CHOICE *system*		GSM
- GSM security capability		The indicated algorithms must be the same as the algorithms supported by the UE as indicated in the IE " UE system specific capability " in the RRC CONNECTION SETUP COMPLETE message.

Condition	Explanation
A1	UE not supporting GSM
A2	UE supporting GSM

NOTE: "Current RLC SN" is defined as the value of VT(S) in the SS at the time when the SECURITY MODE COMMAND is submitted to RLC for transmission, that is, the RLC send sequence number of the next transmitted RLC PDU on the particular radio bearer. "Current RRC SN" is defined as the RRC message sequence number of the next transmitted RRC message on the particular radio bearer.

SECURITY MODE COMPLETE (Step 7)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
- Message Authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Uplink integrity protection activation info	
- RRC message sequence number list	
-RRC message sequence number	Check to see if the RRC SN for RB 0 is present
-RRC message sequence number	Check to see if the RRC SN for RB 1 is present
-RRC message sequence number	Check to see if the RRC SN for RB 2 is present
-RRC message sequence number	Check to see if the RRC SN for RB 3 is present
-RRC message sequence number	Check to see if the RRC SN for RB 4 is present
Radio bearer uplink ciphering activation time info	
- Radio bearer activation time	
- RB Identity	1
- RLC sequence number	Check to see if the RLC SN for RB1is present
- RB Identity	2
- RLC sequence number	SS records this value. See step 8 in 'expected sequence'
- RB Identity	3
- RLC sequence number	Check to see if the RLC SN for RB3 is present
- RB Identity	4
- RLC sequence number	Check to see if the RLC SN for RB4 is present
- RB Identity	20
- RLC sequence number	Check to see if the RLC SN for RB20 is present

8.1.7.1b.5 Test requirement

After step 2 the UE shall transmit a SECURITY MODE FAILURE message to report the protocol error detected in the first SECURITY MODE COMMAND message.

After step 4 the UE shall transmit a SECURITY MODE FAILURE message to report on the invalid configuration detected in the second SECURITY MODE COMMAND message.

At step 7 SS checks that the SECURITY MODE COMPLETE message is received ciphered using the old configuration and that the calculated "integrity check info" IE is correct according to the new integrity protection configuration (new key and HFN set to zero).

After step 7 SS verifies that all uplink signalling messages on RB2 are integrity protected with the new integrity protection configuration.

After uplink ciphering activation time has elapsed, SS verifies that the UE CAPABILITY INFORMATION message received is ciphered with the new ciphering configuration as indicated in the SECURITY MODE COMMAND (Step 6) message.

After downlink ciphering activation time has elapsed, SS shall apply ciphering to all downlink messages using the new ciphering configuration. At least one more cycle between step 8 and step 10 shall be repeated correctly after activation time on both directions has elapsed and the messages on both directions shall be ciphered and integrity protected.

8.1.7.1c Security mode control in CELL_DCH state (CN Domain switch and new keys at RRC message sequence number wrap around)

8.1.7.1c.1 Definition

8.1.7.1c.2 Conformance requirement

Upon reception of the SECURITY MODE COMMAND message, the UE shall:

…

2> set the variable LATEST_CONFIGURED_CN_DOMAIN equal to the IE "CN domain identity";

2> set the IE "Status" in the variable SECURITY_MODIFICATION for the CN domain indicated in the IE "CN domain identity" in the received SECURITY MODE COMMAND to the value "Affected";

…

If a new security key set (new ciphering and integrity protection keys) has been received from the upper layers [40] for the CN domain as indicated in the variable LATEST_CONFIGURED_CN_DOMAIN, the UE shall:

1> set the START value for the CN domain indicated in the variable LATEST_CONFIGURED_CN_DOMAIN to zero;

1> if the SECURITY MODE COMMAND message contained the IE "Integrity protection mode info":

2> for integrity protection in the downlink on each signalling radio bearer except RB2:

3> if IE "Integrity protection mode command" has the value "start":

…

3> else:

4> for the first message for which the RRC sequence number in a received RRC message for this signalling radio bearer is equal to or greater than the activation time as indicated in IE "Downlink integrity protection activation info" as included in the IE "Integrity protection mode info":

5> start using the new integrity key;

5> for this signalling radio bearer:

6> set the IE "Downlink RRC HFN" in the variable INTEGRITY_PROTECTION_INFO of the downlink COUNT-I to zero.

2> for integrity protection in the uplink on each signalling radio bearer except RB2:

3> for the first message for which the RRC sequence number in a to be transmitted RRC message for this signalling radio bearer is equal to the activation time as indicated in IE "Uplink integrity protection activation info" included in the transmitted SECURITY MODE COMPLETE message:

4> start using the new integrity key;

4> for this signalling radio bearer:

5> set the IE "Uplink RRC HFN" in the variable INTEGRITY_PROTECTION_INFO of the uplink COUNT-I to zero.

2> for integrity protection in the downlink on signalling radio bearer RB2:

3> at the received SECURITY MODECOMMAND:

4> start using the new integrity key;

4> set the IE "Downlink RRC HFN" in the variable INTEGRITY_PROTECTION_INFO of the downlink COUNT-I to zero.

2> for integrity protection in the uplink on signalling radio bearer RB2 :

3> at the transmitted SECURITY MODE COMPLETE:

4> start using the new integrity key;

4> set the IE "Uplink RRC HFN" in the variable INTEGRITY_PROTECTION_INFO of the uplink COUNT-I to zero.

1> if the SECURITY MODE COMMAND message contained the IE "Ciphering mode info":

2> for each signalling radio bearer and for each radio bearer for the CN domain indicated in the variable LATEST_CONFIGURED_CN_DOMAIN:

3> if the IE "Status" in the variable CIPHERING_STATUS has the value "Started" for this CN domain, then for ciphering on radio bearers using RLC-TM:

4> at the CFN as indicated in the IE "Ciphering activation time for DPCH" in the IE "Ciphering mode info":

5> start using the new key in uplink and downlink;

5> set the HFN component of the COUNT-C to zero.

3> if the IE "Status" in the variable CIPHERING_STATUS has the value "Started" for this CN domain, then for ciphering on radio bearers and signalling radio bearers using RLC-AM and RLC-UM:

4> in the downlink, at the RLC sequence number indicated in IE "Radio bearer downlink ciphering activation time info" in the IE "Ciphering mode info":

5> start using the new key;

5> set the HFN component of the downlink COUNT-C to zero.

4> in the uplink, at the RLC sequence number indicated in IE "Radio bearer uplink ciphering activation time info":

5> start using the new key;

5> set the HFN component of the uplink COUNT-C to zero.

1> consider the value of the latest transmitted START value to be zero.

…

If the IE "Ciphering mode info" is present and if the IE "Reconfiguration" in the variable CIPHERING_STATUS is set to FALSE, the UE shall:

1> apply the new ciphering configuration in the lower layers for all RBs that belong to a CN domain for which the IE "Status" of the variable SECURITY_MODIFICATION is set to "Affected" and all signalling radio bearers:

2> using the ciphering algorithm (UEA [40]) indicated by the IE "Ciphering algorithm" as part of the new ciphering configuration;

2> for each radio bearer that belongs to a CN domain for which the IE "Status" of the variable SECURITY_MODIFICATION is set to "Affected" and all signalling radio bearers:

3> using the value of the IE "RB identity" in the variable ESTABLISHED_RABS minus one as the value of BEARER [40] in the ciphering algorithm.

…

If the IE "Integrity protection mode info" is present and if the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO is set to FALSE, the UE shall:

1> set the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to TRUE;

1> if IE "Integrity protection mode command" has the value "modify" and the IE "Status" in the variable INTEGRITY_PROTECTION_INFO has the value "Started" and this IE was included in SECURITY MODE COMMAND:

…

2> start applying the new integrity protection configuration in the downlink at the RRC sequence number, for each signalling radio bearer n, indicated by the entry for signalling radio bearer n in the "RRC message sequence number list" in the IE "Downlink integrity protection activation info", included in the IE "Integrity protection mode info";

2> set the content of the variable INTEGRITY_PROTECTION_ACTIVATION_INFO according to the following:

…

2> start applying the new integrity protection configuration in the uplink at the RRC sequence number, for each RBn, except for signalling radio bearer RB2, indicated by the entry for signalling radio bearer n in the "RRC message sequence number list" in the IE "Uplink integrity protection activation info", included in the variable INTEGRITY_PROTECTION_ACTIVATION_INFO;

2> start applying the new integrity protection configuration in the uplink at the RRC sequence number for signalling radio bearer RB2, as specified for the procedure initiating the integrity protection reconfiguration;

2> start applying the new integrity protection configuration in the downlink at the RRC sequence number, for each RBn, except for signalling radio bearer RB2, indicated by the entry for signalling radio bearer n in the "RRC message sequence number list" in the IE "Downlink integrity protection activation info";

2> start applying the new integrity protection configuration in the downlink at the RRC sequence number for signalling radio bearer RB2, as specified for the procedure initiating the integrity protection reconfiguration.

Reference

3GPP TS 25.331 clauses 8.1.12.3, 8.6.3.4, 8.6.3.5.

8.1.7.1c.3 Test purpose

To verify that the UE correctly modifies the integrity protection and ciphering configuration with a newly generated PS domain keyset for when previously using the CS domain keyset.

To verify that the UE can handle change of integrity protection key when the RRC message sequence number wraps around when the SECURITY MODE COMMAND is received.

8.1.7.1c.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: has entered PS+CS-DCCH+DTCH_DCH (state 6-14) using procedure P24 as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_DCH state.

The SS transmits UE CAPABILITY ENQUIRY message repeatedly on the downlink DCCH using RLC-UM mode on SRB1. The UE shall respond to each downlink message with a UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM. SS then sends UE CAPABILITY INFORMATION CONFIRM message to the UE using RLC-AM. This procedure is repeated until the RRC message sequence number for SRB 2 in downlink equals 15.

The SS initiates an Authentication procedure, which will result in the generation of a new security keyset (CK/IK). The SS transmits a valid SECURITY MODE COMMAND message which includes the correct downlink activation times and "Integrity check info" IE.

Then the UE shall check the integrity check info and shall start to configure ciphering in downlink according to the first valid SECURITY MODE COMMAND message. The UE shall transmit a SECURITY MODE COMPLETE message which contains the correct uplink activation times and also "Integrity check info" IE using the new integrity protection configuration.

The SS records the uplink ciphering activation time for RB 2.

Next, the SS transmits UE CAPABILITY ENQUIRY message repeatedly on the downlink DCCH using RLC-AM mode. The UE shall respond to each downlink message with a UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM. SS then send UE CAPABILITY INFORMATION CONFIRM message to the UE. This cycle repeats itself until both the uplink and downlink ciphering activation time for RB 2 has elapsed. SS checks all uplink UE CAPABILITY INFORMATION messages are integrity-protected by UIA algorithm, and that the messages

contain the correct values for "Integrity check info" IE. This can be verified in the SS through the reception of a correctly ciphered and integrity-protected UE CAPABILITY INFORMATION message.

The SS transmits UE CAPABILITY ENQUIRY message on the downlink DCCH using RLC-UM mode on SRB1. The UE shall respond to this message with a UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM. SS then send UE CAPABILITY INFORMATION CONFIRM message to the UE.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in CELL_DCH state.
2	←		UE CAPABILITY ENQUIRY	The SS repeats step 2, 3 and 4 until its internal downlink RRC message sequence number for RB 2 has the value 15.
3	→		UE CAPABILITY INFORMATION	The UE shall send this message on the uplink DCCH using RLC-AM. SS verifies that the last UE CAPABILITY INFORMATION message is both integrity-protected and ciphered correctly.
4	←		UE CAPABILITY INFORMATION CONFIRM	
5	←		AUTHENTICATION and CIPHERING REQUEST	GMM message which will result in the generation of a new security keyset
6	→		AUTHENTICATION AND CIPHERING RESPONSE	GMM
7	←		SECURITY MODE COMMAND	See specific message contents.
8	→		SECURITY MODE COMPLETE	The SS verifies that this message is sent using the old ciphering configuration. SS records the uplink ciphering activation time for RB 2.
9	←		UE CAPABILITY ENQUIRY	The SS repeats step 9, 10 and 11 until its internal uplink and downlink RLC SN have both surpassed the uplink and downlink ciphering activation time specified for RB2. This message is sent on the downlink DCCH using RLC-AM.
10	→		UE CAPABILITY INFORMATION	The UE shall send this message on the uplink DCCH using RLC-AM. SS verifies that the last UE CAPABILITY INFORMATION message is both integrity-protected and ciphered correctly.
11	←		UE CAPABILITY INFORMATION CONFIRM	
12	←		UE CAPABILITY ENQUIRY	The SS sends this message with the downlink RRC message sequence number for SRB 1 with the value 0.
13	→		UE CAPABILITY INFORMATION	The UE shall send this message on the uplink DCCH using RLC-AM. SS verifies that the last UE CAPABILITY INFORMATION message is both integrity-protected and ciphered correctly.
14	←		UE CAPABILITY INFORMATION CONFIRM	

Specific Message Contents

SECURITY MODE COMMAND (Step 7)

Use the same message content as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Next RRC SN
Security Capability	Same as originally sent by UE (and stored in SS)
Ciphering mode info	
Ciphering mode command	Start/restart
Ciphering algorithm	UEA1
Radio bearer downlink ciphering activation time info	
RB Identity	1
RLC sequence number	Current RLC SN
RB Identity	2
RLC sequence number	Current RLC SN + 2
RB Identity	3
RLC sequence number	Current RLC SN
RB Identity	4
RLC sequence number	Current RLC SN
RB Identity	20
RLC sequence number	Current RLC SN
Integrity protection mode info	
Integrity protection mode command	Modify
Downlink integrity protection activation info	
	Current RRC SN for SRB0
	Current RRC SN for SRB1
	0
	Current RRC SN for SRB3
	Current RRC SN for SRB4
Integrity protection algorithm	UIA1
CN domain identity	PS Domain

NOTE: "Current RLC SN" is defined as the value of VT(S) in the SS at the time when the SECURITY MODE COMMAND is submitted to RLC for transmission, that is, the RLC send sequence number of the next transmitted RLC PDU on the particular radio bearer. "Current RRC SN" is defined as the RRC message sequence number of the next transmitted RRC message on the particular radio bearer.

SECURITY MODE COMPLETE (Step 8)

Use the same message content as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
- Message Authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS.
Uplink integrity protection activation info	
- RRC message sequence number list	Check to see if the RRC SN for RB 0 to RB 4 are present
-RRC message sequence number	Check to see if the RRC SN for RB 0 is present
-RRC message sequence number	Check to see if the RRC SN for RB 1 is present
-RRC message sequence number	Check to see if the RRC SN for RB 2 is present
-RRC message sequence number	Check to see if the RRC SN for RB 3 is present
-RRC message sequence number	Check to see if the RRC SN for RB 4 is present
Radio bearer uplink ciphering activation time info	
- Radio bearer activation time	
- RB Identity	1
- RLC sequence number	Check to see if the RLC SN for RB1 is present
- RB Identity	2
- RLC sequence number	SS records this value. See step 10 in 'expected sequence'
- RB Identity	3
- RLC sequence number	Check to see if the RLC SN for RB3 is present
- RB Identity	4
- RLC sequence number	Check to see if the RLC SN for RB4 is present
- RB Identity	20
- RLC sequence number	Check to see if the RLC SN for RB20 is present

8.1.7.1c.5 Test requirement

After step 7 the SS checks that the SECURITY MODE COMPLETE message is received ciphered using the old configuration and that the calculated "integrity check info" IE is correct.

After step 8 SS verifies that all uplink signalling messages on RB2 are integrity protected with UIA1 algorithm.

After uplink ciphering activation time has lapsed, SS verifies that the UE CAPABILITY INFORMATION message received is integrity protected with UIA algorithm and ciphered with the new ciphering configuration and algorithm indicated in the SECURITY MODE COMMAND (Step 7) message.

After downlink ciphering activation time has lapsed, SS shall apply ciphering to all downlink messages using the new configuration. At least one more cycle between step 9 and step 11 shall be repeated correctly after activation time on both directions has lapsed and the messages on both directions shall be ciphered and integrity protected..

8.1.7.1d Security mode control in CELL_DCH state interrupted by a cell update

8.1.7.1d.1 Definition

8.1.7.1d.2 Conformance requirement

If:

- a cell update procedure according to subclause 8.3.1 is initiated; and
- the received SECURITY MODE COMMAND message causes either,
  - the IE "Reconfiguration" in the variable CIPHERING_STATUS to be set to TRUE; and/or
  - the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to be set to TRUE:

the UE shall:

1> abort the ongoing integrity and/or ciphering reconfiguration;

1> resume data transmission on any suspended radio bearer and signalling radio bearer mapped on RLC-AM or RLC-UM;

1> allow the transmission of RRC messages on all signalling radio bearers with any RRC SN;

1> when the response message has been submitted to lower layers for transmission:

2> if the SECURITY MODE COMMAND message contained the IE "Ciphering mode info":

3> set the IE "Reconfiguration" in the variable CIPHERING_STATUS to FALSE; and

3> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;

2> if the SECURITY MODE COMMAND message contained the IE "Integrity protection mode info":

3> set the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to FALSE; and

3> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO.

2> continue with any ongoing processes and procedures as if the invalid SECURITY MODE COMMAND message has not been received; and

2> clear the variable SECURITY_MODIFICATION;

2> the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.12.4b,

8.1.7.1d.3 Test purpose

To confirm that the UE aborts the ongoing integrity and ciphering configuration and the security mode control procedure in case it is interrupted by a cell update procedure.

8.1.7.1d.4 Method of test

Initial Condition

System Simulator: 1 cell.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108.

The RRC CONNECTION SETUP message used in the initial setup should be as shown under Specific Message Contents below.

Test Procedure

The UE is in CELL_DCH state. The SS initiates an Authentication and Ciphering procedure, which will result in the generation of a new security keyset (CK/IK).

The SS transmits a valid SECURITY MODE COMMAND message which includes the correct downlink activation times and "Integrity check info" IE..

Then SS turns off the power in the cell after the UE has received the Security Mode Command , but before the UE could complete this security procedure to change over to the new security configuration. The UE will initiate the cell reselection procedure.

The UE shall then abort the Security procedure and is expected to continue to use the old security configuration..

Then after 6 seconds the power is turned on in the cell again.

The UE sends a CELL UPDATE message which includes the value "Radio link failure" set in IE "Cell update cause". The SS verifies that this message is integrity-protected correctly with the old security configuration. The SS shall transmit a CELL UPDATE CONFIRM message which includes "Physical channel information elements", on downlink DCCH after receiving CELL UPDATE message. The UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using RLC-AM. SS verifies that this message is both integrity-protected and ciphered correctly with the old security configuration.

Next, the SS transmits UE CAPABILITY ENQUIRY message on the downlink DCCH using RLC-AM mode. The UE shall respond to with a UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM using the same old integrity and ciphering configuration as used before the SECURITY MODE COMMAND was received.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in CELL_DCH state.
2	←		AUTHENTICATION AND CIPHERING REQUEST	GMM message which will result in the generation of a new security keyset
3	→		AUTHENTICATION AND CIPHERING RESPONSE	GMM
4	←		SECURITY MODE COMMAND	See specific message contents. The SS transmits a valid SECURITY MODE COMMAND message which includes the correct downlink activation times and "Integrity check info" IE.
5				SS turns off power in the cell after the UE has received the Security Mode Command , but before the UE could complete this security procedure to change over to the new security configuration.
6				The UE starts cell reselection
7				After waiting for 6 seconds, the SS turns on power in the cell.
8	→		CELL UPDATE	This message includes the value "Radio link failure" set in IE "Cell update cause". The SS verifies that message is integrity-protected correctly with the old security configuration
9	←		CELL UPDATE CONFIRM	This message includes "Physical channel information elements".
10	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE shall send this message on the uplink DCCH using RLC-AM. SS verifies that message is both integrity-protected and ciphered correctly with the old security configuration
11	←		UE CAPABILITY ENQUIRY	The SS repeats step 11, 12 and 13 until its internal uplink and downlink RLC SN have both surpassed the uplink and downlink ciphering activation time specified for RB2. This message is sent on the downlink DCCH using RLC-AM.
12	→		UE CAPABILITY INFORMATION	The UE shall send this message on the uplink DCCH using RLC-AM. SS verifies that the last UE CAPABILITY INFORMATION message is both integrity-protected and ciphered correctly.
13	←		UE CAPABILITY INFORMATION CONFIRM	

Specific Message Contents

RRC CONNECTION SETUP (message used in the initial setup)

Use the same message type and contents as found in clause 9 of TS 34.108 with the following exception:

Signalling RB information to setup	(AM DCCH for RRC)
- RB identity	Not Present
- CHOICE RLC info type	
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	32
- Timer_RST	500
- Max_RST	1
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	OMIT
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

SECURITY MODE COMMAND (Step 4)

Use the same message content as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Next RRC SN
Security Capability	Same as originally sent by UE (and stored in SS)
Ciphering mode info	
Ciphering mode command	Start/restart
Ciphering algorithm	UEA1
Activation time for DPCH	Not Present
Radio bearer downlink ciphering activation time info	
RB Identity	1
RLC sequence number	Current RLC SN
RB Identity	2
RLC sequence number	Current RLC SN + 2
RB Identity	3
RLC sequence number	Current RLC SN
RB Identity	4
RLC sequence number	Current RLC SN
RB Identity	20
RLC sequence number	Current RLC SN
Integrity protection mode info	
Integrity protection mode command	Modify
Downlink integrity protection activation info	
	Current RRC SN for SRB0
	Current RRC SN for SRB1
	Current RRC SN for SRB2
	Current RRC SN for SRB3
	Current RRC SN for SRB4
Integrity protection algorithm	UIA1
CN domain identity	PS Domain

NOTE: "Current RLC SN" is defined as the value of VT(S) in the SS at the time when the SECURITY MODE COMMAND is submitted to RLC for transmission, that is, the RLC send sequence number of the next transmitted RLC PDU on the particular radio bearer. "Current RRC SN" is defined as the RRC message sequence number of the next transmitted RRC message on the particular radio bearer.

CELL UPDATE (Step 8)

The contents of CELL UPDATE message are identical as "Contents of CELL UPDATE message" as found in clause 9 of TS 34.108 Annex A with the following exceptions:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0000 0001'
Cell Update Cause	"Radio link failure"

CELL UPDATE CONFIRM (Step 9) (FDD)

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM message" as found in Annex A with the following exceptions:

Information Element	Value/remark
U-RNTI	Same as CELL UPDATE message in step 8
RRC State indicator	CELL_DCH
CHOICE channel requirement	Uplink DPCH info
-UplinkDPCH Info	Same as RADIO BEARER SETUP message used to move to initial condition
Downlink information common for all radio links	Same as RADIO BEARER SETUP message used to move to initial condition
Downlink information for each radio links	Same as RADIO BEARER SETUP message used to move to initial condition

CELL UPDATE CONFIRM (Step 9) (TDD)

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM message" as found in clause 9 of TS 34.108 Annex A with the following exceptions:

Information Element	Value/remark
U-RNTI	Same as CELL UPDATE message in step 8
RRC State indicator	CELL_DCH
UplinkDPCH timeslots and codes	Same as RADIO BEARER SETUP message used to move to initial condition
Downlink information for each radio links	Same as RADIO BEARER SETUP message used to move to initial condition

8.1.7.1d.5 Test requirement

After uplink ciphering activation time has lapsed, SS verifies that the UE CAPABILITY INFORMATION message received at step 12 is integrity protected with UIA algorithm and ciphered with the old ciphering configuration and algorithm and not the one indicated in the SECURITY MODE COMMAND (Step 4) message.

8.1.7.2 Security mode command in CELL_FACH state

8.1.7.2.1 Definition

8.1.7.2.2 Conformance requirement

1. This procedure is used to trigger the start of ciphering, or to command the restart of ciphering with the new ciphering configuration for the signalling radio bearers and any radio bearers of a particular CN Domain. It is also used to start integrity protection or modify integrity protection configuration for signalling radio bearers.

2. When the UE receives a SECURITY MODE COMMAND message from the UTRAN, which indicates the downlink activation time for each effected SRB and RB, and new ciphering mode configuration, the UE shall apply the old ciphering configuration, for a particular SRB or RB, before the stated downlink activation time. It shall start to decipher using the new ciphering configuration at the downlink activation time.

3. The UE shall transmit SECURITY MODE COMPLETE message using the new integrity protection configuration stated in the received SECURITY MODE COMMAND message. The SECURITY MODE COMPLETE message shall include the ciphering uplink activation time. The UE shall start to apply the new ciphering configuration on the uplink direction, after the uplink activation time has elapsed respectively for each SRB or RB.

Reference

3GPP TS 25.331 clauses 8.1.12, 8.6.3.4, 8.6.3.5.

8.1.7.2.3 Test purpose

To confirm that after the UE receives a SECURITY MODE COMMAND message, it transmits a SECURITY MODE COMPLETE message to the UTRAN using the old ciphering configuration together with the application of the new integrity protection configuration. To confirm that the UE applies the old ciphering configuration in the downlink prior to the activation time; and uses the new ciphering configuration on and after the activation time. To confirm that the UE starts to cipher its uplink transmissions after the uplink activation time stated in SECURITY MODE COMPLETE message is reached. To confirm that the UE sends a SECURITY MODE FAILURE message when the UE receives an invalid SECURITY MODE COMMAND message.

8.1.7.2.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_FACH state. The SS initiates an Authentication and Ciphering procedure, which will result in the generation of a new security keyset (CK/IK). The SS transmits a SECURITY MODE COMMAND message which contains an unexpected critical message extension. The UE shall respond by sending SECURITY MODE FAILURE message on the DCCH. Next, SS transmits a valid SECURITY MODE COMMAND message which includes the correct downlink activation times and IE "Integrity check info". The UE shall check the integrity check info. It shall start to configure ciphering in downlink and transmit a SECURITY MODE COMPLETE message, which contains the correct uplink activation times using the new integrity protection configuration. This message shall contain the IE "Integrity check info". SS records the uplink ciphering activation time for RB 2. Next, SS transmits UE CAPABILITY ENQUIRY message repeatedly on the downlink DCCH using RLC-AM mode. The UE shall respond to each downlink message with a UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM. SS checks all uplink messages are integrity-protected by UIA1 algorithm, and that the messages contain the correct values for "Integrity check info" IE by sending a UE CAPABILITY INFORMATION CONFIRM. This cycle repeats itself until both the uplink and downlink ciphering activation time for RB 2 have elapsed. After both the uplink and downlink ciphering activation time for RB 2 have passed, the UE shall be able to communicate with the SS using the new ciphering configurations. This can be verified in SS through the reception of a correctly ciphered and integrity-protected UE CAPABILITY INFORMATION message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				UE is initially in CELL_FACH state.
1a	←		AUTHENTICATION AND CIPHERING REQUEST	GMM message which will result in the generation of a new security keyset
1b	→		AUTHENTICATION AND CIPHERING RESPONSE	GMM
2	←		SECURITY MODE COMMAND	See specific message content
3	→		SECURITY MODE FAILURE	IE "Failure Cause" shall be set to "Protocol Error" and IE "Protocol Error Information" shall be set to "Message extension not comprehended".
4			Void	
5			Void	
6			Void	
7			Void	
8	←		SECURITY MODE COMMAND	See specific message contents.
9	→		SECURITY MODE COMPLETE	SS verifies that this message is sent using the old ciphering configuration. SS records the uplink ciphering activation time for RB 2.
10	←		UE CAPABILITY ENQUIRY	SS repeats step 10, 11 and 12 until its internal uplink and downlink RLC SN have both surpassed the uplink and downlink ciphering activation time specified for RB2. This message is sent on the downlink DCCH using RLC-AM.
11	→		UE CAPABILITY INFORMATION	UE shall send this message on the uplink DCCH using RLC-AM. SS verifies that the last UE CAPABILITY INFORMATION message is both integrity-protected and ciphered correctly.
12	←		UE CAPABILITY INFORMATION CONFIRM	

Specific Message Contents

SECURITY MODE COMMAND (Step 2)

Information Element	Value/remark
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Next RRC SN
Critical extensions	'FF'H

SECURITY MODE COMMAND (Step 8)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Next RRC SN
Security Capability	Same as originally sent by UE (and stored in SS)
Ciphering mode info	
Ciphering mode command	Start/restart
Ciphering algorithm	UEA1
Activation time for DPCH	Not Present
Radio bearer downlink ciphering activation time info	
RB Identity	1
RLC sequence number	Current RLC SN
RB Identity	2
RLC sequence number	Current RLC SN + 2
RB Identity	3
RLC sequence number	Current RLC SN
RB Identity	4
RLC sequence number	Current RLC SN
RB Identity	20
RLC sequence number	Current RLC SN
Integrity protection mode info	
Integrity protection mode command	Modify
Downlink integrity protection activation info	
	Current RRC SN for SRB0 Current RRC SN for SRB1 Current RRC SN for SRB2 Current RRC SN for SRB3 Current RRC SN for SRB4
Integrity protection algorithm	UIA1
CN domain identity	PS Domain
UE system specific security capability	Not Present in condition A1
UE system specific security capability	Present In condition A2
- Inter-RAT UE security capability	
- CHOICE *system*	GSM
- GSM security capability	The indicated algorithms must be the same as the algorithms supported by the UE as indicated in the IE "UE system specific capability" in the RRC CONNECTION SETUP COMPLETE message.

Condition	Explanation
A1	UE not supporting GSM
A2	UE supporting GSM

SECURITY MODE COMPLETE (Step 9)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
- Message Authentication code	Checked to see if present. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	Checked to see if present
Uplink integrity protection activation info	
- RRC message sequence number list	Check to see if it the RRC SN for RB 0 to RB 4 are present
Radio bearer uplink ciphering activation info	
- RB Identity other than RB2	Check to see if the RLC SN for RB1, 3 , 4 and 20 are present
- RB Identity	2
- RLC sequence number	SS records this value. See step 10 in 'expected sequence'

8.1.7.2.5 Test requirement

After step 2 the UE shall transmit a SECURITY MODE FAILURE message to report the protocol error detected in the first SECURITY MODE COMMAND message.

After step 8 the SS checks that the SECURITY MODE COMPLETE message is received ciphered using the old configuration and that the calculated MAC-I values in "integrity check info" IE is correct.

After step 9 SS verifies that all uplink signalling messages on RB2 are integrity protected with UIA1 algorithm.

After uplink ciphering activation time has lapsed, SS verifies that the UE CAPABILITY INFORMATION message received is integrity protected with UIA algorithm and ciphered with the new ciphering configuration and algorithm indicated in the SECURITY MODE COMMAND (Step 8) message.

After downlink ciphering activation time has lapsed, SS shall apply ciphering to all downlink messages using the new configuration. At least one more cycle between step 10 and step 12 shall be repeated correctly after activation time on both directions has lapsed and the messages on both directions shall be ciphered and integrity protected.

8.1.7.3 Security mode command in CELL_DCH state (UEA2/UIA2, CS Domain)

8.1.7.3.1 Definition

Applicable to all Rel-7 UEs which support FDD and CS domain services.

8.1.7.3.2 Conformance requirement

Same conformance requirement as clause 8.1.7.1.2.

8.1.7.3.3 Test purpose

Same test purpose as clause 8.1.7.1.3 except that ciphering algorithm used is UEA2 and integrity protection algorithm used is UIA2.

8.1.7.3.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_DCH (state 6-9) as specified in clause 7.4 of TS 34.108.

Test Procedure

Same test procedure as clause 8.1.7.1.4 except that ciphering algorithm used is UEA2 and integrity protection algorithm used is UIA2.

Expected sequence

Same expected sequence as clause 8.1.7.1.4

Specific Message Contents

Same specific message contents as clause 8.1.7.1.4 except for the following:

SECURITY MODE COMMAND (Step 6)

Information Element	Value/remark
Ciphering mode info	
Ciphering algorithm	UEA2
Integrity protection mode info	
Integrity protection algorithm	UIA2

8.1.7.3.5 Test requirement

After step 2 the UE shall transmit a SECURITY MODE FAILURE message to report the protocol error detected in the first SECURITY MODE COMMAND message.

After step 4 the UE shall transmit a SECURITY MODE FAILURE message to report on the invalid configuration detected in the second SECURITY MODE COMMAND message.

After step 8 the SS checks that the SECURITY MODE COMPLETE message is received ciphered using the old configuration and that the calculated "integrity check info" IE is correct.

After step 9 SS verifies that all uplink signalling messages on RB2 are integrity protected using UIA2 algorithm.

After uplink ciphering activation time has lapsed, SS verifies that the UE CAPABILITY INFORMATION message received is integrity protected with UIA2 algorithm and ciphered with the new ciphering configuration and algorithm UEA2 indicated in the SECURITY MODE COMMAND (Step 6) message.

After downlink ciphering activation time has lapsed, SS shall apply ciphering to all downlink messages using the new configuration using UEA2. At least one more cycle between step 10 and step 12 shall be repeated correctly after activation time on both directions has lapsed and the messages on both directions shall be ciphered using UEA2 and integrity protected using UIA2.

8.1.7.3b Security mode command in CELL_DCH state (UEA2/UIA2, PS Domain)

8.1.7.3b.1 Definition

Applicable to all Rel-7 UEs which support FDD and PS domain services.

8.1.7.3b.2 Conformance requirement

Same conformance requirement as clause 8.1.7.1b.2.

8.1.7.3b.3 Test purpose

Same test purpose as clause 8.1.7.1b.3 except that ciphering algorithm used is UEA2 and integrity protection algorithm used is UIA2.

8.1.7.3b.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108.

Test Procedure

Same test procedure as clause 8.1.7.1b.4 except that ciphering algorithm used is UEA2 and integrity protection algorithm used is UIA2.

Expected sequence

Same expected sequence as clause 8.1.7.1b.4

Specific Message Contents

Same specific message contents as clause 8.1.7.1b.4 except for the following:

SECURITY MODE COMMAND (Step 6)

Information Element	Value/remark
Ciphering mode info Ciphering algorithm	UEA2
Integrity protection mode info Integrity protection algorithm	UIA2

8.1.7.3b.5 Test requirement

After step 2 the UE shall transmit a SECURITY MODE FAILURE message to report the protocol error detected in the first SECURITY MODE COMMAND message.

After step 4 the UE shall transmit a SECURITY MODE FAILURE message to report on the invalid configuration detected in the second SECURITY MODE COMMAND message.

At step 7 SS checks that the SECURITY MODE COMPLETE message is received ciphered using the old configuration and that the calculated "integrity check info" IE is correct according to the new integrity protection configuration (new key and HFN set to zero).

After step 7 SS verifies that all uplink signalling messages on RB2 are integrity protected with the new integrity protection configuration using UIA2.

After uplink ciphering activation time has elapsed, SS verifies that the UE CAPABILITY INFORMATION message received is ciphered with the new ciphering configuration using UEA2 as indicated in the SECURITY MODE COMMAND (Step 6) message.

After downlink ciphering activation time has elapsed, SS shall apply ciphering to all downlink messages using the new ciphering configuration using UEA2. At least one more cycle between step 8 and step 10 shall be repeated correctly after activation time on both directions has elapsed and the messages on both directions shall be ciphered using UEA2 and integrity protected using UIA2.

8.1.7.3c Security mode control in CELL_DCH state (UEA2/UIA2, CN Domain switch and new keys at RRC message sequence number wrap around)

8.1.7.3c.1 Definition

Applicable to all Rel-7 UEs which support FDD and CS domain services and PS domain services.

8.1.7.3c.2 Conformance requirement

Same conformance requirement as clause 8.1.7.1c.2.

8.1.7.3c.3 Test purpose

Same test purpose as clause 8.1.7.1c.3 except that ciphering algorithm used is UEA2 and integrity protection algorithm used is UIA2.

8.1.7.3c.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: has entered PS+CS-DCCH+DTCH_DCH (state 6-14) using procedure P24 as specified in clause 7.4 of TS 34.108, UEA2 and UIA2 are configured.

Test Procedure

Same test procedure as clause 8.1.7.1c.4 except that ciphering algorithm used is UEA2 and integrity protection algorithm used is UIA2.

Expected sequence

Same expected sequence as clause 8.1.7.1c.4

Specific Message Contents

Same specific message contents as clause 8.1.7.1c.4 except for the following:

SECURITY MODE COMMAND (Step 7)

Use the same message content as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Ciphering mode info	
Ciphering algorithm	UEA2
Integrity protection mode info	
Integrity protection algorithm	UIA2

8.1.7.3c.5 Test requirement

After step 7 the SS checks that the SECURITY MODE COMPLETE message is received ciphered using the old configuration and that the calculated "integrity check info" IE is correct.

After step 8 SS verifies that all uplink signalling messages on RB2 are integrity protected with UIA2 algorithm.

After uplink ciphering activation time has lapsed, SS verifies that the UE CAPABILITY INFORMATION message received is integrity protected with UIA2 algorithm and ciphered with the new ciphering configuration and algorithm UEA2 indicated in the SECURITY MODE COMMAND (Step 7) message.

After downlink ciphering activation time has lapsed, SS shall apply ciphering to all downlink messages using the new configuration using UEA2. At least one more cycle between step 9 and step 11 shall be repeated correctly after activation time on both directions has lapsed and the messages in both directions shall be ciphered using UEA2 and integrity protected using UIA2.

8.1.7.3d Security mode control in CELL_DCH state interrupted by a cell update (UEA2/UIA2)

8.1.7.3d.1 Definition

Applicable to all Rel-7 UEs which support FDD and PS domain services.

8.1.7.3d.2 Conformance requirement

Same conformance requirement as clause 8.1.7.1d.2.

8.1.7.3d.3 Test purpose

Same test purpose as clause 8.1.7.1d.3 except that ciphering algorithm used is UEA2 and integrity protection algorithm used is UIA2.

8.1.7.3d.4 Method of test

Initial Condition

System Simulator: 1 cell.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108.

The RRC CONNECTION SETUP message used in the initial setup should be as shown under Specific Message Contents in clause 8.1.7.1d.4.

Test Procedure

Same test procedure as clause 8.1.7.1d.4 except that ciphering algorithm used is UEA2 and integrity protection algorithm used is UIA2.

Expected sequence

Same expected sequence as clause 8.1.7.1d.4

Specific Message Contents

Same specific message contents as clause 8.1.7.1d.4 except for the following:

SECURITY MODE COMMAND (Step 4)

Use the same message content as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Ciphering mode info	
Ciphering algorithm	UEA2
Integrity protection mode info	
Integrity protection algorithm	UIA2

8.1.7.3d.5 Test requirement

After uplink ciphering activation time has lapsed, SS verifies that the UE CAPABILITY INFORMATION message received at step 12 is integrity protected with UIA2 algorithm and ciphered with the old ciphering configuration and algorithm UEA2 and not the one indicated in the SECURITY MODE COMMAND (Step 4) message.

8.1.7.4 Security mode command in CELL_FACH state (UEA2/UIA2)

8.1.7.4.1 Definition

Applicable to all Rel-7 UEs which support FDD and PS domain services.

8.1.7.4.2 Conformance requirement

Same conformance requirement as clause 8.1.7.2.2.

8.1.7.4.3 Test purpose

Same test purpose as clause 8.1.7.2.3.

8.1.7.4.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

Same test procedure as clause 8.1.7.2.4 except that ciphering algorithm used is UEA2 and integrity protection algorithm used is UIA2.

Expected sequence

Same expected sequence as clause 8.1.7.2.4

Specific Message Contents

Same specific message contents as clause 8.1.7.2.4 except for the following:

SECURITY MODE COMMAND (Step 8)

Information Element	Value/remark
Ciphering mode info	
Ciphering algorithm	UEA2
Integrity protection mode info	
Integrity protection algorithm	UIA2

8.1.7.4.5 Test requirement

After step 2 the UE shall transmit a SECURITY MODE FAILURE message to report the protocol error detected in the first SECURITY MODE COMMAND message.

After step 8 the SS checks that the SECURITY MODE COMPLETE message is received ciphered using the old configuration and that the calculated MAC-I values in "integrity check info" IE is correct.

After step 9 SS verifies that all uplink signalling messages on RB2 are integrity protected with UIA2 algorithm.

After uplink ciphering activation time has lapsed, SS verifies that the UE CAPABILITY INFORMATION message received is integrity protected with UIA2 algorithm and ciphered with the new ciphering configuration and algorithm using UEA2 indicated in the SECURITY MODE COMMAND (Step 8) message.

After downlink ciphering activation time has lapsed, SS shall apply ciphering using UEA2 to all downlink messages using the new configuration. At least one more cycle between step 10 and step 12 shall be repeated correctly after activation time on both directions has lapsed and the messages on both directions shall be ciphered using UEA2 and integrity protected using UIA2.

8.1.8 Counter check

8.1.8.1 Counter check in CELL_DCH state, with symmetric RAB

8.1.8.1.1 Definition

8.1.8.1.2 Conformance requirement

When the UE receives a COUNTER CHECK message it shall compare the COUNT-C MSB values received in the IE "RB COUNT-C MSB information" in the COUNTER CHECK message to the COUNT-C MSB values of the corresponding radio bearers.

The UE shall:

1> set the IE "RRC transaction identifier" in the COUNTER CHECK RESPONSE message to the value of "RRC transaction identifier" in the entry for the COUNTER CHECK message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry.

If:

- there is one or more radio bearer(s) using UM or AM RLC mode stored in the variable ESTABLISHED_RABS, which is (are) not included in the IE "RB COUNT-C MSB information"; or

- there is one or more radio bearer(s) included in the IE "RB COUNT-C MSB information", which is (are) not stored in the variable ESTABLISHED_RABS; or

- for any radio bearer (excluding signalling radio bearers) using UM or AM RLC mode stored in the variable ESTABLISHED_RABS and included in the IE "RB COUNT-C MSB information" with COUNT-C MSB values different from the MSB part of the COUNT-C values in the UE:

the UE shall:

1> include these radio bearers in the IE "RB COUNT-C information" in the COUNTER CHECK RESPONSE message. For any RB which is included in the IE "RB COUNT-C MSB information" in the COUNTER CHECK message but not stored in the variable ESTABLISHED_RABS in the UE, the MSB part of COUNT-C values in the COUNTER CHECK RESPONSE message shall be set identical to COUNT-C-MSB values in the COUNTER CHECK message. The LSB part shall be filled with zeroes.

The UE shall:

1> submit a COUNTER CHECK RESPONSE message to lower layers for transmission on the uplink DCCH using AM RLC.

When the COUNTER CHECK RESPONSE message has been submitted to lower layers for transmission the procedure ends.

If the UE receives a COUNTER CHECK message, which contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to TS 25.331 clause 9, the UE shall perform procedure specific error handling as follows. The UE shall:

1> transmit an RRC STATUS message on the uplink DCCH using AM RLC;

1> include the IE "Identification of received message"; and

1> set the IE "Received message type" to COUNTER CHECK; and

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the UE COUNTER CHECK message in the table "Rejected transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION;

1> when the RRC STATUS message has been submitted to lower layers for transmission:

2> continue with any ongoing processes and procedures as if the invalid COUNTER CHECK message has not been received.

Reference

3GPP TS 25.331 clause 8.1.15.

8.1.8.1.3 Test purpose

To confirm that the UE transmits a COUNTER CHECK RESPONSE message after it receives a COUNTER CHECK message from the SS. To confirm that the UE responds to the reception of an invalid downlink COUNTER CHECK message by transmitting a RRC STATUS message on the uplink DCCH, stating the correct error cause value in message.

8.1.8.1.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH+DTCH_DCH state (state 6-10) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is brought to the CELL_DCH state after a successful outgoing call attempt. The SS transmits an invalid COUNTER CHECK message. This message contains an unexpected critical message extension. The UE shall detect a protocol error and send RRC STATUS message to report this event. Next, the SS transmits a COUNTER CHECK message that includes the current COUNT-C MSB information in each radio access bearer. The UE shall react by sending a COUNTER CHECK RESPONSE message on the uplink DCCH, which does not include "RB COUNT-C information" IE. The SS transmits a COUNTER CHECK message which includes the current COUNT-C MSB information reversed all the bits in each radio bearer. The UE shall send a COUNTER CHECK RESPONSE message on the uplink DCCH, specifying the current COUNT-C information for each radio access bearer established. The SS transmits a COUNTER CHECK message which includes a different radio bearer. The UE shall send a COUNTER CHECK RESPONSE message on the uplink DCCH, specifying the current COUNT-C information for each radio access bearer established.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_DCH state after an outgoing call has been established successfully.
2	←		COUNTER CHECK	See specific message contents for this message
3	→		RRC STATUS	UE shall detect a protocol error and then transmit this message.
4	←		COUNTER CHECK	See specific message content.
5	→		COUNTER CHECK RESPONSE	The message shall not include the IE "RB COUNT-C information".
6	←		COUNTER CHECK	See specific message content.
7	→		COUNTER CHECK RESPONSE	The message shall include the IE "RB COUNT-C information".
8	←		COUNTER CHECK	See specific message content.
9	→		COUNTER CHECK RESPONSE	The message shall include the IE "RB COUNT-C information".

Specific Message Contents

COUNTER CHECK (Step 2)

Information Element	Value/remark
Critical extensions	'FF'H

RRC STATUS (Step 3)

Use the same message type found in Annex A, with the following exception.

Information Element	Value/remark
Protocol Error Information - Protocol Error Cause	 Message extension not comprehended

COUNTER CHECK (Step 4)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Next RRC SN
RB COUNT-C MSB information	
- RB identity	20
- COUNT-C MSB uplink	Current COUNT-C MSB for RB#20 in uplink
- COUNT-C MSB downlink	Current COUNT-C MSB for RB#20 in downlink

COUNTER CHECK RESPONSE (Step 5)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	Not checked
RB COUNT-C information	Check to if this IE is absent

COUNTER CHECK (Step 6)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Next RRC SN
RB COUNT-C MSB information	
- RB identity	Check to see if set to 20
- COUNT-C MSB uplink	Toggle all bits of the current COUNT-C MSB in uplink for RB#20
- COUNT-C MSB downlink	Toggle all bits of the current COUNT-C MSB in downlink for RB#20

COUNTER CHECK RESPONSE (Step 7)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	Not checked
RB COUNT-C information	
- RB identity	Check to see if set to 20
- COUNT-C uplink	Check to see if set to Current COUNT-C for RB#20 in uplink
- COUNT-C downlink	Check to see if set to COUNT-C for RB#20 in downlink

COUNTER CHECK (Step 8)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Next RRC SN
RB COUNT-C MSB information	
- RB identity	Check to see if set to 25
- COUNT-C MSB uplink	Arbitrary COUNT-C MSB in uplink for RB#25
- COUNT-C MSB downlink	Arbitrary COUNT-C MSB in downlink for RB#25

COUNTER CHECK RESPONSE (Step 9)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	Not checked
RB COUNT-C information	
- RB identity	Check to see if set to 20
- COUNT-C uplink	Check to see if set to Current COUNT-C for RB#20 in uplink
- COUNT-C downlink	Check to see if set to COUNT-C for RB#20 in downlink
- RB identity	Check to see if set to 25
- COUNT-C uplink	Check to see if COUNT-C MSB is set to COUNT-C MSB in uplink for RB#25 in step 8 and LSB is fill with '0'
- COUNT-C downlink	Check to see if COUNT-C MSB is set to COUNT-C MSB in downlink for RB#25 in step 8 and LSB is fill with '0'

8.1.8.1.5 Test requirement

After step 2, the UE shall transmit a RRC STATUS message on the uplink DCCH. The protocol error cause shall be set to "Message extension not comprehended".

After step 4 the UE shall transmit a COUNTER CHECK RESPONSE message which does not includes the IE "RB COUNT-C information" to indicate that a matched comparison result is obtained.

After step 6, the UE shall transmit a COUNTER CHECK RESPONSE message which includes the IE "RB COUNT-C information" to report that a mismatch in COUNT-C value is detected in RB#20.

After step 8, the UE shall transmit a COUNTER CHECK RESPONSE message which includes the IE "RB COUNT-C information" to report that RB#25 is not found in variable ESTABLISHED_RABS and RB#20 is not found in IE "RB COUNT-C MSB information".

8.1.8.2 Counter check in CELL_FACH state

8.1.8.2.1 Definition

8.1.8.2.2 Conformance requirement

When the UE receives a COUNTER CHECK message it shall compare the COUNT-C MSB values received in the IE "RB COUNT-C MSB information" in the COUNTER CHECK message to the COUNT-C MSB values of the corresponding radio bearers.

The UE shall:

1> set the IE "RRC transaction identifier" in the COUNTER CHECK RESPONSE message to the value of "RRC transaction identifier" in the entry for the COUNTER CHECK message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry.

If:

- there is one or more radio bearer(s) using UM or AM RLC mode stored in the variable ESTABLISHED_RABS, which is (are) not included in the IE "RB COUNT-C MSB information"; or

- there is one or more radio bearer(s) included in the IE "RB COUNT-C MSB information", which is (are) not stored in the variable ESTABLISHED_RABS; or

- for any radio bearer (excluding signalling radio bearers) using UM or AM RLC mode stored in the variable ESTABLISHED_RABS and included in the IE "RB COUNT-C MSB information" with COUNT-C MSB values different from the MSB part of the COUNT-C values in the UE:

the UE shall:

1> include these radio bearers in the IE "RB COUNT-C information" in the COUNTER CHECK RESPONSE message. For any RB which is included in the IE "RB COUNT-C MSB information" in the COUNTER CHECK message but not stored in the variable ESTABLISHED_RABS in the UE, the MSB part of COUNT-C values in the COUNTER CHECK RESPONSE message shall be set identical to COUNT-C-MSB values in the COUNTER CHECK message. The LSB part shall be filled with zeroes.

The UE shall:

1> submit a COUNTER CHECK RESPONSE message to lower layers for transmission on the uplink DCCH using AM RLC.

When the COUNTER CHECK RESPONSE message has been submitted to lower layers for transmission the procedure ends.

If the UE receives a COUNTER CHECK message, which contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to TS 25.331 clause 9, the UE shall perform procedure specific error handling as follows. The UE shall:

1> transmit an RRC STATUS message on the uplink DCCH using AM RLC;

1> include the IE "Identification of received message"; and

1> set the IE "Received message type" to COUNTER CHECK; and

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the UE COUNTER CHECK message in the table "Rejected transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION;

1> when the RRC STATUS message has been submitted to lower layers for transmission:

2> continue with any ongoing processes and procedures as if the invalid COUNTER CHECK message has not been received.

Reference

3GPP TS 25.331 clause 8.1.15.

8.1.8.2.3 Test purpose

To confirm that the UE transmits a COUNTER CHECK RESPONSE message after it receives a COUNTER CHECK message from the SS. To confirm that the UE responds to the reception of an invalid downlink COUNTER CHECK message by transmitting a RRC STATUS message on the uplink DCCH, stating the correct error cause value in message.

8.1.8.2.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH+DTCH_FACH state (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is brought to the CELL_FACH state after a successful outgoing call attempt. The SS transmits an invalid COUNTER CHECK message. This message contains an unexpected critical message extension. The UE shall detect a protocol error and send RRC STATUS message to report this event. Next, the SS transmits a COUNTER CHECK message that includes the current COUNT-C MSB information in each radio access bearer. The UE shall react by sending a COUNTER CHECK RESPONSE message on the uplink DCCH, which does not include "RB COUNT-C information" IE. The SS transmits a COUNTER CHECK message, which includes the current COUNT-C MSB information for each radio bearer but with all the bits reversed. The UE shall send a COUNTER CHECK RESPONSE message on the uplink DCCH, specifying the current COUNT-C information for each radio access bearer established. The SS transmits a COUNTER CHECK message which includes a different radio bearer. The UE shall send a COUNTER CHECK RESPONSE message on the uplink DCCH, specifying the current COUNT-C information for each radio access bearer established.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_FACH state after an outgoing call has been established successfully.
2	←		COUNTER CHECK	See specific message contents for this message
3	→		RRC STATUS	UE shall detect a protocol error and then transmit this message.
4	←		COUNTER CHECK	See specific message content.
5	→		COUNTER CHECK RESPONSE	The message shall not include the IE "RB COUNT-C information".
6	←		COUNTER CHECK	See specific message content.
7	→		COUNTER CHECK RESPONSE	The message shall include the IE "RB COUNT-C information".
8	←		COUNTER CHECK	See specific message content.
9	→		COUNTER CHECK RESPONSE	The message shall include the IE "RB COUNT-C information".

Specific Message Contents

COUNTER CHECK (Step 2)

Information Element	Value/remark
Critical extensions	'FF'H

RRC STATUS (Step 3)

Information Element	Value/remark
Message Type	
Protocol Error Information	
- Protocol Error Cause	Message extension not comprehended

COUNTER CHECK (Step 4)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Next RRC SN
RB COUNT-C MSB information	
- RB identity	20
- COUNT-C MSB uplink	Current COUNT-C MSB for RB#20 in uplink
- COUNT-C MSB downlink	Current COUNT-C MSB for RB#20 in downlink

COUNTER CHECK RESPONSE (Step 5)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	Not checked
RB COUNT-C information	Check to if this IE is absent

COUNTER CHECK (Step 6)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Next RRC SN
RB COUNT-C MSB information	
- RB identity	20
- COUNT-C MSB uplink	Toggle all bits of the current COUNT-C MSB in uplink for RB#20
- COUNT-C MSB downlink	Toggle all bits of the current COUNT-C MSB in downlink for RB#20

COUNTER CHECK RESPONSE (Step 7)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	Not checked
RB COUNT-C information	
- RB identity	Check to see if set to 20
- COUNT-C uplink	Check to see if set to Current COUNT-C for RB#20 in uplink
- COUNT-C downlink	Check to see if set to COUNT-C for RB#20 in downlink

COUNTER CHECK (Step 8)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Next RRC SN
RB COUNT-C MSB information	
- RB identity	Check to see if set to 25
- COUNT-C MSB uplink	Arbitrary COUNT-C MSB in uplink for RB#25
- COUNT-C MSB downlink	Arbitrary COUNT-C MSB in downlink for RB#25

COUNTER CHECK RESPONSE (Step 9)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	Not checked
RB COUNT-C information	
- RB identity	Check to see if set to 20
- COUNT-C uplink	Check to see if set to Current COUNT-C for RB#20 in uplink
- COUNT-C downlink	Check to see if set to COUNT-C for RB#20 in downlink
- RB identity	Check to see if set to 25
- COUNT-C uplink	Check to see if COUNT-C MSB is set to COUNT-C MSB in uplink for RB#25 in step 8 and LSB is fill with '0'
- COUNT-C downlink	Check to see if COUNT-C MSB is set to COUNT-C MSB in downlink for RB#25 in step 8 and LSB is fill with '0'

8.1.8.2.5 Test requirement

After step 2, the UE shall transmit a RRC STATUS message on the uplink DCCH. The protocol error cause shall be set to "Message extension not comprehended".

After step 4 the UE shall transmit a COUNTER CHECK RESPONSE message which does not includes the IE "RB COUNT-C information" to indicate that a matched comparison result is obtained.

After step 6, the UE shall transmit a COUNTER CHECK RESPONSE message which includes the IE "RB COUNT-C information" to report that a mismatch in COUNT-C value is detected in RB#20.

After step 8, the UE shall transmit a COUNTER CHECK RESPONSE message which includes the IE "RB COUNT-C information" to report that RB#25 is not found in variable ESTABLISHED_RABS and RB#20 is not found in IE "RB COUNT-C MSB information".

8.1.8.3 Counter check in CELL_DCH state, with asymmetric RAB

8.1.8.3.1 Definition

8.1.8.3.2 Conformance requirement

When the UE receives a COUNTER CHECK message it shall compare the COUNT-C MSB values received in the IE "RB COUNT-C MSB information" in the COUNTER CHECK message to the COUNT-C MSB values of the corresponding radio bearers.

The UE shall:

1> if no COUNT-C exists for a radio bearer for a given direction (uplink or downlink) because:

2> it is a uni-directional radio bearer configured only for the other direction (downlink or uplink respectively), or

2> it has been configured to RLC-TM mode in one direction (uplink or downlink) and RLC-UM in the other (downlink or uplink respectively),

3> set the COUNT-C in the IE "RB COUNT-C information" in the COUNTER CHECK RESPONSE message, to any value;

1> submit a COUNTER CHECK RESPONSE message to lower layers for transmission on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.1.15.

8.1.8.3.3 Test purpose

To confirm that the UE transmits a COUNTER CHECK RESPONSE message even if COUNT-C does not exist for a radio bearer for a given direction for reasons given in the above section.

8.1.8.3.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CS-DCCH_DCH (state 6-5) or PS-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108, depending on the domain supported by the UE.

Test Procedure

The UE is brought to the CELL_DCH state after a successful outgoing call attempt. SS sends a RADIO BEARER SETUP message to set up an asymmetric radio bearer. UE shall configure accordingly and then reply with a RADIO BEARER SETUP COMPLETE message. Then SS transmits a COUNTER CHECK message. The UE shall send a COUNTER CHECK RESPONSE message on the uplink DCCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_DCH state after an outgoing call has been established successfully.
2	←		RADIO BEARER SETUP	See specific message contents for this message
3	→		RADIO BEARER SETUP COMPLETE	
4	←		COUNTER CHECK	See specific message content.
5	→		COUNTER CHECK RESPONSE	The message shall include the IE "RB COUNT-C information".

Specific Message Contents

RADIO BEARER SETUP (Step 2) (FDD)

The contents of RADIO BEARER SETUP message in this test case is identical to the message sub-type indicated by "Non speech from CELL_DCH to CELL_DCH in CS" or "Speech from CELL_DCH to CELL_DCH in CS" or "Packet to CELL_DCH from CELL_DCH in PS" in [9] TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
RAB information for setup	
- RAB info	
- RAB identity	0000 0101B (for PS domain) or 0000 0001B (for CS domain) The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	PS domain or CS domain (depending on the domain supported by the UE)
- NAS Synchronization Indicator	Not Present
- Re-establishment timer	UseT315 (for PS domain) or UseT314 (for CS domain)
- RB information to setup	
- RB identity	9
- PDCP info	
- Support for lossless SRNS relocation	FALSE
- Max PDCP SN window size	Not present
- PDCP PDU header	Absent
- Header compression information	Not present
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	TM RLC
- Transmission RLC discard	Not Present
- Segmentation indication	False
- CHOICE Downlink RLC mode	UM RLC
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	4
- Logical channel identity	Not Present
- CHOICE RLC size list	Configured
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	9
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	Not Present
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit List
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
Added or Reconfigured TrCH information list	1 DCH added
- Added or Reconfigured UL TrCH information	
- Uplink transport channel type	DCH
- UL Transport channel identity	4
- TFS	
- CHOICE Transport channel type	Dedicated transport channels
- Dynamic Transport format information	
- RLC Size	Reference to TS34.108 clause 6.10 Parameter Set

Information Element	Value/remark
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to TS34.108 clause 6.10 Parameter Set
- CHOICE Logical Channel list	All
- Semi-static Transport Format information	
- Transmission time interval	Reference to TS34.108 clause 6.10 Parameter Set
- Type of channel coding	Reference to TS34.108 clause 6.10 Parameter Set
- Coding Rate	Reference to TS34.108 clause 6.10 Parameter Set
- Rate matching attribute	Reference to TS34.108 clause 6.10 Parameter Set
- CRC size	Reference to TS34.108 clause 6.10 Parameter Set
Added or Reconfigured TrCH information list	1 DCH
Added or Reconfigured DL TrCH information	
- Downlink transport channel type	DCH
- DL Transport channel identity	9
- CHOICE DL parameters	Same as UL
- Uplink transport channel type	DCH
- UL TrCH identity	1
- DCH quality target	
- BLER Quality value	-20 (-2.0)

RADIO BEARER SETUP (Step 2) (3.84 Mcps TDD)

The contents of RADIO BEARER SETUP message in this test case is identical to the message sub-type indicated by "Non speech from CELL_DCH to CELL_DCH in CS" or "Speech from CELL_DCH to CELL_DCH in CS" or "Packet to CELL_DCH from CELL_DCH in PS" in [9] TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
RAB information for setup	
- RAB info	
- RAB identity	0000 0101B (for PS domain) or 0000 0001B (for CS domain) The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	PS domain or CS domain (depending on the domain supported by the UE)
- NAS Synchronization Indicator	Not Present
- Re-establishment timer	UseT315 (for PS domain) or UseT314 (for CS domain)
- RB information to setup	
- RB identity	9
- PDCP info	
- Support for lossless SRNS relocation	FALSE
- Max PDCP SN window size	Not present
- PDCP PDU header	Absent
- Header compression information	Not present
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	TM RLC
- Transmission RLC discard	Not Present
- Segmentation indication	False
- CHOICE Downlink RLC mode	UM RLC
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	4
- Logical channel identity	Not Present
- CHOICE RLC size list	Configured
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	9
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	Not Present
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit List
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7

Information Element	Value/remark
Added or Reconfigured TrCH information list	1 DCH added
- Added or Reconfigured UL TrCH information	
- Uplink transport channel type	DCH
- UL Transport channel identity	4
- TFS	
- CHOICE Transport channel type	Dedicated transport channels
- Dynamic Transport format information	
- RLC Size	Reference to TS34.108 clause 6.10 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to TS34.108 clause 6.10 Parameter Set
- CHOICE Logical Channel list	All
- Semi-static Transport Format information	
- Transmission time interval	Reference to TS34.108 clause 6.10 Parameter Set
- Type of channel coding	Reference to TS34.108 clause 6.10 Parameter Set
- Coding Rate	Reference to TS34.108 clause 6.10 Parameter Set
- Rate matching attribute	Reference to TS34.108 clause 6.10 Parameter Set
- CRC size	Reference to TS34.108 clause 6.10 Parameter Set
Added or Reconfigured TrCH information list	1 DCH
Added or Reconfigured DL TrCH information	
- Downlink transport channel type	DCH
- DL Transport channel identity	9
- CHOICE DL parameters	Same as UL
- Uplink transport channel type	DCH
- UL TrCH identity	1
- DCH quality target	
- BLER Quality value	-20 (-2.0)

RADIO BEARER SETUP (Step 2) (1.28 Mcps TDD)

The contents of RADIO BEARER SETUP message in this test case is identical to the message sub-type indicated by "Non speech from CELL_DCH to CELL_DCH in CS" or "Speech from CELL_DCH to CELL_DCH in CS" or "Packet to CELL_DCH from CELL_DCH in PS" in [9] TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
RAB information for setup	
- RAB info	
- RAB identity	0000 0101B (for PS domain) or 0000 0001B (for CS domain) The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	PS domain or CS domain (depending on the domain supported by the UE)
- NAS Synchronization Indicator	Not Present
- Re-establishment timer	UseT315 (for PS domain) or UseT314 (for CS domain)
- RB information to setup	
- RB identity	9
- PDCP info	
- Support for lossless SRNS relocation	FALSE
- Max PDCP SN window size	Not present
- PDCP PDU header	Absent
- Header compression information	Not present
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	TM RLC
- Transmission RLC discard	Not Present
- Segmentation indication	False
- CHOICE Downlink RLC mode	UM RLC
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	4
- Logical channel identity	Not Present
- CHOICE RLC size list	Configured
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	9
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	Not Present
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit List
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7

Information Element	Value/remark
Added or Reconfigured TrCH information list	1 DCH added
- Added or Reconfigured UL TrCH information	
- Uplink transport channel type	DCH
- UL Transport channel identity	4
- TFS	
- CHOICE Transport channel type	Dedicated transport channels
- Dynamic Transport format information	
- RLC Size	Reference to TS34.108 clause 6.11 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to TS34.108 clause 6.11 Parameter Set
- CHOICE Logical Channel list	All
- Semi-static Transport Format information	
- Transmission time interval	Reference to TS34.108 clause 6.11 Parameter Set
- Type of channel coding	Reference to TS34.108 clause 6.11 Parameter Set
- Coding Rate	Reference to TS34.108 clause 6.11 Parameter Set
- Rate matching attribute	Reference to TS34.108 clause 6.11 Parameter Set
- CRC size	Reference to TS34.108 clause 6.11 Parameter Set
Added or Reconfigured TrCH information list	1 DCH
Added or Reconfigured DL TrCH information	
- Downlink transport channel type	DCH
- DL Transport channel identity	9
- CHOICE DL parameters	Same as UL
- Uplink transport channel type	DCH
- UL TrCH identity	1
- DCH quality target	
- BLER Quality value	-20 (-2.0)

RADIO BEARER SETUP (Step 2) (7.68 Mcps TDD)

The contents of RADIO BEARER SETUP message in this test case is identical to the message sub-type indicated by "Non speech from CELL_DCH to CELL_DCH in CS" or "Speech from CELL_DCH to CELL_DCH in CS" or "Packet to CELL_DCH from CELL_DCH in PS" in [9] TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
RAB information for setup	
- RAB info	
- RAB identity	0000 0101B (for PS domain) or 0000 0001B (for CS domain) The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	PS domain or CS domain (depending on the domain supported by the UE)
- NAS Synchronization Indicator	Not Present
- Re-establishment timer	UseT315 (for PS domain) or UseT314 (for CS domain)
- RB information to setup	
- RB identity	9
- PDCP info	
- Support for lossless SRNS relocation	FALSE
- Max PDCP SN window size	Not present
- PDCP PDU header	Absent
- Header compression information	Not present
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	TM RLC
- Transmission RLC discard	Not Present
- Segmentation indication	False
- CHOICE Downlink RLC mode	UM RLC
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	4
- Logical channel identity	Not Present
- CHOICE RLC size list	Configured
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	9
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	Not Present
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit List
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7

Information Element	Value/remark
Added or Reconfigured TrCH information list	1 DCH added
- Added or Reconfigured UL TrCH information	
- Uplink transport channel type	DCH
- UL Transport channel identity	4
- TFS	
- CHOICE Transport channel type	Dedicated transport channels
- Dynamic Transport format information	
- RLC Size	Reference to TS34.108 clause 6.11.6 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to TS34.108 clause 6.11.6 Parameter Set
- CHOICE Logical Channel list	All
- Semi-static Transport Format information	
- Transmission time interval	Reference to TS34.108 clause 6.11.6 Parameter Set
- Type of channel coding	Reference to TS34.108 clause 6.11.6 Parameter Set
- Coding Rate	Reference to TS34.108 clause 6.11.6 Parameter Set
- Rate matching attribute	Reference to TS34.108 clause 6.11.6 Parameter Set
- CRC size	Reference to TS34.108 clause 6.11.6 Parameter Set
Added or Reconfigured TrCH information list	1 DCH
Added or Reconfigured DL TrCH information	
- Downlink transport channel type	DCH
- DL Transport channel identity	9
- CHOICE DL parameters	Same as UL
- Uplink transport channel type	DCH
- UL TrCH identity	1
- DCH quality target	
- BLER Quality value	-20 (-2.0)

COUNTER CHECK (Step 4)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Next RRC SN
RB COUNT-C MSB information	
- RB COUNT-C MSB information	
- RB identity	9
- COUNT-C MSB uplink	Arbitrary
- COUNT-C MSB downlink	Set to current COUNT-C for RB#9 in downlink

COUNTER CHECK RESPONSE (Step 5)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	Not checked
RB COUNT-C information	
- RB identity	Check to see if set to 9
- COUNT-C uplink	Check to see if it is present
- COUNT-C downlink	Check to see if it is present

8.1.8.3.5 Test requirement

After step 2, the UE shall transmit a RADIO BEARER SETUP COMPLETE message on the uplink DCCH.

After step 4, the UE shall transmit a COUNTER CHECK RESPONSE message.

8.1.9 Signalling Connection Release Indication

8.1.9.1 Definition

8.1.9.2 Conformance requirement

The UE shall, on receiving a request to release (abort) the signalling connection from upper layers for a specific CN domain:

1> if a signalling connection in the variable ESTABLISHED_SIGNALLING_CONNECTIONS for the specific CN domain identified with the IE "CN domain identity" exists:

2> initiate the signalling connection release indication procedure.

1> otherwise:

…

The UE shall:

1> set the IE "CN Domain Identity" to the value indicated by the upper layers. The value of the IE indicates the CN domain whose associated signalling connection the upper layers are indicating to be released;

1> remove the signalling connection with the identity indicated by upper layers from the variable ESTABLISHED_SIGNALLING_CONNECTIONS;

1> transmit a SIGNALLING CONNECTION RELEASE INDICATION message on DCCH using AM RLC.

When the SIGNALLING CONNECTION RELEASE INDICATION message has been submitted to lower layers for transmission the procedure ends.

In order to establish an MM connection, the mobile station proceeds as follows (TS 24 008 clause 4.5.1.1, 4.5.1.2, 4.5.3.1)

If no RR connection exists, the MM sublayer requests the RR sublayer to establish an RR connection and enters MM sublayer state WAIT FOR RR CONNECTION (MM CONNECTION). This request contains an establishment cause and a CM SERVICE REQUEST message. When the establishment of an RR connection is indicated by the RR sublayer, the MM sublayer of the mobile station starts timer T3230, gives an indication to the CM entity that requested the MM connection establishment, and enters MM sublayer state WAIT FOR OUTGOING MM CONNECTION.

If T3230 expires (i.e. no response is given but a RR connection is available) the MM connection establishment is aborted and the requesting CM sublayer is informed. If no other MM connection exists then the mobile station shall proceed as described in clause 4.5.3.1 for release of the RR connection. Otherwise the mobile station shall return to the MM sublayer state where the request of an MM connection was received, i.e. to MM sublayer state MM connection active. Other ongoing MM connections (if any) shall not be affected.

If all MM connections are released by their CM entities, and no RRLP procedure (see 3GPP TS 04.31 [23b]) and no LCS procedure over RRC (see 3GPP TS 25.331 [23c]) is ongoing, the mobile station shall set timer T3240 and enter the state WAIT FOR NETWORK COMMAND, expecting the release of the RR connection.

The UE initiates the Service request procedure by sending a SERVICE REQUEST message. The timer T3317 shall be started after the SERVICE REQUEST message has been sent and the UE enters the GMM-SERVICE-REQUEST-INITIATED is entered. The SERVICE REQUEST message shall contain the valid P-TMSI and the Service type shall indicate either signalling or paging response(TS 24.008 clause 4.7.13.1). The following abnormal cases can be identified(TS 24.008 clause 4.7.13.5).

c) T3317 expired

The UE shall enter GMM-REGISTERED state.

If the UE is in PMM-IDLE state then the procedure shall be aborted and the UE shall initiate a PS signalling connection release.

Reference

3GPP TS 25.331 clause 8.1.14, TS 24.008 clause 4.5.1.1, 4.5.1.2, 4.5.3.1, 4.7.13.1, 4.7.13.5.

8.1.9.3 Test purpose

To confirm that the UE transmits a SIGNALLING CONNECTION RELEASE INDICATION message after upper layer requests to release its signalling connection.

8.1.9.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by attempting to make an outgoing call. Then the UE shall establish an RRC connection and transmit a SERVICE REQUEST message or a CM SERVICE REQUEST message using the INITIAL DIRECT TRANSFER message depending on supported CN domain. The SS does not respond to this message, and the UE shall send a SIGNALLING CONNECTION RELEASE INDICATION message which includes the CN domain identity with the same value as that in the INITIAL DIRECT TRANSFER message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE initiates an outgoing call.
2	→		RRC CONNECTION REQUEST	
3	←		RRC CONNECTION SETUP	
4				The UE configures the layer 2 and layer 1.
5	→		RRC CONNECTION SETUP COMPLETE	
6	→		INITIAL DIRECT TRANSFER	Depending on supported CN domain, includes SERVICE REQUEST message (PS domain) or CM SERVICE REQUEST message (CS domain) is embedded in INITIAL DIRECT TRANSFER message.
7				The SS does not respond and waits for T3317 (PS domain) or T3230+T3240 (CS domain).
8	→		SIGNALLING CONNECTION RELEASE INDICATION	The timing of this message is not checked.

Specific Message Content

SIGNALLING CONNECTION RELEASE INDICATION (Step 8)

Information Element	Value/remark
CN domain identity	Check to see if this value is the same as in the uplink INITIAL DIRECT TRANSFER message.

8.1.9.5 Test requirement

After step 7 the UE shall transmit a SIGNALLING CONNECTION RELEASE INDICATION message which includes the same CN domain identity as that found in the INITIAL DIRECT TRANSFER message.

8.1.9a Signalling Connection Release Indication (RLC re-establishment): CS signalling connection release

8.1.9a.1 Definition

8.1.9a.2 Conformance requirement

If a re-establishment of RLC on signalling radio bearer RB2 occurs before the successful delivery of the SIGNALLING CONNECTION RELEASE INDICATION message has been confirmed by RLC, the UE shall:

1> retransmit the SIGNALLING CONNECTION RELEASE INDICATION message on the uplink DCCH using AM RLC on signalling radio bearer RB2.

Reference

3GPP TS 25.331 clause 8.1.14.2a.

8.1.9a.3 Test purpose

To confirm that the UE re-transmits a SIGNALLING CONNECTION RELEASE INDICATION message after it re-establishes the RLC entity on signalling radio bearer RB2 if SRNS relocation occurs before the successful delivery of SIGNALLING CONECTION RELEASE INDICATION message.

8.1.9a.4 Method of test

Initial Condition

System Simulator: 1 cells – Cell 1.

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in CELL_DCH mode. The SS transmits a DOWNLINK DIRECT TRANSFER message. This message contains a NAS message (AUTHENTICATION REQUEST for CS domain or AUTHENTICATION AND CIPHERING REQUEST for PS domain). The UE shall transmit an UPLINK DIRECT TRANSFER message (AUTHENTICATION RESPONSE) using AM on DCCH. After SS responses with a DOWNLINK DIRECT TRANSFER message (AUTHENTICATION REJECT), SS shall set the RLC entity for SRB2 to stop and wait for T3240 to expire in the UE. The UE shall send a SIGNALLING CONNECTION RELEASE INDICATION message which includes the CN domain identity with the same value as that in the UPLINK DIRECT TRANSFER message. But SS do not respond with STATUS PDU for the AM DATA PDU with POLL. The SS then sends a UTRAN MOBILITY INFORMATION message on SRB1 requesting the UE to do a SRNS relocation. SS shall set the RLC entity for SRB2 to continue. The UE shall send a UTRAN MOBILITY INFORMATION CONFIRM message. The UE shall re-transmit a SIGNALLING CONNECTION RELEASE INDICATION message on the uplink DCCH using AM RLC.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		DOWNLINK DIRECT TRANSFER (AUTHENTICATION REQUEST)	Depending on supported CN domain, AUTHENTICATION AND CIPHERING REQUEST message (PS domain) or AUTHENTICATION REQUEST (CS domain) message is embedded in DOWNLINK DIRECT TRANSFER message. An invalid SQN is provided in this message.
2	→		UPLINK DIRECT TRANSFER (AUTHENTICATION RESPONSE)	
3	←		DOWNLINK DIRECT TRANSFER (AUTHENTICATION REJECT)	After SS transmits this message, SS sets the RLC entity for SRB2 to stop and waits for T3240 to expire.
4	→		SIGNALLING CONNECTION RELEASE INDICATION	
5	←		UTRAN MOBILITY INFORMATION	. SS sets RLC for SRB2 to continue.
6	→		UTRAN MOBILITY INFORMATION CONFIRM	UE sends this message on uplink DCCH on AM.
7	→		SIGNALLING CONNECTION RELEASE INDICATION	UE re-transmits this message.

Specific Message Content

DOWNLINK DIRECT TRANSFER (Step 1)

Use the same message sub-type as found in TS 34.108 clause 9, with the following exceptions.

Information Element	Value/remark
CN domain identity	CS domain or PS domain
NAS message	AUTHENTICATION REQUEST (CS domain) or AUTHENTICATION AND CIPHERING REQUEST (PS domain)

UPLINK DIRECT TRANSFER (Step 2)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
CN domain identity	CS domain or PS domain
NAS message	AUTHENTICATION FAILURE(CS domain) or AUTHENTICATION AND CIPHERING FAILURE (PS domain)
Measured results on RACH	Not checked

UTRAN MOBILITY INFORMATION (Step 5)

Use the same message sub-type found in [9] TS 34.108 clause 9 with the following exception:

Information Element	Value/remark
Ciphering mode info	This presence of this IE is dependent on IXIT statements in TS 34.123-2. If ciphering is indicated to be active, this IE present with the values of the sub IEs as stated below. Else, this IE is omitted.
- Ciphering mode command	Start/restart
- Ciphering algorithm	UEA0 or UEA1. The indicated algorithm must be one of the algorithms supported by the UE as indicated in the IE "security capability" in the RRC CONNECTION SETUP COMPLETE message.
- Ciphering activation time for DPCH	(256+CFN-(CFN MOD 8 + 8))MOD 256, this IE is set to "Not present" if only PS RABs are established during the initial setup procedure.
- Radio bearer downlink ciphering activation time info	
- Radio bearer activation time	
- RB identity	1
- RLC sequence number	Current RLC SN + 2
- RB identity	2
- RLC sequence number	Current RLC SN + 2
- RB identity	3
- RLC sequence number	Current RLC SN + 2
- RB identity	4
- RLC sequence number	Current RLC SN + 2
- RB identity	20, this IE is set to "Not present" if PS RAB is not established during the initial setup procedure.
- RLC sequence number	Current RLC SN + 2
Integrity protection mode info	
- Integrity protection mode command	Start
- Downlink integrity protection activation info	Not Present
- Integrity protection algorithm	UIA1
- Integrity protection initialisation number	SS selects an arbitrary 32 bits number for FRESH. The first/ leftmost bit of the bit string contains the most significant bit of the FRESH.
New U-RNTI	
- SRNC identity	0000 0000 0010B
- S-RNTI	0000 0000 0000 0000 0001B

UTRAN MOBILITY INFORMATION CONFIRM (Step 6)

Check that the UE uses the same message sub-type found in TS 34.108 clause 9.

SIGNALLING CONNECTION RELEASE INDICATION (Step 7)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
CN domain identity	Check to see if this value is the same as in the UPLINK DIRECT TRANSFER message.

8.1.9a.5 Test requirement

After step 1 the UE shall transmit UPLINK DIRECT TRANSFER messages using AM on DCCH.

After step 5, the UE shall transmit UTRAN MOBILITY INFORMATION CONFIRM message using uplink DCCH on AM RLC.

After step 6 the UE shall re-transmit a SIGNALLING CONNECTION RELEASE INDICATION message which includes the same CN domain identity as that found in the UPLINK DIRECT TRANSFER message.

8.1.9b Signalling Connection Release Indication (RLC re-establishment): PS signalling connection release

8.1.9b.1 Definition

8.1.9b.2 Conformance requirement

If a re-establishment of RLC on signalling radio bearer RB2 occurs before the successful delivery of the SIGNALLING CONNECTION RELEASE INDICATION message has been confirmed by RLC, the UE shall:

1> retransmit the SIGNALLING CONNECTION RELEASE INDICATION message on the uplink DCCH using AM RLC on signalling radio bearer RB2.

Reference

3GPP TS 25.331 clause 8.1.14.2a.

8.1.9b.3 Test purpose

To confirm that the UE re-transmits a SIGNALLING CONNECTION RELEASE INDICATION message after it re-establishes the RLC entity on signalling radio bearer RB2 if SRNS relocation occurs before the successful delivery of SIGNALLING CONECTION RELEASE INDICATION message.

8.1.9b.4 Method of test

Initial Condition

System Simulator: 1 cells – Cell 1 is active.

UE: Registered Idle Mode on PS (state 3) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in idle mode of cell 1. SS requests operator to initial an outgoing PS call. UE shall send RRC CONNECTION REQUEST message on the uplink CCCH. Then the SS shall respond with a RRC CONNECTION SETUP message, which request the UE to enter CELL_DCH state, on a downlink CCCH. The UE shall then send a RRC CONNECTION SETUP COMPLETE message on the uplink DCCH. After this, the UE shall send a INITIAL DIRECT TRANSFER message to SS. This message contains a NAS message (SERVICE REQUEST). After the SS has acknowledged the INITIAL DIRECT TRANSFER message, the SS shall set the RLC entity for SRB3 to stop wait for T3317 to expire in the UE. The UE shall send a SIGNALLING CONNECTION RELEASE INDICATION message which includes the CN domain identity with the same value as that in the INITIAL DIRECT TRANSFER message. But SS do not respond with STATUS PDU for the AM DATA PDU with POLL. The SS then sends a UTRAN MOBILITY INFORMATION message requesting the UE to do SRNS relocation. The UE shall send a UTRAN MOBILITY INFORMATION CONFIRM message. The UE shall re-transmit a SIGNALLING CONNECTION RELEASE INDICATION message on the uplink DCCH using AM RLC.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	→		RRC CONNECTION REQUEST	SS request the operator to make an outgoing PS call.
2	←		RRC CONNECTION SETUP	
3	→		RRC CONNECTION SETUP COMPLETE	
4	→		INITIAL DIRECT TRANSFER (SERVICE REQUEST)	After SS acknowledges this message, SS set the RLC entity for SRB2 to stop and waits for T3317to expire.
5	→		SIGNALLING CONNECTION RELEASE INDICATION	SS do not send any RLC response (STATUS PDU).
6	←		UTRAN MOBILITY INFORMATION	SS sets RLC for SRB2 to continue.
7	→		UTRAN MOBILITY INFORMATION CONFIRM	
8	→		SIGNALLING CONNECTION RELEASE INDICATION	UE re-transmits this message.

Specific Message Content

RRC CONNECTION REQUEST (Step 1)

Check that the UE sends the same message sub-type as found in TS 34.108 clause 9, with the following exceptions.

Information Element	Value/remark
Establishment cause	Originating Interactive Call or Originating Background Call or OriginatingSubscribedTrafficCall
Measured results on RACH	Not checked.

RRC CONNECTION SETUP (Step 2)

Use the same message sub-type "RRC CONNECTION SETUP message: UM (Transition to CELL_DCH)"as found in TS 34.108 clause 9.

RRC CONNECTION SETUP COMPLETE (Step 3)

Check that the UE sends the same message sub-type as found in TS 34.108 clause 9.

INITIAL DIRECT TRANSFER (Step 4)

Check that the UE sends the same message sub-type as found in TS 34.108 clause 9, with the following exceptions.

Information Element	Value/remark
CN domain identity	PS domain
NAS message	SERVICE REQUEST

UTRAN MOBILITY INFORMATION (Step 5)

Use the same message sub-type found in [9] TS 34.108 clause 9 with the following exception:

Information Element	Value/remark
Ciphering mode info	This presence of this IE is dependent on IXIT statements in TS 34.123-2. If ciphering is indicated to be active, this IE present with the values of the sub IEs as stated below. Else, this IE is omitted.
- Ciphering mode command	Start/restart
- Ciphering algorithm	UEA0 or UEA1. The indicated algorithm must be one of the algorithms supported by the UE as indicated in the IE "security capability" in the RRC CONNECTION SETUP COMPLETE message.
- Ciphering activation time for DPCH	(256+CFN-(CFN MOD 8 + 8))MOD 256, this IE is set to "Not present" if only PS RABs are established during the initial setup procedure.
- Radio bearer downlink ciphering activation time info	
- Radio bearer activation time	
- RB identity	1
- RLC sequence number	Current RLC SN + 2
- RB identity	2
- RLC sequence number	Current RLC SN + 2
- RB identity	3
- RLC sequence number	Current RLC SN + 2
- RB identity	4
- RLC sequence number	Current RLC SN + 2
- RB identity	20, this IE is set to "Not present" if PS RAB is not established during the initial setup procedure.
- RLC sequence number	Current RLC SN + 2
Integrity protection mode info	
- Integrity protection mode command	Start
- Downlink integrity protection activation info	Not Present
- Integrity protection algorithm	UIA1
- Integrity protection initialisation number	SS selects an arbitrary 32 bits number for FRESH. The first/ leftmost bit of the bit string contains the most significant bit of the FRESH.
New U-RNTI	
- SRNC identity	0000 0000 0010B
- S-RNTI	0000 0000 0000 0000 0001B

UTRAN MOBILITY INFORMATION CONFIRM (Step 4)

Check that the UE uses the same message sub-type found in TS 34.108 clause 9.

SIGNALLING CONNECTION RELEASE INDICATION (Step 8)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
CN domain identity	Check to see if this value is the same as in the INITIAL DIRECT TRANSFER message.

8.1.9b.5 Test requirement

In step 1, the UE shall transmit RRC CONNECTION REQUEST message using TM RLC on uplink CCCH.

After step 2, the UE shall transmit RRC CONNECTION SETUP COMPLETE message using AM RLC on uplink DCCH.

After step 3 the UE shall transmit INITIAL DIRECT TRANSFER messages using AM on DCCH.

After step 6, the UE shall transmit UTRAN MOBILITY INFORMATION CONFIRM message using uplink DCCH on AM RLC.

After step 7 the UE shall re-transmit a SIGNALLING CONNECTION RELEASE INDICATION message which includes the same CN domain identity as that found in the INITIAL DIRECT TRANSFER message.

8.1.9c Signalling Connection Release Indication in Cell_FACH/Cell_DCH state when the upper layers of the UE indicate that there is no more PS data for a prolonged period

8.1.9c.1 Definition

The UE behaves correctly when in Cell_FACH/Cell_DCH and the upper layers of the UE indicate that there is no more PS data for a prolonged period.

8.1.9c.2 Conformance requirement

In addition, if the timer T323 value is stored in the IE "UE Timers and constants in connected mode" in the variable TIMERS_AND_CONSTANTS, and if there is no CS domain connection indicated in the variable ESTABLISHED_SIGNALLING_CONNECTIONS, the UE may:

1> if the upper layers indicate that there is no more PS data for a prolonged period:

2> if timer T323 is not running:

3> if the UE is in CELL_DCH state or CELL_FACH state; or

3> if the UE is in CELL_PCH state or URA_PCH state and the DRX cycle length in use is shorter than the shorter CN domain specific DRX cycle length for the PS domain and CS domain; or

3> if the UE is in CELL_PCH state or URA_PCH state and the DRX cycle length in use is equal to or longer than the shorter CN domain specific DRX cycle length for the PS domain and CS domain, and V316 < 1:

4> if the UE is in CELL_PCH state or URA_PCH state and the DRX cycle length in use is equal to or longer than the shorter CN domain specific DRX cycle length for the PS domain and CS domain:

5> increment V316 by 1.

4> set the IE "CN Domain Identity" to PS domain;

4> set the IE "Signalling Connection Release Indication Cause" to "UE Requested PS Data session end";

4> transmit a SIGNALLING CONNECTION RELEASE INDICATION message on DCCH using AM RLC;

4> start the timer T323;

3> the procedure ends.

The UE shall be inhibited from sending the SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end" whilst timer T323 is running.

The UE shall not locally release the PS signalling connection after it has sent the SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end".

At transmission or reception of PS data or signalling on SRB3 or upwards, or entering RRC Connected mode, or successful SRNS relocation, the UE shall set V316 to zero.

…

When timer T323 expires:

1> the UE may determine whether any subsequent indications from upper layers that there is no more PS data for a prolonged period in which case it triggers the transmission of a single SIGNALLING CONNECTION RELEASE INDICATION message according with clause 8.1.14.2;

Reference

3GPP TS 25.331 clauses 8.1.14.2 and 8.1.14.4

8.1.9c.3 Test purpose

1. To confirm that when the UE is in Cell_FACH/Cell_DCH and the upper layers of the UE indicate that there is no more PS data for a prolonged period and the UE transmits the SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end":

   - the IE "CN Domain Identity" is set to PS domain

   - the UE transmits the SIGNALLING CONNECTION RELEASE INDICATION message on DCCH using AM RLC

2. To confirm that when the upper layers of the UE indicate that there is no more PS data for a prolonged period the UE does not transmit the SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end" while T323 is running.

3. To confirm that after the UE transmits the SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end" it does not release the signalling connection.

4. To confirm that after the UE transmits the SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end" the UE can be successfully reconfigured to cell_PCH state.

8.1.9c.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE:

IF the UE supports transmitting Signalling Connection Release Indication with IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end" in cell_DCH

The UE is in state PS-DCCH+DTCH-DCH (state 6-10) as specified in clause 7.4 of TS 34.108.

ELSE

The UE is in state PS-DCCH+DTCH-FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

T323 is not running

Test Procedure

The upper layers of the UE indicate that there is no more PS data for a prolonged period.
The UE transmits a SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end" on DCCH using AM RLC.
Before timer T323 expires the upper layers of the UE indicate that there is no more PS data for a prolonged period. The UE shall not transmit a SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end" before T323 expires.

To confirm that the UE has not released its PS signalling connection the SS sends a IDENTITY REQUEST with IE "Identity type" set to IMSI. The UE answers with a IDENTITY RESPONSE with the IE "Mobile identity" set to IMSI. The UE is transitioned to cell_PCH state
The SS releases the RRC connection.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is triggered to indicate that there is no more PS data for a prolonged period. (Note 1)
2	→		SIGNALLING CONNECTION RELEASE INDICATION	IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end". The message is sent on DCCH using AM/RLC. (Note 2)
3				The UE is triggered to indicate that there is no more PS data for a prolonged period. (Note 1) before T323 expires.
4				Wait until T323 expires. (Note 3)
5	←		IDENTITY REQUEST	Identity type = IMSI
6	→		IDENTITY RESPONSE	Mobile identity = IMSI
7				The UE is transitioned to cell_PCH state using procedure from clause 7.4.2.7.1 TS 34.108.
8			CALL C.4	If the test result of C.4 indicates that UE is in CELL_PCH state, the test passes, otherwise it fails.

Note 1: This indication may be triggered with the AT command +CNMPSD or any alternative way.
Note 2: The timing between steps 1 and 2 is not checked.
Note 3: After T323 expiry the UE might send a SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end". The message shall be ignored by the SS.

Specific Message Content

System Information Block type 1 (preamble)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T323	s120

SIGNALLING CONNECTION RELEASE INDICATION on DCCH (Step 2)

Information Element	Value/remark
CN information elements	
CN domain identity	PS domain
Signalling Connection Release Indication Cause	UE Requested PS Data session end

IDENTITY REQUEST (Step 5)

Information Element	Value/remark
Identity type 2	IMSI

IDENTITY RESPONSE (Step 6)

Information Element	Value/remark
Mobile identity	IMSI

8.1.9c.5 Test requirement

In Step 2 the UE transmits the SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end" on DCCH using RLC AM.

In Step 4 the UE does not transmit the SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end" while T323 is running.

In Step 6 the UE transmits a IDENTITY RESPONSE message.

In Step 8 procedure C.4 confirms that the UE is in CELL_PCH state.

8.1.9d No Signalling connection release indication in CELL_DCH state when the upper layers of the UE indicate that there is no more PS data for a prolonged period, CS connection exists

8.1.9d.1 Definition

The UE behaves correctly when in CELL_DCH and a CS domain signalling connection exists and the upper layers of the UE indicate that there is no more PS data for a prolonged period.

8.1.9d.2 Conformance requirement

In addition, if the timer T323 value is stored in the IE "UE Timers and constants in connected mode" in the variable TIMERS_AND_CONSTANTS, and if there is no CS domain connection indicated in the variable ESTABLISHED_SIGNALLING_CONNECTIONS, the UE may:

1> if the upper layers indicate that there is no more PS data for a prolonged period:

2> if timer T323 is not running:

3> if the UE is in CELL_DCH state or CELL_FACH state; or

3> if the UE is in CELL_PCH state or URA_PCH state and the DRX cycle length in use is shorter than the shorter CN domain specific DRX cycle length for the PS domain and CS domain; or

3> if the UE is in CELL_PCH state or URA_PCH state and the DRX cycle length in use is equal to or longer than the shorter CN domain specific DRX cycle length for the PS domain and CS domain, and V316 < 1:

4> if the UE is in CELL_PCH state or URA_PCH state and the DRX cycle length in use is equal to or longer than the shorter CN domain specific DRX cycle length for the PS domain and CS domain:

5> increment V316 by 1.

4> set the IE "CN Domain Identity" to PS domain;

4> set the IE "Signalling Connection Release Indication Cause" to "UE Requested PS Data session end";

4> transmit a SIGNALLING CONNECTION RELEASE INDICATION message on DCCH using AM RLC;

4> start the timer T323;

3> the procedure ends.

The UE shall be inhibited from sending the SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end" whilst timer T323 is running.

The UE shall not locally release the PS signalling connection after it has sent the SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end".

At transmission or reception of PS data or signalling on SRB3 or upwards, or entering RRC Connected mode, or successful SRNS relocation, the UE shall set V316 to zero.

…

When timer T323 expires:

1> the UE may determine whether any subsequent indications from upper layers that there is no more PS data for a prolonged period in which case it triggers the transmission of a single SIGNALLING CONNECTION RELEASE INDICATION message according with clause 8.1.14.2;

1> the procedure ends.

Reference

3GPP TS 25.331 clauses 8.1.14.2, 8.1.14.4

8.1.9d.3 Test purpose

1. To confirm thatt when the UE does not transmit the SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end" after T323 expires when:
- the UE is in CELL_DCH, and
- before T323 expiry and before the CS domain connection is set up the upper layers of the UE indicate that there is no more PS data for a prolonged period, and
- a CS domain connection is set up before T323 expiresy

2. To confirm that when the UE does not transmit the SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end" when:
- the UE is in CELL_DCH, and
- a CS domain connection exists, and
- the upper layers of the UE indicate that there is no more PS data for a prolonged.

3. To confirm that when the UE is in CELL_DCH when the upper layers of the UE indicate that there is no more PS data for a prolonged period the UE does not release its PS signalling connection.

8.1.9d.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: The UE is in state PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108.

T323 is not running

Test Procedure

The upper layers of the UE indicate that there is no more PS data for a prolonged period.
The UE transmits a SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end" on DCCH using AM RLC and starts timer T323.
Before T323 expires the upper layers of the UE indicate that there is no more PS data for a prolonged period.
Before T323 expires the UE is transitioned to state 6-14 (PS+CS-DCCH+DTCH_DCH) using procedure P24.
Wait 25s to confirm that the UE does not transmits a SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end".
The upper layers of the UE indicate that there is no more PS data for a prolonged period.
Wait 25s to confirm that the UE does not transmits a SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end".

To confirm that the UE has not released its PS signalling connection the SS sends aan IDENTITY REQUEST with IE "Identity type" set to IMSI. The UE answers with aan IDENTITY RESPONSE with the IE "Mobile identity" set to IMSI.
The SS releases the RRC connection.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is triggered to indicate that there is no more PS data for a prolonged period. (Note 1)
2	→		SIGNALLING CONNECTION RELEASE INDICATION	IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end". The message is sent on DCCH using AM/RLC.
3				Before T323 expires the UE is triggered to indicate that there is no more PS data for a prolonged period. (Note 1)
4				Before T323 expires The UE is transitioned to state 6-14 (PS+CS-DCCH+DTCH_DCH) as specified in procedure P24 in clause 7.4.2.9 in TS 34.108
5				Wait 25s. The UE does not transmit SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end".
6				The UE is triggered to indicate that there is no more PS data for a prolonged period. (Note 1)
7				Wait 25s. The UE does not transmit SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end".
8	←		IDENTITY REQUEST	Identity type = IMSI Message is sent over the PS domain.
9	→		IDENTITY RESPONSE	Mobile identity = IMSI Message is received over the PS domain.
10	←		RRC Connection Release	The SS releases the RRC connection.
11	→		RRC Connection Release Complete	
Note 1: This indication may be triggered with the AT command +CNMPSD or any alternative way.				

Specific Message Content

System Information Block type 1 (preamble)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T323	s20

IDENTITY REQUEST (Step 8)

Information Element	Value/remark
Identity type 2	IMSI

IDENTITY RESPONSE (Step 9)

Information Element	Value/remark
Mobile identity	IMSI

8.1.9d.5 Test requirement

After Step 3 the UE does not transmit the SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end.

At Step 9 the UE transmits aan IDENTITY RESPONSE message over the PS domain.

8.1.9e Signalling Connection Release Indication in CELL_PCH state when the upper layers of the UE indicate that there is no more PS data for a prolonged period

8.1.9e.1 Definition

The UE behaves correctly when in CELL_PCH and the upper layers of the UE indicate that there is no more PS data for a prolonged period.

8.1.9e.2 Conformance requirement

In addition, if the timer T323 value is stored in the IE "UE Timers and constants in connected mode" in the variable TIMERS_AND_CONSTANTS, and if there is no CS domain connection indicated in the variable ESTABLISHED_SIGNALLING_CONNECTIONS, the UE may:

1> if the upper layers indicate that there is no more PS data for a prolonged period:

2> if timer T323 is not running:

3> if the UE is in CELL_DCH state or CELL_FACH state; or

3> if the UE is in CELL_PCH state or URA_PCH state and the DRX cycle length in use is shorter than the shorter CN domain specific DRX cycle length for the PS domain and CS domain; or

3> if the UE is in CELL_PCH state or URA_PCH state and the DRX cycle length in use is equal to or longer than the shorter CN domain specific DRX cycle length for the PS domain and CS domain, and V316 < 1:

4> if the UE is in CELL_PCH state or URA_PCH state and the DRX cycle length in use is equal to or longer than the shorter CN domain specific DRX cycle length for the PS domain and CS domain:

5> increment V316 by 1.

4> set the IE "CN Domain Identity" to PS domain;

4> set the IE "Signalling Connection Release Indication Cause" to "UE Requested PS Data session end";

4> transmit a SIGNALLING CONNECTION RELEASE INDICATION message on DCCH using AM RLC;

4> start the timer T323;

3> the procedure ends.

The UE shall be inhibited from sending the SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end" whilst timer T323 is running.

The UE shall not locally release the PS signalling connection after it has sent the SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end".

At transmission or reception of PS data or signalling on SRB3 or upwards, or entering RRC Connected mode, or successful SRNS relocation, the UE shall set V316 to zero.

…

When timer T323 expires:

1> the UE may determine whether any subsequent indications from upper layers that there is no more PS data for a prolonged period in which case it triggers the transmission of a single SIGNALLING CONNECTION RELEASE INDICATION message according with clause 8.1.14.2;

1> the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.14.2, 8.1.14.4

8.1.9e.3 Test purpose

1. To confirm that when the UE is in CELL_PCH state and the DRX cycle length in use is equal to or longer than the shorter CN domain specific DRX cycle length for the PS domain and CS domain, and V316 >= 1 the UE does not send the SIGNALLING CONNECTION RELEASE INDICATION with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end".

8.1.9e.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE:

The UE is in state CELL_PCH (state 6-12) as specified in clause 7.4 of TS 34.108. PDP context is activated.

T323 is not running and V316=0.

Test Procedure

The upper layers of the UE indicate that there is no more PS data for a prolonged period.
The UE transitions to CELL_FACH state and transmits a CELL UPDATE message with the cause set to "uplink data transmission" in IE "Cell update cause".
The SS sends a CELL UPDATE CONFIRM message to the UE with the RRC state indicator set to CELL_FACH and a new C-RNTI.
The UE transmits a UTRAN MOBILITY INFORMATION CONFIRM and stays in CELL_FACH state.
The UE transmits a SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end" on DCCH using AM RLC and starts timer T323. V316 is incremented.
The SS sends a RADIO BEARER RECONFIGURATION message to the UE with RRC State Indicator set to CELL_PCH. The UE sends a RADIO BEARER RECONFIGURATION COMPLETE message to the SS and transitions to CELL_PCH state.
After timer T323 expires the upper layers of the UE are triggered to indicate that there is no more PS data for a prolonged period.
The SS waits 10s. The UE shall not transmit a SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end".
The SS confirms that the UE is in CELL_PCH state.

The SS releases the RRC connection.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is triggered to indicate that there is no more PS data for a prolonged period. (Note 1) (V316=0)
2	→		CELL UPDATE	The UE moves to CELL FACH state and transmit this message which is set to "uplink data transmission" in IE "Cell update cause".
3	←		CELL UPDATE CONFIRM	Includes C-RNTI
4	→		UTRAN MOBILITY INFORMATION CONFIRM	
5	→		SIGNALLING CONNECTION RELEASE INDICATION	IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end". The message is sent on DCCH using AM/RLC. (V316 is incremented by 1 and T323 is started)
6	←		RADIO BEARER RECONFIGURATION	RRC State Indicator = CELL_PCH
7	→		RADIO BEARER RECONFIGURATION COMPLETE	
8				After T323 expires, the UE is triggered to indicate that there is no more PS data for a prolonged period. (Note 1)
9				Wait for 10s. The UE does not transmit SIGNALLING CONNECTION RELEASE INDICATION message with the IE “Signalling Connection Release Indication Cause” set to “UE Requested PS Data session end” as V316 = 1
10			CALL C.4	If the test result of C.4 indicates that UE is in CELL_PCH state, the test passes, otherwise it fails.
Note 1: This indication may be triggered with the AT command +CNMPSD or any alternative way				

Specific Message Content

System Information Block type 1 (preamble)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T323	s5

PHYSICAL CHANNEL RECONFIGURATION (procedure 6-12 preamble)

Information Element	Value/remark
UTRAN DRX cycle length coefficient	7

CELL UPDATE (Step 2)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
Cell Update Cause	Check to see if set to 'uplink data transmission'

CELL UPDATE CONFIRM(Step 3)

Information Element	Value/remark
RRC State Indicator New C-RNTI	CELL_FACH '1010 1010 1010 1010'

SIGNALLING CONNECTION RELEASE INDICATION on DCCH(Step 5)

Information Element	Value/remark
CN information elements	
CN domain identity	PS domain
Signalling Connection Release Indication Cause	UE Requested PS Data session end

RADIO BEARER RECONFIGURATION (Step 6)

Information Element	Value/remark
RRC State Indicator	CELL_PCH
Cell id	Cell id of Cell 1
Frequency info	Not present

8.1.9e.5 Test requirement

In Step 5 the UE transmits the SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end" on DCCH using RLC AM.

After Step 5 the UE does not transmit the SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end".

At Step 10 procedure C.4 confirms that the UE is in CELL_PCH state.

8.1.10 Broadcast of system information

8.1.10.1 Dynamic change of segmentation, concatenation & scheduling and handling of unsupported information blocks

8.1.10.1.1 Definition

8.1.10.1.2 Conformance requirement

1. The RRC layer in the UE shall perform re-assembly of segments. All segments belonging to the same master information block, scheduling block or system information block shall be assembled in ascending order with respect to the segment index. When all segments of the master information block, scheduling block or a system information block have been received, the UE shall perform decoding of the complete master information block, scheduling block or system information block.

2. For all system information blocks or scheduling blocks that are supported by the UE referenced in the master information block or the scheduling blocks, the UE shall perform the following actions:

   ……..

   - read and store the IEs of that system information block;

NOTE: There are options with and without scheduling blocks.

3. For system information blocks, not supported by the UE…….

   - skip reading this system information block;

   - skip monitoring changes to this system information block.

4. However, to enable future introduction of new system information blocks, the UE shall also be able to receive system information blocks other than the ones indicated within the scheduling information. The UE may ignore contents of such system information block.

Reference

3GPP TS 25.331 clause 8.1.1.1.4, 8.1.1.5 and 8.1.1.6.

8.1.10.1.3 Test Purpose

1. To verify that dynamic change of System Information is identified, new information read and used.
2. To verify that the UE can support all segment types and "all" segment combinations.
3. To verify that the UE can dynamically use different configurations
4. To verify that the UE properly uses combinations of Default and assigned values.

NOTE: There are 4 segment types and 11 different SYSTEM INFORMATION segment combinations to interpret when re-assembling segments. There are many alternative SIB position offsets and repetition rates.

The allowed segment types are:

- First segment
- Subsequent segment
- Last segment
- Complete

The allowed segment combinations are:

1. No segment
2. First segment
3. Subsequent segment
4. Last segment
5. Last segment + First segment
6. Last segment + one or several Complete
7. Last segment + one or several Complete + First segment
8. One or several Complete
9. One or several Complete + First segment
10. One Complete of size 215 to 226 (not fully tested)
11. Last segment of size 215 to 222

NOTE: Segment combinations 10 and 11 are more difficult to test as they require SIBs of a very specific size.

8.1.10.1.4 Method of test

Alternate two sets of System Information and generate a call after one or the other set has been broadcasted.

These two sets of System Information are based on the System Information specified in 34.108, section 6.

A "Minimum" configuration and a "Maximum" configuration of System Information are defined. The "Minimum" configuration does not contain all of the Information Blocks defined for Configuration 1 in section 6 of 34.108. On the other hand the "Maximum" configuration, defined by the scheduling information in Table 2, contains extra optional information blocks to ensure that the SIB configuration is consistent with the defined scheduling The contents of the SIBs remains the same (the contents of SIB11 changes for the "Maximum" configuration) while the contents of the MIB and SB is altered depending on the nature of the test, i.e. the schedule changes between the "Minimum" and "Maximum" configurations.

The four segment types and the eleven segment combinations are tested using the two configurations.

NOTE: The decoding of system information in the UE is only measurable by functional tests. A large number of functions utilize system information. An extensive test of the system information decoding thus creates a large number of functional tests, which is impractical. This test specification uses a "sample test", where only a few functions are invoked.

Initial Condition

System Simulator: 2 cells (Cell 1, Cell 2), settings for Cell 1 and Cell 2 according to TS 34.108, clause 6.1.5, table 6.1.2 (Cell 1 configured as the serving cell). The Minimum Configuration System Information is being broadcast in Cell 1. The Maximum Configuration System Information is being broadcast in Cell 2.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108 with a CN UE identity (set to IMSI), depending on the CN domain(s) supported by the UE.

Test procedure

Table 8.1.10.1-1 illustrates the downlink power to be applied for the 2 cells.

Table 8.1.10.1-1

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec	dBm/3.84 MHz	-60	-60	OFF	-60
P-CCPCH RSCP (TDD)	dBm	-60	-60	OFF	-60

Columns marked T0 denote the initial conditions.

The UE is in C1 in Camped Normally state. UE starts establishing a MO call/session. SS disconnects the call. UE shall enter IDLE state. The SS waits for a 2 sec interval and then sets the Cell Barred Indicator in SIB3 to "Barred". The SS notifies the UE of the changed System Information by sending the Paging Type 1 message including the IE BCCH Modification Info indicating that new System Information is available. SS applies the downlink power settings, according to the values in the columns “T1” of table 8.1.10.1-1. Based on the updated information in SIB3, the UE performs a cell reselection to Cell 2. The UE reads the System Information in Cell 2, i.e. Maximum Configuration System Information. UE starts establishing a MO call/session.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	UE			Mobile originated call/session establishment
2	SS			Disconnection of call
2a	SS			SS waits for a 2 second to allow UE to enter Idle state.
3	←		System Information (Minimum Configuration)	System Information message is sent in Cell 1 with the Cell Barred Indicator in SIB3 set to "Barred".
3a			Void	SS applies the downlink power settings, according to the values in the columns “T1” of table 8.1.10.1-1
4	←		Paging Type 1	This message is to inform the UE in Idle State that System Information has been updated.
5	UE			Mobile originated call /session establishment
6	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific message content for "Minimum" configuration

The Minimum configuration is the same as the Configuration 1 System Information on 34.108, section 6 with some differences:

- Only SIB1, SIB3, SIB5/SIB5bis, SIB7, SIB11 are used, i.e. the Minimum number of SIBs is used.
- No SB is used; all scheduling information is contained in the MIB. The contents of this changed MIB are shown below.
- A different schedule is used. Details below.
- SIB11 lists eight cells (one serving cell and seven neighbouring cells). Only the first two of these are considered relevant.

Other characteristics of the Minimum configuration are:

- An unknown future System Information Block (SIB-F1) is included. SIB-F1 is used to test segment combination 10. However, it should be noted that, based on the scheduling information in the MIB, UEs may decide not to read segment combinations associated with SIBs that they do not support/comprehend. Hence, the use of SIB-F1 does not fully cover the verification of combinations 10. The tests really just verify that UE ignores it. There is no real verification that the UE can support segment combinations 10.

The following tables show (based on SIB_REP and SIB_POS in the MIB and SB) the schedule used for the Minimum configuration.

Table 1: The schedule in this table incorporates segment combinations 1, 2, 3, 4, 7, 8, 10.

Block Type	MIB	SIB1	SIB3	SIB5/ SIB5bis	SIB7	SIB11
SIB_REP	8	64	64	64	16	64
SEG_ COUNT	1	1	1	3	1	3

Frame No / SIB_POS	0	2	4	6	8	10	12	14
Block Type	MIB		SIB7		MIB			

Frame No / SIB_POS	16	18	20	22	24	26	28	30
Block Type	MIB		SIB7/SIB3	SIB1	MIB		SIB-F1	SIB5 / SIB5bis

Frame No / SIB_POS	32	34	36	38	40	42	44	46
Block Type	MIB	SIB5/SIBbis	SIB5/SIB5bis/SIB7/SIB11	SIB11	MIB	SIB11		

Frame No / SIB_POS	48	50	52	54	56	58	60	62
Block Type	MIB		SIB7		MIB			

Table 1a: The schedule in this table incorporates segment combinations 1, 2, 3, 4, 7, 8, 10 (1.28Mcps TDD).

Block Type	MIB	SIB1	SIB3	SIB5/ SIB5bis	SIB7	SIB11
SIB_REP	8	64	64	64	16	64
SEG_ COUNT	1	1	1	5	1	3

Frame No / SIB_POS	0	2	4	6	8	10	12	14
Block Type	MIB		SIB7		MIB			

Frame No / SIB_POS	16	18	20	22	24	26	28	30
Block Type	MIB		SIB7/SIB3	SIB1	MIB		SIB-F1	SIB5 / SIB5bis

Frame No / SIB_POS	32	34	36	38	40	42	44	46
Block Type	MIB	SIB5/SIBbis	SIB5/SIB5bis/SIB7	SIB11	MIB	SIB11	SIB5	SIB5

Frame No / SIB_POS	48	50	52	54	56	58	60	62
Block Type	MIB		SIB7		MIB			SIB11

Contents of Master Information Block PLMN type is the case of GSM-MAP

- MIB value tag	A valid MIB value tag as defined in TS 25.331
- Supported PLMN types	
- PLMN type	GSM-MAP
- PLMN identity	
- MCC digit	Set to the same Mobile Country Codes stored in the test USIM card (TS 34.108 clause 8.3.2.2 EF IMSI(IMSI)).
- MNC digit	Set to the same Mobile Network Codes stored in the test USIM card (TS 34.108 clause 8.3.2.2 EF IMSI(IMSI)).
- ANSI-41 Core Network information	Not Present
- References to other system information blocks and scheduling blocks	
- References to other system information blocks	
- Scheduling information	
- CHOICE Value tag	PLMN Value tag
- PLMN Value tag	A valid PLMN value tag as defined in TS 25.331
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	22
- SIB_POS offset info	Not Present – use default
- SIB type	System Information Type 1
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	20
- SIB_POS offset info	Not Present – use default
- SIB type	System Information Type 3
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	3
- SIB_REP	64
- SIB_POS	30
- SIB_POS offset info	
- SIB_OFF	4
- SIB_OFF	2
- SIB type	System Information Type 5 / System Information Type 5bis
- Scheduling information	
- CHOICE Value tag	Not Present
- SEG_COUNT	1
- SIB_REP	16
- SIB_POS	4
- SIB_POS offset info	Not Present
- SIB and SB type	System Information Type 7
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	3
- SIB_REP	64
- SIB_POS	36
- SIB_POS offset info	
- SIB_OFF	2
- SIB_OFF	4
- SIB and SB type	System Information Type 11
- Scheduling information	
- CHOICE Value tag	Not Present
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	28
- SIB_POS offset info	Not Present – use default
- SIB and SB type	System Information Type F1

Contents of Master Information Block PLMN type is the case of GSM-MAP (1.28Mcps TDD)

- MIB value tag	A valid MIB value tag as defined in TS 25.331
- Supported PLMN types	
- PLMN type	GSM-MAP
- PLMN identity	
- MCC digit	Set to the same Mobile Country Codes stored in the test USIM card (TS 34.108 clause 8.3.2.2 EF IMSI(IMSI)).
- MNC digit	Set to the same Mobile Network Codes stored in the test USIM card (TS 34.108 clause 8.3.2.2 EF IMSI(IMSI)).
- ANSI-41 Core Network information	Not Present
- References to other system information blocks and scheduling blocks	
- References to other system information blocks	
- Scheduling information	
- CHOICE Value tag	PLMN Value tag
- PLMN Value tag	A valid PLMN value tag as defined in TS 25.331
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	22
- SIB_POS offset info	Not Present – use default
- SIB type	System Information Type 1
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	20
- SIB_POS offset info	Not Present – use default
- SIB type	System Information Type 3
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	5
- SIB_REP	64
- SIB_POS	30
- SIB_POS offset info	
- SIB_OFF	4
- SIB_OFF	2
- SIB_OFF	8
- SIB_OFF	2
- SIB type	System Information Type 5 / System Information Type 5bis
- Scheduling information	
- CHOICE Value tag	Not Present
- SEG_COUNT	1
- SIB_REP	16
- SIB_POS	4
- SIB_POS offset info	Not Present
- SIB and SB type	System Information Type 7
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	3
- SIB_REP	64
- SIB_POS	38
- SIB_POS offset info	
- SIB_OFF	4
- SIB_OFF	20
- SIB and SB type	System Information Type 11
- Scheduling information	
- CHOICE Value tag	Not Present
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	28
- SIB_POS offset info	Not Present – use default
- SIB and SB type	System Information Type F1

Contents of System Information Block type 5 (FDD)

Use the same message type found in clause 6.1 of TS 34.108, with the following exception:

- PRACH partitioning	A1, A2, A3	
- Access Service Class		
- ASC Setting		Not Present
- ASC Setting		
- CHOICE mode		FDD
- Available signature Start Index		0 (ASC#1)
- Available signature End Index		7 (ASC#1)
- Assigned Sub-Channel Number		'1111'B The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number.
- ASC Setting		Not Present
- ASC Setting		Not Present
- ASC Setting		Not Present
- ASC Setting		Not Present
- ASC Setting		Not Present
- ASC Setting		Not Present

Condition	Explanation
A1	Band I, Band II, Band III
A2	Band V, Band VI, Band VII
A3	Band VIII & bands beyond Band X

Contents of System Information Block type 5bis (FDD)

The message structure of the System information block type 5bis should be the same as System information block type 5 defined above with the following exceptions as given below.

- Frequency Band Indicator	A1	FDD Band under test
- Frequency Band Indicator 2		Not Present
- Frequency Band Indicator	A2	Extension indicator
- Frequency Band Indicator 2		FDD Band under test

Condition	Explanation
A1	Band IV
A2	Band IX & Band X

Contents of System Information Block type 11

Use the same message type found in clause 6.1 of TS 34.108, with the exception of event 1a being disabled.

Specific message content for "Maximum" configuration

The Maximum configuration is the same as the Configuration 1 System Information on 34.108, section 6 with some differences:

- A different schedule is used. Details below.
- SIB11 lists eight cells (one serving cell and seven neighbouring cells). Only the first two of these are considered relevant. It should also include some of the optional IE's to fit the scheduling information for maximum configuration.
- SIB6 and SIB12 includes some of the optional IEs even if having same values as correspondent IEs in SIB5 and SIB11 respectively (to facilitate implementation of the test case for the Maximum configuration) to fit the scheduling information for maximum configuration.

Other characteristics of the Maximum configuration are:

- one "unknown future" block (SIB-F2) is included. This SIB is concatenated with another SIB and is used to verify that the UE can receive an Information Block that it does not support and still process the Information Blocks that it does support in the correct way.

- The test of the segment combination 9 is verified if the UE is able to read SIB7 and the first segment of SIB5 in position 4.

- The test of the segment combination 11 is verified if the UE is able to read the last segment of SIB 5 / SIB 5bis. The SS ensures that this last segment shall have the length between 215 and 222 bits. Depending on the length of SIB 5 / SIB 5bis, the combination 11 occurs either in SIB_position 6, or in the most cases in SIB_position 10

The following tables show (based on SIB_REP and SIB_POS in the MIB and SB) the schedule used for the Maximum configuration.

Table 2: The schedule in this table incorporates segment combinations 1, 2, 3, 5, 6, 8, 9, 11.

Block Type	MIB	SB1	SIB1	SIB2	SIB3	SIB4	SIB5/ SIB5bis	SIB6	SIB7	SIB11	SIB12	SIB18
SIB_REP	8	16	64	64	64	64	64	64	32	64	64	64
SEG_ COUNT	1	1	1	1	1	1	3	3	1	4	4	1

Frame No / SIB_POS	0	2	4	6	8	10	12	14
Block Type	MIB	SB1	SIB7/ SIB5	SIB5/SIB 5bis	MIB	SIB5	SIB3/SIB-F2	SIB11

Frame No / SIB_POS	16	18	20	22	24	26	28	30
Block Type	MIB	SB1	SIB11	SIB11	MIB	SIB11/SIB12	SIB12	SIB12

Frame No / SIB_POS	32	34	36	38	40	42	44	46
Block Type	MIB	SB1	SIB7/SIB18	SIB12	MIB	SIB6	SIB6	SIB6/SIB2

Frame No / SIB_POS	48	50	52	54	56	58	60	62
Block Type	MIB	SB1	SIB4		MIB	SIB1		

Table 2a: The schedule in this table incorporates segment combinations 1, 2, 3, 5, 6, 8, 9, 11 (1.28Mcps TDD).

Block Type	MIB	SB1	SIB1	SIB2	SIB3	SIB4	SIB5/ SIB5bis	SIB6	SIB7	SIB11	SIB12	SIB18
SIB_REP	8	16	64	64	64	64	64	64	32	64	64	64
SEG_ COUNT	1	1	1	1	1	1	5	5	1	4	4	1

Frame No / SIB_POS	0	2	4	6	8	10	12	14
Block Type	MIB	SB1	SIB7/ SIB5	SIB5/SIB 5bis	MIB	SIB5	SIB3/SIB-F2	SIB11

Frame No / SIB_POS	16	18	20	22	24	26	28	30
Block Type	MIB	SB1	SIB11	SIB11	MIB	SIB11/SIB12	SIB5	SIB5

Frame No / SIB_POS	32	34	36	38	40	42	44	46
Block Type	MIB	SB1	SIB7/SIB18	SIB12	MIB	SIB6	SIB6	SIB6/SIB2

Frame No / SIB_POS	48	50	52	54	56	58	60	62
Block Type	MIB	SB1	SIB12	SIB12	MIB	SIB1/SIB4	SIB6	SIB6

Contents of Master Information Block PLMN type is the case of GSM-MAP

Information Element	Value/remark
- MIB value tag	A valid MIB value tag as defined in TS 25.331
- Supported PLMN types	
- PLMN type	GSM-MAP
- PLMN identity	
- MCC digit	Set to the same Mobile Country Codes stored in the test USIM card (TS 34.108 clause 8.3.2.2 EF IMSI(IMSI)).
- MNC digit	Set to the same Mobile Network Codes stored in the test USIM card (TS 34.108 clause 8.3.2.2 EF IMSI(IMSI)).
- ANSI-41 Core Network information	Not Present
- References to other system information blocks and scheduling blocks	
- References to other system information blocks	
- Scheduling information	
- CHOICE Value tag	Cell Value Tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- Scheduling	
- SEG_COUNT	1
- SIB_REP	16
- SIB_POS	2
- SIB_POS offset info	Not Present – use default
- SIB type	Scheduling Block 1
- Scheduling information	
- CHOICE Value tag	PLMN Value tag
- PLMN Value tag	A valid PLMN value tag as defined in TS 25.331
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	58
- SIB_POS offset info	Not Present – use default
- SIB type	System Information Type 1
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	46
- SIB_POS offset info	Not Present – use default
- SIB type	System Information Type 2
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	12
- SIB_POS offset info	Not Present – use default
- SIB type	System Information Type 3
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	52
- SIB_POS offset info	Not Present – use default
- SIB type	System Information Type 4
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	3
- SIB_REP	64
- SIB_POS	4
- SIB_POS offset info	
- SIB_OFF	2
- SIB_OFF	4
- SIB type	System Information Type 5 / System Information Type 5bis

Contents of Master Information Block PLMN type is the case of GSM-MAP (1.28Mcps TDD)

Information Element	Value/remark
- MIB value tag	A valid MIB value tag as defined in TS 25.331
- Supported PLMN types	
- PLMN type	GSM-MAP
- PLMN identity	
- MCC digit	Set to the same Mobile Country Codes stored in the test USIM card (TS 34.108 clause 8.3.2.2 EF IMSI(IMSI)).
- MNC digit	Set to the same Mobile Network Codes stored in the test USIM card (TS 34.108 clause 8.3.2.2 EF IMSI(IMSI)).
- ANSI-41 Core Network information	Not Present
- References to other system information blocks and scheduling blocks	
- References to other system information blocks	
- Scheduling information	
- CHOICE Value tag	Cell Value Tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- Scheduling	
- SEG_COUNT	1
- SIB_REP	16
- SIB_POS	2
- SIB_POS offset info	Not Present – use default
- SIB type	Scheduling Block 1
- Scheduling information	
- CHOICE Value tag	PLMN Value tag
- PLMN Value tag	A valid PLMN value tag as defined in TS 25.331
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	58
- SIB_POS offset info	Not Present – use default
- SIB type	System Information Type 1
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	46
- SIB_POS offset info	Not Present – use default
- SIB type	System Information Type 2
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	12
- SIB_POS offset info	Not Present – use default
- SIB type	System Information Type 3
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	58
- SIB_POS offset info	Not Present – use default
- SIB type	System Information Type 4
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	5
- SIB_REP	64
- SIB_POS	4
- SIB_POS offset info	
- SIB_OFF	2
- SIB_OFF	4
- SIB_OFF	18
- SIB_OFF	2
- SIB type	System Information Type 5 / System Information Type 5bis

Contents of Scheduling Block 1 (FDD)

Information Element	Value/remark
- References to other system information blocks	
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	3
- SIB_REP	64
- SIB_POS	42
- SIB_POS offset info	
- SIB_OFF	2
- SIB_OFF	2
- SIB and SB type	System Information Type 6
- Scheduling information	
- CHOICE Value tag	Not Present
- SEG_COUNT	1
- SIB_REP	32
- SIB_POS	4
- SIB_POS offset info	Not Present
- SIB and SB type	System Information Type 7
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	4
- SIB_REP	64
- SIB_POS	14
- SIB_POS offset info	
- SIB_OFF	6
- SIB_OFF	2
- SIB_OFF	4
- SIB and SB type	System Information Type 11
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	4
- SIB_REP	64
- SIB_POS	26
- SIB_POS offset info	
- SIB_OFF	2
- SIB_OFF	2
- SIB_OFF	8
- SIB and SB type	System Information Type 12
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	36
- SIB_POS offset info	Not Present
- SIB and SB type	System Information Type 18
- Scheduling information	
- CHOICE Value tag	Not Present
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	12
- SIB_POS offset info	Not Present
- SIB and SB type	System Information Type F2

Contents of Scheduling Block 1 (1.28 Mcps TDD)

Information Element	Value/remark
- References to other system information blocks	
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	5
- SIB_REP	64
- SIB_POS	42
- SIB_POS offset info	
- SIB_OFF	2
- SIB_OFF	2
- SIB_OFF	14
- SIB_OFF	2
- SIB and SB type	System Information Type 6
- Scheduling information	
- CHOICE Value tag	Not Present
- SEG_COUNT	1
- SIB_REP	32
- SIB_POS	4
- SIB_POS offset info	Not Present
- SIB and SB type	System Information Type 7
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	4
- SIB_REP	64
- SIB_POS	14
- SIB_POS offset info	
- SIB_OFF	6
- SIB_OFF	2
- SIB_OFF	4
- SIB and SB type	System Information Type 11
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	4
- SIB_REP	64
- SIB_POS	26
- SIB_POS offset info	
- SIB_OFF	12
- SIB_OFF	14
- SIB_OFF	2
- SIB and SB type	System Information Type 12
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	36
- SIB_POS offset info	Not Present
- SIB and SB type	System Information Type 18
- Scheduling information	
- CHOICE Value tag	Not Present
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	12
- SIB_POS offset info	Not Present
- SIB and SB type	System Information Type F2

Contents of Scheduling Block 1 (TDD 3.84 Mcps option and TDD 7.68 Mcps option)

Information Element	Value/remark
- References to other system information blocks	
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	4
- SIB_REP	128
- SIB_POS	3
- SIB_POS offset info	
- SIB_OFF	2
- SIB_OFF	2
- SIB and SB type	System Information Type 6
- Scheduling information	
- CHOICE Value tag	Not Present
- SEG_COUNT	1
- SIB_REP	16
- SIB_POS	2
- SIB_POS offset info	Not Present
- SIB type SIBs only	System Information Type 7
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	3
- SIB_REP	64
- SIB_POS	29
- SIB_POS offset info	
- SIB_OFF	2
- SIB_OFF	2
- SIB and SB type	System Information Type 11
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	3
- SIB_REP	64
- SIB_POS	13
- SIB_POS offset info	
- SIB_OFF	2
- SIB_OFF	2
- SIB and SB type	System Information Type 12
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	54
- SIB_POS offset info	Not Present
- SIB type SB	System Information Type 18
- Scheduling information	
- CHOICE Value tag	Not Present
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	6
- SIB_POS offset info	Not Present
- SIB and SB type	System Information Type F2

Contents of System Information Block type F1

Information Element	Value/remark
Data	Arbitrary data with a size of 226 bits

Contents of System Information Block type F2

Information Element	Value/remark
Data	Arbitrary data with a size of 50 bits

NOTE: For these future System Information Block types one of the available spare values for SIB type should be used

Contents of SYSTEM INFORMATION BLOCK TYPE 6 (FDD)

- PICH Power offset	-5 dB
- CHOICE Mode	FDD
- AICH Power offset	-5 dB
- Primary CCPCH info	present
- PRACH system information list	
- PRACH system information	
- PRACH info	
- CHOICE mode	FDD
- Available Signature	'0000 0000 1111 1111'B
- Available SF	64
- Preamble scrambling code number	0
- Puncturing Limit	1.00
- Available Sub Channel number	'1111 1111 1111'B
- Transport Channel Identity	15
- RACH TFS	
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC size	168
- Number of TB and TTI List	
- Number of Transport blocks	1
- CHOICE Mode	FDD
- CHOICE Logical Channel List	Configured
- RLC size	360
- Number of TB and TTI List	
- Number of Transport blocks	1
- CHOICE Mode	FDD
- CHOICE Logical Channel List	Configured
- Semi-static Transport Format information	
- Transmission time interval	20 ms
- Type of channel coding	Convolutional
- Coding Rate	1/2
- Rate matching attribute	150
- CRC size	16
- RACH TFCS	
- CHOICE TFCI signalling	Normal
- TFCI Field 1 information	
- CHOICE TFCS representation	Complete reconfiguration
- TFCS complete reconfiguration information	
- CHOICE CTFC Size	2 bit
- CTFC information	0
- Power offset information	
- CHOICE Gain Factors	Computed Gain Factor
- Reference TFC ID	0
- CHOICE Mode	FDD
- Power offset Pp-m	0 dB
- CTFC information	1
- Power offset information	
- CHOICE Gain Factors	Signalled Gain Factor
- CHOICE mode	FDD
- Gain factor ßc	11
- Gain factor ßd	15
- Reference TFC ID	0
- CHOICE Mode	FDD
- Power offset Pp-m	0 dB
- PRACH partitioning	
- Access Service Class	
- ASC Setting	Not Present
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#1)
- Available signature End Index	7 (ASC#1)
- Assigned Sub-Channel Number	'1111'B The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number.
- ASC Setting	Not Present
- ASC Setting	
- CHOICE mode	FDD

- Available signature Start Index	0 (ASC#3)
- Available signature End Index	7 (ASC#3)
- Assigned Sub-Channel Number	'1111'B The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number.
- ASC Setting	Not Present
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#5)
- Available signature End Index	7 (ASC#5)
- Assigned Sub-Channel Number	'1111'B The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number.
- ASC Setting	Not Present
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#7)
- Available signature End Index	7 (ASC#7)
- Assigned Sub-Channel Number	'1111'B The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number.
- Persistence scaling factor	
- Persistence scaling factor	0.9 (for ASC#2)
- Persistence scaling factor	0.9 (for ASC#3)
- Persistence scaling factor	0.9 (for ASC#4)
- Persistence scaling factor	0.9 (for ASC#5)
- Persistence scaling factor	0.9 (for ASC#6)
- Persistence scaling factor	0.9 (for ASC#7)
- AC-to-ASC mapping table	
- AC-to-ASC mapping	6 (AC0-9)
- AC-to-ASC mapping	5 (AC10)
- AC-to-ASC mapping	4 (AC11)
- AC-to-ASC mapping	3 (AC12)
- AC-to-ASC mapping	2 (AC13)
- AC-to-ASC mapping	1 (AC14)
- AC-to-ASC mapping	0 (AC15)
- CHOICE mode	FDD
- Primary CPICH TX power	31
- Constant value	-10
- PRACH power offset	
- Power Ramp Step	3dB
- Preamble Retrans Max	4
- RACH transmission parameters	
- Mmax	2
- NB01min	3 slot
- NB01max	10 slot
- AICH info	
- Channelisation code	3
- STTD indicator	FALSE
- AICH transmission timing	0
- Secondary CCPCH system information	
- Secondary CCPCH info	
- CHOICE mode	FDD
- Secondary scrambling code	Not Present
- STTD indicator	FALSE
- Spreading factor	64
- Code number	1
- Pilot symbol existence	FALSE
- TFCI existence	TRUE (default value)
- Fixed or Flexible position	Flexible (default value)
- Timing offset	0
- TFCS	(This IE is repeated for TFC number for PCH and FACH.)
- CHOICE TFCI signalling	Normal
- TFCI Field 1 information	
- CHOICE TFCS representation	Complete reconfiguration
- TFCS complete reconfiguration information	
- CHOICE CTFC Size	4 bit
- CTFC information	0
- Power offset information	Not Present

- CTFC information	1
- Power offset information	Not Present
- CTFC information	2
- Power offset information	Not Present
- CTFC information	3
- Power offset information	Not Present
- CTFC information	4
- Power offset information	Not Present
- CTFC information	5
- Power offset information	Not Present
- CTFC information	6
- Power offset information	Not Present
- CTFC information	8
- Power offset information	Not Present
- FACH/PCH information	
- TFS	(PCH)
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC Size	240
- Number of TB and TTI List	
- Number of Transport blocks	0
- Number of Transport blocks	1
- CHOICE Logical Channel List	ALL
- Semi-static Transport Format information	
- Transmission time interval	10 ms
- Type of channel coding	Convolutional
- Coding Rate	1/2
- Rate matching attribute	230
- CRC size	16 bit
- Transport Channel Identity	12 (for PCH)
- CTCH indicator	FALSE
- TFS	(FACH)
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC Size	168
- Number of TB and TTI List	
- Number of Transport blocks	0
- Number of Transport blocks	1
- Number of Transport blocks	2
- CHOICE Logical Channel List	ALL
- Semi-static Transport Format information	
- Transmission time interval	10 ms
- Type of channel coding	Convolutional
- Coding Rate	1/2
- Rate matching attribute	220
- CRC size	16 bit
- Transport Channel Identity	13 (for FACH)
- CTCH indicator	FALSE
- TFS	(FACH)
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC Size	360
- Number of TB and TTI List	
- Number of Transport blocks	0
- Number of Transport blocks	1
- CHOICE Logical Channel List	ALL
- Semi-static Transport Format information	
- Transmission time interval	10 ms
- Type of channel coding	Turbo
- Rate matching attribute	130
- CRC size	16bit
- Transport Channel Identity	14 (for FACH)
- CTCH indicator	FALSE
- PICH info	
- CHOICE mode	FDD
- Channelisation code	2
- Number of PI per frame	18
- STTD indicator	FALSE

- CBS DRX Level 1 information	Not Present

System Information Block type 7

Use the same System Information Block Type 7 message as found in clause 6.1.0b of TS 34.108, with the following exceptions:

- PRACHs listed in system information block type6 - Dynamic persistence level	 2

Contents of SYSTEM INFORMATION BLOCK TYPE 11 (FDD)

- Sib12 Indicator	TRUE
- FACH measurement occasion info	Present
- Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not Present Absence of this IE is equivalent to default value 1
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not present (This IE shall be ignored by the UE for SIB11)
- New intra-frequency cells	
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not present Absence of this IE is equivalent to default value 0 (0 dB)
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	Present
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not present Absence of this IE is equivalent to default value 0 (0 dB)
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1.4
- Primary CPICH TX power	31
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	Present
- Intra-frequency cell id	3
- Cell info	Same content as specified for Intra-frequency cell id=1 with the exception that value for Primary scrambling code shall be according to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1.4
- Intra-frequency cell id	7
- Cell info	Same content as specified for Intra-frequency cell id=1 with the exception that value for Primary scrambling code shall be according to clause titled "Default settings for cell No.7 (FDD)" in clause 6.1.4
- Intra-frequency cell id	8
- Cell info	Same content as specified for Intra-frequency cell id=1 with the exception that value for Primary scrambling code shall be according to clause titled "Default settings for cell No.8 (FDD)" in clause 6.1.4
- Cells for measurement	Not Present
- Intra-frequency measurement quantity	
- Filter coefficient	Not present Absence of this IE is equivalent to the default value 0
- CHOICE mode	FDD
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity for RACH Reporting	Not Present
- Maximum number of reported cells on RACH	Not Present

- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	TRUE
- CHOICE mode	FDD
- CPICH Ec/N0 reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	TRUE
- Cell identity reporting indicator	TRUE
- CHOICE mode	FDD
- CPICH Ec/N0 reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not Present
- Measurement reporting mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodic Reporting/Event Trigger Reporting Mode	Event trigger
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Intra-frequency measurement reporting criteria	
- Parameters required for each event	2 kinds
- Intra-frequency event identity	1b
- Triggering condition 1	Active set cells
- Triggering condition 2	Not Present
- Reporting Range Constant	10 (5 dB)
- Cells forbidden to affect Reporting range	Not Present
- W	1 (0.1)
- Hysteresis	0.0
- Threshold Used Frequency	Not Present
- Reporting deactivation threshold	Not Present
- Replacement activation threshold	Not Present
- Time to trigger	640
- Amount of reporting	Not Present
- Reporting interval	Not Present
- Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
- Intra-frequency event identity	1c
- Triggering condition 1	Not Present
- Triggering condition 2	Not Present
- Reporting Range Constant	Not Present
- Cells forbidden to affect Reporting range	Not Present
- W	Not Present
- Hysteresis	0 (0.0)
- Threshold Used Frequency	Not Present
- Reporting deactivation threshold	Not Present
- Replacement activation threshold	3
- Time to trigger	640
- Amount of reporting	4
- Reporting interval	4000
- Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
- Inter-frequency measurement system information	
- Inter-frequency cell info list	
- CHOICE Inter-frequency cell removal	Not present (This IE shall be ignored by the UE for SIB11)
- New inter-frequency cells	
- Inter frequency cell id	4
- Frequency info	
- CHOICE mode	FDD
- UARFCN uplink(Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]

- UARFCN downlink(Nd)	Reference to table 6.1.2 for Cell 4
- Cell info	
- Cell individual offset	Not present Absence of this IE is equivalent to default value 0 (0 dB)
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.4 (FDD)" in clause 6.1.4
- Primary CPICH Tx power	31
- TX Diversity Indicator	FALSE
- Cell Selection and Re-selection Info	present (same values as for serving cell applies)
- Inter frequency cell id	5
- Frequency info	Not Present Absence of this IE is equivalent to value of the previous "frequency info" in the list.
- Cell info	Same content as specified for Inter-frequency cell id=4 with the exception that value for Primary scrambling code shall be according to clause titled "Default settings for cell No.5 (FDD)" in clause 6.1.4
- Inter frequency cell id	6
- Frequency info	Not Present Absence of this IE is equivalent to value of the previous "frequency info" in the list.
- Cell info	Same content as specified for Inter-frequency cell id=4 with the exception that value for Primary scrambling code shall be according to clause titled "Default settings for cell No.6 (FDD)" in clause 6.1.4
- Cell for measurement	Not present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	
- Traffic volume measurement identity	5
- Traffic volume measurement object list	Not Present
- Traffic volume measurement quantity	
- Measurement quantity	RLC Buffer Payload
- Time Interval to take an average or a variance	Not Present
- Traffic volume reporting quantity	
- RLC Buffer Payload for each RB	TRUE
- Average of RLC Buffer Payload for each RB	FALSE
- Variance of RLC Buffer Payload for each RB	FALSE
- Measurement validity	Not Present
- Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged mode RLC
- Periodic Reporting/Event Trigger Reporting Mode	Periodical trigger
- Report Criteria Sys Inf	
- Periodical Reporting Criteria	
- Reporting Amount	Infinity
- Reporting interval	8000

Contents of SYSTEM INFORMATION BLOCK TYPE 12 (FDD)

- FACH measurement occasion info	Present
- Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not Present Absence of this IE is equivalent to default value 1
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not present (This IE shall be ignored by the UE for SIB11)
- New intra-frequency cells	
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not present Absence of this IE is equivalent to default value 0 (0 dB)
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	Present
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not present Absence of this IE is equivalent to default value 0 (0 dB)
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1.4
- Primary CPICH TX power	31
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	Present
- Intra-frequency cell id	3
- Cell info	Same content as specified for Intra-frequency cell id=1 with the exception that value for Primary scrambling code shall be according to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1.4
- Intra-frequency cell id	7
- Cell info	Same content as specified for Intra-frequency cell id=1 with the exception that value for Primary scrambling code shall be according to clause titled "Default settings for cell No.7 (FDD)" in clause 6.1.4
- Intra-frequency cell id	8
- Cell info	Same content as specified for Intra-frequency cell id=1 with the exception that value for Primary scrambling code shall be according to clause titled "Default settings for cell No.8 (FDD)" in clause 6.1.4
- Cells for measurement	Not Present
- Intra-frequency measurement quantity	
- Filter coefficient	Not present Absence of this IE is equivalent to the default value 0
- CHOICE mode	FDD
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity for RACH Reporting	Not Present
- Maximum number of reported cells on RACH	Not Present
- Reporting information for state CELL_DCH	

- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	TRUE
- CHOICE mode	FDD
- CPICH Ec/N0 reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	TRUE
- Cell identity reporting indicator	TRUE
- CHOICE mode	FDD
- CPICH Ec/N0 reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not Present
- Measurement reporting mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodic Reporting/Event Trigger Reporting Mode	Event trigger
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Intra-frequency measurement reporting criteria	
- Parameters required for each event	2 kinds
- Intra-frequency event identity	1b
- Triggering condition 1	Active set cells
- Triggering condition 2	Not Present
- Reporting Range Constant	10 (5 dB)
- Cells forbidden to affect Reporting range	Not Present
- W	1 (0.1)
- Hysteresis	0 (0.0)
- Threshold Used Frequency	Not Present
- Reporting deactivation threshold	Not Present
- Replacement activation threshold	Not Present
- Time to trigger	640
- Amount of reporting	Not Present
- Reporting interval	Not Present
- Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
- Intra-frequency event identity	1c
- Triggering condition 1	Not Present
- Triggering condition 2	Not Present
- Reporting Range Constant	Not Present
- Cells forbidden to affect Reporting range	Not Present
- W	Not Present
- Hysteresis	0 (0.0)
- Threshold Used Frequency	Not Present
- Reporting deactivation threshold	Not Present
- Replacement activation threshold	3
- Time to trigger	640
- Amount of reporting	4
- Reporting interval	4000
- Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
- Inter-frequency measurement system information	
- Inter-frequency cell info list	
- CHOICE Inter-frequency cell removal	Not present (This IE shall be ignored by the UE for SIB11)
- New inter-frequency cells	
- Inter frequency cell id	4
- Frequency info	
- CHOICE mode	FDD
- UARFCN uplink(Nu)	Not present Absence of this IE is equivalent to apply the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink(Nd)	Reference to table 6.1.2 for Cell 4

- Cell info	
- Cell individual offset	Not present Absence of this IE is equivalent to default value 0 (0 dB)
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.4 (FDD)" in clause 6.1.4
- Primary CPICH Tx power	31
- TX Diversity Indicator	FALSE
- Cell Selection and Re-selection Info	present (same values as for serving cell applies)
- Inter frequency cell id	5
- Frequency info	Not Present Absence of this IE is equivalent to value of the previous "frequency info" in the list.
- Cell info	Same content as specified for Inter-frequency cell id=4 with the exception that value for Primary scrambling code shall be according to clause titled "Default settings for cell No.5 (FDD)" in clause 6.1.4
- Inter frequency cell id	6
- Frequency info	Not Present Absence of this IE is equivalent to value of the previous "frequency info" in the list.
- Cell info	Same content as specified for Inter-frequency cell id=4 with the exception that value for Primary scrambling code shall be according to clause titled "Default settings for cell No.6 (FDD)" in clause 6.1.4
- Cell for measurement	Not present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	
- Traffic volume measurement identity	5
- Traffic volume measurement object list	Not Present
- Traffic volume measurement quantity	
- Measurement quantity	RLC Buffer Payload
- Time Interval to take an average or a variance	Not Present
- Traffic volume reporting quantity	
- RLC Buffer Payload for each RB	TRUE
- Average of RLC Buffer Payload for each RB	FALSE
- Variance of RLC Buffer Payload for each RB	FALSE
- Measurement validity	Not Present
- Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged mode RLC
- Periodic Reporting/Event Trigger Reporting Mode	Periodical trigger
- Report Criteria Sys Inf	
- Periodical Reporting Criteria	
- Reporting Amount	Infinity
- Reporting interval	8000

8.1.10.1.5 Test requirement

After step 1 the UE shall have a call/session established in Cell 1.

After step 5 the UE shall have a call/session established in Cell 2.

8.1.10.2 BCCH Mapping on HS-DSCH for Transmitting System Information Change Indication

8.1.10.2.1 Definition

All UEs which support FDD and HS-PDSCH in CELL_FACH, except UEs that receive Master information block value tag autonomously before or parallel to receiving SYSTEM INFORMATION CHANGE INDICATION in SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis.

8.1.10.2.2 Conformance requirement

Upon modifications of system information blocks using value tags, UTRAN should notify the new value tag for the master information block in the IE "BCCH modification info", transmitted in the following way:

…

1> for FDD and 1.28 Mcps TDD, to reach UEs in CELL_FACH state with HS-DSCH assigned and in CELL_PCH with HS-DSCH and dedicated H-RNTI assigned, the IE "BCCH modification info" is contained in a SYSTEM INFORMATION CHANGE INDICATION message transmitted on the BCCH mapped on the HS-PDSCH indicated with the first indexed HS-SCCH code by the BCCH specific H-RNTI.

Upon reception of a PAGING TYPE 1 message or a SYSTEM INFORMATION CHANGE INDICATION message containing the IE "BCCH modification info" containing the IE "MIB value tag" but not containing the IE "BCCH modification time", the UE shall perform actions as specified in subclause 8.1.1.7.3

…

The UE shall:

1> compare the value of IE "MIB value tag" in the IE "BCCH modification info" with the value tag stored for the master information block in variable VALUE_TAG.

1> if the value tags differ:

2> read the master information block on BCH;

2> if the value tag of the master information block in the system information is the same as the value in IE "MIB value tag" in "BCCH modification info" but different from the value tag stored in the variable VALUE_TAG:

3> perform actions as specified in subclause 8.1.1.5.

2> if the value tag of the master information block in the system information is the same as the value tag stored in the variable VALUE_TAG:

3> for the next occurrence of the master information block:

4> perform actions as specified in subclause 8.1.1.7.3 again.

2> if the value tag of the master information block in the system information is different from the value tag stored in the variable VALUE_TAG, and is different from the value in IE "MIB value tag" in "BCCH modification info":

3> perform actions as specified in subclause 8.1.1.5;

3> if (VTCI-VTMIB) mod 8 < 4, where VTCI is the value tag in the IE "MIB value tag" in "BCCH modification info" and VTMIB is the value tag of the master information block in the system information:

4> for the next occurrence of the master information block:

5> perform actions as specified in subclause 8.1.1.7.3 again.

…

Whenever the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to TRUE, the UE shall:

…

1> and for FDD, for BCCH reception perform HS-DSCH reception procedures by listening to the first indexed HS-SCCH code listed in the IE "HS-SCCH channelization code" with "BCCH specific H-RNTI" as received in IE "HS-DSCH common system information".

Reference

3GPP TS 25.331: 8.1.1.7.1, 8.1.1.7.3, 8.5.36

8.1.10.2.3 Test Purpose

1. To verify the correct use of system change indication for BCCH mapped on HS-DSCH
2. To verify operation of BCCH specific H-RNTI
3. To verify that BCCH reception on HS-DSCH uses the first indexed HS-SCCH code listed on the IE HS-SCCH channelization code with BCCH specific H-RNTI

8.1.10.2.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CELL_FACH state with DCCH/DTCH mapped onto HS-DSCH as specified in clause 7.4 of TS 34.108 with dedicated H-RNTI and C-RNTI assigned.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH in CELL_FACH

Test Procedure

The SS transmits the new SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis message. In the new SIB TYPE 5 / SIB TYPE 5bis message, the IE "HS-SCCH Channelisation Code" is different when compared to the original SIB TYPE 5 / SIB TYPE 5bis message. Master information block is transmitted with updated MIB value tag. Then SS transmits a SYSTEM INFORMATION CHANGE INDICATION message to the UE with BCCH mapped on HS-DSCH. The transmission of BCCH on HS-DSCH is performed by using BCCH-specific H-RNTI on the specific HS-SCCH code indicated in system information broadcast. The SYSTEM INFORMATION CHANGE INDICATION message shall include the IE "BCCH Modification Information" indicating the value tag of the modified master information block. After an elapsed time, required to read the new HS-SCCH channelization code in system information, the SS transmits a UE CAPABILITY ENQUIRY message on RB1 over HS-DSCH using HS-SCCH code 7. The UE does not respond to this. SS transmits a UE CAPABILITY ENQUIRY message on RB2 over HS-DSCH using HS-SCCH code 6. After receiving this message the UE should transmit a UE CAPABILITY INFORMATION message on the UL DCCH which indicates the requested capabilities. The SS transmits a UE CAPABILITY INFORMATION CONFIRM message to the UE to complete the UE capability enquiry procedure.

The SS transmits modified SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis. In this message the IE "HS-SCCH Channelisation Code" is set to use HS-SCCH code 7. The Master information block is transmitted with updated MIB value tag. The SS transmits a SYSTEM INFORMATION CHANGE INDICATION message to the UE. This message is transmitted using HS-SCCH code 7. After an elapsed time, required to read the new HS-SCCH channelization code in system information, the SS transmits a UE CAPABILITY ENQUIRY message on RB1 over HS-DSCH using HS-SCCH code 7. The UE does not respond to this. SS transmits a UE CAPABILITY ENQUIRY message on RB2 over HS-DSCH using HS-SCCH code 5. After receiving this message the UE should transmit a UE CAPABILITY INFORMATION message on the UL DCCH which indicates the requested capabilities. The SS transmits a UE CAPABILITY INFORMATION CONFIRM message to the UE to complete the UE capability enquiry procedure

The SS modifies SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis. In this message the IE "HS-SCCH Channelisation Code" is set to use HS-SCCH code 7. The Master information block is transmitted with updated MIB value tag. The SS transmits a SYSTEM INFORMATION CHANGE INDICATION message to the UE. This message is transmitted using HS-SCCH code 6. After an elapsed time, required to read the new HS-SCCH channelization code in system information, SS transmits a UE CAPABILITY ENQUIRY message on RB2 over HS-DSCH using HS-SCCH code 7. After receiving this message the UE should transmit a UE CAPABILITY INFORMATION message on the UL DCCH which indicates the requested capabilities. The SS transmits a UE CAPABILITY INFORMATION CONFIRM message to the UE to complete the UE capability enquiry procedure

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in CELL_FACH state and configured for HS-DSCH reception with dedicated H-RNTI and C-RNTI assigned.
2		←	SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis	For FDD, at the same time, SS starts to transmit the affected SIB TYPE 5/ SIB TYPE 5bis continuously. The value of IE "HS-SCCH Channelisation Code" is changed from "7" to "6" for first indexed HS-SCCH code and to “5” for the second indexed HS-SCCH code.
3	←		MASTER INFORMATION BLOCK	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the original setting.
4		←	SYSTEM INFORMATION CHANGE INDICATION	SS transmits the RRC message which comprises IE "BCCH Modification Information", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block. BCCH is mapped on HS-DSCH. HS-SCCH code is 7 as defined in default SIB5 message.
5				SS waits 5s (to ensure that the UE has time to read the new system information)
6		←	UE CAPABILITY ENQUIRY	RRC message sent on DL SRB1. Use default message but using HS-SCCH channelization Code 7. Use default message.
7				SS waits 10 seconds and checks that the UE does not respond.
8		←	UE CAPABILITY ENQUIRY	RRC message sent on DL SRB2. Use default message but using HS-SCCH channelization Code 6. Use default message.
9		→	UE CAPABILITY INFORMATION	Use default message.
10		←	UE CAPABILITY INFORMATION CONFIRM	Use default message. SRB is sent on SRB2.
11		←	SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis	For FDD, at the same time, SS starts to transmit the affected SIB TYPE 5/ SIB TYPE 5bis continuously. The value of IE "HS-SCCH Channelisation Code" is changed back to 7.
12		←	MASTER INFORMATION BLOCK	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the previous setting.
13		←	SYSTEM INFORMATION CHANGE INDICATION	SS transmits the RRC message which comprises IE "BCCH Modification Information", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block. BCCH is mapped on HS-DSCH. HS-SCCH code is 7.
14				SS waits 5s. A 3GPP compliant UE should not receive SYSTEM INFORMATION CHANGE INDICATION and not re-read System Information

15	←	UE CAPABILITY ENQUIRY	RRC message sent on DL SRB1. Use default message but using HS-SCCH channelization Code 7. Use default message.
16			SS waits 10 seconds and checks that the UE does not respond.
17	←	UE CAPABILITY ENQUIRY	RRC message sent on DL SRB2. Use default message but using HS-SCCH channelization Code 5. Use default message.
18	→	UE CAPABILITY INFORMATION	Use default message.
19	←	UE CAPABILITY INFORMATION CONFIRM	Use default message. SRB is sent on SRB2.
20	←	SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis	For FDD, at the same time, SS starts to transmit the affected SIB TYPE 5/ SIB TYPE 5bis continuously. The value of IE "HS-SCCH Channelisation Code" is set to 7.
21	←	MASTER INFORMATION BLOCK	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the previous setting.
22	←	SYSTEM INFORMATION CHANGE INDICATION	SS transmits the RRC message which comprises IE "BCCH Modification Information", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block. BCCH is mapped on HS-DSCH. HS-SCCH code is 6.
			SS waits 5s (to ensure that the UE has time to read the new system information)
23	←	UE CAPABILITY ENQUIRY	RRC message sent on DL SRB2. Use default message but using HS-SCCH channelization Code 7. Use default message.
24	→	UE CAPABILITY INFORMATION	Use default message.
25	←	UE CAPABILITY INFORMATION CONFIRM	Use default message. SRB is sent on SRB2.

Specific Message Contents

SYSTEM INFORMATION CHANGE INDICATION (Steps 4, 13, 22)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
- MIB Value Tag	Set to (Current MIB value tag + 1)
- BCCH Modification time	Not Present

MASTER INFORMATION BLOCK (Step 3, 12, 21)

Information Element	Value/remark
MIB Value tag	As in SYSTEM INFORMATION CHANGE INDICATION in step 2
SIB 5 Cell Value tag	Set to (Current SIB5 value tag + 1)

SYSTEM INFORMATION BLOCK TYPE 5/ SYSTEM INFORMATION BLOCK TYPE 5bis. (Step 2)(FDD)

Use the same message type found in clause 6.1.0b of TS 34.108, configuration for HS-DSCH reception in CELL_FACH, with the following exception.

Information Element	Value/remark
- HS-SCCH system info	
- DL Scrambling Code	Not Present
- HS-SCCH Channelisation Code Information	Use 2 HS-SCCH
- HS-SCCH Channelisation Code	6
- HS-SCCH Channelisation Code	5

SYSTEM INFORMATION BLOCK TYPE 5/ SYSTEM INFORMATION BLOCK TYPE 5bis. (Steps 11 & 20)(FDD)

Use the same message type found in clause 6.1.0b of TS 34.108, configuration for HS-DSCH reception in CELL_FACH

8.1.10.2.5 Test requirement

At step 7 the UE shall not respond to the UE CAPABILITY ENQUIRY message sent in step 6.

At step 9 the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH to respond to the downlink UE CAPABILITY ENQUIRY message with correct contents.

At step 16 the UE shall not respond to the UE CAPABILITY ENQUIRY message sent in step 15.

At step 24 the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH to respond to the downlink UE CAPABILITY ENQUIRY message with correct contents.

8.1.10.2a BCCH Mapping on HS-DSCH for Transmitting System Information Change Indication with autonomous reading of Master Information Block Value Tag

8.1.10.2a.1 Definition

UEs which support FDD and HS-PDSCH in CELL_FACH and receive Master information block value tag autonomously before or parallel to receiving SYSTEM INFORMATION CHANGE INDICATION in SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis.

8.1.10.2a.2 Conformance requirement

Upon modifications of system information blocks using value tags, UTRAN should notify the new value tag for the master information block in the IE "BCCH modification info", transmitted in the following way:

…

1> for FDD and 1.28 Mcps TDD, to reach UEs in CELL_FACH state with HS-DSCH assigned and in CELL_PCH with HS-DSCH and dedicated H-RNTI assigned, the IE "BCCH modification info" is contained in a SYSTEM INFORMATION CHANGE INDICATION message transmitted on the BCCH mapped on the HS-PDSCH indicated with the first indexed HS-SCCH code by the BCCH specific H-RNTI.

Upon reception of a PAGING TYPE 1 message or a SYSTEM INFORMATION CHANGE INDICATION message containing the IE "BCCH modification info" containing the IE "MIB value tag" but not containing the IE "BCCH modification time", the UE shall perform actions as specified in subclause 8.1.1.7.3

…

The UE shall:

1> compare the value of IE "MIB value tag" in the IE "BCCH modification info" with the value tag stored for the master information block in variable VALUE_TAG.

1> if the value tags differ:

2> read the master information block on BCH;

2> if the value tag of the master information block in the system information is the same as the value in IE "MIB value tag" in "BCCH modification info" but different from the value tag stored in the variable VALUE_TAG:

3> perform actions as specified in subclause 8.1.1.5.

2> if the value tag of the master information block in the system information is the same as the value tag stored in the variable VALUE_TAG:

3> for the next occurrence of the master information block:

4> perform actions as specified in subclause 8.1.1.7.3 again.

2> if the value tag of the master information block in the system information is different from the value tag stored in the variable VALUE_TAG, and is different from the value in IE "MIB value tag" in "BCCH modification info":

3> perform actions as specified in subclause 8.1.1.5;

3> if (VTCI-VTMIB) mod 8 < 4, where VTCI is the value tag in the IE "MIB value tag" in "BCCH modification info" and VTMIB is the value tag of the master information block in the system information:

4> for the next occurrence of the master information block:

5> perform actions as specified in subclause 8.1.1.7.3 again.

…

Whenever the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to TRUE, the UE shall:

…

1> and for FDD, for BCCH reception perform HS-DSCH reception procedures by listening to the first indexed HS-SCCH code listed in the IE "HS-SCCH channelisation code" with "BCCH specific H-RNTI" as received in IE "HS-DSCH common system information".

...

The UE may use the scheduling information included within the master information block and the scheduling blocks to locate each system information block to be acquired.

…

Reference

3GPP TS 25.331: 8.1.1.7.1, 8.1.1.7.3, 8.5.36, 8.1.1.6

8.1.10.2a.3 Test Purpose

1. To verify the correct use of system change indication for BCCH mapped on HS-DSCH
2. To verify operation of BCCH specific H-RNTI
3. To verify that BCCH reception on HS-DSCH uses the first indexed HS-SCCH code listed on the IE HS-SCCH channelisation code with BCCH specific H-RNTI

8.1.10.2a.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CELL_FACH state with DCCH/DTCH mapped onto HS-DSCH as specified in clause 7.4 of TS 34.108 with dedicated H-RNTI and C-RNTI assigned.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH in CELL_FACH

Test Procedure

The SS transmits the new SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis message. In the new SIB TYPE 5 / SIB TYPE 5bis message, the IE "HS-SCCH Channelisation Code" is different when compared to the original SIB TYPE 5 / SIB TYPE 5bis message. Master information block is transmitted with updated MIB value tag. After an elapsed time, required to read the master information block and HS-SCCH channelization code in system information, the SS transmits a UE CAPABILITY ENQUIRY message on RB1 over HS-DSCH using HS-SCCH code 7. The UE does not respond to this.

SS transmits a UE CAPABILITY ENQUIRY message on RB2 over HS-DSCH using HS-SCCH code 6. After receiving this message the UE should transmit a UE CAPABILITY INFORMATION message on the UL DCCH which indicates the requested capabilities. The SS transmits a UE CAPABILITY INFORMATION CONFIRM message to the UE to complete the UE capability enquiry procedure.

The SS transmits modified SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis. In this message the IE "HS-SCCH Channelisation Code" is set to use HS-SCCH code 7. The Master information block is transmitted with updated MIB value tag. The SS transmits a SYSTEM INFORMATION CHANGE INDICATION message to the UE. This message is transmitted using HS-SCCH code 7. After an elapsed time, required to read the master information block value tag and/or the new HS-SCCH channelization code in system information, the SS transmits a UE CAPABILITY ENQUIRY message on RB1 over HS-DSCH using HS-SCCH code 7. The UE responds to this and should transmit a UE CAPABILITY INFORMATION message on the UL DCCH which indicates the requested capabilities. The SS transmits a UE CAPABILITY INFORMATION CONFIRM message to the UE to complete the UE capability enquiry procedure.

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in CELL_FACH state and configured for HS-DSCH reception with dedicated H-RNTI and C-RNTI assigned.
2	←		SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis	For FDD, at the same time, SS starts to transmit the affected SIB TYPE 5/ SIB TYPE 5bis continuously. The value of IE "HS-SCCH Channelisation Code" is changed from "7" to "6" for first indexed HS-SCCH code and to “5” for the second indexed HS-SCCH code.
3	←		MASTER INFORMATION BLOCK	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the original setting. The UE receives Master information block value tag autonomously and reads the system infromation.
4				SS waits 5seconds (to ensure that the UE has time to read the new system information after receiving Master information block value tag autonomously).
5	←		UE CAPABILITY ENQUIRY	RRC message sent on DL SRB1. Use default message but using HS-SCCH channelisation Code 7. Use default message.

6			SS waits 10 seconds and checks that the UE does not respond.
7	←	UE CAPABILITY ENQUIRY	RRC message sent on DL SRB2. Use default message but using HS-SCCH channelisation Code 6. Use default message.
8	→	UE CAPABILITY INFORMATION	Use default message.
9	←	UE CAPABILITY INFORMATION CONFIRM	Use default message. SRB is sent on SRB2.
10	←	SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis	For FDD, at the same time, SS starts to transmit the affected SIB TYPE 5/ SIB TYPE 5bis continuously. The value of IE "HS-SCCH Channelisation Code" is changed back to 7.
11	←	MASTER INFORMATION BLOCK	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the previous setting.
12	←	SYSTEM INFORMATION CHANGE INDICATION	SS transmits the RRC message which comprises IE "BCCH Modification Information", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block. BCCH is mapped on HS-DSCH. HS-SCCH code is 7.
13			SS waits 5 seconds (to ensure that the UE has time to read the master information block value tag and/or new system information).
14	←	UE CAPABILITY ENQUIRY	RRC message sent on DL SRB1. Use default message but using HS-SCCH channelisation Code 7. Use default message.
15	→	UE CAPABILITY ENQUIRY INFORMATION	The UE sends UE CAPABILITY ENQUIRY INFORMATION on UL SRB1 as the response to the UE CAPABILITY ENQUIRY in step 14.
16	←	UE CAPABILITY INFORMATION CONFIRM	The SS responds with a UE CAPABILITY INFORMATION CONFIRM.

Specific Message Contents

SYSTEM INFORMATION CHANGE INDICATION (Steps 12)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
- MIB Value Tag	Set to (Current MIB value tag + 1)
- BCCH Modification time	Not Present

MASTER INFORMATION BLOCK (Step 3, 11)

Information Element	Value/remark
MIB Value tag	As in SYSTEM INFORMATION CHANGE INDICATION in step 2
SIB 5 Cell Value tag	Set to (Current SIB5 value tag + 1)

SYSTEM INFORMATION BLOCK TYPE 5/ SYSTEM INFORMATION BLOCK TYPE 5bis. (Step 2)(FDD)

Use the same message type found in clause 6.1.0b of TS 34.108, configuration for HS-DSCH reception in CELL_FACH, with the following exception.

Information Element	Value/remark
- HS-SCCH system info	
- DL Scrambling Code	Not Present
- HS-SCCH Channelisation Code Information	Use 2 HS-SCCH
- HS-SCCH Channelisation Code	6
- HS-SCCH Channelisation Code	5

SYSTEM INFORMATION BLOCK TYPE 5/ SYSTEM INFORMATION BLOCK TYPE 5bis. (Steps 10)(FDD)

Use the same message type found in clause 6.1.0b of TS 34.108, configuration for HS-DSCH reception in CELL_FACH

8.1.10.2a.5 Test requirement

At step 6 the UE shall not respond to the UE CAPABILITY ENQUIRY message sent in step 5.

At step 8 the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH to respond to the downlink UE CAPABILITY ENQUIRY message with correct contents.

At step 15 the UE shall respond to the UE CAPABILITY ENQUIRY message sent on UL SRB1in step 15 after the UE receives Master information block value tag autonomously in step 14.

8.1.10.3 BCCH Mapping on HS-DSCH for Transmitting System Information Change Indication (1.28Mcps TDD)

8.1.10.3.1 Definition

All UEs which support 1.28Mcps TDD and HS-PDSCH in CELL_FACH.

8.1.10.3.2 Conformance requirement

Upon modifications of system information blocks using value tags, UTRAN should notify the new value tag for the master information block in the IE "BCCH modification info", transmitted in the following way:

…

1> for FDD and 1.28 Mcps TDD, to reach UEs in CELL_FACH state with HS-DSCH assigned and in CELL_PCH with HS-DSCH and dedicated H-RNTI assigned, the IE "BCCH modification info" is contained in a SYSTEM INFORMATION CHANGE INDICATION message transmitted on the BCCH mapped on the HS-PDSCH indicated with the first indexed HS-SCCH code by the BCCH specific H-RNTI.

Upon reception of a PAGING TYPE 1 message or a SYSTEM INFORMATION CHANGE INDICATION message containing the IE "BCCH modification info" containing the IE "MIB value tag" but not containing the IE "BCCH modification time", the UE shall perform actions as specified in subclause 8.1.1.7.3

…

The UE shall:

1> compare the value of IE "MIB value tag" in the IE "BCCH modification info" with the value tag stored for the master information block in variable VALUE_TAG.

1> if the value tags differ:

2> read the master information block on BCH;

2> if the value tag of the master information block in the system information is the same as the value in IE "MIB value tag" in "BCCH modification info" but different from the value tag stored in the variable VALUE_TAG:

3> perform actions as specified in subclause 8.1.1.5.

2> if the value tag of the master information block in the system information is the same as the value tag stored in the variable VALUE_TAG:

3> for the next occurrence of the master information block:

4> perform actions as specified in subclause 8.1.1.7.3 again.

2> if the value tag of the master information block in the system information is different from the value tag stored in the variable VALUE_TAG, and is different from the value in IE "MIB value tag" in "BCCH modification info":

3> perform actions as specified in subclause 8.1.1.5;

3> if (VTCI-VTMIB) mod 8 < 4, where VTCI is the value tag in the IE "MIB value tag" in "BCCH modification info" and VTMIB is the value tag of the master information block in the system information:

4> for the next occurrence of the master information block:

5> perform actions as specified in subclause 8.1.1.7.3 again.

…

Whenever the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to TRUE, the UE shall:

…

1> and for 1.28 Mcps TDD, for BCCH reception perform HS-DSCH reception procedures by listening to the first indexed HS-SCCH according to the stored HS-SCCH configuration with "BCCH specific H-RNTI" as received in IE "HS-DSCH common system information".

NOTE : For 1.28 Mcps TDD, when performing HS-DSCH reception in CELL_FACH state, the UE shall use the table of transport block size for the HS-DSCH physical layer category 9 as specified in [15].

Reference

3GPP TS 25.331: 8.1.1.7.1, 8.1.1.7.3, 8.5.36

8.1.10.3.3 Test Purpose

4. To verify the correct use of system change indication for BCCH mapped on HS-DSCH
5. To verify operation of BCCH specific H-RNTI
6. To verify that BCCH reception on HS-DSCH uses the first indexed HS-SCCH code listed on the IE HS-SCCH channelization code with BCCH specific H-RNTI

8.1.10.3.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CELL_FACH state with DCCH/DTCH mapped onto HS-DSCH as specified in clause 7.4 of TS 34.108 with dedicated H-RNTI and C-RNTI assigned.

Related ICS/IXIT statement(s)

- UE supports 1.28Mcps TDD
- UE supports HS-PDSCH in CELL_FACH

Test Procedure

The SS transmits the new SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis message. In the new SIB TYPE 5 / SIB TYPE 5bis message, the IE "HS-SCCH Channelisation Code" is different when compared to the original SIB TYPE 5 / SIB TYPE 5bis message. Master information block is transmitted with updated MIB value tag. Then SS transmits a SYSTEM INFORMATION CHANGE INDICATION message to the UE with BCCH mapped on HS-DSCH. The transmission of BCCH on HS-DSCH is performed by using BCCH-specific H-RNTI on the specific HS-SCCH code indicated in system information broadcast. The SYSTEM INFORMATION CHANGE INDICATION message shall include the IE "BCCH Modification Information" indicating the value tag of the modified master information block. After an elapsed time, required to read the new HS-SCCH channelization code in system information, the SS transmits a UE CAPABILITY ENQUIRY message on RB1 over HS-DSCH using HS-

SCCH code "16/11"and “16/12”. The UE does not respond to this. SS transmits a UE CAPABILITY ENQUIRY message on RB2 over HS-DSCH using HS-SCCH code "16/7"and “16/8”. After receiving this message the UE should transmit a UE CAPABILITY INFORMATION message on the UL DCCH which indicates the requested capabilities. The SS transmits a UE CAPABILITY INFORMATION CONFIRM message to the UE to complete the UE capability enquiry procedure.

The SS transmits modified SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis. In this message the IE "HS-SCCH Channelisation Code” is set to use HS-SCCH code "16/11"and “16/12”. The Master information block is transmitted with updated MIB value tag. The SS transmits a SYSTEM INFORMATION CHANGE INDICATION message to the UE, This message is transmitted using HS-SCCH code "16/11"and “16/12”. After an elapsed time, required to read the new HS-SCCH channelization code in system information, the SS transmits a UE CAPABILITY ENQUIRY message on RB1 over HS-DSCH using HS-SCCH code "16/11"and “16/12”. The UE does not respond to this. SS transmits a UE CAPABILITY ENQUIRY message on RB2 over HS-DSCH using HS-SCCH code "16/9"and “16/10”. After receiving this message the UE should transmit a UE CAPABILITY INFORMATION message on the UL DCCH which indicates the requested capabilities. The SS transmits a UE CAPABILITY INFORMATION CONFIRM message to the UE to complete the UE capability enquiry procedure.

The SS modifies SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis. In this message the IE "HS-SCCH Channelisation Code” is set to use HS-SCCH code "16/11"and “16/12”. The Master information block is transmitted with updated MIB value tag. The SS transmits a SYSTEM INFORMATION CHANGE INDICATION message to the UE, This message is transmitted using HS-SCCH code "16/7"and “16/8”. After an elapsed time, required to read the new HS-SCCH channelization code in system information. SS transmits a UE CAPABILITY ENQUIRY message on RB2 over HS-DSCH using HS-SCCH code "16/11"and “16/12”. After receiving this message the UE should transmit a UE CAPABILITY INFORMATION message on the UL DCCH which indicates the requested capabilities. The SS transmits a UE CAPABILITY INFORMATION CONFIRM message to the UE to complete the UE capability enquiry procedure

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in CELL_FACH state and configured for HS-DSCH reception with dedicated H-RNTI and C-RNTI assigned.
2	←		SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis	At the same time, SS starts to transmit the affected SIB TYPE 5/ SIB TYPE 5bis continuously. The value of IE "HS-SCCH Channelisation Code" is changed from "16/11"and “16/12” to "16/7" and “16/8” for first indexed HS-SCCH and to “16/9” and “16/10” for the second indexed HS-SCCH code.
3	←		MASTER INFORMATION BLOCK	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the original setting.
4	←		SYSTEM INFORMATION CHANGE INDICATION	SS transmits the RRC message which comprises IE "BCCH Modification Information", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block. BCCH is mapped on HS-DSCH. HS-SCCH code is 16/11 and 16/12 as defined in default SIB5 message.
5				SS waits 5s (to ensure that the UE has time to read the new system information)
.6	←		UE CAPABILITY ENQUIRY	RRC message sent on DL SRB2. Use default message but using HS-SCCH channelization Code 16/11 and 16/12. Use default message.
7				SS waits 10 seconds and checks that the UE does not respond.
8	←		UE CAPABILITY ENQUIRY	RRC message sent on DL SRB2. Use default message but using HS-SCCH channelization Code 16/7 and 16/8. Use default message.
9	→		UE CAPABILITY INFORMATION	Use default message.
10	←		UE CAPABILITY INFORMATION CONFIRM	Use default message. SRB is sent on SRB2.
11	←		SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis	At the same time, SS starts to transmit the affected SIB TYPE 5/ SIB TYPE 5bis continuously. The value of IE "HS-SCCH Channelisation Code" is changed back to 16/11 and 16/12.
12	←		MASTER INFORMATION BLOCK	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the previous setting.
13	←		SYSTEM INFORMATION CHANGE INDICATION	SS transmits the RRC message which comprises IE "BCCH Modification Information", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block. BCCH is mapped on HS-DSCH. HS-SCCH code is 16/11 and 16/12.
14				SS waits 5s. A 3GPP compliant UE should not receive SYSTEM INFORMATION CHANGE INDICATION and not re-read System Information

15	←	UE CAPABILITY ENQUIRY	RRC message sent on DL SRB2. Use default message but using HS-SCCH channelization Code 16/11 and 16/12. Use default message.
16			SS waits 10 seconds and checks that the UE does not respond.
17	←	UE CAPABILITY ENQUIRY	RRC message sent on DL SRB2. Use default message but using HS-SCCH channelization Code 16/9 and 16/10. Use default message.
18	→	UE CAPABILITY INFORMATION	Use default message.
19	←	UE CAPABILITY INFORMATION CONFIRM	Use default message. SRB is sent on SRB2.
20	←	SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis	At the same time, SS starts to transmit the affected SIB TYPE 5/ SIB TYPE 5bis continuously. The value of IE "HS-SCCH Channelisation Code" is set to 16/11 and 16/12.
21	←	MASTER INFORMATION BLOCK	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the previous setting.
22	←	SYSTEM INFORMATION CHANGE INDICATION	SS transmits the RRC message which comprises IE "BCCH Modification Information", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block. BCCH is mapped on HS-DSCH. HS-SCCH code is 16/7and 16/8.
			SS waits 5s (to ensure that the UE has time to read the new system information)
23	←	UE CAPABILITY ENQUIRY	RRC message sent on DL SRB2. Use default message but using HS-SCCH channelization Code 16/11 and 16/12. Use default message.
24	→	UE CAPABILITY INFORMATION	Use default message.
25	←	UE CAPABILITY INFORMATION CONFIRM	Use default message. SRB is sent on SRB2.

Specific Message Contents

SYSTEM INFORMATION CHANGE INDICATION (Steps 4, 13, 22)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
- MIB Value Tag	Set to (Current MIB value tag + 1)
- BCCH Modification time	Not Present

MASTER INFORMATION BLOCK (Step 3, 12, 21)

Information Element	Value/remark
MIB Value tag	As in SYSTEM INFORMATION CHANGE INDICATION in step 2
SIB 5 Cell Value tag	Set to (Current SIB5 value tag + 1)

SYSTEM INFORMATION BLOCK TYPE 5/ SYSTEM INFORMATION BLOCK TYPE 5bis. (Step 2)

Use the same message type found in clause 6.1.0b of TS 34.108, configuration for HS-DSCH reception in CELL_FACH, with the following exception.

Information Element	Value/remark
- HS-SCCH Set Configuration	Use 2 HS-SCCH
- Timeslot number	0
- First Channelisation code	16/7
- Second Channelisation code	16/8
- Timeslot number	0
- First Channelisation code	16/9
- Second Channelisation code	16/10

SYSTEM INFORMATION BLOCK TYPE 5/ SYSTEM INFORMATION BLOCK TYPE 5bis. (Step 11, 20)

Use the same message type found in clause 6.1.0b of TS 34.108, configuration for HS-DSCH reception in CELL_FACH,

8.1.10.3.5 Test requirement

At step 7 the UE shall not respond to the UE CAPABILITY ENQUIRY message sent in step 6.

At step 9 the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH to respond to the downlink UE CAPABILITY ENQUIRY message with correct contents.

At step 16 the UE shall not respond to the UE CAPABILITY ENQUIRY message sent in step 15.

At step 24 the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH to respond to the downlink UE CAPABILITY ENQUIRY message with correct contents.

8.1.11 Signalling Connection Release (Invalid configuration)

8.1.11.1 Definition

8.1.11.2 Conformance requirement

Upon reception of a SIGNALLING CONNECTION RELEASE message, the UE shall:

1> indicate the release of the signalling connection and pass the value of the IE "CN domain identity" to upper layers;

1> remove the signalling connection with the identity indicated by the IE "CN domain identity" from the variable ESTABLISHED_SIGNALLING_CONNECTIONS;

1> clear the entry for the SIGNALLING CONNECTION RELEASE message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> the procedure ends.

If radio access bearers for the CN domain indicated by the IE "CN domain identity" exist in the variable ESTABLISHED_RABS, the UE shall:

1> transmit an RRC STATUS message on the uplink DCCH using AM RLC;

1> include the IE "Identification of received message"; and

1> set the IE "Received message type" to SIGNALLING CONNECTION RELEASE; and

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the SIGNALLING CONNECTION RELEASE message in the table "Accepted transactions" in the variable TRANSACTIONS and clear that entry;

1> include the IE "Protocol error information" with contents set to the value "Message not compatible with receiver state";

1> when the RRC STATUS message has been submitted to lower layers for transmission:

2> continue with any ongoing processes and procedures as if the invalid SIGNALLING CONNECTION RELEASE message has not been received.

Reference

3GPP TS 25.331 clause 8.1.13.3 and 8.1.13.5.

8.1.11.3 Test purpose

To confirm that the UE ignores the SIGNALLING CONNECTION RELEASE REQUEST message which request the UE to release signalling connection of domain that contains established radio access bearers.

To confirm that the UE transmit a RRC STATUS message to SS after detecting an invalid configuration in the received message.

8.1.11.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS_DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

SS transmit MEASUREMENT CONTROL message to UE. In this message, SS requests UE to perform traffic volume measurement. Key measurement parameters are as follows: measurement quantity = "RLC Buffer Payload", report criteria = "periodic reporting criteria", reporting interval = "6 seconds", reporting amount = 'infinity'. UE shall begin traffic volume measurements, and shall send MEASUREMENT REPORT message after completing first measurement. UE shall send second MEASUREMENT REPORT message 6 seconds after first MEASUREMENT REPORT message. Then SS transmit SIGNALLING CONNECTION RELEASE message to UE. UE shall ignore the message and send a RRC STATUS message to SS. Then the UE shall send MEASUREMENT REPORT message to SS within the next 6 seconds.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		MEASUREMENT CONTROL	Periodical traffic volume measurement reporting is requested.
2	→		MEASUREMENT REPORT	
3	→		MEASUREMENT REPORT	Time difference between earlier and this MEASUREMENT REPORT message should be 6 seconds.
4	←		SIGNALLING CONNECTION RELEASE	If the initial condition of the UE is state 6-9, set the IE "CN domain identity" to "CS domain". If the initial condition of the UE is state 6-10, set the IE "CN domain identity" to "PS domain".
5	→		RRC STATUS	
6	→		MEASUREMENT REPORT	This message should be sent within 6 seconds after the previous message.

Specific Message Content

MEASUREMENT CONTROL (Step 1)

For MEASUREMENT CONTROL message in step 1, use the message sub-type as found in clause 9 of TS 34.108, with the exception of the following Information Elements:

Information Element	Value/Remark
Measurement Identity	1
Measurement Command	Setup
Measurement reporting mode	
- Transfer Mode	Acknowledged mode
- Periodical or event trigger	Periodic
Additional measurement list	Not Present
CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	
- Uplink transport channel type	DCH
- UL Target Transport Channel ID	5
- Traffic volume measurement quantity	
- Measurement quantity	RLC Buffer Payload
- Time Interval to take an average or a variance	Not Present
- Traffic volume reporting quantity	
- RLC Buffer Payload for each RB	True
- Average of RLC Buffer Payload for each RB	False
- Variance of RLC Buffer Payload for each RB	False
- Measurement validity	Not Present
- CHOICE Reporting criteria	Periodical Reporting Criteria
- Amount of reporting	Infinity
- Reporting interval	6 Sec
DPCH compressed mode status	Not Present

MEASUREMENT REPORT (Step 2, 3 and 6)

Check that the message received is the same as the message sub-type found in clause 9 of TS 34.108, with the following exceptions and the order in which the RBs are reported is not checked.

Information Element	Value/Remarks
Measurement identity	1
Measured Results	
- CHOICE measurement	Traffic volume measured results list
- Traffic volume measurement results	
- RB identity	1
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	2
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	3
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	4
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

SIGNALLING CONNECTION RELEASE (Step 4)

Information Element	Value/Remarks
Message Type	
RRC transaction identifier	0
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
CN domain identity	If the initial condition of the UE is state 6-9, set to "CS domain". If the initial condition of the UE is state 6-10, set to "PS domain".

RRC STATUS (Step 5)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Identification of received message	Not Checked
- Received message type	SIGNALLING CONNECTION RELEASE
- RRC transaction identifier	0
Protocol error information	
- Protocol error cause	Message not compatible with receiver state

8.1.11.5 Test requirement

After step 1 the UE shall transmit MEASUREMENT REPORT message twice at an interval of 6 seconds.

After step 4 the UE shall transmit a RRC STATUS message with protocol error cause set to "Message not compatible with receiver state".

After step 5 the UE shall transmit a MEASUREMENT REPORT within 6 seconds.

8.1.12 Integrity Protection

8.1.12.1 Definition

8.1.12.2 Conformance requirement

If the UE receives an RRC message on signalling radio bearer with RB identity n, the "Status" in the variable INTEGRITY_ PROTECTION_INFO has the value "Started" and the IE 'Integrity check info' is present the UE shall:

1> check the value of the IE "RRC message sequence number" included in the IE "Integrity check info";

2> if the "Downlink RRC Message sequence number" is not present in the variable INTEGRITY_PROTECTION_INFO:

3> initialise the "Downlink RRC Message sequence number" for signalling radio bearer RBn in the variable INTEGRITY_PROTECTION_INFO with the value of the IE "RRC message sequence number" included in the IE "Integrity check info" of the received message.

2> if the "Downlink RRC Message sequence number" is present in the variable INTEGRITY_PROTECTION_INFO:

3> if the RRC message sequence number is lower than the "Downlink RRC Message sequence number" for signalling radio bearer RBn in the variable INTEGRITY_PROTECTION_INFO:

4> increment "Downlink RRC HFN" for signalling radio bearer RBn in the variable INTEGRITY_PROTECTION_INFO with one.

3> if the RRC message sequence number is equal to the "Downlink RRC Message sequence number" for signalling radio bearer RBn in the variable INTEGRITY_PROTECTION_INFO:

4> discard the message.

1> calculate an expected message authentication code in accordance with subclause 8.5.10.3 of TS25.331;

1> compare the expected message authentication code with the value of the received IE "message authentication code" contained in the IE "Integrity check info";

2> if the expected message authentication code and the received message authentication code are the same, the integrity check is successful:

3> update the "Downlink RRC Message sequence number" for signalling radio bearer RBn in the variable INTEGRITY_PROTECTION_INFO with the value of the IE "RRC message sequence number" included in the IE "Integrity check info" of the received RRC message.

2> if the calculated expected message authentication code and the received message authentication code differ:

3> if the IE "RRC message sequence number" included in the IE "Integrity check info" is lower than the "Downlink RRC Message sequence number" for signalling radio bearer RBn in the variable INTEGRITY_PROTECTION_INFO (in this case the "Downlink RRC HFN" for signalling radio bearer RBn in the variable INTEGRITY_PROTECTION_INFO was incremented by one, as stated above):

4> decrement "Downlink RRC HFN" for signalling radio bearer RBn in the variable INTEGRITY_PROTECTION_INFO by one.

3> discard the message.

If the UE receives an RRC message on signalling radio bearer with identity n, the "Status" in the variable INTEGRITY_PROTECTION_INFO has the value "Started" and the IE 'Integrity check info' is not present the UE shall:

1> discard the message.

Reference

3GPP TS 25.331 clause 8.5.10.

8.1.12.3 Test purpose

To confirm that the UE discards any RRC messages that include wrong message authentication code, or RRC message sequence number, or do not include the IE "Integrity Check Info" after integrity protection is activated.

8.1.12.4 Method of test

Initial Condition

System Simulator: 1cell.

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS_DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE after integrity protection is activated on all SRBs.

Test Procedure

The UE is in CELL_DCH state, radio access bearer and integrity protection is already activated in generic setup procedure. The SS transmits UE CAPABILITY ENQUIRY message on the downlink DCCH using RLC-UM mode on SRB1. The UE shall respond to with a UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM. The SS then sends UE CAPABILITY INFORMATION CONFIRM message to the UE. This procedure is used to initialise the downlink RRC message sequence number in the UE.

SS transmits RRC CONNECTION RELEASE message which does not include the IE "Integrity Check Info" on downlink DCCH. The UE shall discard this message and shall not respond using RRC CONNECTION RELEASE COMPLETE message.

Then SS transmits RRC CONNECTION RELEASE message which includes wrong message authentication code on downlink DCCH. The UE shall discard this message and shall not respond using RRC CONNECTION RELEASE COMPLETE message.

Then SS transmits RRC CONNECTION RELEASE message which includes IE"RRC Message sequence number" as set to the same sequence number as the number in previous received RRC message. The UE shall discard this message and shall not respond using RRC CONNECTION RELEASE COMPLETE message.

Then SS transmits RRC CONNECTION RELEASE message which includes correct RRC Message sequence number and message authentication code. The UE shall transmit RRC CONNECTION RELEASE COMPLETE message on uplink DCCH and enter the idle state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0				The UE is in CELL_DCH state.
0a	←		UE CAPABILITY ENQUIRY	The SS shall send this message to ensure correct initialisation of RRC message sequence number on downlink DCCH using RLC-UM
0b	→		UE CAPABILITY INFORMATION	The UE shall send this message on the uplink DCCH using RLC-AM
0c	←		UE CAPABILITY INFORMATION CONFIRM	
1	←		RRC CONNECTION RELEASE	See specific message content
2				During 5s after step 1, confirm that UE does not transmit RRC CONNECTION RELEASE COMPLETE message. If RRC CONNECTION RELEASE COMPLETE message is received, the test is ended as fail.
3	←		RRC CONNECTION RELEASE	See specific message content
4				During 5s after step 3, confirm that UE does not transmit RRC CONNECTION RELEASE COMPLETE message. If RRC CONNECTION RELEASE COMPLETE message is received, the test is end as fail.
5			Void	
6			Void	
7			Void	
8	←		RRC CONNECTION RELEASE	See specific message content
9				During 5s after step 8, confirm that UE does not transmit RRC CONNECTION RELEASE COMPLETE message. If RRC CONNECTION RELEASE COMPLETE message is received, the test is end as fail.
10	←		RRC CONNECTION RELEASE	Use default message content.
11	→		RRC CONNECTION RELEASE COMPLETE	SS waits for the arrival of N308 + 1 such messages using unacknowledged mode.
12	←→		CALL C.1	If the test result of C.1 indicates that UE is in Idle state, the test passes, otherwise it fails.

Specific Message Content

RRC CONNECTION RELEASE (Step 1)

Use the same message type found in clause 9 of TS 34.108, with the following exception:

Information Element	Value/remark
Integrity check info	Not Present

RRC CONNECTION RELEASE (Step 3)

Use the same message type found in clause 9 of TS 34.108, with the following exception:

Information Element	Value/remark
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and set different value from the calculated result to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter value.

RRC CONNECTION RELEASE (Step 8)

Use the same message type found in clause 9 of TS 34.108, with the following exception:

Information Element	Value/remark
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and set the result to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	SS provides the value of this IE equal to the value for the last message accepted by the UE on this radio bearer.

8.1.12.5 Test requirement

After step 1 the UE shall not transmit RRC CONNECTION RELEASE COMPLETE message on the uplink DCCH.

After step 3 the UE shall not transmit RRC CONNECTION RELEASE COMPLETE message on the uplink DCCH.

After step 8 the UE shall not transmit RRC CONNECTION RELEASE COMPLETE message on the uplink DCCH.

After step 10 the UE shall transmit RRC CONNECTION RELEASE COMPLETE message on the uplink DCCH.