26.14   VGCS and VBS Tests

This clause applies to mobile station supporting Voice Group Call Service (TS 91) and/or Voice Broadcast Service (TS 92). The objective of this clause is to test VGCS/VBS concerned procedures. A specific VGCS/VBS SIM card is needed for testing. If a mobile supports both VGCS and VBS, the VGCS is selected for tests except when otherwise stated.

For VGCS and VBS, the following possible mobile station implementations exist:

-   support of VBS listening;

-   support of VBS originating;

-   support of VGCS listening;

-   support of VGCS talking. This always includes the implementation for VGCS listening;

-   support of VGCS originating. This always includes the implementation for VGCS talking.

Apart from the explicitly mentioned combinations, all possible combinations are optional.

In this clause some L3 messages are sent in UI format to which no L2 acknowledgement/re-transmission mechanism is applied. It is important for overall tests in this clause to ensure that the radio conditions are ideal.

Tables 26.14.1 to 26.14.3 define generic procedures to bring the MS into an initial state. For establishment of group transmit mode table 26.14.1 is used if the MS supports VGCS talking. If an MS supporting VBS originating rather than VGCS, table 26.14.2 is used for establishment of a VBS call and to bring the MS into group transmit mode. For establishment of group receive mode table 26.14.3 is applied.

Unless indicated in individual sub-clauses, the default message contents in subclause 26.14.10 are applied.

Table 26.14.1: Establishment of group transmit mode for VGCS

Step	Direction	Message	Comments
0	MS		the MS is in idle mode
1	SS -> MS	NOTIFICATION/NCH	with a description of VGCS channel and a VGCS call reference active in the MS
2	MS		After the indication of the notification, MMI action to join the VGCS call
3	SS -> MS	UPLINK FREE	
4	MS		MMI action to request uplink access
5	MS -> SS	UPLINK ACCESS	
6	MS -> SS	UPLINK ACCESS	
7	SS -> MS	UPLINK BUSY	
8	SS -> MS	VGCS UPLINK GRANT	
9	MS -> SS	TALKER INDICATION	L2: SABM / UA

Table 26.14.2: Establishment of a VBS call

Step	Direction	Message	Comments
0	MS		the MS is in idle mode
1	MS		MMI action to initiate a VBS call with setup procedure.
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	TCH/F, single RF channel
			GSM 450: 275,
			GSM 480: 322
			GSM 900: 50,
			DCS 1 800: 750
			PCS 1 900: 650
			GSM710: 470
			GSM 750: 470
			T-GSM 810: 470
			GSM 850: 177
4	MS -> SS	CM SERVICE REQUEST	VBS establishment, L2: SABM / UA
5	SS -> MS	CM SERVICE ACCEPT	
6	MS -> SS	SETUP	
7	SS -> MS	CHANNEL MODE MODIFY	
8	MS -> SS	CHANNEL MODE MODIFY ACKNOWLEDGE	
9	SS -> MS	CONNECT	

Table 26.14.3: Establishment of group receive mode for VGCS or VBS

Step	Direction	Message	Comments
0	MS		the MS is in idle mode
1	SS -> MS	NOTIFICATION/NCH	with a description of VGCS/VBS channel and a VGCS/VBS call reference active in the MS, for VGCS call the SF set to '1', for VBS call the SF set to '0'
2	MS		After the indication of the notification, MMI action to join the VGCS/VBS call

26.14.1 VGCS-VBS / Notification

26.14.1.1 VGCS-VBS / Notification / notification indication

26.14.1.1.1 Conformance requirement

1. Having received a NOTIFICATION/NCH or NOTIFICATION/FACCH which contains group call reference(s) that are active in the MS, the MS shall correctly indicate the notified group/broadcast call reference(s).

2. On request to respond to the call notification, the MS shall join the VGCS/VBS call on the correct channel if a description for the VGCS/VBS channel is included.

3. On request to respond to the call notification, the MS shall establish an RR connection to respond the notification if no description for the VGCS/VBS channel is included.

4. The MS shall ignore any NOTIFICATION/NCH or NOTIFICATION/FACCH which contains group call reference(s) that are not active in the MS.

Reference(s)

3GPP TS 04.08 / 3GPP TS 44.018 subclauses 3.3.3.1 and 3.3.3.2.

3GPP TS 03.68 subclauses 4.1, 11.3.1.3a and 11.3.1.3b.

3GPP TS 03.69 subclauses 4.1, 11.3.1.3a and 11.3.1.3b.

26.14.1.1.2   Test purpose

1. To verify that the MS indicates correctly the notified group/broadcast call reference(s) after receiving a NOTIFICATION/NCH or NOTIFICATION/FACCH message which contains group call reference(s) that are active in the MS.

2. To verify that the MS, on request to respond to a call notification, joins the VGCS/VBS call on the correct channel if a description for the VGCS/VBS channel is included in the NOTIFICATION message.

3. To verify that the MS, on request to respond to a call notification, establishes an RR connection to respond to the notification if no description for the VGCS/VBS channel is included in the NOTIFICATION message.

4. To verify that the MS ignores any NOTIFICATION/NCH or NOTIFICATION/FACCH which contains group call reference(s) that are not active in the MS.

5. To verify that there is no uplink transmission from the MS on TCH after the MS join the call.

26.14.1.1.3   Method of test

Initial Conditions

System Simulator:

1 cell default parameters for ASCI testing

Mobile Station:

The MS is in MM-state "idle, updated". No automatic answering is configured.

Specific PICS statements:

- Support VGCS talking (TSPC_Addinfo_VGCS_Talking)

- Support VBS originating (TSPC_Addinfo_VBS_Originating)

PIXIT Statements:

- Way to configure VGCS or VBS.

- Way to indicate a call notification.

- Way to accept a VGCS or VBS.

- Way to verify the downlink speech path.

Foreseen Final State of the MS

"Idle, updated".

Test Procedure

The MS is in idle mode, the SS sends NOTIFICATION/NCH containing VGCS/VBS channel description and VGCS/VBS call reference not active in the MS. It is checked that the MS ignores the message. The SS sends NOTIFICATION/NCH containing VGCS/VBS channel description and VGCS/VBS call reference active in the MS ("good reference"). It is checked whether the MS indicates correctly the notified group call reference(s) and joins VGCS/VBS call on request of responding to the notification. The group call is terminated. The SS sends NOTIFICATION/NCH which contains the "good reference" but no VGCS/VBS channel description. It is checked that the MS indicates correctly the notified group call reference(s) and establishes a RR connection to respond to the notification on request of responding to the call, then joins the call. The group call is terminated.

The MS is brought to group receive mode or CC state U10 or dedicated mode with signalling connection or group transmit mode (for k=1, 2, 3, 4 respectively), the SS sends NOTIFICATION/FACCH containing the "good reference" but no VGCS/VBS channel description. It is checked that the MS gives correct notified group call reference(s) and on request of responding to the call, establishes a RR connection to respond to the notification and joins the call. The call is terminated.

Finally, the MS is brought to group receive mode or CC state U10 or dedicated mode with signalling connection or group transmit mode (for k=1, 2, 3, 4 respectively), the SS sends NOTIFICATION/FACCH containing the "good reference" and VGCS/VBS channel description. It is checked the MS indicates correctly the notified group call reference(s) and joins VGCS/VBS call on request of responding to the notification. The group call is terminated.

Maximum Duration of Test

10 minutes excluding operator operations.

Expected Sequence

Test steps 20 to 50 are executed for k=1, 2, 3, 4 conditionally. If the MS does not support CC state U10, test steps 20 to 50 are not executed for k=2. If the MS does not support VGCS talking or VBS originating, test steps 20 to 50 are not executed for k=4.

Step	Direction	Message	Comments
0	MS		the MS is in idle mode
1	SS -> MS	NOTIFICATION/NCH	with a description of VGCS/VBS channel and a VGCS/VBS call reference not active in the MS
2	MS		check that the MS ignores the notification and there is no uplink transmission on that channel for 10 s.
3	SS -> MS	NOTIFICATION/NCH	with a description of VGCS/VBS channel and a VGCS/VBS call reference active in the MS
4	MS		check that the MS gives an indication containing the notified group call reference
5	MS		MMI action to join the VGCS/VBS call
6	MS		check that the TCH in downlink is through connected and there is no uplink transmission on that channel for 10 s.
7	SS		stop sending NOTIFICATION/NCH
8	SS -> MS	CHANNEL RELEASE	UI format, return to the idle updated state
9	SS		wait for the MS returning to idle updated mode and listening to NCH again
10	SS -> MS	NOTIFICATION/NCH	with a VGCS/VBS call reference active in the MS but different from step 3 and no VGCS/VBS channel description
11	MS		MMI action to join the VGCS/VBS call
12	MS -> SS	CHANNEL REQUEST	
13	SS -> MS	IMMEDIATE ASSIGNMENT	
14	MS -> SS	NOTIFICATION RESPONSE	L2: SABM / UA
15	SS -> MS	CHANNEL RELEASE	release the dedicated channel with a group channel description. The MS releases L2 multiple frame link L2:DISC/UA.
16	MS		check that the TCH in downlink is through connected and there is no uplink transmission on that channel for 10 s.
17	SS		stop sending NOTIFICATION/NCH
18	SS -> MS	CHANNEL RELEASE	UI format, to return to idle updated state
19			wait 5s.
A20	MS		for k=1, the MS is brought into group receive mode
B20			for k=2, the MS is brought into CC state U10
C20			for k=3, the MS is brought into dedicated mode with a signalling connection
D20			for k=4, the MS is brought into group transmit mode
21	SS -> MS	NOTIFICATION/FACCH	with a VGCS/VBS call reference not active in the MS, but no VGCS/VBS channel description
22	MS		check that the MS ignores the notification and there is no uplink transmission on that channel for 10 s.
23	SS -> MS	NOTIFICATION/FACCH	with a VGCS/VBS call reference active in the MS, but no VGCS/VBS channel description
24	MS		check the MS's indication of the notified VGCS/VBS call reference
25	MS		MMI action to join the VGCS/VBS call

Step	Direction	Message	Comments
A26			for k=1, no signalling needed
B26	MS -> SS	DISCONNECT	for k=2, release the old call and the channel
B27	SS -> MS	RELEASE	
B28	MS -> SS	RELEASE COMPLETE	
B29	SS -> MS	CHANNEL RELEASE	The MS releases L2 multiple frame link L2:DISC/UA.
C26	MS -> SS	DISC/UA	for k=3, release the original dedicated. The MS releases L2 multiple frame link L2:DISC/UA.
D26	MS -> SS	UPLINK RELEASE	for k=4, release original uplink - for VGCS only
D27	SS -> MS	CHANNEL RELEASE	UI format, to return to idle updated state - for VGCS only
D28	MS -> SS	TERMINATION REQUEST	for VBS call only
D29	SS -> MS	TERMINATION	for VBS call only
D30	SS -> MS	CHANNEL RELEASE	The MS releases L2 multiple frame link L2:DISC/UA -for VBS call only
31	MS -> SS	CHANNEL REQUEST	
32	SS -> MS	IMMEDIATE ASSIGNMENT	
33	MS -> SS	NOTIFICATION RESPONSE	L2: SABM / UA
34	SS -> MS	CHANNEL RELEASE	with group channel description. The MS releases L2 multiple frame link L2:DISC/UA.
35	MS		check that the TCH in downlink is through connected and there is no uplink transmission on that channel for 10 s. if the MS supports VGCS talking
36	SS		stop sending NOTIFICATION/NCH
37	SS -> MS	CHANNEL RELEASE	UI format, return to the idle updated state
38			wait for the MS returning to idle updated mode
A	MS		for k=1, the MS is brought into group receive mode
B40			for k=2, the MS is brought into CC state U10
C40			for k=3, the MS is brought into dedicated mode with a signalling connection
D40			for k=4, the MS is brought into group transmit mode
41	SS -> MS	NOTIFICATION/FACCH	with VGCS/VBS channel description and VGCS/VBS call reference active in the MS
42	MS		check the indication of the notified VGCS/VBS call reference
43	MS		MMI action to join the VGCS/VBS call
A44			for k=1, no signalling needed
B44	MS -> SS	DISCONNECT	for k=2, release the old call and the channel
B45	SS -> MS	RELEASE	
B46	MS -> SS	RELEASE COMPLETE	
B47	SS -> MS	CHANNEL RELEASE	The MS releases L2 multiple frame link L2:DISC/UA.
C44	MS -> SS	DISC/UA	for k=3, release the original dedicated channel. The MS releases L2 multiple frame link L2:DISC/UA.
D44	MS -> SS	UPLINK RELEASE	for k=4, release original uplink - for VGCS call only
D45	SS -> MS	CHANNEL RELEASE	UI format, to return to idle updated state - for VGCS only
D46	MS -> SS	TERMINATION REQUEST	for VBS call only
D47	SS -> MS	TERMINATION	for VBS call only
D48	SS -> MS	CHANNEL RELEASE	The MS releases L2 multiple frame link L2:DISC/UA -for VBS call only
49	MS		check that the TCH in downlink is through connected and there is no uplink transmission on that channel for 10 s.
50	SS		stop sending NOTIFICATION/NCH
51	SS -> MS	CHANNEL RELEASE	UI format, to return to the idle updated state

26.14.1.2 VGCS-VBS / Notification / NCH position

26.14.1.2.1 Conformance requirement

The MS shall recognise correctly different NCH positions and blocks if supporting VGCS or VBS.

In the case the CCCH configuration is not compatible with the NCH position, the MS shall behave as if the NCH position field was not present.

Reference(s)

3GPP TS 05.02, subclauses 6.5.1 and 6.5.5, clause 7 and table 3.

3GPP TS 04.08 / 3GPP TS 44.018, subclause 10.5.2.32.

26.14.1.2.2 Test purpose

To verify that the MS recognises correctly different NCH positions of first block and number of blocks.

To verify that the MS behaves as if the NCH position field was not present when the CCCH configuration is not compatible with the NCH position.

26.14.1.2.3 Method of test

Initial Conditions

System Simulator:

1 cell, BS_AG_BLKS_RES = 5, CCCH non-combined.

Mobile Station:

The MS is in MM-state "idle, updated". No automatic answering is configured.

Specific PICS statements:

-

PIXIT Statements:

- Way to configure VGCS or VBS.
- Way to indicate a call notification.

Foreseen Final State of the MS

"Idle, updated".

Test Procedure

The MS is in idle mode, the SS sends SI 1 containing the 1st NCH block number = 3 (B3) and No. of blocks = 1. After the MS decodes the SI 1, the SS sends on the block B1 NOTIFICATION/NCH containing VGCS/VBS channel description and VGCS/VBS call reference active in the MS. It is checked that the MS ignores the notification. The SS stops sending NOTIFICATION/NCH on block B1, but sends on block B3 containing VGCS/VBS channel description and VGCS/VBS call reference active in the MS. It is checked that the MS indicates correctly the notified group call reference(s).

The SS stops sending NOTIFICATION/NCH on block B3 and changes SI 1 containing The 1st NCH block number = 1 and No. of blocks = 2. After the MS decodes the SI the SS sends NOTIFICATION/NCH on the block B2 containing VGCS/VBS channel description and VGCS/VBS call reference active in the MS. It is checked that the MS indicates correctly the notified group call reference(s).

The SS stops sending NOTIFICATION/NCH on block B2 and changes the CCCH configuration with combined SDCCH, BS_AG_BLKS_RES = 1. Wait 30 s. and then sends NOTIFICATION/NCH on the block B2 containing VGCS/VBS channel description and VGCS/VBS call reference active in the MS. It is checked that the MS ignores the notification.

Maximum Duration of Test

5 minutes.

Expected Sequence

Step	Direction	Message	Comments
0	MS		the MS is in idle mode
1	SS -> MS	SYSTEM INFORMATION TYPE1	containing The 1st NCH block number = 3 and No. of blocks = 1
2	SS		wait for 5 s.
3	SS -> MS	NOTIFICATION/NCH	sent on block B1, containing a VGCS/VBS channel description and a VGCS/VBS call reference active in the MS
4	MS		check that the MS ignores the notification
5	SS		stop sending NOTIFICATION/NCH on block 1
6	SS -> MS	NOTIFICATION/NCH	sent on block B3, containing a VGCS/VBS channel description and a VGCS/VBS call reference active in the MS
7	MS		check that the MS indicates the notification to user
8	MS		user action to reject the group/broadcast call
10	SS		stop sending NOTIFICATION/NCH on block 3
11	SS -> MS	SYSTEM INFORMATION TYPE 1	containing The 1st NCH block number = 1 and No. of blocks = 2
12	SS		wait for 30 s.
13	SS -> MS	NOTIFICATION/NCH	sent on block B2, containing a VGCS/VBS channel description and a VGCS/VBS call reference active in the MS
14	MS		check that the MS indicates the notification to user
15	MS		user action to reject the group/broadcast call
20	SS		change CCCH with combined SDCCH, BS_AG_BLKS_RES = 1 and stop sending NOTIFICATION/NCH on block B2
21	SS -> MS	SYSTEM INFORMATION TYPE 1	containing The 1st NCH block number = 0 and No. of block = 1
22	SS		wait for 30 s.
23	SS -> MS	NOTIFICATION/NCH	sent on block B2, containing a VGCS/VBS channel description and a VGCS/VBS call reference active in the MS
24	MS		check that the MS ignores the notification

26.14.1.3   VGCS-VBS / Notification / Reduced NCH monitoring

26.14.1.3.1   Conformance requirement

1. When the mobile station in idle mode enters a cell and deduces from the BCCH that an NCH is present, it shall read the NCH until it has received at least two messages on the NCH indicating NLN, with the two last received NLN being identical. Then it may stop reading the NCH until it receives on the PCH an NLN(PCH) different from the last previously received NLN.

2. If the reduced NCH monitoring mechanism is used on the NCH, when the MS in group receive mode or group transmit mode enters a cell, it should read the NCH until it has received at least two messages on the NCH indicating NLN, with the two last received NLN being identical. Then it should stop reading the NCH until it receives on the SACCH an NLN(SACCH) different from the last previously received NLN.

3. A change of the NLN status field indicates a change of information on the NCH which is not related to new calls.

Reference(s)

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.3.3.3.

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.4.15.1.2.4.1.

26.14.1.3.2 Test purpose

To verify that:

1. when the MS in idle mode on a cell where a reduced monitoring is activated, it reads the NCH until it has received at least two NLN (NCH) being identical. Then it stops reading the NCH until it receives a PAGING REQUEST message of any TYPE containing an NLN (PCH) different from the last previously received NLN.

2. after the MS entered in group receive mode or group transmit mode it continues the reduced monitoring until it receives SI6 containing an NLN (SACCH) different from the last previously received NLN (SACCH).

3. when the MS in group receive mode or group transmit mode enters a new cell, it reads the NCH until it has received at least two messages on the NCH indicating NLN, with the two last received NLN being identical. Then it stops reading the NCH until it receives SI6 on the SACCH an NLN(SACCH) different from the last previously received NLN.

4. the MS understands the change of the NLN status field.

26.14.1.3.3 Method of test

Initial Conditions

System Simulator:

2 cells with default parameters for ASCI testing, same LAI.

The values specified in Table 26.14.1.3 override the values in default contents of SI messages in subclauses 26.6.14. and 26.6.15.

Table 26.14.1.3: Default values of the system information fields

Parameter	3GPP TS 04.08 / 3GPP TS 44.018 reference	Abbr.	Normal Setting
CELL_BAR_QUALIFY	10.5.2.35	CBQ	0
CELL_RESELECT_OFFSET	10.5.2.35	CRO	0
TEMPORARY_OFFSET	10.5.2.35	TO	0
PENALTY_TIME	10.5.2.35	PT	31
Power Offset	10.5.2.35	PO	0

Mobile Station:

The MS is in MM-state "idle, updated" with a TMSI allocated on cell A. No automatic answering configured.

Specific PICS statements:

- Support VGCS talking (TSPC_Addinfo_VGCS_Talking)

- Support VBS originating. (TSPC_Addinfo_VBS_Originating)

PIXIT Statements:

- Way to configure VGCS or VBS.

- Way to indicate uplink granted/rejected.

- Way to accept a VGCS or VBS.

- Way to request uplink.

Foreseen Final State of the MS

"Idle, updated" on cell B.

Test Procedure

The MS is in idle mode on cell A. The SS sends NOTIFICATION/NCH with NLN (value is '00'B) but not addressing the MS on cell A. After at least 2 such messages have been received by the MS, the SS sends another NLN value ('01'B) in the NOTIFICATION/NCH message which contains call reference active in the MS and VGCS/VBS channel description. It is checked that the MS does not indicate the notification. The SS sends PAGING REQUEST TYPE1 message on the MS's paging sub-channel on cell A with NLN(PCH) containing value '01'B. It is checked that the MS indicates the notification to the user. The MS rejects the VGCS/VBS call on request from MMI. The same procedure is repeated once except SS sends PAGING REQUEST TYPE2 message instead of PAGING REQUEST TYPE1. The NLN value is set to '10'B.

Change the RF levels of cell A and cell B so that the MS re-selects cell B. The same test procedure as described above is repeated once except the SS sends PAGING REQUEST TYPE 3 message on the MS's paging sub-channel on cell B. The NLN value is set to '11'B. The MS joins the VGCS/VBS call on request from MMI and is in group receive mode on cell B.

On cell A the SS sends NOTIFICATION/NCH containing VGCS/VBS channel description, the same call reference and NLN value as those of cell B. Adjust the RF levels of cell A and cell B so that cell B keeps suitable but the MS re-selects cell A. The MS is still in group receive mode. After the MS has consecutively received at least two identical NLN (NCH) the SS sends NOTIFICATION/NCH containing an NLN valued '01'B, VGCS/VBS channel description and call reference active in the MS. It is checked that the MS does not indicate the notification. The SS changes NLN value to '01'B in SI 6 message. It is checked that the MS indicates the notification to the user. The call is rejected. The SS changes NLN status value to '1'B in SI 6 message. It is checked that the MS does not indicate any new notification to the user.

The MS is brought into group transmit mode and handed over to cell B. After at least two NOTIFICATION/NCH messages received on cell B, the SS sends an another NOTIFICATION/NCH message with NLN value ('00'B) and addressing the MS on cell B. It is checked that the MS does not indicate the notification. The SS changes NLN value to '00'B in SI 6 message. It is checked that the MS indicates the notification to the user.

Maximum Duration of Test

10 minutes

Expected Sequence

Test steps 0 to 8 are executed for k=1, 2, 3. When finished the test then goes to step 9. If the MS does not support VGCS talking, test step 18 to 44 are not executed.

Step	Direction	Message	Comments
A0, B0	MS		for k=1, 2 the MS is in idle mode on cell A. The following messages are received and sent on cell A.
C0			for k=3, adjust the power level of cell A to 32 dBμV emf() so that the MS re-selects cell B. The following messages are sent and received on cell B.
1	SS -> MS	NOTIFICATION/NCH	with an initial NLN, a channel description and a call reference not addressing MS.
2	SS		wait 1 second, ensuring that the MS has consecutively received at least two identical NLN (NCH).
3	SS -> MS	NOTIFICATION/NCH	with an NLN different to step 1, a call reference active in the MS. For k= 1, 2, 3, each NLN is different.
A5	SS -> MS	PAGING REQUEST TYPE 1	for k=1, with the NLN (PCH) same as step 3
B5	SS -> MS	PAGING REQUEST TYPE 2	for k=2, with the NLN (PCH) same as step 3.
C5	SS -> MS	PAGING REQUEST TYPE 3	for k=3, with the NLN (PCH) same as step 3.

Step	Direction	Message	Comments
6	SS		wait 1 s.
7	MS		check that the MS indicates the notification sent in step 5.
A8, B8			MMI action to reject the VGCS/VBS call. The MS remains in idle mode on cell A.
C8			MMI action to join the VGCS/VBS call. The MS is in group receive mode on cell B.
9	SS -> MS	NOTIFICATION/NCH	sent on cell A with a channel description, the same NLN and the call reference in step C5.
10	SS		adjust the power levels of cell A to 63 dBμV emf() and cell B to 45 dBμV emf() so that the MS re-selects cell A. Wait 30 s. The following messages are sent and received on cell A.
12	SS -> MS	NOTIFICATION/NCH	with a different NLN from step C5, a valid channel description, a call reference active in the MS .
14	SS -> MS	SYSTEM INFORMATION TYPE 6	with the NLN(SACCH) same as step 12.
15	MS		wait 5 s. and check that the MS indicates the notification, MMI action to reject the new call.
18	SS -> MS	UPLINK FREE	
19	MS		MMI action to request uplink access of the call.
20	MS -> SS	UPLINK ACCESS	
21	MS -> SS	UPLINK ACCESS	
22	SS -> MS	UPLINK BUSY	
23	SS -> MS	VGCS UPLINK GRANT	Reference to step 21.
24	MS -> SS	TALKER INDICATION	L2: SABM / UA
25	MS		check that the TCH is through connected and the MS gives indication to the user.
26	SS -> MS	NOTIFICATION/NCH	with a different NLN from step 12, a valid channel description, a call reference active in the MS.
27	MS		check that the MS does not indicate the notification.
28	SS -> MS	SYSTEM INFORMATION TYPE 6	with the NLN (SACCH) same as step 26.
29	MS		wait 5 s. and check that the MS indicates the notification, MMI action to reject the new call.
30	SS -> MS	HANDOVER COMMAND	handover to cell B. The following messages are sent and received on cell B.
31	MS -> SS	HANDOVER ACCESS	
32	MS -> SS	HANDOVER ACCESS	
33	MS -> SS	HANDOVER ACCESS	
34	MS -> SS	HANDOVER ACCESS	Before completion of the 4 access bursts on the new DCCH, additional access bursts may also be sent on the SACCH
35	MS -> SS	SABM	Sent without information field.
36	SS -> MS	UA	
37	MS -> SS	HANDOVER COMPLETE	
38	MS		wait 1 second, for the MS receiving consecutively at least two identical NLN (NCH).
39	SS -> MS	NOTIFICATION/NCH	with an NLN different from those in step 12 and 26, a valid channel description, a call reference active in the MS.
41	SS -> MS	SYSTEM INFORMATION TYPE 6	with the NLN(SACCH) same as step 39.
42	MS		check that the MS indicates the notification. MMI action to reject the new call.

Step	Direction	Message	Comments
43	SS -> MS	UPLINK RELEASE	
44	SS -> MS	CHANNEL RELEASE	The MS returns to idle mode. L2:DISC/UA.

Specific Message Contents

NOTIFICATION/NCH

Information Element	value/remark
NT/N Rest Octets	
Reduced monitoring indication	'1'B, reduced monitoring
NLN (NCH)	as specified in the test step

PAGING REQUEST TYPE 1

Information Element	value/remark
Mobile Identity 1	TMSI not allocated to MS
P1 Rest Octets	
- NLN (PCH) indication	H
- NLN (PCH)	as specified in the test step
- NLN status	'0'B
- Priority 1 indication	L
- Priority 2 indication	L
- Group call information indication	L
- Spare padding	logic L

PAGING REQUEST TYPE 2

Information Element	value/remark
Mobile Identity 1	TMSI not allocated to MS
P2 Rest Octets	
- CN3 indication	L
- NLN (PCH) indication	H
- NLN (PCH)	as specified in the test step
- NLN status	'0'B
- Priority 1 indication	L
- Priority 2 indication	L
- Priority 3 indication	L
- Spare padding	logic L

PAGING REQUEST TYPE 3

Information Element	value/remark
Mobile Identity 1	TMSI not allocated to MS
P3 Rest Octets	
- CN3 indication	L
- NLN (PCH) indication	H
- NLN (PCH)	as specified in the test step
- Priority 1 indication	L
- Priority 2 indication	L
- Priority 3 indication	L
- Priority 4 indication	L
- NLN status indication	H
- NLN status	'0'B
- Spare padding	logic L

SYSTEM INFORMATION TYPE 6

Information Element	value/remark
S6 Rest Octets	7 octets length
- PCH/NCH info indication	H
- PCH/NCH info	
- paging channel restructuring	0 (not restructured)
- NLN (SACCH)	as specified in the test step
- Call priority indication	'0'B, priority not included
- NLN status	'0'B
- VGCS/VBS options	
- in-band notifications	H
- in-band paging	H
- Spare padding	logic L

HANDOVER COMMAND

Information Element	Value/remark
As default message contents, except:	
Channel Description	
- Channel type	TCH/F + ACCHs
- Timeslot number	arbitrary but not zero
- Training sequence code	chosen arbitrarily
- Hopping	Single RF channel
- ARFCN	GSM 900: 60
	DCS 1 800: 830
	PCS 1 900:730
	GSM 450: 276
	GSM 480: 323
	GSM 710: 497
	GSM 750: 497
	T-GSM 810: 497
	GSM 850: 187
Synchronisation Indication	Synchronised
VGCS target mode indication	Group transmit mode

26.14.1.4 VGCS-VBS / Notification / Limited Service state

26.14.1.4.1 Conformance requirement

In state MM IDLE and service state LIMITED SERVICE:

1. The MS shall indicate notifications to the GCC or BCC sub-layer for which a channel description has been received in the notification by the RR sub-layer.

2. The MS shall reject requests of the GCC or BCC sub-layer to respond to notifications for which no channel description has been received in the notification by the RR sub-layer.

3. The MS shall request the RR sub-layer to receive a voice group or broadcast call if the GCC or BCC sublayer requests the reception of a voice group or broadcast call for which a channel description has been received in the notification by the RR sublayer and then go to the service state RECEIVING GROUP CALL (LIMITED SERVICE).

4. The MS shall reject any request of establishing a group call.

Reference(s)

3GPP TS 04.08 / 3GPP TS 24.008 subclause 4.2.2.3.

26.14.1.4.2 Test purpose

To verify that while in state MM IDLE and service state LIMITED SERVICE:

1. The MS rejects requests from user to respond to notifications for which no channel description has been received in the notification by the RR sub-layer.

2. The MS indicates notifications for which a channel description has been received in the notification.

3. The MS accepts user requests to respond to notifications for which channel description has been received in the notification and goes to the service state RECEIVING GROUP CALL (LIMITED SERVICE).

4. The MS rejects any request of establishing a group call.

26.14.1.4.3 Method of test

Initial Conditions

System Simulator:

1 cell with default parameters for ASCI testing.

Mobile Station:

The MS, with SIM, is in MM-state "idle, limited service" because LA not allowed.

Specific PICS statements:

-   Support VGCS originating (TSPC_Addinfo_VGCS_Originating)

-   Support VBS originating (TSPC_Addinfo_VBS_Originating)

PIXIT Statements:

-   Way to configure VGCS or VBS.

-   Way to indicate a call notification.

-   Way to accept VGCS or VBS call.

-   Way to initiate a normal VGCS/VBS call.

Foreseen Final State of the MS

"limited service" mode.

Test Procedure

The MS, with SIM, is in MM idle limited service state because LA is not allowed. The SS sends NOTIFICATION/NCH message containing call reference active in the MS but no VGCS/VBS channel description. It is checked that the MS indicates the notification and rejects the request of joining the notified call. The SS sends NOTIFICATION/NCH message containing call reference active in the MS and VGCS/VBS channel description. It is checked that the MS indicates the notification, and joins the notified call on request. If the MS supports VGCS/VBS originating, the MS is requested to initiate VGCS/VBS call. It is checked that the MS rejects the request.

Maximum Duration of Test

5 minutes.

Expected Sequence

Step	Direction	Message	Comments
0	MS		the MS is in MM idle mode limited service state
1	SS -> MS	NOTIFICATION/NCH	without VGCS/VBS channel description
2	MS		MMI action to request responding to the notification
3	MS		check that the MS rejects the request and that no RR connection establishment is attempted for 10 s.
5	SS -> MS	NOTIFICATION/NCH	with VGCS/VBS channel description
6	MS		check that the MS indicates the notification
7	MS		MMI action to request to join the notification
8	MS		check that the TCH in downlink is through connected and there is no uplink transmission on that channel for 10 s.
9	SS -> MS	CHANNEL RELEASE	UI format
10	MS		If the MS supports VGCS/VBS originating MMI action to initiate a normal VGCS/VBS call
11	SS		check that the MS rejects the request and that no RR connection establishment is attempt.

26.14.2 VGCS-VBS / Paging

26.14.2.1 VGCS-VBS / Paging / Paging indication

26.14.2.1.1 Conformance requirement

1. Paging into on-going voice group calls shall be provided as an implementation option.

2. In group receive mode the MS shall be ready to receive paging information on the FACCH containing the mobile subscriber identity and the priority level if eMLPP applies.

3. In group transmit mode if the MS has received a paging message with the own mobile station identity on the PCH or on the voice group call channel downlink, the RR entity shall provide an indication to the upper layers, together with the related priority, if applicable.

4. In group transmit mode if the MS receives information on the voice group call channel of the existence of a paging message in its paging subgroup of the PCH, the RR entity shall pass this information to the upper layers together with the related priority.

Reference(s)

3GPP TS 04.08 / 3GPP TS 44.018 subclauses 3.4.12, 9.1.21a, 3.4.15.1.2.4, 10.5.2.23, 10.5.2.24 and 10.5.2.25.

3GPP TS 03.68 subclause 11.3.1.3c.

3GPP TS 03.69 subclause 11.3.1.3c.

26.14.2.1.2 Test purpose

It is checked that:

1. When the MS in group receive mode if a NOTIFICATION/FACCH message on the voice group call channel containing in-band paging information is received, the MS provides an indication with the correct priority if applicable.

2. When the MS in group receive mode if a paging message with the own mobile station identity on PCH is received, it provides an indication with the correct priority.

3. When the MS in group transmit mode if a NOTIFICATION/FACCH message on the voice group call channel containing in-band paging information is received, the MS provides an indication with the correct priority.

4. If the MS in group transmit mode if a paging message with the own mobile station identity on PCH is received, it provides an indication with the correct priority.

26.14.2.1.3 Method of test

Initial Conditions

System Simulator:

1 cell with default parameters for ASCI testing.

Mobile Station:

No automatic answering configured.

Specific PICS statements:

- Support VGCS talking (TSPC_Addinfo_VGCS_Talking)

- Support VBS originating (TSPC_Addinfo_VBS_Originating)

- Support eMLPP (TSPC_Serv_eMLPP)

- Support monitoring on PCH in group transmit mode (TSPC_AddInfo_MonitorPCH_GroupTransmitMode)

PIXIT Statements:

- Way to configure VGCS or VBS.

- Way to request uplink.

Foreseen Final State of the MS

"Idle, updated".

Test Procedure

The MS is in group receive mode. The SS sends NOTIFICATION/FACCH message containing Paging Information IE which addresses the MS. It is checked that the MS indicates the paging information.

The SS changes SI 6 indicating no support of in-band paging. After waiting 5 s. the SS sends a PAGING REQUEST TYPE 1 message addressing the MS on the paging sub-channel of the MS. It is checked that the MS indicates the paging information, together with the priority level if it supports eMLPP. The test procedure is repeated for sending PAGING REQUEST TYPE 2 and PAGING REQUEST TYPE 3 messages.

The same test procedure is repeated for the MS in group transmit mode if supporting VGCS talking or VBS originating.

Maximum Duration of Test

5 minutes.

Expected Sequence

If the MS mode supports VGCS talking or VBS originating the test sequence is repeated once for k=2. If the MS supports monitoring PCH in group transmit mode steps 5 - 17 for k=2 are executed.

Step	Direction	Message	Comments
0	SS		broadcast the default SIs.
A1	MS		for k=1, the MS is brought in group receive mode.
B1			for k=2, the MS is in brought group transmit mode.
2	SS -> MS	NOTIFICATION/FACCH	In-band paging Information addresses the MS.
3	MS		check that the MS indicates correctly the paging information of a new MT call with priority 4 if the MS supports eMLPP.
4	MS		user action to reject the point-to-point MT call.
5	SS -> MS	SYSTEM INFORMATION TYPE 6	indicating no in-band paging on FACCH
6	SS		wait 5s.
7	SS -> MS	PAGING REQUEST TYPE 1	with priority 2
8	MS		check that the MS indicates correctly the paging information of a new MT call with the priority if the MS supports eMLPP.
9	MS		user action to reject the incoming call.
10	SS		wait 5 s.
11	SS -> MS	PAGING REQUEST TYPE 2	with priority 3
12	MS		check that the MS indicates correctly the paging information of a new MT call with the priority if the MS supports eMLPP.
13	MS		user action to reject the incoming call.
14	SS		wait 5s.
15	SS -> MS	PAGING REQUEST TYPE 3	no priority
16	MS		check that the MS indicates correctly the paging information of a new MT call which no priority is provided to.
17	MS		user action to reject the incoming call.
A18			for k=1, no signalling
B18	SS -> MS	UPLINK RELEASE	for k=2, return to group receive mode. Only for a VGCS call.
19	SS -> MS	CHANNEL RELEASE	UI format, the MS returns to idle updated state. For (k=1) and (k=2 in case of VGCS call).
20	SS -> MS	CHANNEL RELEASE	For k=2, for a VBS call, the MS returns to idle mode. L2:DISC/UA.

Specific Message Contents

NOTIFICATION/FACCH **- in step 2**

Information Element	value/remark
Group call / Paging information indication	'1', paging information
Paging Information	
- mobility identity	TMSI previously allocated to MS
- channel first	'10'B, TCH/F
eMLPP priority indication	'1'B
- priority	'001'B, call priority level 4
spare padding	logic L

SYSTEM INFORMATION TYPE 6 **- in step 5**

Information Element	value/remark
S6 Rest Octets	7 octets length
- PCH/NCH info indication	L
- VGCS/VBS options	
- in-band notifications	H
- in-band paging	L
- Spare padding	logic L

PAGING REQUEST TYPE 1 **- in step 7**

Information Element	value/remark
P1 Rest Octets	
- NLN (PCH) indication	L
- Priority 1 indication	H
- Priority	'011'B, level 2
- Spare padding	logic L

PAGING REQUEST TYPE 2 **- in step 11**

Information Element	value/remark
P2 Rest Octets	
- CN3 indication	L
- NLN (PCH) indication	L
- Priority 1 indication	H
- Priority	'010'B, level 3
- Spare padding	logic L

PAGING REQUEST TYPE 3 **- in step 15**

Information Element	value/remark
Mobile Identity 1	TMSI not allocated to MS
P3 Rest Octets	
- CN3 indication	L
- NLN (PCH) indication	L
- Priority 1 indication	H
- Priority	'000'B, no level applied
- Spare padding	logic L

26.14.2.2 VGCS-VBS / Paging / Notification

26.14.2.2.1 Conformance requirement

A PAGING REQUEST TYPE 1 message may have an additional notification coded in the P1 rest octets information element. It allows to notify the mobile an emergency group or broadcast call even when the MS at the moment does not monitor the NCH channel.

Reference(s)

3GPP TS 04.08 / 3GPP TS 44.018 subclauses 3.3.2.1, 3.3.3.1 and 10.5.2.23.

26.14.2.2.2 Test purposes

To verify that:

1. the MS in idle mode indicates correctly an incoming broadcast or group call when having received a PAGING REQUEST TYPE 1 message whose P1 rest octets information element contains group call information addressing the MS.

2. the MS in group receive mode indicates correctly an incoming broadcast or group call when having received a PAGING REQUEST TYPE 1 message whose P1 rest octets information element contains group call information addressing the MS.

26.14.2.2.3 Method of test

Initial Conditions

System Simulator:

1 cell with default parameters for ASCI testing.

Mobile Station:

The MS is in MM-state "idle, updated" with a TMSI allocated.

Specific PICS statements:

- Support VGCS talking (TSPC_Addinfo_VGCS_Talking)

- Support VBS originating (TSPC_Addinfo_VBS_Originating)

PIXIT Statements:

- Way to configure VGCS or VBS.

- Way to indicate a call notification.

- Way to accept a VGCS or VBS.

- Way to verify the downlink speech path.

Foreseen Final State of the MS

"Idle, updated", with TMSI allocated.

Test Procedure

The MS is in idle mode. The SS sends in the NCH block only access grant messages. The SS sends a PAGING REQUEST TYPE 1 message on the paging sub-channel of the MS. The Mobile Identity in the message does not address the MS. The P1 rest octets in the message contains VGCS/VBS channel description and VGCS/VBS call reference not active in the MS. It is checked that the MS ignores the paging message. Similarly, the SS sends again the PAGING REQUEST TYPE 1 message on the paging sub-channel of the MS, not addressing the MS. The message contains VGCS/VBS channel description and VGCS/VBS call reference active in the MS. It is checked that the MS indicates correctly the notified group call reference(s) and joins VGCS/VBS call on request of responding to the notification. The group call is terminated. The SS sends PAGING REQUEST TYPE 1 message on the paging sub-channel of the MS which contains the "good reference" but no VGCS/VBS channel description. The Mobile Identity in the message does not address the MS. It is checked that the MS indicates correctly the notified group call reference(s) and establishes a RR connection to respond to the notification on request of responding to the call, then joins the call. The group call is terminated.

The initial conditions for SS are set to the same as ASCI default. The MS is brought to group receive mode the test procedure is repeated once.

Maximum Duration of Test

5 minutes.

Expected Sequence

Test steps 0 to 19 are executed for k=1, 2.

Step	Direction	Message	Comments
A0	SS		For k = 1, the initial conditions for SS are same as ASCI default, except the NCH block containing only access grant messages.
A1	MS		the MS is in idle mode.
B0	SS		For k = 2, the initial conditions for SS are same as ASCI default, except the NCH block containing only access grant messages.
B1	MS		the MS is brought in group receive mode
2	SS -> MS	PAGING REQUEST TYPE 1	with a description of VGCS/VBS channel and a VGCS/VBS call reference not active in the MS
3	MS		check that the MS ignores the notification and there is no uplink transmission on that channel for 10 s.
4	SS -> MS	PAGING REQUEST TYPE 1	with a description of VGCS/VBS channel and a VGCS/VBS call reference active in the MS
5	MS		check that the MS gives an indication containing the notified group call reference
6	MS		MMI action to join the VGCS/VBS call
7	MS		check that the TCH in downlink is through connected and there is no uplink transmission on that channel for 10 s.
8	SS -> MS	CHANNEL RELEASE	UI format, return to the idle updated state
9	SS		wait 5s.
10	SS -> MS	PAGING REQUEST TYPE 1	with a VGCS/VBS call reference active in the MS but no VGCS/VBS channel description
11	MS		check that the MS gives an indication containing the notified group call reference
A12	MS		For k = 1, MMI action to join the VGCS/VBS call
A13	MS -> SS	CHANNEL REQUEST	
A14	SS -> MS	IMMEDIATE ASSIGNMENT	
A15	MS -> SS	NOTIFICATION RESPONSE	L2: SABM / UA
A16	SS -> MS	CHANNEL RELEASE	release the dedicated channel. The MS releases L2 multiple frame link L2:DISC/UA.
A17	MS		check that the TCH in downlink is through connected and there is no uplink transmission on that channel for 10 s.
B12	SS		For k = 2, MMI action to reject the new VGCS/VBS call
18	SS -> MS	CHANNEL RELEASE	UI format, to return to idle updated state
19			wait 5s.

Specific Message Contents

PAGING REQUEST TYPE 1 **- in steps 2**

Information Element	value/remark
Mobile Identity 1	TMSI not allocated to MS
P1 Rest Octets	
- NLN (PCH) indication	L
- Priority 1 indication	L
- Priority 2 indication	L
- NLN status indication	L
- Group call information indication	H
- Group or broadcast call reference	not active in the SIM
- SF	VBS if only VBS supported, otherwise VGCS
- AF	'0'B, acknowledgement not required
- priority	4
- Ciphering information	No ciphering
Group Channel Description indication	'1', group channel description
Channel Description	24 bits
- Channel type and TDMA offset	TCH/FS
- Timeslot number	arbitrarily chosen, but not 0
- TSC	arbitrarily chosen
- Hopping	Single RF, non hopping channel
- ARFCN	GSM 450: 279
	GSM 480: 326
	GSM 900: 70
	DCS 1 800: 850
	PCS 1 900: 750
	GSM: 475
	GSM 750: 475
	T-GSM 810: 475
	GSM 850: 197
MA or FSL	'0'B, non hopping
Spare padding	logic L

PAGING REQUEST TYPE 1 **- in steps 4**

Information Element	value/remark
Mobile Identity 1	TMSI not allocated to MS
P1 Rest Octets	
- NLN (PCH) indication	L
- Priority 1 indication	L
- Priority 2 indication	L
- NLN status indication	L
- Group call information indication	H
- Group or broadcast call reference	PICS/PIXIT (27 bits), active in the SIM
- SF	VBS if only VBS supported, otherwise VGCS
- AF	'0'B, acknowledgement not required
- priority	4
- Ciphering information	No ciphering
Group Channel Description indication	'1', group channel description
Channel Description	24 bits
- Channel type and TDMA offset	TCH/FS
- Timeslot number	arbitrarily chosen, but not 0
- TSC	arbitrarily chosen
- Hopping	Single RF, non hopping channel
- ARFCN	GSM 450: 279
	GSM 480: 326
	GSM 900: 70
	DCS 1 800: 850
	PCS 1 900: 750
	GSM: 475
	GSM 750: 475
	T-GSM 810: 475
	GSM 850: 197
MA or FSL	'0'B, non hopping
Spare padding	logic L

PAGING REQUEST TYPE 1 **- in steps 10**

Information Element	value/remark
Mobile Identity 1	TMSI not allocated to MS
P1 Rest Octets	
- NLN (PCH) indication	L
- Priority 1 indication	L
- Priority 2 indication	L
- NLN status indication	L
- Group call information indication	H
- Group or broadcast call reference	PICS/PIXIT (27 bits), active in the SIM
- SF	VBS if only VBS supported, otherwise VGCS
- AF	'0'B, acknowledgement not required
- priority	4
- Ciphering information	No ciphering
Group Channel Description indication	'0', no group channel description
Spare padding	logic L

26.14.3 VGCS-VBS / RR Procedures

26.14.3.1 VGCS-VBS / RR Procedures / frequency redefinition

26.14.3.1.1 Conformance requirements

The MS, after receiving a FREQUENCY REDEFINITION message in group transmit mode, shall start using the new frequencies and hopping sequence in the correct time slot.

References

   3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.4.5.

26.14.3.1.2 Test purpose

To verify that after receiving a FREQUENCY REDEFINITION message in group transmit mode, the MS starts using the new frequencies and hopping sequence at the time indicated in the message.

26.14.3.1.3 Method of test

Initial Conditions

System Simulator:

1 cell, CCCH_CONF set to 1 basic physical channel used for CCCH, not combined with SDCCHs. The cell allocation is set to $CA_{450}(1)$, $CA_{480}(1)$, $CA_{PGSM}(1)$, $CA_{DCS}(1)$, $CA_{PCS}(1)$, $CA_{710}(1)$, $CA_{750}(1)$, $CA_{810}(1)$ or $CA_{850}(1)$, depending on the band of operation of the Mobile Station (See PICS/PIXIT), before each execution of this test.

Mobile Station:

The MS is in group transmit mode.

Specific PICS statements:

-

PIXIT Statements:

- Way to configure VGCS or VBS.

- Way to accept a VGCS or VBS.

Foreseen Final State of the MS

"Idle, updated", with TMSI allocated.

Test Procedure

Test parameters:

An arbitrary value T in the range 92,...,29999 is chosen.

GSM 450:

$Ca_{450}(1)$ is set to 32.

An arbitrary subset $CA_{450}(1)$ of the set {259,...,293} containing $ca_{450}(1)$ elements is drawn.

An element B of the set $CA_{450}(1)$ is arbitrarily chosen.

An arbitrary value $ca_{450}(2)$ in the range 17,...,31 is chosen.

An arbitrary subset $CA_{450}(2)$ of the set {259,...,293} with $ca_{450}(2)$ elements and containing B is chosen.

For j = 1,2, values $ma_{450}(j)$ in the range j,...,$ca_{450}(j)$-1 and values $MAIO_{450}(j)$ in the range 0,...,$ma_{450}(j)$-1 are arbitrarily chosen.

Subsets $MA_{450}(j)$ of $CA_{450}(j)$ not containing B and having ma(j) elements are arbitrarily chosen.

GSM 480:

$Ca_{480}(1)$ is set to 32.

An arbitrary subset $CA_{480}(1)$ of the set {306,...,340} containing $ca_{480}(1)$ elements is drawn.

An element B of the set $CA_{480}(1)$ is arbitrarily chosen.

An arbitrary value $ca_{480}(2)$ in the range 17,...,31 is chosen.

An arbitrary subset $CA_{480}(2)$ of the set {306,...,340} with $ca_{480}(2)$ elements and containing B is chosen.

For $j = 1,2$, values $ma_{480}(j)$ in the range $j,...,ca_{480}(j)-1$ and values $MAIO_{480}(j)$ in the range $0,...,ma_{480}(j)-1$ are arbitrarily chosen.

Subsets $MA_{480}(j)$ of $CA_{480}(j)$ not containing B and having $ma(j)$ elements are arbitrarily chosen.

GSM 900:

$ca_{PGSM}(1)$ is set to 64.

An arbitrary subset $CA_{PGSM}(1)$ of the set $\{1,...,124\}$ containing $ca_{PGSM}(1)$ elements is drawn.

An element B of the set $CA_{PGSM}(1)$ is arbitrarily chosen.

An arbitrary value $ca_{PGSM}(2)$ in the range $20,...,63$ is chosen.

An arbitrary subset $CA_{PGSM}(2)$ of the set $\{1,...,124\}$ with $ca_{PGSM}(2)$ elements and containing B is chosen.

For $j = 1,2$, values $ma_{PGSM}(j)$ in the range $j,...,ca_{PGSM}(j)-1$ and values $MAIO_{PGSM}(j)$ in the range $0,...,ma_{PGSM}(j)-1$ are arbitrarily chosen.

Subsets $MA_{PGSM}(j)$ of $CA_{PGSM}(j)$ not containing B and having $ma(j)$ elements are arbitrarily chosen.

DCS 1 800:

$ca_{DCS}(1)$ is set to 64.

An arbitrary subset $CA_{DCS}(1)$ of the set $\{700,...,812\}$ containing $ca_{DCS}(1)$ elements is chosen.

An element B of the set $CA_{DCS}(1)$ is arbitrarily chosen. $CA_{DCS}(1)$ is then coded using the Variable Bit Map coding scheme.

An arbitrary value $ca_{DCS}(2)$ in the range $17,...,63$ is chosen.

An arbitrary subset $CA_{DCS}(2)$ of the set $\{700,...,812\}$ with $ca_{DCS}(2)$ elements and containing B is chosen. $CA_{DCS}(2)$ is then coded using the Variable Bit Map coding scheme.

For $j = 1,2$, values $ma_{DCS}(j)$ in the range $j,...,ca_{DCS}(j)-1$ and values $MAIO_{DCS}(j)$ in the range $0,...,ma_{DCS}(j)-1$ are arbitrarily chosen.

Subsets $MA_{DCS}(j)$ of $CA_{DCS}(j)$ not containing B and having $ma_{DCS}(j)$ elements are arbitrarily chosen.

PCS 1 900:

$ca_{PCS}(1)$ is set to 64.

An arbitrary subset $CA_{PCS}(1)$ of the set $\{700,...,812\}$ containing $ca_{PCS}(1)$ elements is chosen.

An element B of the set $CA_{PCS}(1)$ is arbitrarily chosen. $CA_{PCS}(1)$ is then coded using the Variable Bit Map coding scheme.

An arbitrary value $ca_{PCS}(2)$ in the range $17,...,63$ is chosen.

An arbitrary subset $CA_{PCS}(2)$ of the set $\{700,...,812\}$ with $ca_{PCS}(2)$ elements and containing B is chosen. $CA_{PCS}(2)$ is then coded using the Variable Bit Map coding scheme.

For $j = 1,2$, values $ma_{PCS}(j)$ in the range $j,...,ca_{PCS}(j)-1$ and values $MAIO_{PCS}(j)$ in the range $0,...,ma_{PCS}(j)-1$ are arbitrarily chosen.

Subsets $MA_{PCS}(j)$ of $CA_{PCS}(j)$ not containing B and having $ma_{PCS}(j)$ elements are arbitrarily chosen.

GSM 710:

$ca_{710}(1)$ is set to 64.

An arbitrary subset $CA_{710}(1)$ of the set $\{438,...,511\}$ containing $ca_{710}(1)$ elements is drawn.

An element B of the set $CA_{710}(1)$ is arbitrarily chosen.

An arbitrary value $ca_{710}(2)$ in the range $457,...,500$ is chosen.

An arbitrary subset $CA_{710}(2)$ of the set $\{438,...,511\}$ with $ca_{710}(2)$ elements and containing B is chosen.

For $j = 1,2$, values $ma_{710}(j)$ in the range $j,...,ca_{710}(j)-1$ and values $MAIO_{710}(j)$ in the range $0,...,ma_{710}(j)-1$ are arbitrarily chosen.

Subsets $MA_{710}(j)$ of $CA_{710}(j)$ not containing B and having $ma(j)$ elements are arbitrarily chosen.

GSM 750:

$ca_{750}(1)$ is set to 64.

An arbitrary subset $CA_{750}(1)$ of the set $\{438,...,511\}$ containing $ca_{750}(1)$ elements is drawn.

An element B of the set $CA_{750}(1)$ is arbitrarily chosen.

An arbitrary value $ca_{750}(2)$ in the range $457,...,500$ is chosen.

An arbitrary subset $CA_{750}(2)$ of the set $\{438,...,511\}$ with $ca_{750}(2)$ elements and containing B is chosen.

For $j = 1,2$, values $ma_{750}(j)$ in the range $j,...,ca_{750}(j)-1$ and values $MAIO_{750}(j)$ in the range $0,...,ma_{750}(j)-1$ are arbitrarily chosen.

Subsets $MA_{750}(j)$ of $CA_{750}(j)$ not containing B and having $ma(j)$ elements are arbitrarily chosen.

T-GSM 810:

$ca_{810}(1)$ is set to 64.

An arbitrary subset $CA_{810}(1)$ of the set $\{438,...,511\}$ containing $ca_{810}(1)$ elements is drawn.

An element B of the set $CA_{810}(1)$ is arbitrarily chosen.

An arbitrary value $ca_{810}(2)$ in the range $457,...,500$ is chosen.

An arbitrary subset $CA_{810}(2)$ of the set $\{438,...,511\}$ with $ca_{810}(2)$ elements and containing B is chosen.

For $j = 1,2$, values $ma_{810}(j)$ in the range $j,...,ca_{810}(j)-1$ and values $MAIO_{810}(j)$ in the range $0,...,ma_{810}(j)-1$ are arbitrarily chosen.

Subsets $MA_{810}(j)$ of $CA_{810}(j)$ not containing B and having $ma(j)$ elements are arbitrarily chosen.

GSM 850:

$ca_{850}(1)$ is set to 64.

An arbitrary subset $CA_{850}(1)$ of the set $\{128,...,251\}$ containing $ca_{850}(1)$ elements is drawn.

An element B of the set $CA_{850}(1)$ is arbitrarily chosen.

An arbitrary value $ca_{850}(2)$ in the range $147,...,200$ is chosen.

An arbitrary subset $CA_{850}(2)$ of the set $\{128,...,251\}$ with $ca_{850}(2)$ elements and containing B is chosen.

For $j = 1,2$, values $ma_{850}(j)$ in the range $j,...,ca_{850}(j)-1$ and values $MAIO_{850}(j)$ in the range $0,...,ma_{850}(j)-1$ are arbitrarily chosen.

Subsets $MA_{850}(j)$ of $CA_{850}(j)$ not containing B and having $ma(j)$ elements are arbitrarily chosen.

The MS is brought into group transmit mode. The SS sends a FREQUENCY REDEFINITION message. It is checked that the MS uses the new frequencies/hopping sequence at the TDMA frame defined by the contents of the "Starting Time" information element. (The range for T ensures that the MS does not start transmission on the new frequencies until the designated frame.)

The check is performed at the RF burst level. The SS checks the received pattern with the expected pattern, and the SS checks for each burst whether the burst is transmitted at the right frequency.

Maximum Duration of Test

T + 7

Expected Sequence

Step	Direction	Message	Comments
1	MS		the MS is in group transmit mode using full rate on an RF hopping channel
9	SS -> MS	FREQUENCY REDEFINITION	see description 1 below.
10	MS		check that the MS uses the new frequencies in the correct frame.
11	SS -> MS	FREQUENCY REDEFINITION	see description 2 below.
12	MS		check that the MS uses the new frequencies in the correct frame.
13	SS -> MS	CHANNEL RELEASE	The MS releases L2 multiple frame link L2:DISC/UA.

Specific Message Contents

FREQUENCY REDEFINITION (Description 1)

Information Element	value/remark
as default except:	
Channel Description	
- Channel type and TDMA offset	TCH/FS
- Timeslot number	not changed
- TSC	not changed
- Hopping channel	RF hopping channel
- MAIO	GSM 450: MAIO450(1) GSM 480: MAIO480(1) GSM 710: MAIO710(1) GSM 750: MAIO750(1) T-GSM 810: MAIO810(1) GSM 850: MAIO850(1) GSM 900: MAIOPGSM(1) DCS 1 800: MAIODCS(1) PCS 1 900: MAIOPCS(1)
- HSN	0
Mobile Allocation	GSM 450: corresponds to set MA450(1) GSM 480: corresponds to set MAIO480(1) GSM 710: corresponds to set MAIO710(1) GSM 750: corresponds to set MAIO750(1) T-GSM 810: corresponds to set MAIO810(1) GSM 850: corresponds to set MAIO850(1) GSM 900: corresponds to set MAIOPGSM(1) DCS 1 800: corresponds to set MAIODCS(1) PCS 1 900: corresponds to set MAIOPCS(1)
Starting Time	The last burst of the first L2 frame containing the beginning of this message is transmitted in frame number X. The starting time is set to frame number (X plus T modulo 42 432).
Cell Channel Description	
- Information element identifier	62H
- contents	GSM 450: corresponds to set CA450(1) with "Format ID" set to "Range 128". GSM 480: corresponds to set CA480(1) with "Format ID" set to "Range 128". GSM 710: corresponds to set CA710(1) with "Format ID" set to "bit map 0". GSM 750: corresponds to set CA750(1) with "Format ID" set to "bit map 0". T-GSM 810: corresponds to set CA810(1) with "Format ID" set to "bit map 0". GSM 850: corresponds to set CA850(1) with "Format ID" set to "128 range". GSM 900: corresponds to set CAPGSM(1) with "Format ID" set to "bit map 0". DCS 1 800: corresponds to set CADCS(1) with "Format ID" set to " Variable Bit Map" PCS 1 900: corresponds to set CAPCS(1) with "Format ID" set to " Variable Bit Map"

FREQUENCY REDEFINITION (Description 2)

Information Element	value/remark
as default except:	
Channel Description	
- Channel type and TDMA offset	TCH/FS
- Timeslot number	not changed
- TSC	not changed
- Hopping channel	RF hopping channel
- MAIO	GSM 450: MAIO450(2)
	GSM 480: MAIO480(2)
	GSM 710: MAIO710(2)
	GSM 750: MAIO750(2)
	T-GSM 810: MAIO810(2)
	GSM 850: MAIO850(2)
	GSM 900: MAIOPGSM(2)
	DCS 1 800: MAIODCS(2)
	PCS 1 900: MAIOPCS(2)
- HSN	0
Mobile Allocation	GSM 450: corresponds to set MA450(2)
	GSM 480: corresponds to set MAIO480(2)
	GSM 710: corresponds to set MAIO710(2)
	GSM 750: corresponds to set MAIO750(2)
	T-GSM 810: corresponds to set MAIO810(2)
	GSM 850: corresponds to set MAIO850(2)
	GSM 900: corresponds to set MAIOPGSM(2)
	DCS 1 800: corresponds to set MAIODCS(2)
	PCS 1 900: corresponds to set MAIOPCS(2)
Starting Time	The last burst of the first L2 frame containing the beginning of this message is transmitted in frame number X. The starting time is set to frame number (X plus T modulo 42 432).
Cell Channel Description	
- Information element identifier	62H
- contents	GSM 450: corresponds to set CA450(2) with "Format ID" set to "Range 128".
	GSM 480: corresponds to set CA480(2) with "Format ID" set to "Range 128".
	GSM 710: corresponds to set CA710(2) with "Format ID" set to "bit map 0".
	GSM 750: corresponds to set CA750(2) with "Format ID" set to "bit map 0".
	T-GSM 810: corresponds to set CA810(2) with "Format ID" set to "bit map 0".
	GSM 850: Corresponds to set CA850(2) with "Format ID" set to "128 range".
	GSM 900: corresponds to set CAPGSM(2) with "Format ID" set to "bit map 0".
	DCS 1 800: corresponds to set CADCS(2) with "Format ID" set to " Variable Bit Map"
	PCS 1 900: corresponds to set CAPCS(2) with "Format ID" set to " Variable Bit Map"

26.14.3.2 VGCS-VBS / RR Procedures / assignment

26.14.3.2.1 Conformance requirements

1. Upon receipt of the ASSIGNMENT COMMAND message in group transmit mode, the mobile station shall initiate a local end release of link layer connections, disconnect the physical channels, command the switching to the assigned channels and initiate the establishment of lower layer connections (this includes the activation of the channels, their connection and the establishment of the main signalling links).

2. MM-messages and CM-messages using SAPI=0 sent from the mobile station to the network shall be duplicated by the data link layer in the following case:

   A channel change of dedicated channels is required (assignment or handover procedure) and the last layer 2 frame has not been acknowledged by the peer data link layer before the mobile station leaves the old channel.

   In this case, the mobile station does not know whether the network has received the message correctly. Therefore, the mobile station shall send the message again after the new dedicated channel is established.

3. An ASSIGNMENT COMMAND message may indicate a frequency change in progress, with a starting time and possibly alternative channel descriptions.

In the case of the reception of an ASSIGNMENT COMMAND message which contains only the description of a channel to be used after the starting time, and if the starting time has not already elapsed, the mobile station shall wait up to the starting time before accessing the channel.

4. The MS shall apply the hopping frequencies specified in ASSIGNMENT COMMAND message in the Mobile Allocation IE or the Frequency List IE at the time of accessing the new channel using the last received Cell Allocation.

5. After receipt of the ASSIGNMENT COMMAND the MS shall perform the assignment and return an ASSIGNMENT COMPLETE without undue delay.

6. On the mobile station side, if a lower layer failure happens on the new channel before the ASSIGNMENT COMPLETE message has been sent, the mobile station deactivates the new channels, reactivates the old channels, reconnects the TCHs if any and triggers the establishment of the main signalling link. It then sends a ASSIGNMENT FAILURE message, cause "protocol error unspecified" on the main DCCH and resumes the normal operation, as if no assignment attempt had occurred. The operational parameters (e.g. ciphering mode) when returning on the old channel are those applied before the procedure.

References

3GPP TS 04.08 / 3GPP TS 44.018 subclauses 3.1.4.3, 3.4.3 and 3.4.3.3.

3GPP TS 04.13 subclause 5.2.4.

26.14.3.2.2 Test purpose

1. To verify that upon receipt of an ASSIGNMENT COMMAND in group transmit mode, the MS switches to the channel defined in the ASSIGNMENT COMMAND, establishes the link and sends an ASSIGNMENT COMPLETE message.

    1.1 from non-hopping TCH/F to hopping TCH/F using a different timeslot;

    1.2 from hopping TCH/F to non-hopping TCH/F using a different timeslot.

2. To verify that the MS, supporting TCH, having sent an MM- or CM message which was not acknowledged on L2 before the channel assignment procedure was initiated and before the MS has left the old channel, repeats that message after completion of the assignment procedure without incrementing N(SD). This is tested in the special case of MM message AUTHENTICATION RESPONSE.

3. To verify that, if the MS has received an ASSIGNMENT COMMAND message which contains only the description of a channel to be used after the starting time, and if the starting time has not already elapsed, the mobile station waits up to the starting time before accessing the channel.

4. To verify that the MS having received an ASSIGNMENT COMMAND, correctly decodes the Mobile Allocation and Frequency List IEs for frequency hopping and applies the specified frequencies using the correct Cell Allocation.

5. To verify that after receipt of the ASSIGNMENT COMMAND the MS returns an ASSIGNMENT COMPLETE without undue delay.

6. To test that, when the MS fails to seize the new channel, the MS reactivates the old channel.

26.14.3.2.3 Method of test

Initial Conditions

System Simulator:

   1 cell, default parameters except:

Band	BCCH ARFCN	Throughout the test, the CA broadcast in System Information 1 is
GSM 450	263	259, 261, 263, 265, 267, 269, 271, 273, 275, 277
GSM 480	310	306, 308, 310, 312, 314, 316, 318, 320, 322, 324
GSM 710	457	447, 454, 457, 463, 471, 479, 482, 483, 489, 496
GSM 750	457	447, 454, 457, 463, 471, 479, 482, 483, 489, 496
T-GSM 810	457	447, 454, 457, 463, 471, 479, 482, 483, 489, 496
GSM 850	147	137, 144, 147, 153, 161, 169, 172, 173, 179, 186
GSM 900	20	10, 17, 20, 26, 34, 42, 45, 46, 52, 59
DCS 1 800	747	734, 741, 747, 754, 759, 766, 773, 775, 779, 782
PCS 1 900	647	634, 641, 647, 654, 659, 666, 673, 675, 679, 682
		Note that the actual CA of the cell contains other frequencies.

Mobile Station:

The MS is in group transmit mode.

Specific PICS statements:

-

PIXIT Statements:

- Way to configure VGCS or VBS.

- Way to initiate a VBS call.

Foreseen Final State of the MS

"Idle, updated", with TMSI allocated.

Test Procedure

The MS is brought into group transmit mode. A hopping channel is assigned with ASSIGNMENT COMMAND, which includes a Starting Time IE. It is checked that the MS switches to the assigned channel at the time specified in Starting Time IE, establishes the link and sends an ASSIGNMENT COMPLETE message.

Then the SS sends a AUTHENTICATION REQUEST message. The MS shall answer with an AUTHENTICATION RESPONSE message, which is not acknowledged on L2 by the SS. Immediately after the AUTHENTICATION RESPONSE message is received, the SS sends an ASSIGNMENT COMMAND. It is checked that the MS switches to the assigned channel, establishes the link with the commanded power level, sends as ASSIGNMENT COMPLETE message and then MS repeats the AUTHENTICATION RESPONSE message, with the same N(SD) value.

Then the SS sends an ASSIGNMENT COMMAND, but the SS does not activate the specified new channel. It is checked that the MS re-establishes the old channel and sends ASSIGNMENT FALIURE message on the old channel.

Maximum Duration of Test

30 s.

Expected Sequence

Step	Direction	Message	Comments
1	MS		the MS is in group transmit mode.
2	SS -> MS	ASSIGNMENT COMMAND	See specific message contents.
3	MS -> SS	ASSIGNMENT COMPLETE	Sent on the correct channel after establishment of the main signalling link. This message shall be ready to be transmitted before 600 ms after the completion of step 2.
4	SS		The SS checks that the MS reports the requested power level in the layer 1 header of the SACCH message that is sent in the first SACCH multiframe following the SABM.
5	SS -> MS	AUTHENTICATION REQUEST	
6	MS -> SS	AUTHENTICATION RESPONSE	This message is not L2 acknowledged by the SS.
7	SS -> MS	ASSIGNMENT COMMAND	See specific message contents.
8	MS -> SS	ASSIGNMENT COMPLETE	Sent on the correct channel after establishment of the main signalling link. This message shall be ready to be transmitted before 600 ms after the completion of step 7.
9	MS -> SS	AUTHENTICATION RESPONSE	N(SD) shall be the same as in step 6.
10	SS -> MS	ASSIGNMENT COMMAND	See specific message contents, the SS does not activate the new channel. The MS attempts (and fails) to establish a signalling link on the new channel.
11	MS		The MS re-establishes the signalling link on the old channel.
12	MS -> SS	ASSIGNMENT FAILURE	RR cause value = "protocol error unspecified".
13	SS -> MS	UPLINK RELEASE	
14	SS -> MS	CHANNEL RELEASE	UI format, the main signalling link is released.

Specific Message Contents

ASSIGNMENT COMMAND **- step 2**

Channel Description	
- Channel Type and TDMA offset	TCH/F
- Timeslot Number	(N+1) mod 8
- Training Sequence Code	Chosen arbitrarily
- Hopping	RF hopping channel
- MAIO	Chosen arbitrarily from the set (0, 1 to N-1) where N is the number of frequencies in the Mobile Allocation IE.
- HSN	Chosen arbitrarily from the set (1 to 63)
Power Command	
- Power level	Chosen arbitrarily but with a changed value.
Frequency list IE	Not included
Channel Mode	
- Mode	A speech mode arbitrarily chosen from the full rate capabilities declared for the MS
Mobile Allocation	Indicates all of the CA (broadcast on the BCCH) except for the BCCH carrier.
Starting Time	indicates (current frame number + 100 frames) mod 42432
VGCS target mode Indication	
- Target mode	group transmit mode
- Group cipher key number	no ciphering

ASSIGNMENT COMMAND **- step 7**

Channel Description	
- Channel Type and TDMA offset	TCH/F
- Timeslot Number	(N+3) mod 8
- Training Sequence Code	Chosen arbitrarily
- Hopping	Single RF Channel
- ARFCN	the ARFCN of the BCCH carrier
Power Command	
- Power level	Chosen arbitrarily but with a changed value.
Channel Mode	A speech mode arbitrarily chosen from the full rate capabilities declared for the MS
Frequency list IE	Not Included
Cell Channel Description	GSM 450: range 128 encoding (271, 273, 275, 277, 279, 281, 283, 285, 287, 289, 291)
	GSM 480: range 128 encoding (318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338)
	GSM 900: bit map zero encoding (45, 46, 52, 59, 66, 73, 74, 75, 76, 108, 114)
	DCS 1 800: range 128 encoding (773, 775, 779, 782, 791, 798, 829, 832, 844)
	PCS 1 900: range 128 encoding (673, 675, 679, 682, 691, 698, 729, 732, 744)
	GSM 710: 128 range encoding (482, 483, 489, 496, 498, 500, 501, 502, 503, 506, 508)
	GSM 750: 128 range encoding (482, 483, 489, 496, 498, 500, 501, 502, 503, 506, 508)
	T-GSM 810: 128 range encoding (482, 483, 489, 496, 498, 500, 501, 502, 503, 506, 508)
	GSM 850: 128 range encoding (172, 173, 179, 186, 193, 200, 201, 202, 203, 235, 241)
Mobile Allocation	Not included
Starting Time	Not included
VGCS target mode Indication	Not included

ASSIGNMENT COMMAND **- step 10**

Channel Description	
- Channel Type and TDMA offset	TCH/F
- Timeslot Number	(N+2) mod 8
- Training Sequence Code	Chosen arbitrarily
- Hopping	Single RF Channel
- ARFCN	The ARFCN of the BCCH carrier
Power Command	
- Power level	Chosen arbitrarily but with a changed value.
Channel Mode	A speech mode arbitrarily chosen from the full rate capabilities declared for the MS
Frequency list IE	Not included
Cell Channel Description	Not included
Mobile Allocation	Not included
Starting Time	Not included
VGCS target mode Indication	
- Target mode	group transmit mode
- Group cipher key number	no ciphering

26.14.3.3 VGCS-VBS / RR Procedures / handover / successful in group transmit mode

This clause deals with signalling tests in non-synchronised handover in successful case.

Table 26.14.3.3.1 contains a summary of the different combinations of parameters which have to be tested. For execution counter=3, the target channel is dedicated mode.

Table 26.14.3.3.1

From	To	Timing Adv.	Start Time	Sync ?	State of call	Exec Counter
TCH/F, no FH	TCH/F, no FH	20	1,1s	no	group trans. mode	1
TCH/F, no FH	TCH/F, FH	arbitrary	none	no	group trans. mode	2
TCH/F, FH	TCH/F, no FH	20	none	no	group trans. mode	3

26.14.3.3.1   Conformance requirements

The MS shall correctly apply the handover procedure in the non-synchronised case when in group call transmit mode and when handover is performed from a traffic channel with/without frequency hopping towards a traffic channel with/without frequency hopping.

References

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.4.4.

26.14.3.3.2   Test purpose

To verify that:

1. When the MS is ordered to make a non-synchronised handover it continuously sends access bursts on the main DCCH (and optionally on the SACCH) until it receives a PHYSICAL INFORMATION message from the SS.

2. The MS correctly handles the values of any Starting Time IE in the HANDOVER COMMAND message in the case when none of the information elements referring to before the starting time are present.

3. The MS correctly handles the Timing Advance IE in the PHYSICAL INFORMATION message.

4. The MS activates the new channel correctly and transmits the HANDOVER COMPLETE message without undue delay.

26.14.3.3.3   Method of test

Initial Conditions

System Simulator:

2 cells, A and B with same LAI, default parameters except:

Band	Cell A		Cell B	
	BCCH ARFCN	**Cell Allocation**	**BCCH ARFCN**	**Cell Allocation**
GSM 450	263	259, 261, 263, 265, 267, 269, 271, 273, 275, 277, 279, 281, 283, 285, 287, 289, 291	274	260, 262, 264, 266, 268, 270, 272, 274, 276, 279, 281, 283, 285, 287, 289, 291
GSM 480	310	306, 308, 310, 312, 314, 316, 318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338	321	307, 309, 311, 313, 315, 317, 319, 321, 323, 326, 328, 330, 332, 334, 336, 338
GSM 710	457	447, 454, 457, 463, 471, 479, 482 ,483 ,489, 496, 498, 500, 501, 502, 503, 506, 508	477	451, 455, 459, 461, 467, 468, 475, 477, 497, 498, 500, 501, 502, 503, 506, 508
GSM 750	457	447, 454, 457, 463, 471, 479, 482 ,483 ,489, 496, 498, 500, 501, 502, 503, 506, 508	477	451, 455, 459, 461, 467, 468, 475, 477, 497, 498, 500, 501, 502, 503, 506, 508
T-GSM 810	457	447, 454, 457, 463, 471, 479, 482 ,483 ,489, 496, 498, 500, 501, 502, 503, 506, 508	477	451, 455, 459, 461, 467, 468, 475, 477, 497, 498, 500, 501, 502, 503, 506, 508
GSM 850	147	137, 144, 147, 153, 161, 169, 172, 173, 179, 186, 193, 200, 201, 202, 203, 235, 241	167	141, 145, 149, 151, 157, 158, 165, 167, 187, 193, 200, 201, 202, 203, 235, 241
GSM 900	20	10, 17, 20, 26, 34, 42, 45, 46, 52, 59, 66, 73, 74, 75, 76, 108, 114	40	14, 18, 22, 24, 30, 31, 38, 40, 60, 66, 73, 74, 75, 76, 108, 114
DCS 1 800	747	734, 741, 747, 754, 759, 762, 766, 767, 773, 775, 779, 782, 791, 798, 829, 832, 844	764	739, 743, 746, 749, 756, 758, 761, 764, 771, 779, 782, 791, 798, 829, 832, 844
PCS 1 900	664	639, 643, 646, 649, 656, 658, 661, 664, 671, 679, 682, 691, 698, 729, 732, 744	664	639, 643, 646, 649, 656, 658, 661, 664, 671, 679, 682, 691, 698, 729, 732, 744

The frame numbers of cells A and B shall be different by 100.

The timebase of cells A and B shall be such that the edges of their timeslots are not coincident at the antenna connector.

Mobile Station:

> The MS is in group transmit mode on cell A.

Specific PICS statements:

> -

PIXIT Statements:

- Way to configure VGCS or VBS.

- Way to request uplink.

- Way to initiate VBS call.

Foreseen Final State of the MS

idle mode on cell B.

Test Procedure

This procedure is repeated for execution counter M = 1 to 3.

The MS is in group transmit mode. The SS sends a HANDOVER COMMAND. The MS (at the time defined by the Starting Time information element, if included in the message) begins to send access bursts on the new DCCH (and optionally on the SACCH) of the target cell. The SS observes the access bursts and after receiving n (n being arbitrarily chosen between 10 - 20) access bursts, the SS sends one PHYSICAL INFORMATION message with an arbitrary Timing Advance. It is checked that the MS activates the new channel in sending and receiving mode, and it is checked that the MS is ready to transmit a HANDOVER COMPLETE message, before "**x**" MS after the end of the PHYSICAL INFORMATION message, but not before a UA frame has been sent by the SS.

The term "ready to transmit" is defined in 3GPP TS 04.13. The value of "**x**" depends upon the target channel and is specified in the specific message contents clause.

Maximum Duration of Test

5 minutes, including 1 minute for any necessary operator actions.

Expected Sequence

This sequence is performed for execution counter M = 1, 2, 3.

Step	Direction	Message	Comments
0	MS		The MS is in group transmit mode.
1	SS -> MS	HANDOVER COMMAND	See Specific message contents.
2	MS -> SS	HANDOVER ACCESS	Repeated on every burst of the uplink main DCCH (and optionally on the SACCH) until reception of PHYSICAL INFORMATION. Handover Reference as included in the HANDOVER COMMAND. If the HANDOVER COMMAND includes a starting time IE then the first HANDOVER ACCESS message shall be transmitted in the indicated frame (unless the indicated frame is not used by that channel, in which case the next frame used by that channel shall be used).
3	SS -> MS	PHYSICAL INFORMATION	Sent after reception of n HANDOVER ACCESS messages. See specific message contents.
4	MS -> SS	SABM	Sent without information field.
5	SS -> MS	UA	
6	MS -> SS	HANDOVER COMPLETE	The message shall be ready to be transmitted before "x" ms after the completion of step 3.
A7	MS		for M = 1, 2, check that the TCH specified is through connected.
B7			for M=3, check that the TCH specified is through connected.
B8	SS -> MS	CHANNEL RELEASE	The MS releases L2 multiple frame link L2:DISC/UA.

Specific Message Contents

　　For M = 1:

HANDOVER COMMAND

Information Element	value/remarks
As default message contents, except:	
Cell Description	
- Network Colour Code	1
- Base Station Colour Code	5
- BCCH Carrier Number	See the table below
Synchronisation Indication	
- Report Observed Time Difference	Shall not be included.
- Synchronisation Indication	'Non synchronised'.
- Normal Cell Indication	Ignore out of range timing advance.
Starting Time	Indicates the frame number of cell B that will occur approximately 1,1 s (238 frames have elapsed) after the HANDOVER COMMAND is sent by cell A.
VGCS target mode Indication	
- Target mode	group transmit mode
- Group cipher key number	no ciphering

HANDOVER COMMAND	
Band	**Channel Description**
	ARFCN
GSM 450	274
GSM 480	321
GSM 710	477
GSM 750	477
T-GSM 810	477
GSM 850	167
GSM 900	40
DCS 1 800	764
PCS 1 900	664

PHYSICAL INFORMATION

Information Element	value/remarks
As default message contents.	

Step 6: x = 500

Step 7: The MS and SS are using a full rate TCH in non hopping mode on cell B.

For M = 2:

Step 0: The MS and SS are using a full rate TCH in non-hopping mode on cell B.

HANDOVER COMMAND

Information Element	value/remarks
As default message contents, except:	
Cell Description	
- Network Colour Code	1
- Base Station Colour Code	5
- BCCH Carrier Number	See the table below
Channel Description	
- Channel Type	TCH/F + ACCHs
- Timeslot number	Chosen arbitrarily, but not Zero
- Training Sequence Code	Chosen arbitrarily
- Hopping	RF hopping channel.
- MAIO	Chosen arbitrarily from the set (0, 1 to N-1), where N is the number of frequencies encoded in the Frequency List IE.
- HSN	Chosen arbitrarily from the set (1,2,..63)
Synchronisation Indication IE is not included.	
Channel Mode IE is not included.	
Frequency List after time	
- Frequency List	Encode frequencies as per the table below
VGCS target mode Indication	
- Target mode	group transmit mode
- Group cipher key number	no ciphering

HANDOVER COMMAND			
Band	**BCCH ARFCN**	**Frequency Format**	**Frequency List**
GSM 450	263	Range 128	259, 261, 263, 265, 277, 279, 281, 283, 285, 287, 289, 291
GSM 480	310	Range 128	306, 308, 310, 312, 324, 326, 328, 330, 332, 334, 336, 338
GSM 710	457	Range 128	447, 454, 457, 463, 496, 498, 500, 501, 502, 503, 506, 508
GSM 750	457	Range 128	447, 454, 457, 463, 496, 498, 500, 501, 502, 503, 506, 508
T-GSM 810	457	Range 128	447, 454, 457, 463, 496, 498, 500, 501, 502, 503, 506, 508
GSM 850	147	Range 128	137, 144, 147, 153, 186, 193, 200, 201, 202, 203, 235, 241
GSM 900	20	Range 128	10, 17, 20, 26, 59, 66, 73, 74, 75, 76,108, 114
DCS 1 800	747	Range 256	747, 775, 779, 782, 791, 798, 829, 832, 844
PCS 1 900	647	Range 256	647, 675, 679, 682, 691, 698, 729, 732, 744

PHYSICAL INFORMATION

Information Element	value/remarks
As default message contents, except: Timing advance	Arbitrarily chosen but different to default value.

Step 6: x = 500

Step 7: The MS and SS are using a full rate TCH in hopping mode on cell A.

For M = 3:

Step 0: The MS and SS are using a full rate TCH in hopping mode on cell A.

HANDOVER COMMAND

Information Element	value/remarks

As default message contents, except:
Cell Description
  - Network Colour Code
  - Base Station Colour Code
  - BCCH Carrier Number
Synchronisation Indication
  - Report Observed Time Difference
  - Synchronisation Indication
  - Normal Cell Indication
 	
VGCS target mode Indication
  - Target mode
  - Group cipher key number
	
	1
	5
	See the table below
	
	Shall not be included.
	'Non synchronised'.
	Out of range timing advance shall trigger a handover failure procedure.
	
	dedicated mode
	no ciphering

HANDOVER COMMAND	
Band	**Channel Description**
	ARFCN
GSM 450	274
GSM 480	321
GSM 710	477
GSM 750	477
T-GSM 810	477
GSM 850	167
GSM 900	40
DCS 1 800	764
PCS 1 900	664

PHYSICAL INFORMATION

Information Element	value/remarks
As default message contents.	

Step 6: x = 500

Step 7: The MS and SS are using a full rate TCH in non-hopping mode on cell B.

26.14.3.4 VGCS-VBS / RR Procedures / handover / successful at group call establishment

This clause deals with signalling in the Handover/successful/group call establishment/non synchronised case. This subclause is aligned with subclause 26.6.5.2 (M = 1 and M = 8).

Table 26.14.3.4.1 contains a summary of the different combinations of parameters which have to be tested. If a test uses a channel rate which the MS under test does not support, the test shall be skipped.

Table 26.14.3.4.1

From	To	Timing Adv.	Start Time	Sync	State of call	Exec Counter
SDCCH/4, no FH	TCH/F, FH	20	none	no	group or broadcast call establishment	1
SDCCH/8, FH	TCH/F, no FH	20	1,1s	no	group or broadcast call establishment	2

Table 26.14.3.4.2

	TCH/FS	SDCCH
n	10-20	2-5
n: number of access bursts.		

26.14.3.4.1 Conformance requirements

In dedicated mode or group transmit mode, an intercell or intracell change of channel(s) can be requested by the network RR sublayer. This changed may be performed through the handover procedure.

The purpose of the handover procedure is to completely modify the channels allocated to the mobile station e.g. when the cell is changed. A change in the channel configuration nature is possible. This procedure is used only while in dedicated mode or group transmit mode.

References

3GPP TS 04.08 / 3GPP TS 44.018, subclauses 3.4.4 and 9.1.15.

3GPP TS 04.13, subclause 5.2.6.2.

26.14.3.4.2 Test purpose

To verify that:

1. The MS correctly applies the handover procedure from non frequency hopping SDCCH/4 to TCH/F with frequency hopping in the non-synchronized case during group or broadcast call establishment.

2. The mobile correctly applies the handover procedures from SDCCH/8 with frequency hopping to TCH/F without frequency hopping in the non-synchronized case during group or broadcast call establishment.

3. If during call establishment a Layer 3 MM or CC message just sent by the MS is not Layer 2 acknowledged before the channel change caused by the HANDOVER COMMAND message, the MS sends the Layer 3 message to the new cell, using the same value in the N(SD) field, after the handover procedure.

26.14.3.4.3 Method of test

Initial Conditions

System Simulator:

2 cells A and B with same LAI, default parameters, except:

Cell A has:

BCCH ARFCN = See the table below

Cell Allocation = See the table below

PLMN colour code, NCC = as defaults.

BS colour code, BCC = as defaults.

Cell B has:

BCCH ARFCN = See the table below

Cell Allocation = See the table below

PLMN colour code, NCC = 3.

BS colour code, BCC = 0.

Band	Cell A		Cell B		Both Cells
	BCCH ARFCN	Cell Allocation	BCCH ARFCN	Cell Allocation	Format
GSM 450	263	259, 261, 263, 265, 267, 269, 271, 273, 275, 277, 279, 281, 283, 285, 287, 289, 291	274	260, 262, 264, 266, 268, 270, 272, 274, 276, 279, 281, 283, 285, 287, 289, 291	Range 128
GSM 480	310	306, 308, 310, 312, 314, 316, 318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338	321	307, 309, 311, 313, 315, 317, 319, 321, 323, 326, 328, 330, 332, 334, 336, 338	Range 128
GSM 710	457	447, 454, 457, 463, 471, 479, 482 ,483 ,489, 496, 498, 500, 501, 502, 503, 506, 508	477	451, 455, 459, 461, 467, 468, 475, 477, 497, 498, 500, 501, 502, 503, 506, 508	Range 128
GSM 750	457	447, 454, 457, 463, 471, 479, 482 ,483 ,489, 496, 498, 500, 501, 502, 503, 506, 508	477	451, 455, 459, 461, 467, 468, 475, 477, 497, 498, 500, 501, 502, 503, 506, 508	Range 128
T-GSM 810	457	447, 454, 457, 463, 471, 479, 482 ,483 ,489, 496, 498, 500, 501, 502, 503, 506, 508	477	451, 455, 459, 461, 467, 468, 475, 477, 497, 498, 500, 501, 502, 503, 506, 508	Range 128
GSM 850	147	137, 144, 147, 153, 161, 169, 172, 173, 179, 186, 193, 200, 201, 202, 203, 235, 241	167	141, 145, 149, 151, 157, 158, 165, 167, 187, 193, 200, 201, 202, 203, 235, 241	Range 128
GSM 900	20	10, 17, 20, 26, 34, 42, 45, 46, 52, 59, 66, 73, 74, 75, 76, 108, 114	40	14, 18, 22, 24, 30, 31, 38, 40, 60, 66, 73, 74, 75, 76, 108, 114	Bit map 0
DCS 1 800	747	734, 741, 747, 754, 759, 762, 766, 767, 773, 775, 779, 782, 791, 798, 829, 832, 844	764	739, 743, 746, 749, 756, 758, 761, 764, 771, 779, 782, 791, 798, 829, 832, 844	Range 512
PCS 1 900	647	634, 641, 647, 654, 659, 662, 666, 667, 673, 675, 679, 682, 691, 698, 729, 732, 744	664	639, 643, 646, 649, 656, 658, 661, 664, 671, 679, 682, 691, 698, 729, 732, 744	Range 512

Both cells send SI 1 messages containing the complete Cell Allocation of the cell, using Range 128 format.

The timebase of Cells A and B shall be such that the edges of their timeslots are not coincident at the antenna connector.

For execution counter M = 1 a combined CCH/SDCCH is used.

For execution counter M = 2 a non combined SDCCH is used.

Mobile Station:

The MS is in MM-state "idle, updated" with a TMSI allocated and camped on cell A.

Specific PICS statements:

-

PIXIT Statements:

- Way to initiate VGCS call.

- Way to initiate VBS call.

Foreseen Final State of the MS

"Idle, updated" with TMSI allocated and camped on cell B.

Test Procedure

This procedure is repeated for execution counter M = 1 and 2 (see table 26.14.3.4.1).

A VBS call is initiated on cell A by setup procedure if the MS supports VBS only, otherwise a VGCS call is initiated by setup procedure on cell A. After the MS has sent the SETUP message (and before the last L2 frame carrying the SETUP message is acknowledged by the SS) the SS sends a HANDOVER COMMAND message, ordering the MS to switch to cell B. The MS shall then begin to send access bursts on the new DCCH (and optionally on the SACCH) to cell B. The SS observes the access bursts and after receiving n (n being arbitrarily chosen between values according to table 26.14.3.4.2) access bursts, the SS sends one PHYSICAL INFORMATION message with a Timing Advance as specified in table 26.14.3.4.1. It is checked that the MS activates the new channel and the MS is ready to transmit a HANDOVER COMPLETE message before x ms after the end of the PHYSICAL INFORMATION message, but not before a UA frame has been sent by the SS. It is also checked that the MS sends again the SETUP message with the same value in the N(SD) field.

The term 'ready to transmit' is defined in 3GPP TS 04.13. The value of '**x**' depends upon the target channel and is specified in the specific message contents clause.

Maximum Duration of Test

5 minutes, including 1 minute for any necessary operator actions.

Expected Sequence

The sequence is performed for execution counter M = 1 and 2.

Step	Direction	Message	Comments
1	MS		MMI action, a VBS or a VGCS call is initiated on cell A.
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	See specific message contents.
4	MS -> SS	CM SERVICE REQUEST	L2: SABM / UA
5	MS -> SS	SETUP	Last L2 frame not acknowledged by the SS.
6	SS -> MS	HANDOVER COMMAND	See specific message contents.
7	MS -> SS	HANDOVER ACCESS	Repeated on every burst of the uplink main DCCH (and optionally on the SACCH) until reception of PHYSICAL INFORMATION. Handover Reference as included in the HANDOVER COMMAND
8	SS -> MS	PHYSICAL INFO	Sent after reception of n HANDOVER ACCESS message. Timing Advance as specified in table 26.14.3.4.1.
9	MS -> SS	SABM	Sent without information field
10	SS -> MS	UA	
11	MS -> SS	HANDOVER COMPLETE	This message shall be ready to be transmitted before 'x' ms after the completion of step 8.
12	MS -> SS	SETUP	Same N(SD) as in step 5.
13	SS -> MS	CHANNEL RELEASE	The MS releases L2 multiple frame link L2:DISC/UA.

Specific Message Contents

M = 1

IMMEDIATE ASSIGNMENT

Information Element	value/remark
As default message contents.	

HANDOVER COMMAND

Information Element	value/remarks
As default message contents, except:	
Cell Description	
- Network Colour Code	3
- Base Station Colour Code	0
- BCCH Carrier Number	See the table below
Channel Description	
- Channel Type	TCH/F + ACCHs
- Timeslot number	zero.
- Training Sequence Code	Chosen arbitrarily
- Hopping	RF hopping channel.
- MAIO	Chosen arbitrarily from the set (0, 1 to N-1), where N is the number of frequencies encoded in the Frequency Short List IE.
- HSN	Chosen arbitrarily from the set (1,2,..63).
Synchronization IE is not included.	
Channel Mode IE	speech full rate
Frequency Short List after time	
- Frequency Short List	Encode frequencies as per the table below

HANDOVER COMMAND			
Band	**Frequency List**		**BCCH Carrier Number**
	Format	**ARFCNs**	**ARFCN**
GSM 450	Range 128	260, 262, 264, 266, 268, 270, 272, 276, 279, 281, 283, 285, 287, 289, 291	274
GSM 480	Range 128	307, 309, 311, 313, 315, 317, 319, 323, 326, 328, 330, 332, 334, 336, 338	321
GSM 710	Range 128	451, 455, 459, 461, 467, 468, 475, 497, 498, 500, 501, 502, 503, 506, 508	477
GSM 750	Range 128	451, 455, 459, 461, 467, 468, 475, 497, 498, 500, 501, 502, 503, 506, 508	477
T-GSM 810	Range 128	451, 455, 459, 461, 467, 468, 475, 497, 498, 500, 501, 502, 503, 506, 508	477
GSM 850	Range 128	141, 145, 149, 151, 157, 158, 165, 187, 193, 200, 201, 202, 203, 235, 241	167
GSM 900	Bitmap 0	14, 18, 22, 24, 30, 31, 38, 60, 66, 73, 74, 75, 76, 108, 114	40
DCS 1 800	Range 128	756, 758, 761, 771, 779, 782, 791, 798, 829, 832, 844	764
PCS 1 900	Range 1 024	656, 658, 661, 671, 679, 682, 691, 698, 729, 732, 744	664

Step 13: '**x**' = 500

M = 2

IMMEDIATE ASSIGNMENT

Information Element	value/remark
As default message contents except:	
L2 pseudo length	14 octets (11 + contents of the MA)
Channel Description	
- Channel Type	SDCCH/8
- TDMA offset	As default message contents
- Timeslot number	Arbitrary value but not zero.
- Training Sequence Code	Chosen arbitrarily
- Hopping	RF hopping channel.
- MAIO	Chosen arbitrarily from the set (0, 1 to N-1), where N is the number of frequencies encoded in the Mobile Allocation.
- HSN	Chosen arbitrarily from the set (1,2,..63)
Mobile Allocation	
- Length	3 octets.
- Contents	Indicates only three frequencies:
	GSM 450: 281, 283, 285
	GSM 480: 328, 330, 332
	GSM 710: 500, 501, 502
	GSM 750: 500, 501, 502
	T-GSM 810: 500, 501, 502
	GSM 850: 200, 201, 202
	GSM 900: 73, 74, 75
	DCS 1 800: 773, 775, 779
	PCS 1 900: 673, 675, 679

HANDOVER COMMAND

Information Element	value/remarks
As default message contents, except:	
Cell Description	
- Network Colour Code	3
- Base Station Colour Code	0
- BCCH Carrier Number	See the table below
Channel Description	
- Channel Type	TCH/F + ACCHs
- Timeslot number	Zero
- Training Sequence Code	Chosen arbitrarily
- Hopping	Single RF Channel
- ARFCN	Chosen arbitrarily from the Cell Allocation of Cell B, but not the BCCH carrier of Cell B.
Synchronization Indication IE not included.	

HANDOVER COMMAND	
Band	Channel Description ARFCN
GSM 450	274
GSM 480	321
GSM 710	477
GSM 750	477
T-GSM 810	477
GSM 850	167
GSM 900	40
DCS 1 800	764
PCS 1 900	664

Step 13: '**x**' = 500

26.14.3.5 VGCS-VBS / RR Procedures / handover / failure

26.14.3.5.1 Conformance requirements

After a HANDOVER COMMAND message and subsequent handover failure in group transmit mode, the MS shall return to the old channel.

References

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.4.4.4.

26.14.3.5.2 Test purpose

To verify that after a HANDOVER COMMAND message and subsequent handover failure in group transmit mode, the MS returns to the old channel.

26.14.3.5.3 Method of test

Initial Conditions

System Simulator:

2 cells with same LAI, default parameters.

Mobile Station:

The MS is in group transmit mode on cell A.

Specific PICS statements:

-

PIXIT Statements:

- Way to configure VGCS or VBS.

- Way to request uplink.

- Way to initiate VBS call.

Foreseen Final State of the MS

"Idle, updated", with TMSI allocated.

Test Procedure

The MS is brought to group transmit mode, then the SS sends a HANDOVER COMMAND message with Power Command set to 8. The MS begins to send access bursts at the commanded power level on the new DCCH (and optionally on the SACCH). The SS activates the SACCH, but does not send PHYSICAL INFORMATION (thus causing a time-out of T3124). It is checked that the MS re-establishes the old link and sends a HANDOVER FAILURE within 3 s from the transmission of HANDOVER COMMAND, using the old power level.

Maximum Duration of Test

5 minutes, including 1 minute for any necessary operator actions.

Expected Sequence

Step	Direction	Message	Comments
1	MS		the MS is in group transmit mode
2	SS -> MS	HANDOVER COMMAND	Channel description: non-hopping, full rate Power Command: 8. Synchronisation Indication: non synchronised.
3	MS -> SS	HANDOVER ACCESS	Several messages are sent, all with correct Handover References.
4	MS -> SS	HANDOVER FAILURE	Sent on old channel, RR cause value = "Abnormal release, unspecified", "Abnormal release, channel unacceptable", "Abnormal release, timer expired", "Abnormal release, no activity on the radio path" or "Protocol error unspecified". Shall be sent within 3 s from the transmission of HANDOVER COMMAND.
5	SS -> MS	CHANNEL RELEASE	The MS releases L2 multiple frame link L2:DISC/UA.

26.14.3.6 VGCS-VBS / RR / Measurement Report

This subclause tests measurement report of the MS in group transmit mode.

26.14.3.6.1 Measurement / all neighbours present

26.14.3.6.1.1 Conformance requirements

In group transmit mode the MS shall continuously send MEASUREMENT REPORT messages on every SACCH blocks and the measurement valid indication shall be set to valid (0) within the second block at the latest.

After 20 s the values in the MEASUREMENT REPORT message shall contain measurement results for the 6 strongest BCCH carriers with known and allowed NCC part of BSIC when the SS gives information of more that 6 neighbouring cells .

References

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.4.1.2.

3GPP TS 05.08 subclause 8.4.

26.14.3.6.1.2 Test purpose

To verify that, when the SS gives information of more than 6 neighbouring cells, the MS in group transmit mode reports measurement results for the 6 strongest BCCH carriers with known and allowed NCC part of BSIC.

26.14.3.6.1.3 Method of test

Initial Conditions

System Simulator:

For GSM 450 or GSM 480: 8 cells with the following settings:

Transmitter	Level	NCC	BSCC	ARFCN (GSM 450)	ARFCN (GSM 480)	Cell Identity
Serving, S1	-60	1	3	260	307	0001H
Neighbour, N1	-85	1	5	264	311	0002H
Neighbour, N2	-80	1	7	268	315	0003H
Neighbour, N3	-75	1	1	272	319	0004H
Neighbour, N4	-55	1	3	276	323	0005H
Neighbour, N5	-50	1	5	280	327	0006H
Neighbour, N6	-45	1	7	284	331	0007H
Neighbour, N7	-40	1	1	288	335	0008H

For GSM 900 or DCS 1 800: 8 cells with the following settings:

Transmitter	Level	NCC	BSCC	ARFCN (GSM 900)	ARFCN (DCS 1 800)	ARFCN (PCS 1 900)	Cell Identity
Serving, S1	-60	1	3	002	514	514	0001H
Neighbour, N1	-85	1	5	008	530	530	0002H
Neighbour, N2	-80	1	7	014	602	602	0003H
Neighbour, N3	-75	1	1	020	665	665	0004H
Neighbour, N4	-55	1	3	026	762	762	0005H
Neighbour, N5	-50	1	5	032	686	686	0006H
Neighbour, N6	-45	1	7	038	549	549	0007H
Neighbour, N7	-40	1	1	044	810	810	0008H

For GSM 710 or GSM 750 or T-GSM 810 or GSM 850: 8 cells with the following settings:

Transmitter	Level	NCC	BSCC	ARFCN (GSM 710)	ARFCN (T-GSM 810)	ARFCN (GSM 750)	ARFCN (GSM 850)	Cell Identity
Serving, S1	-60	1	3	439	439	439	129	0001H
Neighbour, N1	-85	1	5	445	445	445	135	0002H
Neighbour, N2	-80	1	7	451	451	451	141	0003H
Neighbour, N3	-75	1	1	457	457	457	147	0004H
Neighbour, N4	-55	1	3	463	463	463	153	0005H
Neighbour, N5	-50	1	5	469	469	469	159	0006H
Neighbour, N6	-45	1	7	475	475	475	165	0007H
Neighbour, N7	-40	1	1	481	481	481	171	0008H

With the exception of the Cell Allocation, the rest of the parameters for all eight cells are the same as the default settings and default SI 1 to 4 message contents for cell A. The Cell Allocation for the serving cell is the same as the default setting for cell A. The Cell Allocations for the neighbour cells need have only one entry, consisting of the ARFCN of that cell's BCCH.

Mobile Station:

The MS is in group transmit mode.

Specific PICS statements:

-

PIXIT Statements:

- Way to initiate VBS call.

Foreseen Final State of the MS

group transmit mode.

Test Procedure

This test procedure is performed twice.

The MS is in group transmit mode. The SS sends SI 5 and 6 (on the second iteration of the test the SS also sends SI 5bis) on the SACCH. All 8 of the BCCHs are indicated in the BA. It is checked that the MS sends MEASUREMENT REPORTs containing measurement results for the 6 strongest carriers.

Maximum Duration of Test

5 minutes, including 1 minute for any necessary operator actions.

Expected Sequence

This sequence is performed for execution counter, k = 1, 2.

Since when k = 1, SI 5, SI 6 and MEASUREMENT REPORT (and when k = 2 an additional SI 5bis is included) are sent continuously, a table is not applicable in this test. The interval between 2 successive Layer 2 frames containing MEASUREMENT REPORTs shall not exceed one Layer 2 frame.

Specific Message Contents

SYSTEM INFORMATION TYPE 5:

DCS 1 800 and PCS 1 900 begin:

Information Element	value/remark
Neighbour Cells Description	
- Format Identifier	1024 range
- EXT IND	k = 1. Information Element carries complete BA.
	k = 2. Information Element carries only a part of the BA.
- W(i)	k = 1. Non null for ARFCN 514, 530, 549, 602, 665, 686, 762, 810.
	k = 2. Non null for ARFCN 549, 602, 665, 686, 810.

DCS 1 800 and PCS 1 900 end:

Other bands begin:

Information Element	value/remark
Neighbour Cells Description	
Format Identifier	See the table below
BCCH Allocation Sequence	1
BCCH Allocation ARFCN	See the table below.
- EXT IND	k = 1. Information Element carries complete BA.
	k = 2. Information Element carries only a part of the BA.

Band	Neighbour Cells Description	
	Format Identifier	BCCH Allocation ARFCN
GSM 450	Range 128	259, 260, 261, 262, 263, 264, 265, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292
GSM 480	Range 128	306, 307, 308, 309, 310, 311, 312, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339
GSM 710	Range 128	439, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 453, 454, 455, 457, 457, 458, 459, 460, 461, 463, 465, 466, 467, 469, 471, 472, 473, 475, 477, 481
GSM 750	Range 128	439, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 453, 454, 455, 457, 457, 458, 459, 460, 461, 463, 465, 466, 467, 469, 471, 472, 473, 475, 477, 481
T-GSM 810	Range 128	439, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 453, 454, 455, 457, 457, 458, 459, 460, 461, 463, 465, 466, 467, 469, 471, 472, 473, 475, 477, 481
GSM 850	Range 128	129, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 143, 144, 145, 146, 147, 148, 149, 150, 151, 153, 155, 156, 157, 159, 161, 162, 163, 165, 167, 171
GSM 900	Bit map 0	2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 17, 18, 19, 20, 21, 22, 23, 24, 26, 28, 29, 30, 32, 34, 35, 36, 38, 40, 44

Other bands end:

SYSTEM INFORMATION TYPE 5bis (Sent only when k = 2):

Information Element	value/remark
Protocol Discriminator	RR Management
Message Type	Sys Info 5bis.
Neighbour Cells Description	
- Format	1024 range
- EXT IND	k = 2. Information Element carries only a part of the BA.
- W(i)	GSM 450: Channel 0 and 800 belong to the BCCH allocation.
	GSM 480: Channel 0 and 800 belong to the BCCH allocation.
	GSM 710: Channel 438 and 800 belong to the BCCH allocation.
	GSM 750: Channel 438 and 800 belong to the BCCH allocation.
	T-GSM 810: Channel 438 and 800 belong to the BCCH allocation.
	GSM 850: Channel 128 and 800 belong to the BCCH allocation.
	GSM 900: Channel 0 and 800 belong to the BCCH allocation.
	DCS 1 800: Non null ARFCN 20, 514, 530, 549, 762.
	PCS 1 900: Non null ARFCN 20, 514, 530, 549, 762.

SYSTEM INFORMATION TYPE 6:

DCS 1 800 and PCS 1 900 begin:

Information Element	value/ remark
Protocol Discriminator	RR Management
Message Type	sys info 6
Cell Identity	default
LAI	default
Cell Options	
- Power Control Indicator	Power Control Indicator is set
- DTX Indicator	MS shall not use DTX
- Radio_Link_Timeout	default
PLMN permitted	only NCC 1 permitted

DCS 1 800 and PCS 1 900 end:

MEASUREMENT REPORT:

Information Element	value/remark
Protocol Discriminator	RR Management
Transaction Identifier	0000
Message Type	MEASUREMENT REPORT
Measurement Results	
BA_used	1
DTX_used	DTX was not used
RXLEV_FULL_SERVING_CELL	See note 1
RXLEV_SUB_SERVING_CELL	See note 1
MEAS_VALID	See note 2
RXQUAL_FULL_SERVING_CELL	See note 1
RXQUAL_SUB_SERVING_CELL	See note 1
NO_NCELL_M	6 neighbour cell measurement results
RXLEV_NCELL_1	See note 1
BCCH_FREQ_NCELL_1	Shall not correspond to N1 or N2
BSIC_NCELL_1	Corresponds to that of BCCH_FREQ_NCELL_1
RXLEV_NCELL_2	See note 1
BCCH_FREQ_NCELL_2	Shall not correspond to N1 or N2
BSIC_NCELL_2	Corresponds to that of BCCH_FREQ_NCELL_2
RXLEV_NCELL_3	See note 1
BCCH_FREQ_NCELL_3	Shall not correspond to N1 or N2
BSIC_NCELL_3	Corresponds to that of BCCH_FREQ_NCELL_3
RXLEV_NCELL_4	See note 1
BCCH_FREQ_NCELL_4	Shall not correspond to N1 or N2
BSIC_NCELL_4	Corresponds to that of BCCH_FREQ_NCELL_4
RXLEV_NCELL_5	See note 1
BCCH_FREQ_NCELL_5	Shall not correspond to N1 or N2
BSIC_NCELL_5	Corresponds to that of BCCH_FREQ_NCELL_5
RXLEV_NCELL_6	See note 1
BCCH_FREQ_NCELL_6	Shall not correspond to N1 or N2
BSIC_NCELL_6	Corresponds to that of BCCH_FREQ_NCELL_6

NOTE 1: These actual values are not checked.

NOTE 2: The Measurement Valid Indication shall be set to valid within the second SACCH block at the latest.

26.14.4 VGCS-VBS / Uplink Access and Uplink Reply Procedures

26.14.4.1 VGCS-VBS / Uplink Access / uplink investigation

26.14.4.1.1 Conformance requirement

1. On receipt of a request from the upper layer to access the uplink and the uplink is free the MS shall start the uplink access procedure.

2. The uplink is not free when receipt of request from the upper layer to access the uplink, and before the Timer T3128 expiring the uplink is still not free, the MS shall remain in group receive mode and indicate a reject of the uplink request to the upper layer.

Reference(s)

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.3.1.2.1.1.

26.14.4.1.2 Test purpose

To verify that:

1. The MS starts the uplink access procedure on receipt of a request from the user to access the uplink and the uplink is free.

2. The MS remains in group receive mode and indicates a reject of the uplink request to the user till Timer T3128 expiring.

26.14.4.1.3   Method of test

Initial Conditions

System Simulator:

1 cell with default parameters for ASCI testing.

Mobile Station:

The MS is in group receive mode.

Specific PICS statements:

-

PIXIT Statements:

- Way to configure VGCS.

- Way to indicate uplink granted/rejected.

- Way to accept a VGCS.

- Way to request uplink.

Foreseen Final State of the MS

"Idle, updated", with TMSI allocated.

Test Procedure

The MS is brought into group receive mode. The SS indicates uplink free to the MS. The MS is requested to access uplink by MMI action. It is checked that the MS initiates the uplink access procedure. The request is not granted (a VGCS UPLINK GRANT to irrelevant request reference and an UPLINK BUSY message). It is checked that the MS remains in group receive mode. The MS is requested to access uplink by MMI action. It is checked that the MS does not send UPLINK ACCESS message and indicates uplink access rejected.

Maximum Duration of Test

5 minutes.

Expected Sequence

Step	Direction	Message	Comments
0	MS		the MS is in group receive mode.
1	SS -> MS	UPLINK FREE	Uplink access request set to 'L'.
2	MS		MMI action to request uplink access.
3	MS -> SS	UPLINK ACCESS	
4	MS -> SS	UPLINK ACCESS	
5	SS -> MS	UPLINK BUSY	
6	SS -> MS	VGCS UPLINK GRANT	request reference different from those in step 3 and 4.
7	MS		check that the MS indicates rejection of uplink request and check that the TCH in downlink is still through connected and there is no uplink transmission on that channel for 10 s.
10	MS		MMI action to request uplink access.
11	SS		check that there is no UPLINK ACCESS messages for 2 s.
12	MS		check that the MS indicates the access rejection to the user.
13	SS -> MS	CHANNEL RELEASE	UI format

26.14.4.2   Uplink Access / uplink access procedure

26.14.4.2.1   Conformance requirement

1. The mobile station shall send UPLINK ACCESS messages on the voice group call channel with the appropriate establishment cause. The first UPLINK ACCESS message shall be transmitted by the mobile station with a random delay between 0 and 20ms. The UPLINK ACCESS messages shall be repeated after a further period of 100ms plus a random delay between 0 and 20ms.

2. At expiration of timer T3130, the mobile station shall repeat the uplink access procedure if the uplink is free. A maximum of three attempts is allowed and after that a rejection of the uplink request is indicated to the upper layers.

3. When receiving a UPLINK BUSY or a VGCS UPLINK GRANT message aimed to another mobile station (i.e. not corresponding to one of its UPLINK ACCESS messages), the mobile station shall stop sending UPLINK ACCESS message and remain in group receive mode and shall indicate a rejection of the uplink request to the upper layers.

4. On receipt of an VGCS UPLINK GRANT message corresponding to one of its UPLINK ACCESS messages, the mobile station stops T3130, stops sending UPLINK ACCESS messages, and establishes the main signalling link with an SABM containing the TALKER INDICATION message in the information field. Controlled early classmark sending shall be performed. If a UA is received containing the message sent, the mobile station enters group transmit mode and indicates the successful seizure of the uplink to the upper layer.

5. If an uplink identity code (UIC) of the current cell has been provided by the network in the UPLINK FREE message, the mobile station shall use this UIC IE for the coding of the UPLINK ACCESS messages . If no UIC is provided, the mobile station shall use the BSIC received from the current cell, for instance from the initial synchronisation.

Reference(s)

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.3.1.2.1.2.

3GPP TS 03.68 subclause 11.3.7.

3GPP TS 05.03 subclause 4.6.

26.14.4.2.2   Test purpose

To verify that:

1. When a request to talk is made by the user and the uplink has been free the MS in group receive mode sends UPLINK ACCESS messages on the voice group call channel with the appropriate establishment cause.

2. The first UPLINK ACCESS message is transmitted by the MS with a random delay between 0 and 20 ms. The UPLINK ACCESS messages is repeated after a further period of 100ms plus a random delay between 0 and 20 ms.

3. At expiration of timer T3130, the MS repeats the uplink access procedure if the uplink is free and maximum of attempts is three. After three failed attempts a rejection of the uplink request is indicated.

4. The MS stops sending UPLINK ACCESS message and remains in group receive mode and indicates a rejection of the uplink request when receiving a UPLINK BUSY or a VGCS UPLINK GRANT message aimed to another mobile station (i.e., not corresponding to one of its UPLINK ACCESS messages).

5. On receipt of an VGCS UPLINK GRANT message corresponding to one of its UPLINK ACCESS messages, the MS stops T3130, stops sending UPLINK ACCESS messages, and establishes the main signalling link with an SABM containing the TALKER INDICATION message in the information field. Controlled early classmark sending is performed. If a UA is received containing the message sent, the MS enters group transmit mode and indicates the successful uplink seizure.

6. If an uplink identity code (UIC) of the current cell has been provided by the network in the UPLINK FREE message, the mobile station shall use this UIC IE for the coding of the UPLINK ACCESS messages . If no UIC is provided, the mobile station shall use the BSIC received from the current cell, for instance from the initial synchronisation.

26.14.4.2.3   Method of test

Initial Conditions

System Simulator:

1 cell with default parameters for ASCI testing.

Mobile Station:

The MS is in group receive mode.

Specific PICS statements:

-

PIXIT Statements:

- Way to configure VGCS.

- Way to indicate uplink granted/rejected.

- Way to accept a VGCS.

Way to request uplink.

Foreseen Final State of the MS

"Idle, updated", with TMSI allocated.

Test Procedure

The MS is brought into group receive mode. The SS sends UPLINK FREE without UIC. The MS is made to access uplink. It is checked that the MS initiates uplink access procedure with correct establishment cause and with random delay for transmissions and retransmissions and that the access bursts are coded with BSIC. The SS does not respond to the access request. It is checked that the MS repeats the same procedure three times, after three attempts it indicates access rejection and remains in group receive mode.

The SS sends UPLINK FREE with UIC. The MS is made to access uplink. It is checked that the access bursts are coded with UIC. After the second UPLINK ACCESS message, the SS responds with VGCS UPLINK GRANT aimed to another MS and UPLINK BUSY messages. It is checked that the MS stops sending UPLINK ACCESS, remains in group receive mode and indicates uplink access rejection. The SS sends UPLINK FREE. The MS is made to access uplink. The SS sends a message on the downlink SACCH. It is checked that the MS stops sending UPLINK ACCESS for 10 s, then the SS sends another SACCH message. It is checked that the MS is back to group receive mode and indicates access rejection. The MS is made to access uplink. The SS accepts the request. It is checked that the MS establishes the main signalling link correctly, enters group transmit mode and indicates the successful seizure of uplink.

Maximum Duration of Test

5 minutes.

Expected Sequence

Step	Direction	Message	Comments
0	MS		The MS is in group receive mode.
1	SS -> MS	UPLINK FREE	Uplink access request set to 'L'. UIC indication set to 'L'.
2	MS		MMI action to request uplink access.
3	MS -> SS	UPLINK ACCESS	check that establishment cause is "Subsequent talker uplink request" and this access burst is coded with BSIC.
4	MS -> SS	UPLINK ACCESS	check that the interval between this burst and the one in step 3 is 100ms plus a value between 0 and 20ms.
5	MS -> SS	UPLINK ACCESS	check that the interval between this burst and the one in step 3 is 5s plus a value between 0 and 20ms.
6	MS -> SS	UPLINK ACCESS	check that the interval between this burst and the one in step 5 is 100ms plus a value between 0 and 20ms, and the interval is different from the interval in step 4.

Step	Direction	Message	Comments
7	MS -> SS	UPLINK ACCESS	check that the interval between this burst and the one in step 5 is 5s plus a value between 0 and 20ms, and the interval is different from the interval in step 5.
8	MS -> SS	UPLINK ACCESS	check that the interval between this burst and the one in step 7 is 100ms plus a value between 0 and 20ms, and the interval is different from the intervals in step 4 and step 6.
9	MS		check that there is no more UPLINK ACCESS, and that the TCH in downlink is through connected and there is no uplink transmission on that channel for 10 s. The MS indicates also a rejection of the uplink request.
10	SS -> MS	UPLINK FREE	containing UIC.
11	MS		MMI action to request uplink access.
12	MS -> SS	UPLINK ACCESS	
13	MS -> SS	UPLINK ACCESS	
14	SS -> MS	VGCS UPLINK GRANT	request reference different from step 12 and 13
15	SS		check that within 1 second the MS does not send further UPLINK ACCESS.
16	SS -> MS	UPLINK BUSY	this message sent 0.9 s. after step 14.
17	MS		check that the MS indicates a rejection of the uplink request and that the TCH in downlink is through connected and there is no uplink transmission on that channel for 10 s..
18	SS -> MS	UPLINK FREE	
19	MS		MMI action to request uplink access.
20	MS -> SS	UPLINK ACCESS	
21	MS -> SS	UPLINK ACCESS	
22	SS -> MS	UPLINK BUSY	
23	SS		check that there is no more UPLINK ACCESS, and that the TCH in downlink is through connected and there is no uplink transmission on that channel for 10 s. The MS indicates also a rejection of the uplink request.
24	SS -> MS	UPLINK FREE	
26	MS		MMI action to request uplink access.
27	MS -> SS	UPLINK ACCESS	
28	MS -> SS	UPLINK ACCESS	
29	SS -> MS	UPLINK BUSY	
30	SS -> MS	VGCS UPLINK GRANT	Reference to step 27
31	MS -> SS	TALKER INDICATION	L2: SABM / UA
32	SS -> MS	AUTHENTICATION REQUEST	
33	MS -> SS	AUTHENTICATION RESPONSE	
34	SS -> MS	CIPHERING MODE COMMAND	no ciphering
35	MS -> SS	CIPHERING MODE COMPLETE	
36	MS		Check that the TCH is through connected and the MS gives indication to the user.
37	SS -> MS	CHANNEL RELEASE	The MS may send a DISC (step 38) without performing a layer 2 acknowledgement of the CHANNEL RELEASE message.
38	MS -> SS	DISC	The MS shall send at least 2 L2 DISC frames, to which the SS does not respond. After a period of 2 seconds, the SS verifies for 3 seconds that the MS does not produce any further Layer 2 messages.

26.14.4.3   VGCS-VBS / Uplink Reply in VGCS receive mode

26.14.4.3.1   Conformance requirement

1. On receipt of an UPLINK FREE message with an uplink access request indication from the network on the voice group call channel downlink, the mobile station shall send two UPLINK ACCESS messages on the voice group call channel with the appropriate establishment cause and then stop immediately transmitting on the uplink.

2. The first UPLINK ACCESS message shall be transmitted by the mobile station with a random delay between 0 and 20 ms. The second UPLINK ACCESS messages shall be repeated after a further period of 100 ms plus a random delay between 0 and 20 ms.

3. If an uplink identity code (UIC) of the current cell has been provided by the network in the UPLINK FREE message, the mobile station shall use this UIC for the coding of the UPLINK ACCESS messages. If no UIC is provided, the mobile station shall use the BSIC received of the serving cell, for instance as received from the initial synchronisation.

Reference(s)

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.4.15.1.3.

26.14.4.3.2 Test purpose

To verify that when the MS is in group receive mode:

1. On receipt of an UPLINK FREE message with an uplink access request indication from the network on the voice group call channel downlink, the MS sends two UPLINK ACCESS messages on the voice group call channel with the appropriate establishment cause and then stops immediately transmitting on the uplink.

2. The first UPLINK ACCESS message is transmitted by the MS with a random delay between 0 and 20 ms. The second UPLINK ACCESS messages is repeated after a further period of 100 ms plus a random delay between 0 and 20 ms.

3. If an uplink identity code (UIC) of the current cell has been provided by the network in the UPLINK FREE message, the MS uses this UIC for the coding of the UPLINK ACCESS messages. If no UIC is provided, the MS uses the BSIC received of the serving cell, for instance as received from the initial synchronisation.

26.14.4.3.3 Method of test

Initial Conditions

System Simulator:

1 cell with default parameters for ASCI testing.

Mobile Station:

The MS is in group receive mode.

Specific PICS statements:

-

PIXIT Statements:

- Way to configure VGCS.

- Way to indicate uplink granted/rejected.

- Way to accept a VGCS call.

- Way to request uplink.

Foreseen Final State of the MS

"Idle, updated", with TMSI allocated.

Test Procedure

The MS is in (VGCS) group receive mode. The SS sends UPLINK FREE message with Uplink Access Request Indication Information Element but without UIC Information Element. It is checked that the MS sends two UPLINK ACCESS messages in correct scheduling and the L1 coding of the messages is with BSIC. The SS sends UPLINK FREE containing Uplink Access Request Indication Information Element and UIC Information Element. It is checked that the MS sends two UPLINK ACCESS messages in correct scheduling and the L1 coding of the messages is with UIC.

Maximum Duration of Test

Expected Sequence

Step	Direction	Message	Comments
0	MS		The MS is in group receive mode.
1	SS -> MS	UPLINK FREE	Uplink access request set to 'H'. UIC indication set to 'L'.
2	MS -> SS	UPLINK ACCESS	check that the establishment cause is "Reply on uplink access request" and the L1 coding is with BSIC
3	MS -> SS	UPLINK ACCESS	check that the burst and the one in step 2 is 100ms plus a value between 0 and 20ms, and check that the L1 coding is with BSIC.
4	SS -> MS	UPLINK FREE	with "uplink access request indication" and UIC.
5	MS -> SS	UPLINK ACCESS	check that the establishment cause is "Reply on uplink access request" and the L1 coding is with UIC
6	MS -> SS	UPLINK ACCESS	check that the burst and the one in step 5 is 100ms plus a value between 0 and 20ms; the interval is different from the intervals in step 2 and step 3, and check that the L1 coding is with UIC.
7	SS -> MS	CHANNEL RELEASE	UI format.

26.14.5 VGCS-VBS / Leaving Group Receive or Group Transmit Mode

26.14.5.1 VGCS-VBS / Leaving group receive mode

26.14.5.1.1 Conformance requirement

In group receive mode:

1. The MS shall return to idle mode and give an indication to the upper layer when it received a CHANNEL RELEASE message of UI format.

2. In sub-state NO CHANNEL for VGCS or RECEIVE MODE ACTIVE for VBS, when $T_{no\ channel}$ expires, the GCC/BCC entity in the MS shall inform higher layers, ask lower sub-layers to abort resources and enter the idle state.

3. If the upper layer requests to abort group receive mode, the mobile station shall return to idle mode.

Reference(s)

3GPP TS 04.08 / 3GPP TS 44.018 subclauses 3.4.15.1.2.6 and 3.4.15.1.4.1.

3GPP TS 04.68 subclauses 6.1.2.1.10 and 6.3.1.1.

3GPP TS 04.69 subclauses 6.1.2.1.10 and 6.3.3.

26.14.5.1.2 Test purpose

To verify that in group receive mode:

1. The MS enters idle mode when it received a CHANNEL RELEASE message of UI format.

2. On user's request to abort group receive mode, the MS returns to idle mode.

3. In sub-state NO CHANNEL for VGCS or RECEIVE MODE ACTIVE for VBS, when $T_{no\ channel}$ expires the MS aborts resources and enters the idle mode.

26.14.5.1.3 Method of test

Initial Conditions

System Simulator:

    1 cell with default parameters for ASCI testing

Mobile Station:

The MS is in group receive mode.

Specific PICS statements:

-

PIXIT Statements:

- Way to configure VGCS or VBS.

- Way to indicate a call notification.

- Way to accept a VGCS or VBS.

- Way to verify the downlink speech path.

Foreseen Final State of the MS

"Idle, updated", with TMSI allocated.

Test Procedure

The MS is in group receive mode. The SS sends CHANNEL RELEASE. It is checked that the MS returns to idle mode by sending PAGING REQUEST. The MS is brought into group receive mode. The MS is requested to stop VGCS/VBS listening by MMI action. It is checked that the MS returns to idle mode. The MS is brought into group receive mode again. The SS stops downlink transmissions on VGCS/VBS downlink channel. It is checked that the MS returns to idle mode after $T_{no\ channel}$ times out (3 s after the SS stops downlink transmission).

Maximum Duration of Test

5 minutes.

Expected Sequence

Step	Direction	Message	Comments
0	MS		the MS is in group receive mode.
1	SS -> MS	CHANNEL RELEASE	UI format.
2	SS		wait 5s.
3	SS -> MS	PAGING REQUEST TYPE 1	"Mobile Identity" IE contains the TMSI allocated to the MS.
4	MS -> SS	CHANNEL REQUEST	"Establishment Cause" = Answer to paging.
5	SS -> MS	IMMEDIATE ASSIGNMENT REJECT	the first "request reference" corresponds to the CHANNEL REQUEST sent by the MS.
6	SS		wait 5s.
7	SS -> MS	NOTIFICATION/NCH	with group call channel description and the call reference active in the MS. The call reference is different from that used in step 0.
8	MS		MMI action to join the VGCS/VBS call.
9	MS		MMI action to stop the VGCS/VBS listening.
10	SS		wait 5s..
11	SS -> MS	PAGING REQUEST TYPE 1	"Mobile Identity" IE contains the TMSI allocated to the MS.
12	MS -> SS	CHANNEL REQUEST	"Establishment Cause" = Answer to paging.
13	SS -> MS	IMMEDIATE ASSIGNMENT REJECT	the first "request reference" corresponds to the CHANNEL REQUEST sent by the MS.
14	SS		wait 5s.
15	SS -> MS	NOTIFICATION/NCH	with group call channel description and the call reference active in the MS. The call reference is different from that used in step 0 and 3.
16	MS		MMI action to join the VGCS/VBS call.
17	SS		stop the VGCS/VBS downlink transmissions and wait 4 s.
18	SS -> MS	PAGING REQUEST TYPE 1	"Mobile Identity" IE contains the TMSI allocated to the MS.
19	MS -> SS	CHANNEL REQUEST	"Establishment Cause" = Answer to paging.
20	SS -> MS	IMMEDIATE ASSIGNMENT REJECT	the first "request reference" corresponds to the CHANNEL REQUEST sent by the MS.

26.14.5.2 VGCS-VBS / Leaving group transmit mode

26.14.5.2.1 Conformance requirement

In group transmit mode (VGCS):

1. If the uplink release is requested by the upper layer the mobile station shall send an UPLINK RELEASE message on the voice group call channel uplink, perform a release of the main signalling link and go back to group receive mode.

2. If the UPLINK RELEASE message is received from the network on the voice group call channel downlink, the MS shall perform a release of the main signalling link and go back to group receive mode.

3. The talking subscriber's mobile station which has lost the contact with the network shall return immediately to group receive mode.

Reference(s)

3GPP TS 04.08 / 3GPP TS 44.018 subclausez 3.4.13.4 and 3.4.13.5.1.

3GPP TS 03.68 subclause 4.2.2.2.

26.14.5.2.2 Test purpose

To verify that in group transmit mode (VGCS):

1. When uplink release is requested by the user the mobile station sends an UPLINK RELEASE message on the voice group call channel uplink, performs a release of the main signalling link and goes back to group receive mode.

2. When the UPLINK RELEASE message is received from the network on the voice group call channel downlink, the MS performs a release of the main signalling link and goes back to group receive mode.

3. When a radio link failure is detected by the MS the MS shall return to idle mode and, when possible, to group receive mode.

26.14.5.2.3 Method of test

Initial Conditions

System Simulator:

1 cell with default parameters for ASCI testing.

Mobile Station:

The MS is in group transmit mode.

Specific PICS statements:

-

PIXIT Statements:

- Way to configure VGCS.

- Way to initiate VGCS talking.

- Way to verify the downlink speech path.

Foreseen Final State of the MS

"Idle, updated", with TMSI allocated.

Test Procedure

The MS is in VGCS group transmit mode. The MS is requested to quit group transmit mode by MMI action. It is checked that the MS sends an UPLINK RELEASE message and goes to group receive mode. The MS is brought into group transmit mode. The SS sends UPLINK RELEASE message. It is checked that the MS returns to group receive mode. The MS is brought into group transmit mode again. The SS stops radio transmitting on SACCH. It is checked that the MS returns to group receive mode.

Maximum Duration of Test

5 minutes.

Expected Sequence

Step	Direction	Message	Comments
0	MS		The MS is in group transmit mode.
1	MS		MMI action to quit the VGCS transmit mode.
2	MS -> SS	UPLINK RELEASE	
3	MS		check that the TCH in downlink is through connected and there is no uplink transmission on that channel for 10 s.
8	SS -> MS	UPLINK FREE	
9	MS		MMI action to request access uplink.
10	MS -> SS	UPLINK ACCESS	
11	MS -> SS	UPLINK ACCESS	
12	SS -> MS	UPLINK BUSY	
13	SS -> MS	VGCS UPLINK GRANT	Reference to step 10
14	MS -> SS	TALKER INDICATION	L2: SABM / UA
15	MS		the MS is in group transmit mode for 5 s.
16	SS -> MS	UPLINK RELEASE	
17	MS		check that the TCH in downlink is through connected and there is no uplink transmission on that channel for 10 s.
20	SS -> MS	UPLINK FREE	
21	MS		MMI action to request access uplink.
22	MS -> SS	UPLINK ACCESS	
23	MS -> SS	UPLINK ACCESS	
24	SS -> MS	UPLINK BUSY	
25	SS -> MS	VGCS UPLINK GRANT	Reference to step 23
26	MS -> SS	TALKER INDICATION	L2: SABM / UA
27	MS		the MS is in group transmit mode for 5 s.
28	SS		deactivate downlink SACCH transmissions, but keep TCH active, wait until there is no more uplink SACCH frames received
29	MS		check that the TCH in downlink is through connected and there is no uplink transmission on that channel for 10 s.
30	SS -> MS	CHANNEL RELEASE	UI format

26.14.6 VGCS-VBS / GCC-BCC Procedures

26.14.6.1 VGCS-VBS / GCC-BCC Procedures / MO call establishment

26.14.6.1.1 Conformance requirement

1. The MS in idle updated mode shall initiate a VGCS/VBS call correctly using IMMEDIATE SETUP procedure if a priority level is requested by the user for which the user has the subscription and the fast call setup is enabled.

2. The MS in idle updated mode shall initiate a VGCS/VBS call correctly using SETUP procedure on request.

3. For VGCS call after establishment, the MS shall indicate to the user that an indication of the desire to speak should be made if he wants to speak. If this is not done within a certain time, the MS shall send an UPLINK RELEASE.

Reference(s)

3GPP TS 04.68 subclause 6.2.2.

3GPP TS 04.69 subclause 6.2.2.

3GPP TS 03.68 subclause 11.3.1.1.3.

26.14.6.1.2   Test purpose

To verify that in idle updated mode:

1. The MS initiates a VGCS/VBS call correctly using IMMEDIATE SETUP procedure if a priority level is requested by the user for which the user has the subscription and the fast call setup is enabled.

2. The MS initiates a VGCS/VBS call correctly using SETUP procedure on request.

3. After establishment of VGCS call, the MS indicates that an user action is required if he wants to speak. If such user action is not made within a certain time, the MS sends an UPLINK RELEASE.

26.14.6.1.3   Method of test

Initial Conditions

System Simulator:

1 cell with default parameters for ASCI testing.

Mobile Station:

The MS is in MM-state "idle, updated" with a TMSI allocated.

Specific PICS statements:

-   Support eMLPP (TSPC_Serv_eMLPP)

PIXIT Statements:

-   Way to configure VGCS or VBS.

-   Way to initiate a VGCS/VBS call.

-   Way to select the immediate set-up or the normal set-up.

-   Way to verify the downlink speech path.

-   Way to indicate the desire of speaking.

The allowed duration between an indication of a required user action for speaking and an action performed by user.

Foreseen Final State of the MS

"Idle, updated", with TMSI allocated.

Test Procedure

The MS is in MM-state "idle, updated". The MS is requested to initiate a VGCS or VBS call using immediate setup procedure by selecting the subscribed priority '0' with the appropriate MMI action. The field EF_{eMLPP} associates to the subscribed priority '0' the fast-call setup subscription. It is checked that the MS performs correctly the immediate setup procedure. The call is terminated. The MS is requested to initiate a VGCS or VBS call using setup procedure by selecting the priority '4' with the appropriate MMI action. It is checked that the MS performs correctly the setup procedure. The call is cleared.

Maximum Duration of Test

5 minutes.

Expected Sequence

Steps 0 to 18 are executed if MS supports eMLPP.

Step	Direction	Message	Comments
0	MS		The MS is in idle updated state.
1	MS		MMI action to select a priority level 0 and MMI action to initiate VGCS/VBS call with immediate setup.
2	MS -> SS	CHANNEL REQUEST	

Step	Direction	Message	Comments
3	SS -> MS	IMMEDIATE ASSIGNMENT	TCH/F, single RF channel GSM 450: 275, GSM 480: 322, GSM 900: 50, DCS 1 800: 750 PCS 1 900: 650 GSM710: 470 GSM 750: 470 T-GSM 810: 470 GSM 850: 177
4	MS -> SS	IMMEDIATE SETUP	L2: SABM / UA
5	SS -> MS	AUTHENTICATION REQUEST	
6	MS -> SS	AUTHENTICATION RESPONSE	
7	SS -> MS	CIPHERING MODE COMMAND	no ciphering
8	MS -> SS	CIPHERING MODE COMPLETE	
9	SS -> MS	CHANNEL MODE MODIFY	very early assignment
10	MS -> SS	CHANNEL MODE MODIFY ACKNOWLEDGE	
11	SS -> MS	CONNECT	verify that the TCH is through connected
12	SS -> MS	GET STATUS	
13	MS -> SS	STATUS	check that the MS is in state U2sr (for VGCS) or U2 (for VBS).
A14	MS		for VGCS call check that the MS indicates a user action needed for a desire of speaking.
A15	MS		user does not answer the indication.
A16	MS -> SS	UPLINK RELEASE	
A17	SS -> MS	UPLINK FREE	
A18	SS -> MS	CHANNEL RELEASE	UI format
B14	SS -> MS	TERMINATION	for VBS call terminate the call.
B15	SS -> MS	CHANNEL RELEASE	The MS releases L2 multiple frame link L2:DISC/UA.
20	MS		MMI action to initiate VGCS/VBS call with setup by selecting the priority '4'.
21	MS -> SS	CHANNEL REQUEST	
22	SS -> MS	IMMEDIATE ASSIGNMENT	TCH/F, single RF channel GSM 450: 275, GSM 480: 322, GSM 900: 50, DCS 1 800: 750 PCS 1 900: 650 GSM710: 470 GSM 750: 470 T-GSM 810: 470 GSM 850: 177
23	MS -> SS	CM SERVICE REQUEST	L2: SABM / UA
24	SS -> MS	AUTHENTICATION REQUEST	
25	MS -> SS	AUTHENTICATION RESPONSE	
26	SS -> MS	CIPHERING MODE COMMAND	no ciphering
27	MS -> SS	CIPHERING MODE COMPLETE	
28	MS -> SS	SETUP	
29	SS -> MS	CHANNEL MODE MODIFY	very early assignment
30	MS -> SS	CHANNEL MODE MODIFY ACKNOWLEDGE	
31	SS -> MS	CONNECT	verify that the TCH is through connected
A32	MS		only for VGCS call check that the MS indicates a user action needed for a desire of speaking. An user action for speaking.
35	SS -> MS	GET STATUS	
36	MS -> SS	STATUS	check that the MS is in state U2sr (for VGCS) or U2 (for VBS).
37	SS -> MS	TERMINATION	terminate the call.
38	SS -> MS	CHANNEL RELEASE	The MS releases L2 multiple frame link L2:DISC/UA.

26.14.6.2 VGCS-VBS / GCC-BCC Procedures / Transaction Identifier

26.14.6.2.1 Conformance requirement

1. The originator of the GCC or BCC transaction shall choose the Transaction Identifier (TI).

2. When the MS (not originator) goes to group transmit mode, it may only send GCC or BCC messages when it has received a GCC or BCC message form network, it shall use the TI value which has been used in the messages from network.

Reference(s)

3GPP TS 04.07 subclause 11.2.3.1.3.

3GPP TS 04.68 clause 5.

3GPP TS 04.69 clause 5.

26.14.6.2.2 Test purpose

1. To verify that The originator of the GCC or BCC transaction chooses the Transaction Identifier (TI).

2. To verify that when the MS (not originator) goes to group transmit mode, if the MS sends GCC or BCC message to network to respond to messages from network, it uses the TI value which is used in the messages received from network.

26.14.6.2.3 Method of test

Initial Conditions

System Simulator:

1 cell with default parameters for ASCI testing.

Mobile Station:

The MS is in MM-state "idle, updated" with a TMSI allocated.

Specific PICS statements:

-

PIXIT Statements:

- Support VBS originating.

- Way to configure VGCS or VBS.

- Way to accept a group call.

- Way to request uplink access.

- Way to select the immediate set-up or the normal set-up.

- Way to initiate VBS call.

Foreseen Final State of the MS

MM idle updated state.

Test Procedure

If the MS supports only VBS, the MS is requested to initiate a VBS call using setup procedure by MMI action. In the BROADCAST CALL ACTIVE (U2) state, it is checked that the MS uses correct TI in the STATUS message to respond to the GET STATUS message.

If the MS supports VGCS, the MS is brought into group transmit mode. In the SEND and RECEIVE state (U2sr), it is checked that the MS uses correct TI in the STATUS message to respond to the GET STATUS message.

Maximum Duration of Test

5 minutes.

Expected Sequence

Step	Direction	Message	Comments
			If the MS supports VBS originating, step 0 to step 13 are executed.
0	MS		the MS is in idle mode
1	MS		MMI action to initiate VBS call with setup procedure.
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	TCH/F, single RF channel
			GSM 450: 275,
			GSM 480: 322,
			GSM 900: 50,
			DCS 1 800: 750
			PCS 1 900: 650
			GSM 710: 470
			GSM 750: 470
			T-GSM 810: 470
			GSM 850: 177
4	MS -> SS	CM SERVICE REQUEST	L2: SABM / UA
5	SS -> MS	CM SERVICE ACCEPT	
6	MS -> SS	SETUP	check that the flag of the TI is set to '0'B, and the value of the TI is within '000'B to '110'B.
7	SS -> MS	AUTHENTICATION REQUEST	
8	MS -> SS	AUTHENTICATION RESPONSE	
9	SS -> MS	CHANNEL MODE MODIFY	
10	MS -> SS	CHANNEL MODE MODIFY ACKNOWLEDGE	
11	SS -> MS	CONNECT	
10	SS -> MS	GET STATUS	TI= the TI in step 6 with the flag='1'B.
11	MS -> SS	STATUS	TI value is the same as that in step 10 with flag='0'B.
12	SS -> MS	TERMINATION	
13	SS -> MS	CHANNEL RELEASE	The MS releases L2 multiple frame link L2:DISC/UA.
			If the MS supports VGCS talking, the following steps are performed.
15	MS		the MS is in group transmit mode (VGCS), but is not the originator of the call.
16	SS -> MS	GET STATUS	TI="0001".
17	MS -> SS	STATUS	TI is set to "1001".
18	SS -> MS	UPLINK RELEASE	
19	SS -> MS	CHANNEL RELEASE	UI format.

26.14.6.3   VGCS-VBS / GCC-BCC Procedures / Call Termination / originator / group transmit mode

26.14.6.3.1   Conformance requirement

When in group transmit mode, on request of upper layer, the MS which is the originator of the VGCS/VBS call shall initiate the termination procedure by sending a TERMINATION REQUEST message to its peer entity in the network and setting timer T_{term}, entering state U5. The network accepts the termination or on T_{term} expiration, the MS returns to idle state.

Reference(s)

    3GPP TS 04.68 subclause 6.4.1.

    3GPP TS 04.69 subclause 6.4.1.

26.14.6.3.2   Test purpose

To verify that when in group transmit mode, on request of the user, the MS which is the originator of the VGCS/VBS call initiates the termination procedure by sending a TERMINATION REQUEST message to its peer entity in the

network and setting timer T_{term}, entering state U5. If the termination is accepted or on T_{term} is expired, the MS returns to idle mode.

26.14.6.3.3   Method of test

Initial Conditions

System Simulator:

1 cell with default parameters for ASCI testing.

Mobile Station:

The MS is in MM-state "idle, updated" with a TMSI allocated.

Specific PICS statements:

-

PIXIT Statements:

- Way to configure VGCS or VBS.

- Way to initiate VBS call.

- Way to initiate VGCS call.

- Way to select the immediate set-up or the normal set-up.

- Way to terminate VGCS/VBS call.

Foreseen Final State of the MS

MM idle, updated state.

Test Procedure

A VGCS/VBS call is established and the MS, as the originator, is brought into group transmit mode. The MS is requested to terminate the VGCS/VBS call by MMI action. It is checked that the MS sends TERMINATION REQUEST message and enters state U5.

For execution counter k=1, before T_{term} times out, the SS accepts the termination request, the call is terminated. For k=2, the SS does not respond to the termination request. It is checked that after T_{term} times out, the MS clears the context related to the group call and returns to idle mode.

Maximum Duration of Test

5 minutes.

Expected Sequence

The test sequence is executed for k = 1, 2.

Step	Direction	Message	Comments
0	MS		the MS is in idle updated mode.
1	MS		MMI action to initiate VGCS/VBS call using setup procedure.
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	TCH/F, single RF channel
			GSM 450: 275,
			GSM 480: 322,
			GSM 900: 50,
			DCS 1 800: 750
			PCS 1 900: 650
			GSM710: 470
			GSM 750: 470
			T-GSM 810: 470
			GSM 850: 177
4	MS -> SS	CM SERVICE REQUEST	L2: SABM / UA
5	SS -> MS	IDENTITY REQUEST	
6	MS -> SS	IDENTITY RESPONSE	
7	SS -> MS	CIPHERING MODE COMMAND	no ciphering
8	MS -> SS	CIPHERING MODE COMPLETE	
9	MS -> SS	SETUP	
10	SS -> MS	CHANNEL MODE MODIFY	
11	MS -> SS	CHANNEL MODE MODIFY ACKNOWLEDGE	
12	SS -> MS	CONNECT	verify that the TCH is through connected
13	MS		MMI action to terminate the call.
14	MS -> SS	TERMINATION REQUEST	
			for k = 1
A15	SS -> MS	TERMINATION	sent 8 s. from step 14, cause = protocol error, unspecified
A16	SS -> MS	CHANNEL RELEASE	The MS releases L2 multiple frame link L2:DISC/UA.
			for k = 2
B15	SS		wait for T_{term} timeout (round 10s)
B16	MS -> SS	UPLINK RELEASE	received between 9 - 11 s. from step 14 - for VGCS only.
B17	SS -> MS	CHANNEL RELEASE	UI format
18	SS -> MS	NOTIFICATION/NCH	with a description of VGCS/VBS channel and a VGCS/VBS call reference active in the MS.
19	MS		check that the MS gives an indication containing the notified group call reference
20	MS		MMI action to join the VGCS/VBS call
21	MS		check that the TCH in downlink is through connected and there is no uplink transmission on that channel for 10 s.
22	SS -> MS	CHANNEL RELEASE	UI format

26.14.6.4 VGCS-VBS / GCC-BCC Procedures / Call Termination / originator in group receive mode

26.14.6.4.1 Conformance requirement

When in group receive mode, on request of upper layer, the MS which is the originator of the VGCS call shall enter sub-state U2ws and ask RR to enter group transmit mode. As soon as COMM = T, it shall send a TERMINATION REQUEST message to its peer entity in the network, set timer T_{term}, and enter state U5. The network accepts the termination or on T_{term} expiration, the MS returns to idle mode.

Reference(s)

3GPP TS 04.68 subclause 6.4.1.

26.14.6.4.2 Test purpose

To verify that when in group receive mode, on request of the user, the MS which is the originator of the VGCS call enters sub-state U2ws and asks RR to enter group transmit mode. As soon as COMM = T, it sends a TERMINATION REQUEST message to its peer entity in the network, set timer T_{term}, and enters state U5. The network accepts the termination or on T_{term} expiration, the MS returns to idle mode.

26.14.6.4.3 Method of test

Initial Conditions

System Simulator:

1 cell with default parameters for ASCI testing.

Mobile Station:

The MS is in MM-state "idle, updated" with a TMSI allocated.

Specific PICS statements:

- Support of Half Rate Speech (TSPC_AddInfo_Half_rate_version_1)

PIXIT Statements:

- Way to configure VGCS.

- Way to initiate a VGCS call.

- Way to select the immediate set-up or the normal set-up.

- Way to terminate a VGCS call.

Foreseen Final State of the MS

MM idle, updated state.

Test Procedure

The MS originates a VGCS call and is brought into group receive mode. The MS is requested to terminate the VGCS call by MMI action. It is checked that the MS firstly enters group transmit mode and then sends TERMINATION REQUEST message, enters state U5.

For $k = 1$, the SS accepts the request, the call is terminated. For $k = 2$, the SS does not respond to the request. It is checked that after T_{term} timeout the MS aborts the call.

Maximum Duration of Test

5 minutes.

Expected Sequence

The test sequence is executed for k = 1, 2.

Step	Direction	Message	Comments
0	MS		the MS is in idle updated mode.
1	MS		MMI action to initiate VGCS call using setup procedure.
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	CM SERVICE REQUEST	VGC establishment, L2: SABM / UA
5	SS -> MS	CIPHERING MODE COMMAND	no ciphering
6	MS -> SS	CIPHERING MODE COMPLETE	
7	MS -> SS	SETUP	
8	SS -> MS	AUTHENTICATION REQUEST	
9	MS -> SS	AUTHENTICATION RESPONSE	
10	SS -> MS	ASSIGNMENT COMMAND	TCH/F, for k = 2 TCH/H if possible
11	MS -> SS	ASSIGNMENT COMPLETE	
12	SS -> MS	CONNECT	verify that the TCH is through connected
13	MS		MMI action to quit the VGCS transmit mode
14	MS -> SS	UPLINK RELEASE	check that the TCH in downlink is through connected and there is no uplink transmission on that channel for 10 s.
15	SS -> MS	UPLINK FREE	
17	MS		MMI action to terminate the call, a pending request
18	MS -> SS	UPLINK ACCESS	RR attempts to enter group transmit mode
19	MS -> SS	UPLINK ACCESS	
20	SS -> MS	UPLINK BUSY	
21	SS -> MS	VGCS UPLINK GRANT	Reference to step 19
22	MS -> SS	TALKER INDICATION	L2: SABM / UA
23	MS -> SS	TERMINATION REQUEST	
A25	SS -> MS	TERMINATION	for k = 1 sent 8 s. from step 23, cause = protocol error, unspecified
A26	SS -> MS	CHANNEL RELEASE	The MS releases L2 multiple frame link L2:DISC/UA.
B25	SS		for k = 2 wait for T$_{term}$ timeout (round 10s)
B26	MS -> SS	UPLINK RELEASE	received 9 - 11 s. from step 23.
B27	SS -> MS	CHANNEL RELEASE	UI format
28	SS -> MS	NOTIFICATION/NCH	with a description of VGCS/VBS channel and a VGCS/VBS call reference active in the MS.
29	MS		check that the MS gives an indication containing the notified group call reference
30	MS		MMI action to join the VGCS/VBS call
31	MS		check that the TCH in downlink is through connected and there is no uplink transmission on that channel for 10 s.
32	SS -> MS	CHANNEL RELEASE	UI format

26.14.6.5 VGCS-VBS / GCC-BCC Procedures / Call Termination / not originator

26.14.6.5.1 Conformance requirement

1. If the MS is not the originator of the VGCS/VBS call, on request of upper layer, the MS shall not attempt to terminate the call.

Reference(s)

3GPP TS 04.68, subclause 6.4.1 (implicitly).

3GPP TS 04.69, subclause 6.4.1 (implicitly).

26.14.6.5.2 Test purpose

To verify that when the MS is not the originator of the VGCS/VBS call, on request of the user, the MS does not attempt to terminate the call.

26.14.6.5.3 Method of test

Initial Conditions

System Simulator:

1 cell with default parameters for ASCI testing.

Mobile Station:

The MS is in group receive mode (not originator).

Specific PICS statements:

-

PIXIT Statements:

- Way to configure VGCS or VBS.

- Way to join a VGCS/VBS call.

- Way to terminate a call.

Foreseen Final State of the MS

MM-state idle, updated.

Test Procedure

The MS is brought into group receive mode (not originator). The MS is requested to terminate the call by MMI action. It is checked that the MS does not attempt the termination.

Maximum Duration of Test

2 minutes.

Expected Sequence

Step	Direction	Message	Comments
0	MS		the MS is in group receive mode (not the originator).
1	MS		MMI action to terminate the call.
2	SS		check that there is no transmission from the MS for 10 s.
3	SS -> MS	CHANNEL RELEASE	UI format

26.14.6.6 VGCS-VBS / GCC-BCC Procedures / GCC states

26.14.6.6.1 Conformance requirement

1. The GCC entity of the MS performs transitions between (main) states. In main state GROUP CALL ACTIVE (U2) it performs transitions between sub-states. It has certain parameters and attributes, which it sets and changes based on interaction with higher layer and lower layers and on message exchanges with its peer entity. These states and parameters shall be consistent as defined.

2. The mobile station in group transmit mode shall mute the downlink speech if SET STATUS message is received with DA bit set to 1. The mobile station shall no longer mute the downlink after receipt of a downlink SET STATUS message with a reset DA bit.

Reference(s)

> 3GPP TS 04.68, subclauses 6.1.2.1, 6.1.2.1.1 to 6.1.2.1.11, 6.5.1.1, 8.4 and 9.5.7.

26.14.6.6.2   Test purpose

1. To verify that the GCC states and parameters of the MS are consistent as defined.

2. To verify that the MS in group transmit mode mutes the downlink speech if downlink SET STATUS message is received setting DA bit. The mobile station no longer mutes the downlink speech after a SET STATUS message is received.

26.14.6.6.3   Method of test

Initial Conditions

System Simulator:

> 1 cell with default parameters for ASCI testing.

Mobile Station:

> The MS is in MM-state "idle, updated" with a TMSI allocated.

Specific PICS statements:

- Support VGCS originating (TSPC_Addinfo_VGCS_Originating)

- Support VGCS listening (TSPC_Addinfo_VGCS_Listening)

PIXIT Statements:

- Way to configure VGCS.

- Way to check downlink is muted or not.

- Way to accept VGCS call.

- Way to initiate VGCS call.

Foreseen Final State of the MS

MM-state Idle, updated.

Test Procedure

If the MS supports VGCS originating, it is requested to initiate a VGCS call. It is checked by getting status that the MS goes through different GCC states with correct parameters. If the MS supports VGCS talking but not VGCS originating, it is brought to group receive mode and then group transmit mode.

When MS is in group transmit mode the SS sends SET PARAMETER message The DA bit in state attributes is set to 0. It is checked that the downlink of the MS is muted. The SS sends SET PARAMETER message with DA bit set to 1. It is checked that the downlink of the MS is unmuted.

Similarly, it is checked that the MS goes through different GCC states with correct parameters.

Maximum Duration of Test

5 minutes.

Expected Sequence

If the MS supports VGCS originating, the step 1 to step 40 are performed.

Step	Direction	Message	Comments
0	MS		The MS is in idle mode.
1	MS		MMI action to initiate VGCS call
2	MS -> SS	CHANNEL REQUEST	

Step	Direction	Message	Comments
3	SS -> MS	IMMEDIATE ASSIGNMENT	TCH/F, single RF channel GSM 450: 275, GSM 480: 322, GSM 900: 50, DCS 1 800: 750 PCS 1 900: 650 GSM: 470 GSM 750: 470 T-GSM 810: 470 GSM 850: 177
4	MS -> SS	CM SERVICE REQUEST	VGC establishment, L2: SABM / UA
5	SS -> MS	CM SERVICE ACCEPT	
6	MS -> SS	SETUP	
7	SS -> MS	GET STATUS	
8	MS -> SS	STATUS	state U1, ORIG=T COMM=T D-ATT=F U-ATT=F
9	SS -> MS	CONNECT	
10	SS -> MS	GET STATUS	
11	MS -> SS	STATUS	state U2sl, ORIG=T COMM=T D-ATT=T U-ATT=T
12	SS -> MS	CHANNEL MODE MODIFY	
13	MS -> SS	CHANNEL MODE MODIFY ACKNOWLEDGE	
14	SS -> MS	GET STATUS	
15	MS -> SS	STATUS	state U2sr, ORIG=T COMM=T D-ATT=T U-ATT=T
16	MS		the MS asks to indicate the desire of speaking. MMI action to indicate desire of talking.
17	MS		the MS in group talking mode for 5 s.
18	SS -> MS	SET PARAMETER	DA = '0'B
19	MS		check that the downlink is muted
20	SS -> MS	SET PARAMETER	DA = '1'B
21	MS		check that the downlink is not muted
22	MS		MMI action to quit group talking
23	MS -> SS	UPLINK RELEASE	
24	SS -> MS	UPLINK FREE	
25	MS		MMI action to request uplink access
26	MS -> SS	UPLINK ACCESS	
27	MS -> SS	UPLINK ACCESS	
28	SS -> MS	UPLINK BUSY	
29	SS -> MS	VGCS UPLINK GRANT	Reference to step 28
30	MS -> SS	TALKER INDICATION	L2: SABM / UA
31	SS -> MS	GET STATUS	
32	MS -> SS	STATUS	state U2sr, ORIG=T COMM=T D-ATT=T U-ATT=T
33	MS		MMI action to terminate the VGCS call
34	MS -> SS	TERMINATION REQUEST	
35	SS -> MS	GET STATUS	
36	MS -> SS	STATUS	state U5, ORIG=T COMM=T D-ATT=T U-ATT=T
37	SS -> MS	TERMINATION	
38	SS -> MS	CHANNEL RELEASE	The MS releases L2 multiple frame link L2:DISC/UA.
			The MS is in idle mode.
39	SS -> MS	NOTIFICATON/NCH	with VGCS call reference active in the MS, but without VGCS channel description
40	MS		MMI action to join the VGCS call
41	MS -> SS	CHANNEL REQUEST	
42	SS -> MS	IMMEDIATE ASSIGNMENT	a signalling channel
43	MS -> SS	NOTIFICATION RESPONSE	L2: SABM / UA
44	SS -> MS	GET STATUS	
45	MS -> SS	STATUS	state U2wr, ORIG=F COMM=T D-ATT=F U-ATT=F
46	SS -> MS	CHANNEL RELEASE	I format, with group channel description. The MS releases L2 multiple frame link L2:DISC/UA.
47	SS -> MS	UPLINK FREE	
48	MS		MMI action to request uplink access
49	MS -> SS	UPLINK ACCESS	
50	MS -> SS	UPLINK ACCESS	
51	SS -> MS	UPLINK BUSY	
52	SS -> MS	VGCS UPLINK GRANT	Reference to step 54
53	MS -> SS	TALKER INDICATION	L2: SABM / UA
54	SS -> MS	GET STATUS	
55	MS -> SS	STATUS	state U2sr, ORIG=F COMM=T D-ATT=T U-ATT=T

Step	Direction	Message	Comments
56	SS -> MS	UPLINK RELEASE	
57	SS -> MS	CHANNEL RELEASE	UI format, the MS returns to idle updated. The MS releases L2 multiple frame link L2:DISC/UA.

26.14.6.7   VGCS-VBS / GCC-BCC Procedures / BCC states

26.14.6.7.1   Conformance requirement

The BCC entity of the MS performs transitions between states. It has certain parameters and attributes, which it sets and changes based on interaction with higher layer and lower layers and on message exchanges with its peer entity. These states and parameters shall be consistent as defined.

Reference(s)

3GPP TS 04.69 subclauses 6.1.2.1 to 6.1.2.11 and 6.5.1.1.

26.14.6.7.2   Test purpose

To verify that the BCC states and parameters of the MS are consistent as defined.

26.14.6.7.3   Method of test

Initial Conditions

System Simulator:

1 cell with default parameters for ASCI testing.

Mobile Station:

The MS is in MM-state "idle, updated" with a TMSI allocated.

Specific PICS statements:

-

PIXIT Statements:

- Way to configure VBS.

- Way to select the immediate set-up or the normal set-up.

- Way to initiate VBS call.

Foreseen Final State of the MS

MM-state Idle, updated.

Test Procedure

The MS is requested to initiate VBS call. Then it is checked by getting status procedure that the MS goes through different GCC states with correct parameters.

Maximum Duration of Test

5 minutes.

Expected Sequence

Step	Direction	Message	Comments
0	MS		The MS is in idle mode.
1	MS		MMI action to initiate VBS call
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	TCH/F, single RF channel
			GSM 450: 275,
			GSM 480: 322,
			GSM 900: 50,
			DCS 1 800: 750
			PCS 1 900: 650
			GSM710: 470
			GSM 750: 470
			T-GSM 810: 470
			GSM 850: 177
4	MS -> SS	CM SERVICE REQUEST	VBC establishment, L2: SABM / UA
5	SS -> MS	GET STATUS	
6	MS -> SS	STATUS	state U0.p, ORIG=T COMM=F D-ATT=F U-ATT=F
7	SS -> MS	CM SERVICE ACCEPT	
8	MS -> SS	SETUP	
9	SS -> MS	GET STATUS	
10	MS -> SS	STATUS	state U1, ORIG=T COMM=T D-ATT=F U-ATT=F
11	SS -> MS	CONNECT	
12	SS -> MS	GET STATUS	
13	MS -> SS	STATUS	state U2, ORIG=T COMM=T D-ATT=T U-ATT=T
14	SS -> MS	CHANNEL MODE MODIFY	
15	MS -> SS	CHANNEL MODE MODIFY ACKNOWLEDGE	
16	MS		MMI action to terminate VBS call
17	MS -> SS	TERMINATION REQUEST	
18	SS -> MS	GET STATUS	
19	MS -> SS	STATUS	state U5, ORIG=T COMM=T D-ATT=T U-ATT=T
20	SS -> MS	TERMINATION	
21	SS -> MS	CHANNEL RELEASE	The MS releases L2 multiple frame link L2:DISC/UA.

26.14.7   VGCS-VBS / Error Handling

26.14.7.1   VGCS-VBS / Error Handling / short message length, unknown message type and TI

26.14.7.1.1   Conformance requirement

1. Whenever a message is received specifying a transaction identifier which is not recognised as relating to an active transaction, if COMM = T, the MS shall send a STATUS message with cause #81 "invalid transaction identifier value" using the received transaction identifier value and including, if possible, as diagnostics the complete message received (this may not be possible, e.g. due to length restrictions). and remain idle.

2. If COMM = T, the MS shall answer to a message received with TI value "111" by sending a STATUS message with same TI value, cause "invalid transaction identifier value", and including, if possible, as diagnostics the complete message received (this may not be possible, e.g. due to length restrictions).

3. When a message is received that is too short to contain a complete message type information element, that message shall be ignored.

4. If the GCC or BCC in the MS receives a message with message type not defined for the PD or not implemented by the receiver, the MS shall ignore the message except for the fact that, if COMM = T, it shall return a STATUS message with cause "message type non-existent or not implemented" and including as diagnostics the message type of the message received.

5. If the GCC or BCC in the MS receives a message not compatible with the protocol state, the MS shall ignore the message except for the fact that , if COMM = T, it shall return a STATUS message with cause " message type not compatible with protocol state" and including as diagnostic the message type of the message received.

6. When a message with semantically incorrect contents is received, the foreseen reaction of the procedural part are performed. If however no such reactions are specified, the MS shall ignore the message except for the fact that, if COMM = T, it returns a STATUS message with cause value "semantically incorrect message" and including, if possible, as diagnostics the complete message received (this may not be possible).

Reference(s)

3GPP TS 04.68 subclauses 7.2, 7.3, 7.4 and 7.8.

3GPP TS 04.69 subclauses 7.2, 7.3, 7.4 and 7.8.

26.14.7.1.2   Test purpose

To verify that:

1. Whenever a message is received specifying a transaction identifier which is not recognised as relating to an active transaction, if COMM = T, the MS sends a STATUS message with cause #81 "invalid transaction identifier value" using the received transaction identifier value and including, if possible, as diagnostics the complete message received (this may not be possible, e.g., due to length restrictions).

2. If COMM = T, the MS answers to a message received with TI value "111" by sending a STATUS message with same TI value, cause "invalid transaction identifier value", and including, if possible, as diagnostics the complete message received (this may not be possible, e.g., due to length restrictions).

3. When a message is received that is too short to contain a complete message type information element, that message is ignored.

4. If the GCC or BCC in the MS receives a message with message type not defined for the PD or not implemented by the receiver, the MS ignores the message. In addition, if COMM = T, it returns a STATUS message with cause "message type non-existent or not implemented" and including as diagnostics the message type of the message received.

5. If the GCC or BCC in the MS receives a message not compatible with the protocol state, the MS ignores the message. In addition, if COMM = T, it returns a STATUS message with cause " message type not compatible with protocol state" and including as diagnostic the message type of the message received.

6. When a message containing semantically incorrect contents is received and no reactions are specified in the procedural part, the MS ignores the message. In addition, if COMM = T, the MS returns a STATUS message with cause value "semantically incorrect message" and as diagnostics, including the complete message received, if possible (this may not be possible).

26.14.7.1.3   Method of test

Initial Conditions

System Simulator

    1 cell with default parameters for ASCI testing.

Mobile Station:

    The MS is in MM-state "idle, updated" with a TMSI allocated.

Specific PICS statements:

-   Support VGCS originating (TSPC_Addinfo_VGCS_Originating)

-   Support VGCS talking (TSPC_Addinfo_VGCS_Talking)

-   Support VBS originating (TSPC_Addinfo_VBS_Originating)

PIXIT Statements:

-

Foreseen Final State of the MS

MM-state "Idle, updated".

Test Procedure

If the MS supports VGCS/VBS originating, the test starts from step 1, otherwise if the MS supports VGCS talking the test starts from step 30. If the MS supports VBS originating but no VGCS originating nor VGCS talking, the test stops on step 24.

The MS is requested to initiate a VGCS/VBS call with setup procedure. After the MS sends SETUP message, the SS sends incorrect CONNECT messages which contains incorrect TI flag or incorrect TI value or TI value set to '111'B. It is checked that the MS ignores these messages and responds with STATUS messages containing cause #81. The SS sends a message which is too short to contain a complete message. It is checked that the MS ignores this short message. Finally the SS sends a undefined message, a message not compatible with current protocol state and a message semantically incorrect. It is checked that the MS ignores these messages and returns STATUS messages containing cause #97, #98, #95 respectively. The following steps is applicable to the MS supporting VGCS talking. The MS is brought into group transmit mode. The SS sends GET STATUS message with TI='1001'B, the MS responds with STATUS message containing state U2sr, then the SS sends GET STATUS messages containing TI= '1111'B or '1010'B. It is checked that the MS ignores these messages and responds with STATUS messages containing cause #81.

Maximum Duration of Test

5 minutes.

Expected Sequence

The step 30 -46 are performed if the MS supports VGCS.

Step	Direction	Message	Comments
0	MS		The MS is in idle mode.
1	MS		MMI action to initiate VGCS/VBS call using setup procedure.
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	a TCH/FS
4	MS -> SS	CM SERVICE REQUEST	L2: SABM / UA
5	SS -> MS	CM SERVICE ACCEPT	
6	MS -> SS	SETUP	
7	SS -> MS	CONNECT	flag of TI set to '0'B, value of TI is the same as that of SETUP message in step 6.
8	MS -> SS	STATUS	cause #81, "invalid transaction id value".
9	SS -> MS	CONNECT	flag of TI set to '1'B, value of TI is different from that of SETUP message in step 6.
10	MS -> SS	STATUS	cause #81, value of TI is that of step 9.
11	SS -> MS	CONNECT	value of TI set to '111'B.
12	MS -> SS	STATUS	cause #81, value of TI is '111'B
13	SS -> MS	CONNECT	too short message without Call Reference and Originator Indication.
14	SS -> MS	GET STATUS	
15	MS -> SS	STATUS	state U1 ORIG=T COMM=T D-ATT=F U-ATT=F.
16	SS -> MS	UNDEF MESSAGE TYPE	see specific message contents
17	MS -> SS	STATUS	cause #97, "message type non-existent or not implemented".
18	SS -> MS	TERMINATION REJECT	
19	MS -> SS	STATUS	cause #98, "message type not compatible with the protocol state".
20	SS -> MS	CONNECT	value of Originator Indication set to not originator
21	MS -> SS	STATUS	cause #95, "Semantically incorrect message".
22	SS -> MS	TERMINATION	
23	SS -> MS	CHANNEL RELEASE	The MS releases L2 multiple frame link L2:DISC/UA.
30	SS -> MS	NITIFICATION/NCH	with a description of VGCS channel and a VGCS call reference active in the MS
31	MS		MMI action to join the call
32	SS -> MS	UPLINK FREE	
33	MS		MMI action to request to access uplink
34	MS -> SS	UPLINK ACCESS	
35	MS -> SS	UPLINK ACCESS	
36	SS -> MS	UPLINK BUSY	
37	SS -> MS	VGCS UPLINK GRANT	Reference to step 34
38	MS -> SS	TALKER INDICATION	L2: SABM / UA
39	SS -> MS	GET STATUS	TI = '1001'B, GCC of the MS will take this value as the TI of the group call
40	MS -> SS	STATUS	state U2sr
41	SS -> MS	GET STATUS	TI='1111'B
42	MS -> SS	STATUS	cause #81, value of TI is '111'B
43	SS -> MS	GET STATUS	TI='1010'B
44	MS -> SS	STATUS	cause #81, value of TI is '010'B
45	SS -> MS	UPLINK RELEASE	
46	SS -> MS	CHANNEL RELEASE	UI format

Specific message contents:

UNDEF MESSAGE TYPE

Information Element	value/remark
Protocol Discriminator	'0000'B if the test is for VGCS; '0001'B if the test is for VBS.
Message Type	'0x110111'B
Group call reference	PICS/PIXIT
Originator indication	Originator
Spare half octet	

26.14.7.2   VGCS-VBS / Error Handling / incorrect information elements

26.14.7.2.1   Conformance requirement

1. When on receipt of a message containing "imperative message part" error or "missing mandatory IE" error or syntactically incorrect mandatory IE's or unknown IE's encoded as "comprehension required" or out of sequence IE's encoded as "comprehension required", the MS shall ignore the message except for the fact that, if COMM = T, it shall return a STATUS message with cause "invalid mandatory information" and including, if possible, as diagnostics the complete message received.

2. The GCC or BCC in the MS shall ignore all unknown information elements not encoded as "comprehension required" in the non-imperative part.

3. The GCC or BCC in the MS shall ignore all out of sequence information elements not encoded as "comprehension required" in the non-imperative part.

4. The GCC or BCC in the MS shall ignore all syntactically incorrect optional information elements in the non-imperative part.

5. If an information element with format T, TV, or TLV is repeated in a message in which repetition of the information element is not specified, only the contents of the information element appearing first shall be handled and all subsequent repetitions of the information element shall be ignored. When repetition of information elements is specified, only the contents of specified repeated information elements shall be handled. If the limit on repetition of information elements is exceeded, the contents of information elements appearing first up to the limit of repetitions shall be handled and all subsequent repetitions of the information element shall be ignored.

Reference(s)

3GPP TS 04.68 subclauses 7.5, 7.6 and 7.7.

3GPP TS 04.69 subclauses 7.5, 7.6 and 7.7.

26.14.7.2.2   Test purpose

To verify that:

1. On receipt of a message containing "imperative message part" error or "missing mandatory IE" error or syntactically incorrect mandatory IE's or unknown IE's encoded as "comprehension required" or out of sequence IE's encoded as "comprehension required", the MS ignores the message. In addition, if COMM = T, the MS returns a STATUS message with cause "invalid mandatory information" and including, if possible, as diagnostics the complete message received.

2. The MS ignores unknown information elements not encoded as "comprehension required" in the non-imperative part.

3. The MS ignores out of sequence information elements not encoded as "comprehension required" in the non-imperative part.

4. The MS ignores syntactically incorrect optional information elements in the non-imperative part.

5. The MS ignores subsequent repetition of the information element for which repetition is not specified, only the contents of the information element appearing first are handled. For specified repeated information element, the

MS ignores all subsequent repetitions of the information element beyond the limit on repetition, only the contents of information element appearing first up to the limit of repetitions are handled.

26.14.7.2.3 Method of test

Initial Conditions

System Simulator:

1 cell with default parameters for ASCI testing.

Mobile Station:

The MS is in MM-state "idle, updated" with a TMSI allocated.

Specific PICS statements:

- Support VGCS originating (TSPC_Addinfo_VGCS_Originating)

- Support VGCS talking (TSPC_Addinfo_VGCS_Talking)

- Support VGCS listening (TSPC_Addinfo_VGCS_Listening)

- Support VBS originating (TSPC_Addinfo_VBS_Originating)

- Support VBS listening (TSPC_Addinfo_VBS_Listening)

PIXIT Statements:

-

Foreseen Final State of the MS

MM-state "Idle, updated".

Test Procedure

The MS is in idle updated mode. The SS sends NOTIFICATION/NCH messages with incorrect mandatory IE (skip='0001'B) or with comprehension required IE. It is checked that the MS ignores these NOTIFICATION/NCH messages. The SS sends NOTIFICATION/NCH containing unknown IE not encoded as comprehension required in non-imperative part. It is checked that the MS ignores the unknown IE and accepts the NOTIFICATION/NCH message. If the MS supports VGCS/VBS listening only, the test stops here.

If the MS supports VGCS talking the test continues on step 7. The MS joins the call. The SS sends correct UPLINK BUSY message then sends UPLINK FREE message containing incorrect mandatory IE. It is checked that the UPLINK FREE message is ignored by the MS. The SS sends correct UPLINK FREE message and the MS is requested to access the uplink. During the uplink access procedure it is checked that the MS ignores the VGCS UPLINK GRANT message in which mandatory IE is missing. After the MS enters group transmit mode, it is brought back to idle updated mode. The test stops here if the MS supports VGCS talking but not VGCS originating.

If the MS supports VGCS/VBS originating the test proceeds on step 30. The MS is requested to originate a VGCS call. During the call establishment it is checked that the MS ignores the CONNECT messages that missing mandatory IE or containing unknown IE encoded as comprehension required, and that the MS ignores unknown IE which is in non-imperative part and is not encoded as comprehension required, it is also checked that the MS ignores subsequent repetition of the information element for which repetition is not specified.

Maximum Duration of Test

5 minutes.

Expected Sequence

The test steps 7 to 29 are performed if the MS supports VGCS talking. The test steps 30 to 56 are performed if the MS supports VGCS/VBS originating.

Step	Direction	Message	Comments
0	MS		The MS is in Idle updated mode.
1	SS -> MS	NOTIFICATION/NCH	skip = '0001'B, with VGCS/VBS channel description and call reference active in the MS
2	MS		check that the MS ignores the NOTIFICATION/NCH message in step 1. This is checked for 10 s.
3	SS -> MS	NOTIFICATION/NCH	containing comprehension required IE, see specific message contents
4	MS		check that the MS ignores the NOTIFICATION/NCH message in step 3. This is checked for 10 s
5	SS -> MS	NOTIFICATION/NCH	unknown IE not encoded as comprehension required, see specific message contents
6	MS		check that the MS indicates the notified call
7	MS		MMI action to join the notified VGCS call
8	SS -> MS	UPLINK BUSY	
9	SS -> MS	UPLINK FREE	message type = '11010'B, the MS shall ignore this message
10	MS		MMI action to request the uplink access
11	SS		check that there is no UPLINK ACCESS for 6 s.
12	SS -> MS	UPLINK FREE	as default
13	MS		MMI action to request the uplink access
14	MS -> SS	UPLINK ACCESS	
15	MS -> SS	UPLINK ACCESS	
16	SS -> MS	VGCS UPLINK GRANT	missing mandatory IE Timing Advance, request reference refers to step 14.
17	MS -> SS	UPLINK ACCESS	The MS ignores VGCS UPLINK GRANT.
18	MS -> SS	UPLINK ACCESS	
19	SS -> MS	VGCS UPLINK GRANT	request reference does not refer to steps 14, 15, 17, 18.
20	SS -> MS	UPLINK BUSY	
21	SS		check that there is no UPLINK ACCESS for 6 s
22	SS -> MS	UPLINK FREE	
23	MS		MMI action to request uplink access
24	MS -> SS	UPLINK ACCESS	
25	MS -> SS	UPLINK ACCESS	
26	SS -> MS	UPLINK BUSY	
27	SS -> MS	VGCS UPLINK GRANT	refer to the reference in step 25
28	MS -> SS	TALKER INDICATION	L2: SABM / UA
29	SS -> MS	CHANNEL RELEASE	The MS releases L2 multiple frame link L2:DISC/UA.
30	MS		MMI action to originate a VGCS/VBS call with setup
31	MS -> SS	CHANNEL REQUEST	
32	SS -> MS	IMMEDIATE ASSIGNMENT	TCH/F, single RF channel GSM 450: 275, GSM 480: 322, GSM 900: 50, DCS 1 800: 750 PCS 1 900: 650 GSM710: 470 GSM 750: 470 T-GSM 810: 470 GSM 850: 177
33	MS -> SS	CM SERVICE REQUEST	L2: SABM / UA
34	SS -> MS	CM SERVICE ACCEPT	
36	MS -> SS	SETUP	
37	SS -> MS	CHANNEL MODE MODIFY	
38	MS -> SS	CHANNEL MODE MODIFY ACKNOWLEDGE	
39	SS -> MS	CONNECT	missing mandatory IE: Group call reference
40	MS -> SS	STATUS	cause #96

Step	Direction	Message	Comments
41	SS -> MS	CONNECT	unknown IE encoded as comprehension required, see specific message contents
42	MS -> SS	STATUS	cause #96
43	SS -> MS	GET STATUS	unknown IE in non-imperative part, see specific message contents
44	MS -> SS	STATUS	state U1
45	SS -> MS	CONNECT	
46	SS -> MS	GET STATUS	
			for VGCS test
A47	MS -> SS	STATUS	state U2sr
A48	MS		check the MS asks to indicate the desire of speaking
A49	MS		wait for time-out.
A50	MS -> SS	UPLINK RELEASE	
A51	SS -> MS	GET STATUS	duplicated IE, see specific message contents
A52	SS		check that the MS does not respond
A53	SS -> MS	GET STATUS	
A54	MS -> SS	STATUS	state U2r
			for VBS test
B47	MS -> SS	STATUS	state U2
55	SS -> MS	TERMINATOIN	
56	SS -> MS	CHANNEL RELEASE	The MS releases L2 multiple frame link L2:DISC/UA.

Specific message contents:

NOTIFICATION/NCH **- in step 3**

Information Element	value/remark
L2 Pseudo Length	'15'B
RR Protocol Discriminator	'0110'B
Skip Indicator	'0000'B'
Message Type	'00100000'B
Comprehension required IEI	'00000000'B
- Length	1
- unrecognised IE contents	'xxxxxxxx'B (arbitrary octet)
NT/N Rest Octets	As default

NOTIFICATION/NCH **- in step 6**

Information Element	value/remark
L2 Pseudo Length	'15'B
RR Protocol Discriminator	'0110'B
Skip Indicator	'0000'B'
Message Type	'00100000'B
Unknown IEI	'11101001'B
- Length	1
- unrecognised IE contents	'xxxxxxxx'B (arbitrary octet)
NT/N Rest Octets	As default

CONNECT **- in step 41**

Information Element	value/remark
Protocol Discriminator	'0000'B for GCC, '0001'B for BCC
Transaction identifier	depending on the context of the test
Message Type	'0x110011'B
Group call reference	PICS/PIXIT
Comprehension required IEI	'00000000'B
- Length	1
- unrecognised IE contents	'xxxxxxxx'B (arbitrary octet)
Originator indication	Originator
Spare half octet	'0000'B

GET STATUS **- in step 43**

Information Element	value/remark
Protocol Discriminator	'0000'B for GCC, '0001'B for BCC
Transaction identifier	depending on the context of the test
Message Type	'0x111001'B
Mobile identity	PICS/PIXIT
Unknown IEI	'11101001'B
- Length	1
- unrecognised IE contents	'xxxxxxxx'B (arbitrary octet)

GET STATUS **- in step A51**

Information Element	value/remark
GCC Protocol Discriminator	'0000'B
Transaction identifier	depending on the context of the test
Message Type	'0x111001'B
Mobile identity	not address the MS
Mobile identity	PICS/PIXIT

26.14.7.3 VGCS-VBS / Messages not addressing VGCS receive mode

26.14.7.3.1 Conformance requirement

In group receive mode the MS shall ignore messages which are allowed in group receive mode but not sent in UI format on the VGCS or VBS channel downlink.

Mobile stations in group receive mode shall ignore all messages which are not sent in UI format or which are not related to the following procedures: channel mode modify, notification and paging information, uplink status messages, channel release message, information on channel restructuring.

Reference(s)

   3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.4.15.1.2.

26.14.7.3.2 Test purpose

To verify that the MS in group receive mode ignores:

1. Messages which are applicable to group receive mode but not sent in UI format.

2. ASSIGNMENT COMMAND and HANDOVER COMMAND messages in which the target mode information element indicates "dedicated mode".

3. Messages which are not applicable to group receive mode.

26.14.7.3.3 Method of test

Initial Conditions

   System Simulator:

      1 cell with default parameters for ASCI testing.

   Mobile Station:

      The MS is in MM-state "idle, updated" with a TMSI allocated.

Specific PICS statements:

   -

PIXIT Statements:

- Way to configure VGCS or VBS.

- Way to indicate a call notification.

- Way to accept a VGCS or VBS.

- Way to verify the downlink speech path.

Foreseen Final State of the MS

"Idle, updated", with TMSI allocated.

Test Procedure

The MS is brought into group receive mode. The SS sends, in UI format, the messages which are not applicable to group receive mode. It is checked that the MS ignores these messages. The SS sends, in L2 I format, messages which are applicable to group receive mode. It is checked that the MS ignores these messages.

Maximum Duration of Test

5 minutes.

Expected Sequence

Step	Direction	Message	Comments
0	MS		The MS is in Idle updated mode.
1	SS -> MS	NOTIFICATION/NCH	
2	MS		MMI action to join VGCS/VBS call.
3	SS -> MS	IMMEDIATE ASSIGNMENT	UI format.
4	MS		check that the MS ignores the above message.
5	SS -> MS	IMMEDIATE ASSIGNMENT EXTENDED	UI format.
6	MS		check that the MS ignores the above message.
7	SS -> MS	CIPHERING MODE COMMAND	UI format.
8	MS		check that the MS ignores the above message.
9	SS -> MS	ASSIGNMENT COMMAND	sent in the L2 I format.
10	MS		check that the MS ignores the above message.
11	SS -> MS	HANDOVER COMMAND	sent in the L2 I format.
12	MS		check that the MS ignores the above message.
13	SS -> MS	FREQUENCY REDEFINITION	sent in the L2 I format.
14	MS		check that the MS ignores the above message.
15	SS -> MS	CHANNEL MODE MODIFY	sent in the L2 I format.
16	MS		check that the MS ignores the above message.
17	SS -> MS	CHANNEL RELEASE	I format
18	MS		check that the MS ignores the above message.
19	SS -> MS	CHANNEL RELEASE	UI format.

26.14.8 VGCS-VBS / Structured Procedures

The objective of this test group is to verify that the MS in the ASCI context performs certain elementary procedures of the RR, MM, and GCC/BCC protocol correctly within a structured procedure, especially when some channels use R-GSM frequencies with ARFCNs between 955 and 974.

26.14.8.1   VGCS-VBS / Structured Procedures / Very early and early assignment

26.14.8.1.1   Conformance requirement

1. The mobile station initiates immediate assignment, service request, and contention resolution.

2. After sending the CIPHERING MODE COMPLETE message, the mobile station initiates call establishment by sending the SETUP message to the network.

3. The network allocates a traffic channel to the mobile station before it initiates call establishment in the fixed network.

4. The network assigns the traffic channel at the earliest possible moment, i.e. in the immediate assignment procedure. The mode of the traffic channel is changed from signalling only to the mode necessary for the call by means of the channel mode change procedure.

Reference(s)

3GPP TS 04.08 / 3GPP TS 23.108 subclause 7.3.2.

26.14.8.1.2   Test purposes

1. To verify that the MS initiates immediate assignment, service request using the IMMEDIATE ASSIGNMENT or CM SERVICE REQUEST message, and contention resolution.

2. To verify that the MS after sending the CIPHERING MODE COMPLETE message, initiates call establishment by sending the SETUP message to the network.

3. To check that the MS performs correctly the early assignment procedure.

4. To check that the MS performs correctly the very early assignment procedure.

26.14.8.1.3   Method of test

Initial Conditions

System Simulator:

1 cell with default parameters for ASCI testing.

Mobile Station:

The MS is in MM-state "idle, updated" with a TMSI allocated.

Specific PICS statements:

- Support eMLPP (TSPC_Serv_eMLPP)

- Support of Half Rate Speech (TSPC_AddInfo_Half_rate_version_1)

- Support of Enhanced Full Rate Speech (Full Rate Version 2) (TSPC_AddInfo_Full_rate_version_2)

- Support of R-GSM Band (TSPC_Type_GSM_R_Band)

PIXIT Statements:

- Way to configure a necessary radio channel rate.

- Way to configure VGCS or VBS.

- Way to select the immediate set-up or the normal set-up.

- Way to verify the downlink speech path.

Foreseen Final State of the MS

"Idle, updated", with TMSI allocated.

Test Procedure

The MS is requested to initiate a VGCS/VBS call using immediate setup procedure. The authentication and ciphering mode setting (to no ciphering) procedures are applied. The call is established by using early assignment procedure. For an R-band MS a carrier with ARFCN in the rage of 955 - 974 is assigned for the traffic channel. The MS needs to be configured to use EFR codec for the test, if it supports EFR. The MS is requested to terminate the call.

The MS is requested to initiate a VGCS/VBS call using setup procedure. The authentication and ciphering mode setting (to no ciphering) procedures are applied. The call is established by using assignment procedure. For an R-band MS a carrier with ARFCN in the rage of 955 - 974 is assigned for the traffic channel. The MS needs to be configured to use half rate codec for the test, if it supports dual rate. The call is terminated.

Maximum Duration of Test

5 minutes.

Expected Sequence

Steps 0 to 20 are executed if MS supports eMLPP.

Step	Direction	Message	Comments
0	MS		The MS is in idle updated mode.
1	MS		MMI action to select a priority level 0 and MMI action to initiate VGCS/VBS call using immediate setup procedure.
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	IMMEDIATE SETUP	L2: SABM / UA
5	SS -> MS	AUTHENTICATION REQUEST	
6	MS -> SS	AUTHENTICATION RESPONSE	
7	SS -> MS	CIPHERING MODE COMMAND	no ciphering
8	MS -> SS	CIPHERING MODE COMPLETE	
9	SS -> MS	ASSIGNMENT COMMAND	see specific message contents
10	MS -> SS	ASSIGNMENT COMPLETE	
11	SS -> MS	CONNECT	verify that the TCH is through connected
12	MS		MMI action to terminate the call
13	MS -> SS	TERMINATION REQUEST	
14	SS -> MS	TERMINATION	cause = protocol error, unspecified
15	SS -> MS	CHANNEL RELEASE	The MS releases L2 multiple frame link L2:DISC/UA.
21	MS		MMI action to initiate VGCS/VBS call with setup procedure.
22	MS -> SS	CHANNEL REQUEST	TCH/F needed
23	SS -> MS	IMMEDIATE ASSIGNMENT	
24	MS -> SS	CM SERVICE REQUEST	L2: SABM / UA
25	SS -> MS	AUTHENTICATION REQUEST	
26	MS -> SS	AUTHENTICATION RESPONSE	
27	SS -> MS	CIPHERING MODE COMMAND	no ciphering
28	MS -> SS	CIPHERING MODE COMPLETE	
29	MS -> SS	SETUP	
30	SS -> MS	CHANNEL MODE MODIFY	
31	MS -> SS	CHANNEL MODE MODIFY ACKNOWLEDGE	
32	SS -> MS	CONNECT	verify that the TCH is through connected
33	SS -> MS	TERMINATION	
34	SS -> MS	CHANNEL RELEASE	The MS releases L2 multiple frame link L2:DISC/UA.

Specific message contents:

Step 9

ASSIGNMENT COMMAND:

Channel Description	
- Channel Type and TDMA offset	TCH/F
- Timeslot Number	7
- Training Sequence Code	3
- Hopping	Single RF Channel
- ARFCN	957 if the MS supports R-GSM, otherwise chosen arbitrarily, but not BCCH
Power Command	
- Power level	Chosen arbitrarily but with a changed value.
Channel Mode	speech full rate or half rate version 2 if the MS supports EFR
	otherwise speech full rate or half rate version 1
Other IEs	Not present

Step 23

IMMEDIATE ASSIGNMENT:

Channel Description	
- Channel Type and TDMA offset	TCH/H if the MS supports dual rate, otherwise TCH/F
- Timeslot Number	3
- Training Sequence Code	3
- Hopping	Single RF Channel
- ARFCN	970, if the MS supporting R-band otherwise: GSM 450: 275, GSM 480: 322, GSM 900: 50 DCS 1 800: 750 PCS 1 900: 650 GSM710: 470 GSM 750: 470 T-GSM 810: 470 GSM 850: 177

26.14.9 VGCS-VBS / Cell change

26.14.9.1 VGCS-VBS / Cell Change / Same LA

26.14.9.1.1 Conformance requirement

After cell change within the same LA:

1. if no NCH is present on the new cell the MS shall leave group receive mode and go to idle mode;

2. if NCH is present on the new cell but the MS does not receive any notification message for the current group or broadcast call the MS shall leave group receive mode and go to idle mode;

3. if the MS receives a notification message for the current group or broadcast call with the related channel position and if the channel is found, the MS shall change to it and stay in group receive mode;

4. if the MS receives a notification message for the current group or broadcast call without information on the related channel position, the MS shall leave group receive mode, go to idle mode in order to establish a dedicated connection with the network to become informed on the related channel position.

Reference(s)

3GPP TS 03.22 subclause 5.2.3.

26.14.9.1.2 Test purpose

The MS was in group receive mode. After cell change within a same LA it is verified that:

1. if no NCH is present on the new cell the MS leaves group receive mode and enters idle mode;

2. if NCH is present on the new cell but there is no NOTIFICATION / NCH for the current group or broadcast call the MS leaves group receive mode and enters idle mode;

3. if the MS receives NOTIFICATION / NCH for the current group or broadcast call with the related channel position the MS changes onto the group channel and stays in group receive mode;

4. if the MS receives NOTIFICATION / NCH for the current group or broadcast call without information on the related channel position, the MS leaves group receive mode, enters idle mode and establishes a dedicated connection with the network to get the related channel position.

26.14.9.1.3   Method of test

26.14.9.1.3.1   Initial Conditions

Initial Conditions

System Simulator:

2 cells within a same LA: cell A and cell B, with default parameters for this clause except:

- for k=1, no NCH on cell B;

- for k=2, 3, 4, NCH present on cell B.

Mobile Station:

The MS is in MM-state "idle, updated" with a TMSI allocated. No automatic answering is configured.

Specific PICS statements:

-

PIXIT Statements:

- Way to configure VGCS or VBS.

- Way to verify the downlink speech path.

Foreseen Final State of the MS

"Idle, updated".

Test Procedure

The following test procedure is repeated for k=1, 2, 3, 4 and c=1, 2.

For c=1, the MS is brought into group receive mode on cell A. Start cell B without NCH (k=1), or with NCH but NOTIFICATON/NCH containing irrelevant group call references (k=2), or with NCH whilst NOTIFICATON/NCH containing the relevant group call reference and VGCS/VBS channel description (k=3), or with NCH whilst NOTIFICATON/NCH containing the relevant group call reference but no VGCS/VBS channel description (k=4). Lower the transmission levels of cell A so that C1 of cell A becomes less than zero. After the MS re-selects to the cell B it is checked that the MS returns to idle mode on cell B (for k=1, 2), or that the MS remains in group receive mode on cell B (for k=3, 4).

The same test procedure is repeated for c=2. Instead of lowering the power level of cell A, the SACCH transmission of cell A is stopped.

Maximum Duration of Test

10 minutes.

Expected Sequence

The test sequence is repeated for test counter k= 1, 2, 3, 4 and c=1, 2.

Step	Direction	Message	Comments
0	MS		the MS is brought into group receive mode on cell A.
1	SS		k=1, SI1 on cell B not indicating NCH position; k=2, 3, 4, SI1 on cell B indicating NCH position
A2 B2	SS -> MS	NOTIFICATION/NCH	k=1 k=2, sent on cell B, containing an irrelevant group call reference.
C2	SS -> MS	NOTIFICATION/NCH	k=3, sent on cell B, containing the relevant group call reference and VGCS/VBS channel description.
D2	SS -> MS	NOTIFICATION/NCH	k=4, sent on cell B, with the relevant group call reference but no VGCS/VBS channel description.
3	SS		for c=1, the RF level of cell A is lowered until the MS re-selects cell B. for c=2, to stop downlink SACCH transmission of cell A. The following messages are sent and received on cell B.
A4, B4 A5, B5 A9, B9	SS -> MS MS -> SS SS -> MS	PAGING REQUEST TYPE 1 CHANNEL REQUEST IMMEDIATE ASSIGNMENT REJECT	k=1 or k=2, Wait 5s. until the MS is in idle mode on cell B. "Mobile Identity" IE contains the TMSI allocated to the MS. "Establishment Cause" = Answer to paging. the first "request reference" corresponds to the CHANNEL REQUEST sent by the MS.
C4 C9	MS SS -> MS	CHANNEL RELEASE	k=3, Wait 5s. to ensure that the MS has enough time entering group receive mode on cell B. Check that the TCH in downlink is through connected and there is no uplink transmission on that channel for 10 s. UI format, the MS returns to idle mode.
D4 D5 D6 D7 D8 D9	MS -> SS SS -> MS MS -> SS SS -> MS MS SS -> MS	CHANNEL REQUEST IMMEDIATE ASSIGNMENT NOTIFICATION REPONSE CHANNEL RELEASE CHANNEL RELEASE	k=4, a TCH Respond to notification. I format, MS leaves the dedicated mode and changes onto VGCS/VBS channel. Check that the TCH in downlink is through connected and there is no uplink transmission on that channel for 10 s. UI format, the MS returns to idle state.
10	SS		For c=1, the RF level of cell A is increased to 63 dBμV emf(), the RF level of cell B is lowered until the MS re-select cell A. For c=2, downlink SACCH on cell A is recovered. Wait 5s.
11	MS		Check that the TCH in downlink on cell A is through connected and there is no uplink transmission on that channel for 10 s.
12	SS		The RF level of cell B is increased to 53 dBμV emf().

26.14.9.2 VGCS-VBS / Cell Change / Different LA

26.14.9.2.1 Conformance requirement

1. After a cell change the MS shall leave group receive mode and go to idle mode in order to establish a dedicated connection with the network to perform a location update if the cell belongs to a new LA.

2. If NCH is present on the new cell but the MS does not receive any notification message for the current group or broadcast call the MS shall leave group receive mode and go to idle mode.

3. If the MS receives a notification message for the current group or broadcast call with the related channel position and if the channel is found, the MS shall change to it and stay in group receive mode.

4. If the MS receives a notification message for the current group or broadcast call without information on the related channel position, the MS shall leave group receive mode, go to idle mode and in order to establish a dedicated connection with the network to become informed on the related channel position.

5. If a CHANNEL RELEASE is send to a mobile station which is in dedicated mode and which is involved in a voice group call or voice broadcast call, a group channel description may be included, describing the voice group call channel or voice broadcast channel to which the mobile station shall go after the channel release procedure.

Reference(s)

3GPP TS 03.22 subclause 5.2.3.

3GPP TS 04.08 / 3GPP TS 44.018 subclause 9.1.7.1.

26.14.9.2.2 Test purpose

In group receive mode it is verified that:

1. after a cell change to a different LA, the MS leaves group receive mode, enters idle mode and establishes a dedicated connection with the network to perform location updating;

2. after location updating, if NCH is present on the new cell but there is no NOTIFICATION / NCH for the current group or broadcast call the MS stays in idle mode;

3. after location updating, if the MS receives NOTIFICATION / NCH for the current group or broadcast call with the related channel position the MS changes to the group channel and stays in group receive mode;

4. after location updating, if the MS receives NOTIFICATION / NCH for the current group or broadcast call without information on the related channel position, the MS establishes a dedicated connection with the network to get the related channel position and then enters to group receive mode;

5. it is also tested, when a mobile, in dedicated mode and involved in a voice group or broadcast call, receives CHANNEL RELEASE including a group channel description channel the mobile station goes onto the channel after the channel release procedure.

26.14.9.2.3 Method of test

Initial Conditions

System Simulator:

2 cells with different LA within a same PLMN: cell A and cell B, with default parameters.

Mobile Station:

The MS is in MM-state "idle, updated" with a TMSI allocated on cell A. No automatic answering is configured.

Specific PICS statements:

-

PIXIT Statements:

- Way to configure VGCS or VBS.

- Way to verify the downlink speech path.

Foreseen Final State of the MS

"Idle, updated".

Test Procedure

The following test procedure is repeated for k = 1, 2, 3.

The MS is brought into group receive mode on cell A. Start cell B with NCH but NOTIFICATON/NCH containing irrelevant group call references (k=1), or with NOTIFICATON/NCH containing the relevant group call reference but no VGCS/VBS channel description (k=2), or with NOTIFICATON/NCH containing the relevant group call reference and VGCS/VBS channel description (k=3). Lower the transmission levels of cell A so that C1 of cell A becomes less than zero. The MS re-selects to the cell B. It is checked that the MS does location update on cell B. If it is succeeded the MS either remains in the idle mode (for k=1), or enters to group receive mode on cell B (for k=2, 3) without manual intervention.

Increase the power level of cell A to the default value and decrease the power level of cell B so that the MS re-selects the cell A. The MS attempts a location updating. The SS rejects it with cause #17 (network failure) to force the MS re-initiate location updating. The SS checks that the TCH in downlink is not connected before a location updated. The MS initiates again a new attempt for location updating, the SS accepts it, then the MS initiates a new group call and enters the group transmit mode, SS sends an UPLINK RELEASE message to bring MS to group receive mode. Then SS assigns a new group channel for it in the CHANNEL RELEASE message. It is checked that the MS enters group receive mode and the new TCH assigned in downlink is through connected.

Maximum Duration of Test

10 minutes.

Expected Sequence

Repeat the test sequence for test counter k= 1, 2, 3.

Step	Direction	Message	Comments
0	MS		the MS is brought into group receive mode on cell A.
A1	SS -> MS	NOTIFICATION/NCH	k=1, sent on cell B, containing an irrelevant group call reference.
B1	SS -> MS	NOTIFICATION/NCH	k=2, sent on cell B, containing the relevant group call reference but without VGCS/VBS channel description.
C1	SS -> MS	NOTIFICATION/NCH	k=3, sent on cell B, with the relevant group call reference and the VGCS/VBS channel description.
2	SS		The RF level of cell A is lowered until the MS re-selects cell B. The following messages are sent and received on cell B.
3	MS -> SS	CHANNEL REQUEST	location updating
4	SS -> MS	IMMEDIATE ASSIGNMENT	
5	MS -> SS	LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = CKSN1, "location area identification" = a, "mobile station classmark 1" as given by the PICS and "mobile identity" = TMSI1, L2: SABM / UA.
6	SS -> MS	LOCATION UPDATING ACCEPT	MI omitted, follow-on proceed IE included
A7	MS -> SS	CHANNEL RELEASE	k=1, the MS in idle mode on cell B, wait 5s.
A8	SS -> MS	PAGING REQUEST TYPE 1	"Mobile Identity" IE contains the TMSI allocated to the MS.
A9	MS -> SS	CHANNEL REQUEST	"Establishment Cause" = Answer to paging.

Step	Direction	Message	Comments
A10	SS -> MS	IMMEDIATE ASSIGNMENT REJECT	the first "request reference" corresponds to the CHANNEL REQUEST sent by the MS.
B7	MS -> SS	NOTIFICATION REPONSE	k=2, Respond to notification.
B8	SS -> MS	CHANNEL RELEASE	I format, change from the dedicated channel onto VGCS channel.
B9	MS		Check that the TCH in downlink is through connected and there is no uplink transmission on that channel for 10 s.
B10	SS -> MS	CHANNEL RELEASE	UI format, the MS returns to idle mode.
C7	MS -> SS	CHANNEL RELEASE	k=3, MS in group receive mode on cell B
C8	MS		Check that the TCH in downlink is through connected and there is no uplink transmission on that channel for 10 s.
C10	SS -> MS	CHANNEL RELEASE	UI format, the MS returns to idle mode.
11	SS		The RF level of cell A is increased to 63 dBμV emf(), the RF level of cell B is lowered until the MS re-select cell A. The following messages are sent and received on cell A
12	MS -> SS	CHANNEL REQUEST	location updating.
13	SS -> MS	IMMEDIATE ASSIGNMENT	
14	MS -> SS	LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = CKSN1, "location area identification" = b, "mobile station classmark 1" as given by the PICS and "mobile identity" = TMSI1, L2: SABM / UA.
15	SS -> MS	LOCATION UPDATING REJECT	cause #17
16	SS -> MS	CHANNEL RELEASE	
17	SS		Check that the TCH used in the test step 0 is not through connected for 10 s.
18	MS -> SS	CHANNEL REQUEST	"Establishment cause": Location updating. This message is sent by the MS 15s after step 16 (no check for that).
19	SS -> MS	IMMEDIATE ASSIGNMENT	
20	MS -> SS	LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = CKSN1, "location area identification" = b, "mobile station classmark 1" as given by the PICS and "mobile identity" = TMSI1, L2: SABM / UA.
21	SS -> MS	LOCATION UPDATING ACCEPT	both MI and follow-on proceed IE omitted
22	MS		MMI action, a VGCS call is initiated on cell A
23	MS -> SS	CHANNEL REQUEST	
24	SS -> MS	IMMEDIATE ASSIGNMENT	
25	MS -> SS	CM SERVICE REQUEST	L2: SABM / UA
26	SS -> MS	CM SERVICE ACCEPT	
27	MS -> SS	SETUP	
28	SS -> MS	AUTHENTICATION REQUEST	
29	MS -> SS	AUTHENTICATION RESPONSE	
30	SS -> MS	CHANNEL MODE MODIFY	
31	MS -> SS	CHANNEL MODE MODIFY ACKNOWLEDGE	
32	SS -> MS	CONNECT	The MS is in transmit mode and is involved in a voice group call or in a broadcast call
33	MS		Check the MS is involved in group call
34	SS -> MS	CHANNEL RELEASE	Including a new group channel description different from the one in step 0. The MS releases L2 multiple frame link (L2:DISC/UA) and enters group receive mode.
35	MS		Check that the TCH assigned in step 22 is in downlink through connected and there is no uplink transmission on that channel for 10 s.
36	SS -> MS	CHANNEL RELEASE	UI format, the MS returns to idle state.

Specific message contents:

CHANNEL RELEASE

Information Element	value/remark
Group channel description	
- IEI	74
- Length	
- Channel type and TDMA offset	TCH/F
- Timeslot number	arbitrarily chosen, but not 0
- TSC	arbitrarily chosen
- Hopping	Single RF, non hopping channel
- ARFCN	GSM 450: 279
	GSM 480: 326
	GSM 900: 70
	DCS 1 800: 850
	PCS 1 900: 750
	GSM 710: 475
	GSM 750: 475
	T-GSM 810: 475
	GSM 850: 197
Group cipher key number	Not included

26.14.9.3   VGCS-VBS / Cell Change / Different PLMN

26.14.9.3.1   Conformance requirement

1. After a cell change to a different LA, if the selected cell belongs to an another PLMN the MS shall leave group receive mode and go to idle mode.

Reference(s)

3GPP 03.22 subclause 5.2.3.

26.14.9.3.2   Test purpose

In group receive mode it is verified that after a cell change to a different LA of an another PLMN, the MS leaves group receive mode, enters idle mode.

26.14.9.3.3   Method of test

Initial Conditions

System Simulator:

2 cells with different LA belonging to the different PLMN: cell A /PLMN1 and cell B / PLMN2, with default parameters.

Mobile Station:

The MS is in MM-state "idle, updated" with a TMSI allocated on cell A. No automatic answering is configured.

Specific PICS statements:

-

PIXIT Statements:

- Way to configure VGCS or VBS.

- Way to verify the downlink speech path.

Foreseen Final State of the MS

"Idle, updated".

Test Procedure

The following test procedure is repeated for k=1, 2.

The MS is brought into group receive mode on cell A. Start cell B with NOTIFICATON/NCH containing an another group call references (k=1), or with NOTIFICATON/NCH containing the same group call reference (k=2). Lower the transmission levels of cell A so that C1 of cell A becomes less than zero. The MS re-selects the cell B and enters idle mode. It is checked that the MS does location update on cell B. If it is succeeded the MS indicates a group/broadcast call with the reference and joins the VGCS/VBS call on MMI request.

Increase the power level of cell A to the default value and decrease the power level of cell B so that the MS re-selects the cell A. The MS does a new location updating and indicates a group/broadcast call.

Maximum Duration of Test

5 minutes.

Expected Sequence

Repeat the test sequence for test counter k= 1, 2.

Step	Direction	Message	Comments
0	MS		the MS is brought into group receive mode on cell A.
A1	SS -> MS	NOTIFICATION/NCH	k=1, sent on cell B, with an another group call reference but with the same VGCS/VBS channel description as in test step 0.
B1	SS -> MS	NOTIFICATION/NCH	k=2, sent on cell B, with the same group call reference and an another VGCS/VBS channel description as in step 0.
2	SS		The RF level of cell A is lowered until the MS re-selects cell B. The following messages are sent and received on cell B.
3	MS -> SS	CHANNEL REQUEST	location updating
4	SS -> MS	IMMEDIATE ASSIGNMENT	
5	MS -> SS	LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = CKSN1, "location area identification" = a, "mobile station classmark 1" as given by the PICS and "mobile identity" = TMSI1, L2: SABM / UA.
6	SS -> MS	LOCATION UPDATING ACCEPT	New TMSI2
7	MS -> SS	TMSI REALLOCATION COMPLETE	
8	SS -> MS	CHANNEL RELEASE	I format , MS returns to idle mode
9	MS		check that the MS gives an indication containing the notified group call reference
10	MS		MMI action to join the VGCS/VBS call
11	MS		check that the downlink voice is received and there is no uplink transmission on that channel for 5 s.
12	SS -> MS	CHANNEL RELEASE	UI format, the MS returns to idle state.
13	SS		The RF level of cell A is increased to 63 dBμV emf(), the RF level of cell B is lowered until the MS re-select cell A. The following messages are sent and received on cell A.
14	MS -> SS	CHANNEL REQUEST	location updating
15	SS -> MS	IMMEDIATE ASSIGNMENT	
16	MS -> SS	LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = CKSN2, "location area identification" = b, "mobile station classmark 1" as given by the PICS and "mobile identity" = TMSI2, L2: SABM / UA.
17	SS -> MS	LOCATION UPDATING ACCEPT	TMSI1
18	MS -> SS	TMSI REALLOCATION COMPLETE	
19	SS -> MS	CHANNEL RELEASE	I format
20	MS		check that the MS gives an indication containing the notified group call reference
21	SS->MS	CHANNEL RELEASE	UI format.
22	SS		The RF level of cell B is increased to 53 dBμV emf().

26.14.10 VGCS-VBS / Default Message Contents

The default message contents listed in subclauses 26.6.14, 26.6.15, 26.6.16, 26.6.17 and 26.6.18 are applicable to the subclause 26.14, except BS_AG_BLKS_RES = 1. Additional default message contents are specified below.

SYSTEM INFORMATION TYPE 1

Information Element	value/remark
S1 Rest Octets	2 octets length
- NCH position indication	H
- NCH position	The 1st NCH block number = 1, No. of blocks = 1
- Spare padding	

SYSTEM INFORMATION TYPE 6

Information Element	value/remark
S6 Rest Octets	7 octets length
- PCH/NCH info indication	L
- VGCS/VBS options	H
- in-band notifications	1
- in-band paging	1
- Spare padding	logical L

NOTIFICATION/NCH

Information Element	value/remark
L2 Pseudo Length	This is the sum of the lengths of all the information elements present in the message except for the NT/N rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is '09'B.
RR Protocol Discriminator	'0110'B
Skip Indicator	'0000'B'
Message Type	'00100000'B
NT/N Rest Octets	
Reduced monitoring indication	'0'B, no reduced monitoring
List of group call NCH information	
Group call reference 1 indication	'1'B
Group or broadcast call reference	
- Group or broadcast call reference	PICS/PIXIT, active in the SIM (27 bits)
- SF	VBS if only VBS supported, otherwise VGCS
- AF	acknowledgement not required
- Ciphering information	No ciphering
Group Channel Description indication	'1'
Channel Description	
- Channel type and TDMA offset	TCH/F
- Timeslot number	arbitrarily chosen but not 0
- TSC	arbitrarily chosen
- Hopping	Single RF Channel
- ARFCN	GSM 450: 275
	GSM 480: 322
	GSM 900: 50
	DCS 1 800: 750
	PCS 1 900: 650
	GSM710: 470
	GSM 750: 470
	T-GSM 810: 470
	GSM 850: 177
- MA or FSL	'0'B, non hopping
Another Group call references	'0'B, no
Spare padding	logic L

NOTIFICATION/FACCH

Information Element	value/remark
RR short PD	'0'B
message type	'00001'B
short layer 2 header	'00' for UI frame
Group call / Paging information indication	'0', group call information
Group or broadcast call reference	
- Group or broadcast call reference	PICS/PIXIT (27 bits), active in the SIM
- SF	VBS if only VBS supported, otherwise VGCS
- AF	'0'B, acknowledgement not required
- priority	4
- Ciphering information	No ciphering
Group Channel Description indication	'1', group channel description
Channel Description	24 bits
- Channel type and TDMA offset	TCH/F
- Timeslot number	arbitrarily chosen, but not 0
- TSC	arbitrarily chosen
- Hopping	Single RF, non hopping channel
- ARFCN	GSM 450: 279
	GSM 480: 326
	GSM 900: 70
	DCS 1 800: 850
	PCS 1 900: 750
	GSM710: 475
	GSM 750: 475
	T-GSM 810: 475
	GSM 850: 197
MA or FSL	'0'B, non hopping
Spare padding	logic L

NOTIFICATION RESPONSE

Information Element	value/remark
RR Protocol Discriminator	'0110'B
Skip Indicator	'0000'B'
Message Type	'0x100110'B
Mobile station classmark	PICS/PIXIT
Mobile identity	PICS/PIXIT
Group or broadcast call reference 1	
- Group or broadcast call reference	Not checked
- SF	Not checked
- AF	Not checked
- Ciphering information	No ciphering

UPLINK ACCESS

Information field	value/remark
Establishment Cause	'110'B for subsequent talker uplink access; '00100101'B for reply on uplink access request
Random Reference	Not checked for subsequent talker uplink request

UPLINK BUSY

Information Element	value/remark
RR Protocol Discriminator	'0110'B
Skip Indicator	'0000'B'
Message Type	'00101010'B

UPLINK FREE

Information Element	value/remark
RR short PD	'0'B
Message Type	'00010'B
short L2 header	'00'B, type 1
Uplink access request bit	L
UIC indication	H
UIC	PICS/PIXIT, bit(6)
Spare padding	logic L

UPLINK RELEASE

Information Element	value/remark
RR Protocol Discriminator	'0110'B
Skip Indicator	'0000'B'
Message Type	'00001110'B
RR Cause	Normal event

VGCS UPLINK GRANT

Information Element	value/remark
RR Protocol Discriminator	'0110'B
Skip Indicator	'0000'B'
Message Type	'00001001'B
Request Reference	Same as that in UPLINK ACCESS
Timing Advance	30

TALKER INDICATION

Information Element	value/remark
RR Protocol Discriminator	'0110'B
Skip Indicator	'0000'B'
Message Type	'00010001'B
Mobile station classmark	PICS/PIXIT
Mobile identity	PICS/PIXIT

Default Message contents for GCC/BCC

CHANNEL MODE MODIFY:

Channel Description	Same as in IMMEDIATE ASSIGNMENT in test
Channel Mode	
- Mode	speech full rate or half rate version 1
VGCS target mode indication	
- iei	
- target mode	group transmit mode
- group cipher key number	no ciphering
- spare bit	'11'B

CHANNEL MODE MODIFY ACKNOWLEDGE:

Channel Description	Same as in CHANNEL MODE in test
Channel Mode	Same as in CHANNEL MODE in test

CM SERVICE REQUEST

Information Element	value/remark
CM service type	VGC or VBC establishment, depending on the service
Priority	any or omit

CONNECT

Information Element	value/remark
GCC/BCC Protocol Discriminator	'0000'B for GCC, '0001'B for BCC
Transaction identifier	depending on the context of the test
Message Type	'0x110011'B
Broadcast call reference	PICS/PIXIT
Originator indication	Originator
Spare half octet	'0000'B

GET STATUS

Information Element	value/remark
GCC/BCC Protocol Discriminator	'0000'B for GCC, '0001'B for BCC
Transaction identifier	depending on the context of the test
Message Type	'0x111001'B
Mobile identity	PICS/PIXIT
Parameters	call state & state attribute requested

IMMEDIATE SETUP

Information Element	value/remark
GCC/BCC Protocol Discriminator	'0000'B for GCC, '0001'B for BCC
Transaction identifier	'0001'B
Message Type	'0x110001'B
Spare half octet	'0000'B
Ciphering key sequence number	PICS/PIXIT
Mobile station classmark	PICS/PIXIT
Mobile identity	PICS/PIXIT
Group identity	PICS/PIXIT

SET PARAMETER

Information Element	value/remark
GCC/BCC Protocol Discriminator	'0000'B for GCC, '0001'B for BCC
Transaction identifier	depending on the context of the test
Message Type	'0x111010'B
All other information elements	Not present

SETUP

Information Element	value/remark
GCC/BCC Protocol Discriminator	'0000'B for GCC, '0001'B for BCC
Transaction identifier	'0001'B
Message Type	'0x110010'B
Broadcast identity	PICS/PIXIT

STATUS

Information Element	value/remark
GCC/BCC Protocol Discriminator	'0000'B for GCC, '0001'B for BCC
Transaction identifier	depending on the context of the test
Message Type	'0x111000'B
Cause	Not checked
Call state	depending on the context of the test
State attributes	depending on the context of the test

TERMINATION

Information Element	value/remark
GCC/BCC Protocol Discriminator	'0000'B for GCC, '0001'B for BCC
Transaction identifier	depending on the context of the test
Message Type	'0x110100'B
Cause	any

TERMINATION REJECT

Information Element	value/remark
GCC/BCC Protocol Discriminator	'0000'B for GCC, '0001'B for BCC
Transaction identifier	depending on the context of the test
Message Type	'0x110110'B
Reject cause	any

TERMINATION REQUEST

Information Element	value/remark
GCC/BCC Protocol Discriminator	'0000'B for GCC, '0001'B for BCC
Transaction identifier	depending on the context of the test
Message Type	'0x110101'B
Broadcast identity	PICS/PIXIT

26.14.11 VGCS-VBS / User-to-Dispatcher Information

26.14.11.1   VGCS-VBS / User-to-Dispatcher Information / BCC MO call

26.14.11.1.1   Conformance requirement

The request of the calling subscriber to set up a voice group call may specify information to be sent as user-to-dispatcher information to the network; in this case the user-to-dispatcher information is included in the signalling for call setup from the mobile station to the network. It is the responsibility of the input function to ensure that the user-to-dispatcher information has a correct format (in particular, an allowed length).

The initial signalling from the originating service subscriber informs the network that a voice group call is required and details the group ID; it may specify user-to-dispatcher information.

The User-to-dispatcher information element is included in the SETUP message.

References

   3GPP TS 03.69 subclauses 4.2.1.1 and 11.3.1.1.1.

   3GPP TS 04.69 subclause 8.5.

26.14.11.1.2   Test purpose

   1. To verify that upon initiation of an outgoing broadcast call with User-to-Dispatcher information by the user, the MS includes a User-to-dispatcher information element in the SETUP message.

   2. To verify correct establishment and clearing of the broadcast call.

26.14.11.1.3   Method of test

Initial Conditions

   System Simulator:

      1 cell with default parameters for ASCI testing.

   Mobile Station:

      The MS is in MM-state "idle, updated" with a TMSI allocated.

Specific PICS statements:

-

PIXIT Statements:

- Way to activate User-to-Dispatcher Information

- Way to configure VBS.

- Way to initiate VBS calls.

Foreseen Final State of the MS

"Idle, updated", with TMSI allocated.

Test Procedure

By means of appropriate MMI function, the user enters a string, which shall be included in the User-to-Dispatcher Information.

Then MS is made to initiate a broadcast call. In the SETUP message, the User-to-dispatcher information element shall be present and shall include the requested string. Then, SS releases immediately the call with a TERMINATION message.

Then MS is made to initiate a second broadcast call with User-to-Dispatcher Information including a long string. In the SETUP message, the User-to-dispatcher information element shall be present with the requested string. Then it is checked that the call can be successfully established and cleared.

Maximum Duration of Test

2 minutes

Expected Sequence

Step	Direction	Message	Comments
0	MS		The MS is in idle mode.
1	MS		MMI actions to initiate a VBS call with User-to-Dispatcher Information including the string 'abcdef9'
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	TCH/FS
4	MS -> SS	CM SERVICE REQUEST	L2: SABM / UA
5	SS -> MS	CM SERVICE ACCEPT	
6	MS -> SS	SETUP	User-to-dispatcher IE included. See specific message contents.
7	SS -> MS	TERMINATION	
8	SS -> MS	CHANNEL RELEASE	The MS releases L2 multiple frame link. L2: DISC/UA.
9	MS		MMI actions to initiate a VBS call with User-to-Dispatcher Information with the string 'abcdefghijklmnopqrstuvwxyz012345'
10	MS -> SS	CHANNEL REQUEST	
11	SS -> MS	IMMEDIATE ASSIGNMENT	TCH/F, single RF channel GSM 450: 275 GSM 480: 322 GSM 900: 50, DCS 1 800: 750 PCS 1 900: 650 GSM710: 470 GSM 750: 470 T-GSM 810: 470 GSM 850: 177
12	MS -> SS	CM SERVICE REQUEST	L2: SABM / UA
13	SS -> MS	CM SERVICE ACCEPT	
14	MS -> SS	SETUP	User-to-dispatcher IE included. See specific message contents.
15	SS -> MS	CHANNEL MODE MODIFY	
16	MS -> SS	CHANNEL MODE MODIFY ACKNOWLEDGE	
17	SS -> MS	CONNECT	
18	SS -> MS	TERMINATION	
19	SS -> MS	CHANNEL RELEASE	The MS releases L2 multiple frame link L2: DISC/UA.

Specific message contents:

SETUP

As default message contents as defined in subclause 26.14.10 except:

Information Element	Value/remark
User-to-dispatcher	
- IEI	'7E'O
- length	1+the entered string length
- PD	User specific protocol
- user-user	The string as entered coded in IA5 characters

26.14.11.2   VGCS-VBS / User-to-Dispatcher information / GCC MO call

26.14.11.2.1   Conformance requirement

The request of the calling subscriber to set up a voice group call may specify information to be sent as user-to-dispatcher information to the network; in this case the user-to-dispatcher information is included in the signalling for call setup from the mobile station to the network. It is the responsibility of the input function to ensure that the user-to-dispatcher information has a correct format (in particular, an allowed length).

The initial signalling from the originating service subscriber informs the network that a voice group call is required and details the group ID; it may specify user-to-dispatcher information.

The User-to-dispatcher information element is included in the SETUP message.

References

3GPP TS 03.68 subclauses 4.2.1.1 and 11.3.1.1.1

3GPP TS 04.68 subclause 8.5.

26.14.11.2.2 Test purpose

1. To verify that upon initiation of an outgoing group call with User-to-Dispatcher Information by the user, the MS includes a User-to-dispatcher information element in the SETUP message.

2. To verify that the group call can be successfully established and cleared.

26.14.11.2.3 Method of test

Initial Conditions

System Simulator:

1 cell with default parameters for ASCI testing.

Mobile Station:

The MS is in MM-state "idle, updated" with a TMSI allocated.

Specific PICS statements:

-

PIXIT Statements:

- Way to activate User-to-Dispatcher Information.

- Way to configure VGCS.

- Way to initiate VGCS calls.

Foreseen Final State of the MS

"Idle, updated", with TMSI allocated.

Test Procedure

By means of appropriate MMI function, the user enters a string, which shall be included in the User-to-Dispatcher Information.

Then MS is made to initiate a VGCS call. In the SETUP message, the User-to-dispatcher information element shall be present and shall include the requested string. Then, SS releases immediately the call with a TERMINATION message.

Then MS is made to initiate a second VGCS call with User-to-Dispatcher Information including a long string. In the SETUP message, the User-to-dispatcher information element shall be present with the requested string. Then it is checked that the call can be successfully established and cleared.

Maximum Duration of Test

2 minutes.

Expected Sequence

Step	Direction	Message	Comments
0	MS		MMI actions to initiate a VGCS call with User-to-Dispatcher Information with the string 'abcdef9'.
1	MS -> SS	CHANNEL REQUEST	
2	SS -> MS	IMMEDIATE ASSIGNMENT	TCH/FS
3	MS -> SS	CM SERVICE REQUEST	L2: SABM / UA
4	SS -> MS	CM SERVICE ACCEPT	
5	MS -> SS	SETUP	User-to dispatcher IE included. See specific message contents
6	SS -> MS	TERMINATION	
7	SS -> MS	CHANNEL RELEASE	The MS releases L2 multiple frame link L2: DISC/UA.
10	MS		MMI actions to initiate a VGCS call with User-to-Dispatcher Information with the string 'abcdefghijklmnopqrstuvwxyz012345'.
11	MS -> SS	CHANNEL REQUEST	
12	SS -> MS	IMMEDIATE ASSIGNMENT	TCH/F, single RF channel GSM 450: 275 GSM 480: 322 GSM 900: 50 DCS 1 800: 750 PCS 1 900: 650 GSM710: 470 GSM 750: 470 T-GSM 810: 470 GSM 850: 177
13	MS -> SS	CM SERVICE REQUEST	L2: SABM / UA
14	SS -> MS	CM SERVICE ACCEPT	
15	MS -> SS	SETUP	User-to-dispatcher IE included
16	SS -> MS	CHANNEL MODE MODIFY	
17	MS -> SS	CHANNEL MODE MODIFY ACKNOWLEDGE	
18	SS -> MS	CONNECT	
19	SS -> MS	TERMINATION	
20	SS -> MS	CHANNEL RELEASE	The MS releases L2 multiple frame link L2: DISC/UA.

Specific message contents:

SETUP

As default message contents as defined in subclause 26.14.10 except:

Information Element	Value/remark
User-user	
- IEI	'7E'O
- length	1 + the entered string length
- PD	User specific protocol
- user-user	The string as entered coded in IA5 characters

26.14.11.3 VGCS-VBS / User-to-Dispatcher information / Compressed user information in VBS fast call set-up

26.14.11.3.1   Conformance requirement

The request of the calling subscriber to set up a voice group call may specify information to be sent as user-to-dispatcher information to the network; in this case the user-to-dispatcher information is included in the signalling for call setup from the mobile station to the network. It is the responsibility of the input function to ensure that the user-to-dispatcher information has a correct format (in particular, an allowed length).

User-to-dispatcher information can be compressed or uncompressed.

The message IMMEDIATE SETUP 2 is sent by the MS to the network in order to set-up a group call immediately, i.e. without previous establishment of an MM connection, and to include compressed user-to dispatcher information. The message shall be used if the MS has a valid TMSI.

References

3GPP TS 04.69 subclauses 4.2.1.1, 4.2.7, 11.3.1.1.1 and 11.3.1.1.3.

3GPP TS 04.69 subclause 6.2.2 and clause 8.

26.14.11.3.2 Test purpose

To verify that upon initiation of an outgoing VBS fast call with User-to-Dispatcher Information by the user, the MS includes a Compressed User-to-Dispatcher Information information element in the IMMEDIATE SETUP 2 message;

To verify that the VBS fast call can be successfully established and cleared.

26.14.11.3.3 Method of test

Initial Conditions

    System Simulator:

        1 cell with default parameters for ASCI testing.

    Mobile Station:

        The MS is in MM-state "idle, updated" with a TMSI allocated.

Specific PICS statements:

    -

PIXIT Statements:

    - Way to activate User-to-Dispatcher Information.

    - Way to configure VBS.

    - Way to initiate VBS fast calls set-up.

Foreseen Final State of the MS

"Idle, updated", with TMSI allocated.

Test Procedure

By means of appropriate MMI function, the user enters a string, which shall be included in the User-to-Dispatcher Information. Then MS is made to initiate a VBS fast call. Check that the MS sends an IMMEDIATE SETUP 2 message, and check that the Compressed User-to-Dispatcher Information element is present. Then, it is checked that the call can be successfully established and released.

Maximum Duration of Test

2 minutes.

Expected Sequence

Step	Direction	Message	Comments
0	MS		The MS is in idle mode.
1	MS		MMI actions to initiate a VBS fast call with the User-to-Dispatcher Information "1234567890"
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	TCH/F, single RF channel
			GSM 450: 275
			GSM 480: 322
			GSM 900: 50
			DCS 1 800: 750
			PCS 1 900: 650
			GSM710: 470
			GSM 750: 470
			T-GSM 810: 470
			GSM 850: 177
4	MS -> SS	IMMEDIATE SETUP	L2: SABM / UA, BCC message including the Compressed User-to-Dispatcher Information information element shall be present, see Specific message contents
5	SS -> MS	CHANNEL MODE MODIFY	Very early assignment
6	MS -> SS	CHANNEL MODE MODIFY ACK	
7	SS -> MS	CONNECT	
8	SS -> MS	TERMINATION	
9	SS -> MS	CHANNEL RELEASE	

Specific message contents:

IMMEDIATE SETUP 2

Information element	Value/remark
Protocol discriminator	'0001'B for BCC
Transaction identifier	'0001'B
Message type	'0x111011'B
Spare half octet	'0000'B
Ciphering key sequence number	PICS/PIXIT
Mobile station classmark	PICS/PIXIT
TMSI	PICS/PIXIT
Group identity	PICS/PIXIT
Compressed utdi	'00075BCD16'O

26.14.11.4 VGCS-VBS / User-to-Dispatcher information / Compressed User-to-Dispatcher information in VGCS fast call set-up

26.14.11.4.1 Conformance requirement

The request of the calling subscriber to set up a voice group call may specify information to be sent as user-to-dispatcher information to the network; in this case the user-to-dispatcher information is included in the signalling for call setup from the mobile station to the network. It is the responsibility of the input function to ensure that the user-to-dispatcher information has a correct format (in particular, an allowed length).

User-to-dispatcher information can be compressed or uncompressed.

The message IMMEDIATE SETUP 2 is sent by the MS to the network in order to set-up a group call immediately, i.e. without previous establishment of an MM connection, and to include compressed user-to dispatcher information. The message shall be used if the MS has a valid TMSI.

References

3GPP TS 03.68 subclauses 4.2.1.1, 4.2.7, 11.3.1.1.1 and 11.3.1.1.3.

3GPP TS 04.68 subclause 6.2.2 and clause 8.

26.14.11.4.2   Test purpose

1. To verify that upon initiation of an outgoing VGCS fast call with Compressed User-to-Dispatcher Information by the user, the MS includes a Compressed User-to-Dispatcher Information information element in the IMMEDIATE SETUP 2 message.

2. To verify that the VGCS fast call can be successfully established and cleared.

26.14.11.4.3   Method of test

Initial Conditions

System Simulator:

   1 cell with default parameters for ASCI testing.

Mobile Station:

   The MS is in MM-state "idle, updated" with a TMSI allocated.

Specific PICS statements:

   -

PIXIT Statements:

   - Way to activate User-to-Dispatcher Information.

   - Way to configure VGCS.

   - Way to initiate VGCS fast calls set-up.

Foreseen Final State of the MS

"Idle, updated", with TMSI allocated.

Test Procedure

By means of appropriate MMI function, the user enters a string, which shall be included in the User-to-Dispatcher Information. Then MS is made to initiate a VGCS fast call. Check that the MS sends an IMMEDIATE SETUP 2 message, and check that the Compressed User-to-Dispatcher Information information element is present. Then, it is checked that the VGCS fast call can be successfully established and released.

Maximum Duration of Test

2 minutes.

Expected Sequence

Step	Direction	Message	Comments
0	MS		The MS is in idle mode.
1	MS		MMI actions to initiate a VGCS fast call with the User-to-Dispatcher Information "1234567890"
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	TCH/F, single RF channel GSM 450: 275 GSM 480: 322 GSM 900: 50 DCS 1 800: 750 PCS 1 900: 650 GSM710: 470 GSM 750: 470 T-GSM 810: 470 GSM 850: 177
4	MS -> SS	IMMEDIATE SETUP	L2: SABM / UA, GCC message including the Compressed utdi information element shall be present, see Specific message contents
5	SS -> MS	CHANNEL MODE MODIFY	Very early assignment
6	MS -> SS	CHANNEL MODE MODIFY ACK	
7	SS -> MS	CONNECT	
8	SS -> MS	TERMINATION	
9	SS -> MS	CHANNEL RELEASE	

Specific message contents:

IMMEDIATE SETUP 2

Information element	value/remark
Protocol discriminator	'0000'B for GCC
Transaction identifier	'0001'B
Message type	'0x111011'B
Spare half octet	'0000'B
Ciphering key sequence number	PICS/PIXIT
Mobile station classmark	PICS/PIXIT
TMSI	PICS/PIXIT
Group identity	PICS/PIXIT
Compressed utdi	'00075BCD16'O

26.15   SoLSA signalling

26.15.1   General considerations

This subclause applies only to mobile stations supporting SoLSA, as defined in 3GPP TS 02.43 and 3GPP TS 03.73.

Conformance requirements of clause 26 fully apply to any SoLSA MS.

The purpose of this subclause is to test these extra functional requirements for a SoLSA mobile station.

Additional to the abbreviations and definitions in TR 21.905 the definitions in subclause 20.24 are used within this subclause.

26.15.1.1   Default message content

Default contents SYSTEM INFORMATION messages and default settings

   For cell A and B refer to table 26.6

The following parameters shall be coded into the system information messages. Parameters shall be coded according to 3GPP TS 04.18.

SYSTEM INFORMATION TYPE 2bis, SYSTEM INFORMATION TYPE 5bis messages are not used.

SYSTEM INFORMATION TYPE 3

Default except:

Information Element	Value/remark
SI3 rest octets Early Classmark Sending Control	Early Sending is explicitly accepted

Default message contents for other messages:

For subclause 26.15.2	same as in subclause 26.7.0
For subclause 26.15.3	same as in subclause 26.7.0
For subclause 26.15.4	same as in subclause 26.7.0
For subclause 26.15.5	same as in subclause 26.9.0

26.15.1.2 General initial conditions for SIM card

1. Following LSA values shall be defined in the fields of the EF_{SLL} (GSM 11.11, subclause 10.4.1.2) and in the LSA descriptor files (GSM 11.11, subclause 10.4.1.3) on the SIM card used for testing:

	LSA ID	CI	LAC	LAC + CI	PLMN code	LSA Priority	Idle mode support	LSA indication for idle mode
LSA1	54 66.001	-			HPLMN	0	On	Off
LSA3	9.000.000			2 + [250..254]	HPLMN	8	On	On

2. List of values, that shall not be found in the SIM card, in order to be sure that the SoLSA MS is not subscribed to the LSA defined by the current carrier:

	LSA ID	CI	LAC	LAC + CI
LSA value	[250..255]	[5000..5005]	5	5 + [5000..5005]

26.15.2 SoLSA signalling / RR

26.15.2.1   SoLSA signalling / RR / classmark interrogation

This procedure allows the network to request the MS to supply all its classmark information to the network.

Networks may systematically use this procedure (e.g. during location updating) and, it if is incorrectly implemented in the MS, the basic connection establishment procedure may systematically fail.

26.15.2.1.1   Conformance requirements

On receipt of a CLASSMARK ENQUIRY message, the MS sends a CLASSMARK CHANGE message to the network containing the Mobile Station Classmark 2 information element and depending upon the contents of this information element, possibly the Mobile Station Classmark 3 information element.

References

3GPP TS 04.18 subclauses 3.3.1.1.4.1, 3.4.11 and 9.1.11.

3GPP TS 04.13 subclause 5.2.9.

26.15.2.1.2   Test purpose

To verify that if the network requests the SoLSA MS to supply all its classmark information then this information is communicated on the DCCH to the network.

26.15.2.1.3   Method of test

Initial Conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

"Idle, updated", with TMSI allocated.

Specific PICS statements:

-

PIXIT statements:

-

Foreseen Final State of the MS

"Idle, updated", with TMSI allocated.

Test Procedure

The MS is switched off (or has its power removed).

The SS then sets the IMSI attach-detach flag in the SYSTEM INFORMATION messages so that the MS shall perform a location update when switched on.

The MS is switched on (or its power is re-applied). The MS then initiates a location update attempt. After the succesful completion of the location update procedure (with TMSI reallocation) the SS transmits a CLASSMARK ENQUIRY message. The MS shall be ready to transmit the CLASSMARK CHANGE message before 300 ms after the end of the CLASSMARK ENQUIRY message.

The term "ready to transmit" is defined in 3GPP TS 04.13.

Then the channel is released.

Maximum Duration of Test

2 minutes.

Expected Sequence

Step	Direction	Message	Comments
1	MS		The MS is switched off (or has its power removed).
2	SS		IMSI attach-detach flag changed.
3	MS		The MS is switched on (or its power is re-applied).
2	MS -> SS	CHANNEL REQUEST	"Establishment cause": Location updating.
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = CKSN1, "location area identification" = a, "mobile station classmark 1" and "mobile station classmark 2" including settings for ES IND and SoLSA and "mobile identity" = TMSI1.
5	SS -> MS	UA(LOCATION UPDATING REQUEST)	
6	MS -> SS	CLASSMARK CHANGE	Shall be ready to transmit (see 3GPP TS 05.10 subclause 06.10) within 40 ms after the completion of step 4. Shall indicate the MS frequency and power capabilities Note: In this case 'ready to transmit' shall result in the actual transmission of the Classmark Change 51 frames later (51 * 4.62ms = 235.62 ms). Therefore receipt of the Classmark Change within 250ms of step 4 is required. "mobile station classmark 2" includes settings for ES IND and SoLSA
7	SS -> MS	LOCATION UPDATING ACCEPT	"Mobile identity" = new TMSI (= TMSI2).
8	MS -> SS	TMSI REALLOCATION COMPLETE	
9	SS -> MS	CLASSMARK ENQUIRY	
10	MS -> SS	CLASSMARK CHANGE	Contents as defined in step 6. This message shall be ready to be transmitted before 300 ms after the completion of step 9.
11	SS -> MS	CHANNEL RELEASE	

Specific message contents:

LOCATION UPDATING REQUEST

Information element	Value/remark
as default except: Mobile station Classmark 1 - ES IND	Controlled Early Classmark Sending option is implemented
Mobile station Classmark 2 - ES IND	Controlled Early Classmark Sending option is implemented
- SoLSA	SoLSA supported

CLASSMARK CHANGE

Information element	Value/remark
as default except: Mobile station Classmark 2 -ES IND	Controlled Early Classmark Sending is implemented.
-SoLSA	SoLSA supported

26.15.3 SoLSA signalling / MM

26.15.3.1 SoLSA signalling / MM / location updating

This procedure is used to register the MS in the network. If it is not performed correctly, no call can be established.

26.15.3.1.1 Location updating / accepted

To inform the network of the MSs additional SoLSA capability, the SoLSA MS has to send a CLASSMARK CHANGE as soon as possible during a normal location update procedure.

26.15.3.1.1.1 Conformance requirement

If the network accepts a location updating from the Mobile where the ES IND bit is set to 1 in the Classmark 1 and the Classmark 2 information element, the SoLSA bit is set to 1 in the classmark 2 information element and the Early Classmark Sending Control bit is set to high in SI3 Rest Octets, then the MS shall send, on the first occasion, the CLASSMARK CHANGE message.

During a contention resolution procedure, if the last timeslot of the block containing a L2 UA frame occurs at time T, then the MS shall be ready to transmit the CLASSMARK CHANGE before T + 40 ms.

The Mobile Station shall, after receiving a Location updating Accept message, store the relevant received informations and answer correctly to a paging request from the network.

This test is applicable for any SoLSA MSs with an LSA SIM supporting the SoLSA operations.

Reference(s)

3GPP TS 24.008 subclauses 4.4.4.6, 9.2.15, 10.5.1.5 and 10.5.1.6.

3GPP TS 04.18 subclauses 3.3.1.1.4.1, 9.1.11 and 10.5.2.34.

26.15.3.1.1.2 Test purpose

To verify that the SoLSA MS supports "early classmark sending procedure", e.g. sending information to the network about SoLSA support during location update procedure.

26.15.3.1.1.3 Method of test

Initial conditions:

System Simulator:

Two cells, A and B, belonging to different location areas with location area identification a and b of the same PLMN.

IMSI attach/detach is allowed in both cells.

The T3212 time-out value is 1/10 hour in both cells.

Mobile Station:

The MS has a valid TMSI (=TMSI1) and CKSN (=CKSN1). It is "idle updated" on cell A.

Specific PICS statements:

-

PIXIT statements:

-

Foreseen final state of the MS

The MS has no valid TMSI. It has valid CKSN and Kc. It is "idle, updated" on cell B.

Test Procedure

The MS is made to select cell B. A normal location updating with TMSI reallocation is performed in cell B. The channel is released. The SS checks, by paging, that the MS has stored the newly allocated TMSI. The channel is released. The MS is made to select cell A. A normal location updating is performed in cell A. The LOCATION UPDATING ACCEPT message contains neither IMSI nor TMSI. The SS checks, by paging, that the MS has kept the old TMSI. The channel is released. The MS is made to select cell B. A normal location updating is performed in cell B. The LOCATION UPDATING ACCEPT message contains an IMSI. The SS checks, by paging, that the MS has deleted its TMSI and responds to paging with IMSI.

Maximum duration of test

4 minutes.

Expected sequence

Step	Direction	Message	Comments
1	SS		The RF level of cell A is lowered until the MS selects cell B.
2	MS -> SS	CHANNEL REQUEST	"Establishment cause": Location updating.
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = CKSN1, "location area identification" = a, "mobile station classmark 1" and "mobile station classmark 2" including settings for ES IND and SoLSA and "mobile identity" = TMSI1.
5	SS -> MS	UA(LOCATION UPDATING REQUEST)	
6	MS -> SS	CLASSMARK CHANGE	Shall be ready to transmit (see 3GPP TS 05.10 subclause 06.10) within 40 ms after the completion of step 4. Shall indicate the MS frequency and power capabilities Note: In this case 'ready to transmit' shall result in the actual transmission of the Classmark Change 51 frames later (51 * 4.62ms = 235.62 ms). Therefore receipt of the Classmark Change within 250ms of step 4 is required. "mobile station classmark 2" includes settings for ES IND and SoLSA
7	SS -> MS	LOCATION UPDATING ACCEPT	"Mobile identity" = new TMSI (=TMSI2), LAI = b.
8	MS -> SS	TMSI REALLOCATION COMPLETE	
9	SS -> MS	CHANNEL RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link. The SS waits an amount of time which is enough to guarantee that the MS is in service.
10	SS -> MS	PAGING REQUEST TYPE 1	"Mobile identity" IE contains the new TMSI (= TMSI2).
11	MS -> SS	CHANNEL REQUEST	
12	SS -> MS	IMMEDIATE ASSIGNMENT	
13	MS -> SS	SABM (PAGING RESPONSE)	"Mobile identity" IE contains the new TMSI (= TMSI2). "mobile station classmark 2" including settings for ES IND and SoLSA
14	SS -> MS	UA (PAGING RESPONSE)	
15	MS -> SS	CLASSMARK CHANGE	Shall be ready to transmit (see 3GPP TS 05.10 subclause 06.10) within 40 ms after the completion of step 13. Shall indicate the MS frequency and power capabilities Note: In this case 'ready to transmit' shall result in the actual transmission of the Classmark Change 51 frames later (51 * 4.62ms = 235.62 ms). Therefore receipt of the Classmark Change within 250ms of step 13 is required. "mobile station classmark 2" includes settings for ES IND and SoLSA
16	SS -> MS	CHANNEL RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link.
17	SS		The RF level of cell B is lowered until the MS selects cell A.
18	MS -> SS	CHANNEL REQUEST	"Establishment cause": Location updating
19	SS -> MS	IMMEDIATE ASSIGNMENT	

Step	Direction	Message	Comments
20	MS -> SS	LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = CKSN1, "location area identification" = b, "mobile station classmark 1" and "mobile station classmark 2" including settings for ES IND and SoLSA and "mobile identity" = TMSI2.
21	SS -> MS	UA(LOCATION UPDATING REQUEST)	
22	MS -> SS	CLASSMARK CHANGE	Shall be ready to transmit (see 3GPP TS 05.10 subclause 06.10) within 40 ms after the completion of step 20. Shall indicate the MS frequency and power capabilities Note: In this case 'ready to transmit' shall result in the actual transmission of the Classmark Change 51 frames later (51 * 4.62ms = 235.62 ms). Therefore receipt of the Classmark Change within 250ms of step 20 is required. "mobile station classmark 2" includes settings for ES IND and SoLSA
23	SS -> MS	LOCATION UPDATING ACCEPT	"Mobile identity" IE not included.
24	SS -> MS	CHANNEL RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link. The SS waits an amount of time which is enough to guarantee that the MS is in service.
25	SS -> MS	PAGING REQUEST TYPE 1	"Mobile identity" IE contains the TMSI (= TMSI2).
26	MS -> SS	CHANNEL REQUEST	
27	SS -> MS	IMMEDIATE ASSIGNMENT	
28	MS -> SS	SABM (PAGING RESPONSE)	"Mobile identity" IE contains the TMSI (= TMSI2). "mobile station classmark 2" including settings for ES IND and SoLSA
29	SS -> MS	UA (PAGING RESPONSE)	
30	MS -> SS	CLASSMARK CHANGE	Shall be ready to transmit (see 3GPP TS 05.10 subclause 06.10) within 40 ms after the completion of step 28. Shall indicate the MS frequency and power capabilities Note: In this case 'ready to transmit' shall result in the actual transmission of the Classmark Change 51 frames later (51 * 4.62ms = 235.62 ms). Therefore receipt of the Classmark Change within 250ms of step 28 is required. "mobile station classmark 2" includes settings for ES IND and SoLSA
31	SS -> MS	CHANNEL RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link.
32	SS		The RF level of cell A is lowered until the MS selects cell B.
33	MS -> SS	CHANNEL REQUEST	"Establishment cause": Location updating.
34	SS -> MS	IMMEDIATE ASSIGNMENT	
35	MS -> SS	LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = CKSN1, "location area identification" = a, "mobile station classmark 1" and "mobile station classmark 2" including settings for ES IND and SoLSA and "mobile identity" = TMSI2.
36	SS -> MS	UA(LOCATION UPDATING REQUEST)	"Mobile identity" IE contains IMSI.
37	MS -> SS	CLASSMARK CHANGE	Shall be ready to transmit (see 3GPP TS 05.10 subclause 06.10) within 40 ms after the completion of step 35. Shall indicate the MS frequency and power capabilities Note: In this case 'ready to transmit' shall result in the actual transmission of the Classmark Change 51 frames later (51 * 4.62ms = 235.62 ms). Therefore receipt of the Classmark Change within 250ms of step 35 is required. "mobile station classmark 2" includes settings for ES IND and SoLSA
38	SS -> MS	LOCATION UPDATING ACCEPT	"Mobile identity" IE contains IMSI.
39	SS -> MS	CHANNEL RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link. The SS waits an amount of time which is enough to guarantee that the MS is in service.

Step	Direction	Message	Comments
40	SS -> MS	PAGING REQUEST TYPE 1	"Mobile identity" IE contains the old TMSI (= TMSI2).
41	MS		The MS shall ignore this message. This is checked during 5 seconds.
42	SS -> MS	PAGING REQUEST TYPE 1	"Mobile identity" IE contains the IMSI.
43	MS -> SS	CHANNEL REQUEST	
44	SS -> MS	IMMEDIATE ASSIGNMENT	
45	MS -> SS	SABM (PAGING RESPONSE)	"Mobile identity" IE contains the IMSI. "mobile station classmark 2" including settings for ES IND and SoLSA
46	SS -> MS	UA (PAGING RESPONSE)	
47	MS -> SS	CLASSMARK CHANGE	Shall be ready to transmit (see 3GPP TS 05.10 subclause 06.10) within 40 ms after the completion of step 45. Shall indicate the MS frequency and power capabilities Note: In this case 'ready to transmit' shall result in the actual transmission of the Classmark Change 51 frames later (51 * 4.62ms = 235.62 ms). Therefore receipt of the Classmark Change within 250ms of step 45 is required. "mobile station classmark 2" includes settings for ES IND and SoLSA
48	SS -> MS	CHANNEL RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link.

Specific message contents:

LOCATION UPDATING REQUEST

Information element	Value/remark
as default except:	
Mobile station Classmark 1	
- ES IND	Controlled Early Classmark Sending option is implemented
Mobile station Classmark 2	
- ES IND	Controlled Early Classmark Sending option is implemented
- SoLSA	SoLSA supported

CLASSMARK CHANGE

Information element	Value/remark
as default except:	
Mobile station Classmark 2	
-ES IND	Controlled Early Classmark Sending is implemented.
-SoLSA	SoLSA supported

PAGING RESPONSE

Information element	Value/remark
Protocol Discriminator	RR management
Ciphering Key Sequence number	
- Key Sequence	Key sequence number previously allocated to MS, or "111" if no key is available
Mobile station Classmark 2	
- ES IND	Shall indicate early autonomous sending of CLASSMARK CHANGE
- SoLSA	SoLSA supported
Mobile Identity	
- odd/even	Even
- Type of identity	TMSI
- Identity digits	TMSI previously allocated to MS

26.15.3.2 SoLSA signalling / MM / MM information

26.15.3.2.1   General remark

1. The network has total control of the LSA indication in active mode.

2. Whatever the System Informations are, the LSA ID transmitted in the MM Information message has higher priority.

3. The indication of the current LSA in active mode is independent from the setting of the configurations parameters "LSA indication in idle mode" and "idle mode support" stored in the SIM in EF$_{SLL}$ (see 3GPP TS 11.11, subclause 10.4.1.2).

26.15.3.2.2   Definition

The SoLSA MS in active mode may inform the user whether or not the serving cell is an LSA cell. The information about a serving cell is indicated in the display of the SoLSA MS.

The change out of an LSA or into an LSA may be indicated by the SoLSA MS, e.g. using a beep.

26.15.3.2.3   Conformance requirement

1. It shall be possible to assign a subscriber defined identifier by the operator to each LSA (alphanumeric text up to 10 characters), which can be provided to the user in idle and active mode. As an MS manufacturer option the user may assign an icon or another form of indication to each LSA.

   It shall be possible to indicate a change of localised service area during idle and active mode.

   The indication is a network option (activated/deactivated by the network).

2. The network decides when to send a notification to the MS about a change of current LSA. The information will be sent from the MSC to the MS and will contain the LSA ID. This is done by adding the LSA ID of the current cell to the MM INFORMATION message. If no LSA ID is included in the MM Information message the MS shall assume that the current cell does not belong to any of the allowed LSAs for the subscriber.

   The indication towards the user is optional and can be heard as e.g. a beep in the receiver or by displaying the stored LSA name that corresponds to the received LSA ID.

3. The MM INFORMATION message support is optional in the network. The MM information procedure may be invoked by the network at any time during an RR connection.

   The MM information procedure consists only of the MM INFORMATION message sent from the network to the mobile station. During an RR connection, the network shall send none, one, or more MM INFORMATION messages to the mobile station. If more than one MM INFORMATION message is sent, the messages need not have the same content.

NOTE: The network may be able to select particular instants where it can send the MM INFORMATION message without adding delay to, or interrupting, any CM layer transaction, e.g. immediately after the AUTHENTICATION REQUEST message.

   When the mobile station (supporting the MM INFORMATION message) receives an MM INFORMATION message, it shall accept the message and optionally use the contents to update appropriate information stored within the mobile station.

   If the mobile station does not support the MM INFORMATION message the mobile station shall ignore the contents of the message and return an MM STATUS message with cause #97.

4. This IE (LSA Identity IE) may be sent by the network. The contents of this IE indicate the LSA identity of the serving cell.

5. The form of display and indication are left to manufacturer's choice.

6. If the Length of the LSA Identifier content is equal to 0, then no LSA ID is included. This is used to indicate that the MS has moved to an area where there is no LSA available for that MS.

References

Conformance requirement 1:   3GPP TS 02.43, subclause 4.2.1.

Conformance requirement 2: 3GPP TS 03.73, subclause 11.8.2.

Conformance requirement 3: 3GPP TS 24.008, subclause 4.3.6.

Conformance requirement 4: 3GPP TS 24.008, subclause 9.2.15a.5.

Conformance requirement 5: 3GPP TS 03.73, subclause 4.3.2.

Conformance requirement 6: 3GPP TS 24.008, subclause 10.5.3.11.

26.15.3.2.4 Test Purpose

To verify that the SoLSA MS correctly handles the LSA information received in MM INFORMATION and performs indication accordingly.

26.15.3.2.5 Method of test

26.15.3.2.5.1 Initial Conditions

a) The SoLSA MS is in the active state of a call (U10).

b) The serving cell is cell 1 (carrier 1).

c) Parameters: same default values defined in table 20.24.1, except for the following values:

Parameter/condition	Carrier 1
LSA ID	54, 9.000.000, 250
LAC	5
CI	5000
Matching LSA on SIM	LSA1, LSA3
Escape PLMN	No

Run the following test procedure twice by using two different sets of initial conditions:

- with an LSA only SIM (see Definitions in subclause 20.24);

- with a normal LSA SIM (see Definitions in subclause 20.24).

Specific PICS statements:

-

PIXIT statements:

- Way to indicate the identity of the current LSA

- Way to indicate the change of the current LSA

26.15.3.2.5.2 Test Procedure

a) A MM INFORMATION message including the LSA Identity IE is sent by the SS. The LSA Identity IE contains the LSA ID = 54 (LSA stored in the SIM).

b) A MM INFORMATION message including the LSA Identity IE is sent by the SS. The LSA Identity IE contains the LSA ID = 250 (LSA not stored in the SIM).

c) A MM INFORMATION message including the LSA Identity IE is sent by the SS. The LSA Identity IE contains the LSA ID = 54 (LSA stored in the SIM).

d) The SS sends an MM INFORMATION message without an LSA Identity IE.

e) A MM INFORMATION message including the LSA Identity IE is sent by the SS. The LSA Identity IE contains the LSA ID = 54 (LSA stored in the SIM).

f) The SS sends an MM INFORMATION message which contains an LSA Identity IE. The value of the Length of LSA Identifier (octet 2) is set to zero (i.e. there are no LSA IDs included).

g) A MM INFORMATION message including the LSA Identity IE is sent by the SS. The LSA Identity IE contains the LSA ID = 54 (LSA stored in the SIM).

h) A MM INFORMATION message including the LSA Identity IE is sent by the SS. The LSA Identity IE contains the LSA ID = 9.000.000 (LSA stored in the SIM).

26.15.3.2.5.3 Void

26.15.3.2.5.4 Test Requirements

1) After step a) the SoLSA MS indicates a change of LSA (a subscribed LSA is entered).

2) After step b) the SoLSA MS indicates a change of LSA (a not subscribed LSA is entered).

3) After step c) the SoLSA MS indicates a change of LSA (a subscribed LSA is entered).

4) After step d) the SoLSA MS indicates a change of LSA (a not subscribed LSA is entered).

5) After step e) the SoLSA MS indicates a change of LSA (a subscribed LSA is entered).

6) After step f) the SoLSA MS indicates a change of LSA (a not subscribed LSA is entered).

7) After step g) the SoLSA MS indicates a change of LSA (a subscribed LSA is entered).

8) After step h) the SoLSA MS indicates a change of LSA (another subscribed LSA is entered).

26.15.4 SoLSA signalling / CC

26.15.4.1 SoLSA signalling / CC / call re-establishment / call present

26.15.4.1.1 Conformance requirement

1) If the call is in the "active" state or "mobile originating modify" state, the indication from MM that re-establishment is possible shall cause call control to request re-establishment from the MM-connection, suspend any further message to be sent and await the completion of the re-establishment procedure.

2) After the initial message the SoLSA MS shall send a CLASSMARK CHANGE message in the uplink block followed direct after the Layer 2 UA message sent from the network. The CLASSMARK CHANGE message shall contain information elements Mobile Station Classmark 2.

3) When the call control entity is notified that the MM-connection is re-established, it shall then resume the transmission of possibly suspended messages and resume user data exchange when an appropriate channel is available.

References

3GPP TS 24.008, subclauses 4.5.1.6 and 5.5.4.2.

3GPP TS 04.18 subclause 3.3.1.1.4.1 and 9.1.11,
3GPP TS 03.73 subclause 11.4.1,
3GPP TS 24.008 subclauses 9.2.9, 9.2.15, 10.5.1.5 and 10.5.1.6.

3GPP TS 24.008, subclauses 4.5.1.6 and 5.5.4.3.

26.15.4.1.2 Test purpose

To verify that the SoLSA MS supports "early classmark sending procedure", e.g. sending information to the network about SoLSA support during the re-establishment of an ongoing call.

26.15.4.1.3 Method of test

Initial conditions

System Simulator:

The SS simulates cells A and B. The LAC of cell A is different from the LAC of cell B. The PLMN identities of cell A and B are equal.

The call re-establishment parameter concerning cell A is set to an arbitrary value.

Cell B is not barred, the RACH control parameters information element sent in SYSTEM INFORMATION TYPE 1 to 4 messages of cell A and B specifies "call reestablishment allowed in the cell", the NCC of cell B is indicated as permitted in the PLMN permitted information element of SYSTEM INFORMATION TYPE 2 and 6 messages of cell A. Cell B is indicated as a neighbour cell of cell A in SYSTEM INFORMATION TYPE 2 and 5 messages of cell A. Cell reselect hysteresis parameter of cell A is set to zero.

Mobile Station:

The MS is in MM-state "idle, updated" with valid TMSI and CKSN on cell A.

Specific PICS statements:

-

PIXIT statements:

-

Foreseen final state of the MS

The MS is in MM-state "idle, updated" with valid TMSI and CKSN.

Maximum duration of test

1 minute.

Test procedure

The MS is brought to active state by using procedure 26.9.2, "structured procedures, MS originated call, early assignment". The RF level of cell A is lowered so that cell B is to be selected (when the MS performs re-establishment after radio link failure), while keeping the C1 and C2 of cell A greater than zero. SS waits for at least 5 seconds. Then the SS stops transmission on the TCH/SACCH. The MS shall re-establish the call on cell B using a CM RE-ESTABLISHMENT message. The SS performs ciphering mode setting and assignment procedures. The MS shall through-connect the appropriate bearer channel. Then, the call is cleared by the SS.

Expected sequence

Step	Direction	Message	Comments
1			Steps 1-21 of test case 26.15.3.1 are performed (the appropriate bearer channel is through connected in both directions in TCH)
2	SS		The RF level of cell A is lowered. The SS waits at least 5 seconds. The SS stops transmission on the TCH/SACCH.
3	MS -> SS	CHANNEL REQUEST	this is sent on cell B. Establ. Cause shall be "call re-establishment; TCH/F was in use,..."
4	SS -> MS	IMMEDIATE ASSIGNMENT	
5	MS -> SS	CM REESTABLISHMENT REQUEST	note specific message contents
6	SS -> MS	UA (CM REESTABLISHMENT REQUEST)	
7	MS -> SS	CLASSMARK CHANGE	Shall be ready to transmit (see 3GPP TS 05.10 subclause 06.10) within 40 ms after the completion of step 5. "mobile station classmark 2" includes settings for ES IND and SoLSA Note: In this case 'ready to transmit' shall result in the actual transmission of the Classmark Change 51 frames later (51 * 4.62ms = 235.62 ms). Therefore receipt of the Classmark Change within 250ms of step 5 is required.
7	SS -> MS	CIPHERING MODE COMMAND	SS starts deciphering after sending the message.
8	MS -> SS	CIPHERING MODE COMPLETE	Shall be sent enciphered. All following messages shall be sent enciphered.
9	SS		SS starts ciphering.
10	SS -> MS	ASSIGNMENT COMMAND	
11	MS -> SS	ASSIGNMENT COMPLETE	
12	MS		The appropriate bearer channel is through connected in both directions.
13	SS -> MS	DISCONNECT	with cause value "Normal"
14	MS -> SS	RELEASE	
15	SS -> MS	RELEASE COMPLETE	
16	SS -> MS	CHANNEL RELEASE	The main signalling link is released.

Specific message contents:

CM RE-ESTABLISHMENT REQUEST

Information element	Value/remark
Protocol discriminator	Mobility Management
Skip indicator	Encoded as zeroes
Message type	CM RE-ESTABLISHMENT REQUEST
Ciphering key sequence number	The CKSN which the MS was allocated in step 6 of the procedure of subclause 26.15.3.1
Spare half octet	zero
Mobile station Classmark 2	
- ES IND	Shall indicate early autonomous sending of CLASSMARK CHANGE
- SoLSA	SoLSA supported
Mobile identity	The TMSI that the MS is having initially
Location area identification	Corresponding the LAI of cell A

CLASSMARK CHANGE

Information element	Value/remark

as default except:
Mobile station Classmark 2
   -ES IND
   -SoLSA
	
	Controlled Early Classmark Sending is implemented.
	SoLSA supported

26.15.5 SoLSA signalling / structured procedures

26.15.5.1 SoLSA signalling / structured procedures / MS originated call / early assignment

26.15.5.1.1 Conformance requirements

1) An MS in MM state "idle, updated" and in RR idle mode, when made to initiate a call, if it provides a human interface, shall display the dialled number.

2) An MS in MM state "idle, updated" and in RR idle mode, when made to initiate a call for a selected teleservice that is supported by the MS, shall start to initiate the immediate assignment procedure by sending a CHANNEL REQUEST message with correct establishment cause.

3) After the initial message the SoLSA MS shall send a CLASSMARK CHANGE message in the uplink block followed direct after the Layer 2 UA message sent from the network. The CLASSMARK CHANGE message shall contain information elements Mobile Station Classmark 2.

4) Subsequently after establishment of an MM connection, the MS shall send a SETUP message with correct parameters.

5) The call control entity of the Mobile Station in the "call initiated" state, in the "mobile originating call proceeding" state or in the "call delivered" state, shall, upon receipt of a CONNECT message:

   - attach the user connection to the radio path;

   - return a CONNECT ACKNOWLEDGE message.

6) Subsequently when the network initiates call clearing by sending a DISCONNECT message, the MS shall proceed to release the call by sending a RELEASE message.

7) On receipt of a CHANNEL RELEASE message, the MS shall disconnect the main signalling link.

References

Conformance requirement 1: 3GPP TS 02.07 subclause B.1.1.

Conformance requirement 2: 3GPP TS 04.18 subclause 3.3.1.1.

Conformance requirement 3: 3GPP TS 04.18 subclauses 3.3.1.1.4.1 and 9.1.11,
3GPP TS 03.73 subclause 11.4.1,
3GPP TS 24.008 subclauses 9.2.9, 9.2.15, 10.5.1.5 and 10.5.1.6.

Conformance requirement 4: 3GPP TS 24.008 subclause 5.2.1.

Conformance requirement 5: 3GPP TS 24.008 subclause 5.2.1.6.

Conformance requirement 6: 3GPP TS 24.008 subclause 5.4.4.

Conformance requirement 7: 3GPP TS 04.18 subclause 3.4.13.1.

26.15.5.1.2 Test purpose

To verify that the SoLSA MS supports "early classmark sending procedure", e.g. sending information to the network about SoLSA support during a mobile originating call (MOC) with early assignment procedure.

26.15.5.1.3   Method of test

Initial Conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS is in MM-state "idle, updated" with valid TMSI and CKSN.

Specific PICS statements:

- Speech supported for Full rate version 1 (GSM FR) (TSPC_AddInfo_Full_rate_version_1).

- Speech supported for Half rate version 1 (GSM HR) (TSPC_AddInfo_Half_rate_version_1)

- Speech supported for Half rate version 3 (GSM HR) (TSPC_AddInfo_Half_rate_version_3)

PIXIT statements:

- Way to indicate mobile originated alerting.

-. Way to display the called number

Foreseen Final State of the MS

The MS is in MM-state "idle, updated" with valid TMSI and CKSN.

Test procedure

The following test is performed for all rates (full rate/half rate) supported by the MS:

- A teleservice is selected that is supported by the MS; if the MS supports speech, the selected teleservice is speech. If necessary, the MS is configured for that teleservice.

- The MS is made to initiate a call on any frequency band supported by the MS. The call is established with early assignment. Having reached the active state, the call is cleared by the SS.

Maximum Duration of Test

1 minute.

Expected Sequence

Step	Direction	Message	Comments
1	MS		The "called number" is entered
2	MS		If supported, the MS must display the called number in the way defined in PIXIT.
3	MS -> SS	CHANNEL REQUEST	Establishment cause is "originating call and the network does not set the NECI bit to 1".
4	SS -> MS	IMMEDIATE ASSIGNMENT	
5	MS -> SS	CM SERVICE REQUEST	Message is contained in SABM. Indicating early sending of CLASSMARK CHANGE and SoLSA support
6	SS -> MS	UA (CM SERVICE REQUEST)	
7	MS -> SS	CLASSMARK CHANGE	Shall be ready to transmit (see 3GPP TS 05.10 subclause 06.10) within 40 ms after the completion of step 5. "mobile station classmark 2" includes settings for ES IND and SoLSA
			Note: In this case 'ready to transmit' shall result in the actual transmission of the Classmark Change 51 frames later (51 * 4.62ms = 235.62 ms). Therefore receipt of the Classmark Change within 250ms of step 5 is required.
8	SS -> MS	AUTHENTICATION REQUEST	
9	MS -> SS	AUTHENTICATION RESP	SRES specifies correct value.
10	SS -> MS	CIPHERING MODE COMMAND	SS starts deciphering after sending the message.
11	MS -> SS	CIPHERING MODE COMPLETE	Shall be sent enciphered. All following messages shall be sent enciphered.
12	SS		SS starts ciphering.
13	MS -> SS	SETUP	
14	SS -> MS	CALL PROCEEDING	
15	SS -> MS	ASSIGNMENT COMMAND	
16	MS -> SS	ASSIGNMENT COMPLETE	
17	SS -> MS	ALERTING	
18	MS		Depending on the PIXIT, an alerting indication is given
19	SS -> MS	CONNECT	
20	MS -> SS	CONNECT ACKNOWLEDGE	
21	MS		The appropriate bearer channel is through connected in both directions.
22	SS -> MS	DISCONNECT	
23	MS -> SS	RELEASE	
24	SS -> MS	RELEASE COMPLETE	
25	SS -> MS	CHANNEL RELEASE	The main signalling link is released.

Specific Message Contents:

CM SERVICE REQUEST

Information element	Value/remark
as default except: Mobile station Classmark 2	
- ES IND	Shall indicate early autonomous sending of CLASSMARK CHANGE
- SoLSA	SoLSA supported

CLASSMARK CHANGE

Information element	Value/remark
as default except: Mobile station Classmark 2	
-ES IND	Controlled Early Classmark Sending is implemented.
-SoLSA	SoLSA supported

26.15.5.2 SoLSA signalling / structured procedures / MS originated call / late assignment

26.15.5.2.1 Conformance requirements

1) An MS in MM state "idle, updated" and in RR idle mode, when made to initiate a call, if it provides a human interface, shall display the dialled number.

2) An MS in MM state "idle, updated" and in RR idle mode, when made to initiate a call for a selected teleservice that is supported by the MS, shall start to initiate the immediate assignment procedure by sending a CHANNEL REQUEST message with correct establishment cause.

3) After the initial message the SoLSA MS shall send a CLASSMARK CHANGE message in the uplink block followed direct after the Layer 2 UA message sent from the network. The CLASSMARK CHANGE message shall contain information element Mobile Station Classmark 2.

4) Upon receipt of the ASSIGNMENT COMMAND message, the Mobile Station initiates a local end release of link layer connections, disconnects the physical channels, commands the switching to the assigned channels and initiates the establishment of lower layer connections (this includes the activation of the channels, their connection and the establishment of the data links). After the main signalling link is successfully established, the MS returns an ASSIGNMENT COMPLETE message, specifying cause "normal event", to the network on the main DCCH.

5, 6) The call control entity of the Mobile Station in the "call initiated" state, in the "mobile originating call proceeding" state or in the "call delivered" state, shall, upon receipt of a CONNECT message:

- attach the user connection to the radio path;

- return a CONNECT ACKNOWLEDGE message.

7) Subsequently when the network initiates call clearing by sending a DISCONNECT message, the MS shall proceed to release the call by sending a RELEASE message.

8) On receipt of a CHANNEL RELEASE message, the MS shall disconnect the main signalling link.

References

Conformance requirement 1: 3GPP TS 02.07 subclause B.1.1.

Conformance requirement 2: 3GPP TS 04.18 subclause 3.3.1.1.

Conformance requirement 3: 3GPP TS 04.18 subclause 3.3.1.1.4.1 and 9.1.11,
3GPP TS 03.73 subclause 11.4.1,
3GPP TS 24.008 subclauses 9.2.9, 9.2.15, 10.5.1.5 and 10.5.1.6.

Conformance requirement 4: 3GPP TS 04.18 subclauses 3.4.3.1 and 3.4.3.2.

Conformance requirement 5: 3GPP TS 24.008 subclause 5.2.1.6.

Conformance requirement 6: 3GPP TS 24.008 subclause 5.2.1.6.

Conformance requirement 7: 3GPP TS 24.008 subclause 5.4.4.

Conformance requirement 8: 3GPP TS 04.18 subclause 3.4.13.1.

26.15.5.2.2 Test purpose

To verify that the SoLSA MS supports "early classmark sending procedure", e.g. sending information to the network about SoLSA support during a mobile originating call (MOC) with late assignment procedure.

26.15.5.2.3 Method of test

Initial Conditions

System Simulator:

1 cell, default parameters

Mobile Station:

The MS is in MM-state "idle, updated" with valid TMSI and CKSN.

Specific PICS statements:

- Speech supported for Full rate version 1 (GSM FR) (TSPC_AddInfo_Full_rate_version_1).

- Speech supported for Half rate version 1 (GSM HR) (TSPC_AddInfo_Half_rate_version_1)

- Speech supported for Half rate version 3 (GSM HR) (TSPC_AddInfo_Half_rate_version_3)

PIXIT statements:

- Way to indicate mobile originated alerting.

-. Way to display the called number

Foreseen Final State of the MS

The MS is in MM-state "idle, updated" with valid TMSI and CKSN.

Test procedure

The following test is performed for all rates (full rate/half rate) supported by the MS:

- A teleservice is selected that is supported by the MS; if the MS supports speech, the selected teleservice is speech. If necessary, the MS is configured for that teleservice.

- The MS is made to initiate a call on any frequency band supported by the MS. The call is established with late assignment. Having reached the active state, the call is cleared by the SS.

Maximum Duration of Test

1 minute.

Expected Sequence

Step	Direction	Message	Comments
1	MS		The "called number" is entered
2	MS		If supported, the MS must display the called number in the way defined in PIXIT.
3	MS -> SS	CHANNEL REQUEST	Establishment cause is "originating call and the network does not set the NECI bit to 1".
4	SS -> MS	IMMEDIATE ASSIGNMENT	
5	MS -> SS	CM SERVICE REQUEST	Message is contained in SABM. Indicating early sending of CLASSMARK CHANGE and SoLSA support
6	SS -> MS	UA (CM SERVICE REQUEST)	
7	MS -> SS	CLASSMARK CHANGE	Shall be ready to transmit (see 3GPP TS 05.10 subclause 06.10) within 40 ms after the completion of step 5. "mobile station classmark 2" includes settings for ES IND and SoLSA Note: In this case 'ready to transmit' shall result in the actual transmission of the Classmark Change 51 frames later (51 * 4.62ms = 235.62 ms). Therefore receipt of the Classmark Change within 250ms of step 5 is required.
8	SS -> MS	AUTHENTICATION REQUEST	
9	MS -> SS	AUTHENTICATION RESP	SRES specifies correct value.
10	SS -> MS	CIPHERING MODE COMMAND	SS starts deciphering after sending the message.
11	MS -> SS	CIPHERING MODE COMPLETE	Shall be sent enciphered. All following messages shall be sent enciphered.
12	SS		SS starts ciphering.
13	MS -> SS	SETUP	
14	SS -> MS	CALL PROCEEDING	
15	SS -> MS	ALERTING	
16	MS		Depending on the PIXIT, an alerting indication is given
17	SS -> MS	ASSIGNMENT COMMAND	
18	MS -> SS	ASSIGNMENT COMPLETE	
19	SS -> MS	CONNECT	
20	MS -> SS	CONNECT ACKNOWLEDGE	
21	MS		The appropriate bearer channel is through connected in both directions.
22	SS -> MS	DISCONNECT	
23	MS -> SS	RELEASE	
24	SS -> MS	RELEASE COMPLETE	
25	SS -> MS	CHANNEL RELEASE	The main signalling link is released.

Specific Message Contents:

CM SERVICE REQUEST

Information element	Value/remark
as default except: Mobile station Classmark 2	
- ES IND	Shall indicate early autonomous sending of CLASSMARK CHANGE
- SoLSA	SoLSA supported

CLASSMARK CHANGE

Information element	Value/remark
as default except: Mobile station Classmark 2	
-ES IND	Controlled Early Classmark Sending is implemented.
-SoLSA	SoLSA supported

26.15.5.3 SoLSA signalling / structured procedures / MS terminated call / early assignment

26.15.5.3.1 Conformance requirement

1) After the initial message the SoLSA MS shall send a CLASSMARK CHANGE message in the uplink block followed direct after Layer 2 UA message sent from the network.

2) The MS shall acknowledge the SETUP message with a CALL CONFIRMED message, if compatibility checking was successful, the MS is not busy, and the user does not refuse the call.

3, 4) Upon receipt of the ASSIGNMENT COMMAND message the MS continues a mobile terminating call establishment with early establishment of the traffic channel

   a) by replying to the ASSIGNMENT COMMAND with an ASSIGNMENT COMPLETE message; and

   b) if the MS supports immediate connect, by continuing the call establishment by through-connecting the traffic channel in both directions, or if the MS does not support immediate connect, by sending an ALERTING message.

5) An MS indicates acceptance of a MT call by sending CONNECT.

6) For speech calls:

   The mobile station shall attach the user connection at latest when sending the connect message, except if there is no compatible radio resource available at this time. In this case the attachment shall be delayed until such a resource becomes available.

   For data calls:

   The mobile station shall attach the user connection when receiving the CONNECT ACKNOWLEDGE message from the network.

7) The MS initiates call clearing of an active call by sending a DISCONNECT message.

8) The MS in this phase of call release, upon receipt of a RELEASE message, shall return a RELEASE COMPLETE message.

9) Subsequently the MS, upon receipt of a CHANNEL RELEASE message, shall disconnect the main signalling link.

Requirement reference:

Conformance requirement 1:   3GPP TS 04.18 subclauses 3.3.1.1.4.1 and 9.1.11,
3GPP TS 03.73 subclause 11.4.1,
3GPP TS 24.008 subclauses 9.2.9, 9.2.15, 10.5.1.5 and 10.5.1.6.

Conformance requirements 2:   3GPP TS 24.008 subclauses 5.2.2.3.1.

Conformance requirement 3, 4: 3GPP TS 04.18 subclauses 3.4.3.1 and 3.4.3.2.

Conformance requirement 5:   3GPP TS 24.008 subclause 5.2.2.5.

Conformance requirement 6:   3GPP TS 24.008 subclause 5.2.2.9.

Conformance requirement 7:   3GPP TS 24.008 subclause 5.4.3.1.

Conformance requirement 8:   3GPP TS 24.008 subclause 5.4.3.3.

Conformance requirement 9:   3GPP TS 04.18 subclause 3.4.13.1.

26.15.5.3.2 Test Purpose

To verify that the SoLSA MS supports "early classmark sending procedure", e.g. sending information to the network about SoLSA support during a mobile terminated call (MTC) with early assignment procedure.

26.15.5.3.3 Method of test

Initial Conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS is in MM-state "idle, updated" with valid TMSI and CKSN.

Specific PICS statements:

- Speech supported for Full rate version 1 (GSM FR) (TSPC_AddInfo_Full_rate_version_1).

- Speech supported for Half rate version 1 (GSM HR) (TSPC_AddInfo_Half_rate_version_1)

- Speech supported for Half rate version 3 (GSM HR) (TSPC_AddInfo_Half_rate_version_3)

- Immediate connect supported for all circuit switched basic services. (TSPC_AddInfo_ImmConn)

PIXIT statements:

- Way to indicate alerting.

- Way to make the MS accept an incoming call after alerting.

Test procedure

The following test is performed for all rates (full rate/half rate) supported by the MS:

- A teleservice is selected that is supported by the MS; if the MS supports speech, the selected teleservice is speech. If necessary, the MS is configured for that teleservice.

- The MS is paged and the resulting call is established. Having reached the active state, the MS is made to clear the call.

Maximum Duration of Test

1 minute.

Expected Sequence

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST TYPE 1	Sent on the correct paging subchannel
2	MS -> SS	CHANNEL REQUEST	Establishment cause indicates "answer to paging".
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	PAGING RESPONSE	Message is contained in SABM "Mobile identity" IE contains the IMSI. "mobile station classmark 2" including settings for ES IND and SoLSA.
5	SS -> MS	UA (PAGING RESPONSE)	
6	MS -> SS	CLASSMARK CHANGE	Shall be ready to transmit (see 3GPP TS 05.10 subclause 06.10) within 40 ms after the completion of step 4. "mobile station classmark 2" includes settings for ES IND and SoLSA Note: In this case 'ready to transmit' shall result in the actual transmission of the Classmark Change 51 frames later (51 * 4.62ms = 235.62 ms). Therefore receipt of the Classmark Change within 250ms of step 4 is required.
7	SS -> MS	AUTHENTICATION REQUEST	
8	MS -> SS	AUTHENTICATION RESP	SRES specifies correct value.
9	SS -> MS	CIPHERING MODE COMMAND	SS starts deciphering after sending the message.
10	MS -> SS	CIPHERING MODE COMPLETE	Shall be sent enciphered. All following messages shall be sent enciphered.
11	SS		SS starts ciphering.
12	SS -> MS	SETUP	Message contains the signal IE.
13	MS -> SS	CALL CONFIRMED	If the MS supports immediate connect then branch A applies. If the MS does not support immediate connect then branch B applies
A12	MS -> SS	CONNECT	sent on the old channel
A13	SS -> MS	ASSIGNMENT COMMAND	
A14	MS -> SS	ASSIGNMENT COMPLETE	
B12	SS -> MS	ASSIGNMENT COMMAND	
B13	MS -> SS	ASSIGNMENT COMPLETE	sent on the new channel
B14	MS -> SS	ALERTING	
B15	MS		An alerting indication as defined in a PIXIT statement is given by the MS
B16	MS		The MS is made to accept the call in the way described in a PIXIT statement
B17	MS -> SS	CONNECT	
18	MS		If the call is a speech call, the TCH shall be through connected in both directions.
19	SS -> MS	CONNECT ACKNOWLEDGE	
20	MS		If the call is a data call, the TCH shall be through connected in both directions.
21	MS		The MS is made to release the call.
22	MS -> SS	DISCONNECT	
23	SS -> MS	RELEASE	
24	MS -> SS	RELEASE COMPLETE	
25	SS -> MS	CHANNEL RELEASE	The main signalling link is released.

Specific Message Contents:

CLASSMARK CHANGE

Information element	Value/remark
as default except: Mobile station Classmark 2 -ES IND -SoLSA	 Controlled Early Classmark Sending is implemented. SoLSA supported

PAGING RESPONSE

Information element	Value/remark
Protocol Discriminator	RR management
Ciphering Key Sequence number	
- Key Sequence	Key sequence number previously allocated to MS, or "111" if no key is available
Mobile station Classmark 2	
- ES IND	Shall indicate early autonomous sending of CLASSMARK CHANGE
- SoLSA	SoLSA supported
Mobile Identity	
- odd/even	Even
- Type of identity	TMSI
- Identity digits	TMSI previously allocated to MS

26.15.5.4 SoLSA signalling / structured procedures / MS terminated call / late assignment

26.15.5.4.1 Conformance requirement

1) After the initial message the SoLSA MS shall send a CLASSMARK CHANGE message in the uplink block followed direct after Layer 2 UA message sent from the network.

2) The MS shall acknowledge the SETUP message with a CALL CONFIRMED message, if compatibility checking was successful, the MS is not busy, and the user does not refuse the call.

3) An MS indicates acceptance of a MT call by sending CONNECT. If the MS does not support immediate connect, it sends an ALERTING message

4, 5) Upon receipt of the ASSIGNMENT COMMAND message the MS continues a mobile terminating call establishment with late establishment of the traffic channel:

   a) by replying to the ASSIGNMENT COMMAND with an ASSIGNMENT COMPLETE message.

6) For speech calls:

   The mobile station shall attach the user connection at latest when sending the connect message, except if there is no compatible radio resource available at this time. In this case the attachment shall be delayed until such a resource becomes available.

   For data calls:

   The mobile station shall attach the user connection when receiving the CONNECT ACKNOWLEDGE message from the network.

7) The MS initiates call clearing of an active call by sending a DISCONNECT message.

8) The MS in this phase of call release, upon receipt of a RELEASE message, shall return a RELEASE COMPLETE message.

9) Subsequently the MS, upon receipt of a CHANNEL RELEASE message, shall disconnect the main signalling link.

Requirement reference:

Conformance requirement 1: 3GPP TS 04.18 subclauses 3.3.1.1.4.1 and 9.1.11,
3GPP TS 03.73 subclause 11.4.1,
3GPP TS 24.008 subclauses 9.2.9, 9.2.15, 10.5.1.5 and 10.5.1.6.

Conformance requirements 2: 3GPP TS 24.008 section 5.2.2.3.1.

Conformance requirement 3, 4: 3GPP TS 04.18 subclauses 3.4.3.1 and 3.4.3.2.

Conformance requirement 5: 3GPP TS 24.008 subclause 5.2.2.5.

Conformance requirement 6: 3GPP TS 24.008 subclause 5.2.2.9.

Conformance requirement 7: 3GPP TS 24.008 subclause 5.4.3.1.

Conformance requirement 8: 3GPP TS 24.008 subclause 5.4.3.3.

Conformance requirement 9: 3GPP TS 04.18 subclause 3.4.13.1.

26.15.5.4.2 Test Purpose

To verify that the SoLSA MS supports "early classmark sending procedure", e.g. sending information to the network about SoLSA support during a mobile terminated call (MTC) with late assignment procedure.

26.15.5.4.3 Method of test

Initial Conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS is in MM-state "idle, updated" with valid TMSI and CKSN.

Specific PICS statements:

- Speech supported for Full rate version 1 (GSM FR) (TSPC_AddInfo_Full_rate_version_1).

- Speech supported for Half rate version 1 (GSM HR) (TSPC_AddInfo_Half_rate_version_1)

- Speech supported for Half rate version 3 (GSM HR) (TSPC_AddInfo_Half_rate_version_3)

- Immediate connect supported for all circuit switched basic services. (TSPC_AddInfo_ImmConn)

PIXIT statements:

- Way to indicate alerting.

- Way to make the MS accept an incoming call after alerting.

Test procedure

The following test is performed for all rates (full rate/half rate) supported by the MS:

- A teleservice is selected that is supported by the MS; if the MS supports speech, the selected teleservice is speech. If necessary, the MS is configured for that teleservice.

- The MS is paged and a MT call is established with late assignment (after CONNECT). Having reached the active state, the MS is made to clear the call.

Maximum Duration of Test

1 minute.

Expected Sequence

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST TYPE 1	Sent on the correct paging subchannel
2	MS -> SS	CHANNEL REQUEST	Establishment cause indicates "answer to paging".
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	PAGING RESPONSE	Message is contained in SABM "Mobile identity" IE contains the IMSI. "mobile station classmark 2" including settings for ES IND and SoLSA.
5	SS -> MS	UA (PAGING RESPONSE)	
6	MS -> SS	CLASSMARK CHANGE	Shall be ready to transmit (see 3GPP TS 05.10 subclause 06.10) within 40 ms after the completion of step 4. "mobile station classmark 2" includes settings for ES IND and SoLSA Note: In this case 'ready to transmit' shall result in the actual transmission of the Classmark Change 51 frames later (51 * 4.62ms = 235.62 ms). Therefore receipt of the Classmark Change within 250ms of step 4 is required.
7	SS -> MS	AUTHENTICATION REQUEST	
8	MS -> SS	AUTHENTICATION RESP	SRES specifies correct value.
9	SS -> MS	CIPHERING MODE COMMAND	SS starts deciphering after sending the message.
10	MS -> SS	CIPHERING MODE COMPLETE	Shall be sent enciphered. All following messages shall be sent enciphered.
11	SS		SS starts ciphering.
12	SS -> MS	SETUP	Message contains the signal IE.
13	MS -> SS	CALL CONFIRMED	
A14	MS -> SS	CONNECT	
B14	MS -> SS	ALERTING	
B15	MS		An alerting indication as defined in a PIXIT statement is given by the MS
B16	MS		The MS is made to accept the call in the way described in a PIXIT statement
B17	MS -> SS	CONNECT	
18	SS -> MS	ASSIGNMENT COMMAND	
19	MS -> SS	ASSIGNMENT COMPLETE	
20	MS		If the call is a speech call, the TCH shall be through connected in both directions.
21	SS -> MS	CONNECT ACKNOWLEDGE	
22	MS		If the call is a data call, the TCH shall be through connected in both directions.
23	MS		The MS is made to release the call.
24	MS -> SS	DISCONNECT	
25	SS -> MS	RELEASE	
26	MS -> SS	RELEASE COMPLETE	
27	SS -> MS	CHANNEL RELEASE	The main signalling link is released.

Specific Message Contents:

CLASSMARK CHANGE

Information element	Value/remark
as default except: Mobile station Classmark 2 -ES IND -SoLSA	 Controlled Early Classmark Sending is implemented. SoLSA supported

PAGING RESPONSE

Information element	Value/remark
Protocol Discriminator	RR management
Ciphering Key Sequence number	
- Key Sequence	Key sequence number previously allocated to MS, or "111" if no key is available
Mobile station Classmark 2	
- ES IND	Shall indicate early autonomous sending of CLASSMARK CHANGE
- SoLSA	SoLSA supported
Mobile Identity	
- odd/even	Even
- Type of identity	TMSI
- Identity digits	TMSI previously allocated to MS

26.15.5.5 SoLSA signalling / structured procedures / emergency call / idle updated

26.15.5.5.1 Conformance requirements

1) The MS in the "idle, updated" state, as after a successful location update, after the number 112 (for GSM 900 and 1800 MS), or 911 (for GSM 710, GSM 750, T-GSM 810, GSM 850 and PCS 1 900 MS in USA and Canada), or 08 (for GSM 710, GSM 750, T-GSM 810, GSM 850 and PCS 1 900 MS in Mexico) has been entered by user, shall send a CHANNEL REQUEST message with correct establishment cause ("emergency call").

2) After assignment of a dedicated channel the first layer message sent by the MS on the assigned dedicated channel shall be a CM SERVICE REQUEST message specifying the correct CKSN and TMSI, with CM Service Type "emergency call establishment" and indicating early sending of classmark change and SoLSA support.

3) After the initial message the SoLSA MS shall send a CLASSMARK CHANGE message in the uplink block followed direct after the Layer 2 UA message sent from the network. The CLASSMARK CHANGE message shall contain information elements Mobile Station Classmark 2.

4) Authentication and cipher mode setting shall be performed successfully.

5) After cipher mode setting acceptance by the network, the MS shall send an EMERGENCY SETUP message.

6), 7) The emergency call shall be correctly established. The assignment procedure shall be correctly performed.

8) After receipt of a CONNECT ACKNOWLEDGE message during correct establishment of the emergency call the TCH shall be through connected in both directions if an appropriate TCH is available.

9) The call shall be cleared correctly.

Requirement Reference:

Conformance requirement 1 and 2: 3GPP TS 04.18 subclause 3.3.1.1,
3GPP TS 24.008 subclauses 5.2.1 and 4.5.1.5,
3GPP TS 02.30 subclause 4.2.2.

Conformance requirement 3: 3GPP TS 04.18 subclauses 3.3.1.1.4.1 and 9.1.11,
3GPP TS 03.73 subclause 11.4.1,
3GPP TS 24.008 subclauses 9.2.9, 9.2.15, 10.5.1.5 and 10.5.1.6.

Conformance requirement 4: 3GPP TS 04.18, subclause 3.4.7,
3GPP TS 24.008 subclause 4.3.2.

Conformance requirement 5: 3GPP TS 24.008, subclause 5.2.1.

Conformance requirement 6 and 7: 3GPP TS 04.18, subclause 3.4.3.

Conformance requirement 8: 3GPP TS 24.008, section 5.2.1.6.

Conformance requirement 9: 3GPP TS 24.008, subclause 5.4.

26.15.5.5.2   Test purpose

To verify that the SoLSA MS supports "early classmark sending procedure", e.g. sending information to the network about SoLSA support during an Emergency Call.

26.15.5.5.3   Method of test

Initial Conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS is in MM-state "idle, updated" with valid TMSI and CKSN.

Specific PICS statements:

- Speech supported for Half rate version 1 (GSM HR) (TSPC_AddInfo_Half_rate_version_1)

- Speech supported for Half rate version 3 (GSM HR) (TSPC_AddInfo_Half_rate_version_3)

- Use of R99 Emergency numbers (TSPC_R99_Emerg)

PIXIT statements:

- .

Foreseen Final State of the MS

The MS is in MM-state "idle, updated" with valid TMSI and CKSN.

Test procedure

The MS is made to initiate an emergency call. The call is established with late assignment. Having reached the active state, the call is cleared by the SS.

Maximum Duration of Test

1 minute.

Expected Sequence

Step	Direction	Message	Comments
1	MS		The appropriate emergency call number is entered.
2	MS -> SS	CHANNEL REQUEST	Establishment cause is emergency call establishment.
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	CM SERVICE REQUEST	Message is contained in SABM. The CM service type IE indicates "emergency call establishment". The classmark 2 IE indicates early sending of CLASSMARK CHANGE and SoLSA support
5	SS -> MS	UA (CM SERVICE REQUEST)	
6	MS -> SS	CLASSMARK CHANGE	Shall be ready to transmit (see 3GPP TS 05.10 subclause 06.10) within 40 ms after the completion of step 4. "mobile station classmark 2" includes settings for ES IND and SoLSA
			Note: In this case 'ready to transmit' shall result in the actual transmission of the Classmark Change 51 frames later (51 * 4.62ms = 235.62 ms). Therefore receipt of the Classmark Change within 250ms of step 4 is required.
7	SS -> MS	AUTHENTICATION REQUEST	
8	MS -> SS	AUTHENTICATION RESPONSE	SRES specifies correct value.
9	SS -> MS	CIPHERING MODE COMMAND	SS starts deciphering after sending the message.
10	MS -> SS	CIPHERING MODE COMPLETE	Shall be sent enciphered. All following messages shall be sent enciphered.
11	SS		SS starts ciphering.
12	MS -> SS	EMERGENCY SETUP	If a half rate speech service is supported, the message must contain one bearer capability IE indicating in the radio channel requirement field "dual rate/half rate preferred" or "dual rate/full rate preferred". If no half rate speech service is supported, the message must either contain no bearer capability IE or contain one bearer capability IE indicating in the radio channel requirement field "full rate channel".
13	SS -> MS	CALL PROCEEDING	
14	SS -> MS	ALERTING	
15	SS -> MS	ASSIGNMENT COMMAND	The rate of the channel is that one indicated by the EMERGENCY SETUP message, if that message did not offer a choice, and the rate is the preferred one else.
16	MS -> SS	ASSIGNMENT COMPLETE	
17	SS -> MS	CONNECT	
18	MS -> SS	CONNECT ACKNOWLEDGE	
19	MS		The TCH is through connected in both directions.
20	SS -> MS	DISCONNECT	
21	MS -> SS	RELEASE	
22	SS -> MS	RELEASE COMPLETE	
23	SS -> MS	CHANNEL RELEASE	The main signalling link is released.

Specific Message Contents:

CM SERVICE REQUEST

Information element	Value/remark
as default except:	
CM Service type	Emergency call establishment
Mobile station Classmark 2	
- ES IND	Shall indicate early autonomous sending of CLASSMARK CHANGE
- SoLSA	SoLSA supported

CLASSMARK CHANGE

Information element	Value/remark

as default except:
Mobile station Classmark 2
   -ES IND
   -SoLSA
	
	Controlled Early Classmark Sending is implemented.
	SoLSA supported

26.15.5.6 SoLSA signalling / structured procedures / emergency call / idle, no IMSI

26.15.5.6.1 Conformance requirements

1) The MS in the "idle, updated" state, as after a successful location update, after the number 112 (for GSM 900 and 1800 MS), or 911 (for GSM 710, GSM 750, T-GSM 810, GSM 850 and PCS 1 900 MS in USA and Canada), or 08 (for GSM 710, GSM 750, T-GSM 810, GSM 850 and PCS 1 900 MS in Mexico) has been entered by user, shall send a CHANNEL REQUEST message with correct establishment cause ("emergency call").

2) After assignment of a dedicated channel the first layer message sent by the MS on the assigned dedicated channel shall be a CM SERVICE REQUEST message specifying the correct IMEI and a non-available CKSN, with CM Service Type "emergency call establishment" and indicating early sending of classmark change and SoLSA support.

3) After the initial message the SoLSA MS shall send a CLASSMARK CHANGE message in the uplink block followed direct after the Layer 2 UA message sent from the network. The CLASSMARK CHANGE message shall contain information elements Mobile Station Classmark 2.

4) After cipher mode setting acceptance by the network, the MS shall send an EMERGENCY SETUP message.

5), 6) The emergency call shall be correctly established. The assignment procedure shall be correctly performed.

7) After receipt of a CONNECT ACKNOWLEDGE message during correct establishment of the emergency call the TCH shall be through connected in both directions if an appropriate TCH is available.

8) The call shall be cleared correctly.

Requirement Reference:

Conformance requirement 1 and 2:   3GPP TS 04.18 subclause 3.3.1.1,
        3GPP TS 24.008 subclauses 5.2.1 and 4.5.1.5,
        3GPP TS 02.30 subclause 4.2.2.

Conformance requirement 3:   3GPP TS 04.18 subclauses 3.3.1.1.4.1 and 9.1.11,
        3GPP TS 03.73 subclause 11.4.1,
        3GPP TS 24.008 subclauses 9.2.9, 9.2.15, 10.5.1.5 and 10.5.1.6.

Conformance requirement 4:   3GPP TS 24.008, subclause 5.2.1.

Conformance requirement 5 and 6:   3GPP TS 04.18, subclause 3.4.3.

Conformance requirement 7:   3GPP TS 24.008, subclause 5.2.1.6.

Conformance requirement 8:   3GPP TS 24.008, subclause 5.4.

26.15.5.6.2 Test purpose

To verify that the SoLSA MS in the "idle, no IMSI" state (no SIM inserted), supports "early classmark sending procedure", e.g. sending information to the network about SoLSA support during an Emergency Call.

26.15.5.6.3   Method of test

Initial Conditions

   System Simulator:

      1 cell, default parameters.

   Mobile Station:

      The MS is in MM-state "idle, no IMSI" no SIM inserted.

Specific PICS statements:

   -   Speech supported for Half rate version 1 (GSM HR) (TSPC_AddInfo_Half_rate_version_1)

   -   Speech supported for Half rate version 3 (GSM HR) (TSPC_AddInfo_Half_rate_version_3)

   -   Use of R99 Emergency numbers (TSPC_R99_Emerg)

PIXIT statements:

   -   .

Foreseen Final State of the MS

The MS is in MM-state "idle, no IMSI" no SIM inserted.

Test procedure

The MS is made to initiate an emergency call. The call is established without authentication, without ciphering, with late assignment. Having reached the active state, the call is cleared by the SS.

Maximum Duration of Test

1 minute.

Expected Sequence

Step	Direction	Message	Comments
1	MS		The appropriate emergency call number is entered.
2	MS -> SS	CHANNEL REQUEST	Establishment cause is emergency call establishment.
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS ->	CM SERVICE REQUEST	Message is contained in SABM. The CM service type IE indicates "emergency call establishment". The mobile identity IE specifies the IMEI of the MS. The cipher key sequence number IE indicates "no key is available". The classmark 2 IE indicates early sending of CLASSMARK CHANGE and SoLSA support
5	SS -> MS	UA (CM SERVICE REQUEST)	
6	MS -> SS	CLASSMARK CHANGE	Shall be ready to transmit (see 3GPP TS 05.10 subclause 06.10) within 40 ms after the completion of step 4. "mobile station classmark 2" includes settings for ES IND and SoLSA Note: In this case 'ready to transmit' shall result in the actual transmission of the Classmark Change 51 frames later (51 * 4.62ms = 235.62 ms). Therefore receipt of the Classmark Change within 250ms of step 4 is required.
7	SS -> MS	CM SERVICE ACCEPT	
8	MS -> SS	EMERGENCY SETUP	If a half rate speech service is supported, the message must contain one bearer capability IE indicating in the radio channel requirement field "dual rate/half rate preferred" or "dual rate/full rate preferred". If no half rate speech service is supported, the message must either contain no bearer capability IE or contain one bearer capability IE indicating in the radio channel requirement field "full rate channel".
9	SS -> MS	CALL PROCEEDING	
10	SS -> MS	ALERTING	
11	SS -> MS	ASSIGNMENT COMMAND	The rate of the channel is that one indicated by the EMERGENCY SETUP message, if that message did not offer a choice, and the rate is the preferred one else.
12	MS -> SS	ASSIGNMENT COMPLETE	
13	SS -> MS	CONNECT	
14	MS -> SS	CONNECT ACKNOWLEDGE	
15	MS		The TCH is through connected in both directions.
16	SS -> MS	DISCONNECT	
17	MS -> SS	RELEASE	
18	SS -> MS	RELEASE COMPLETE	
19	SS -> MS	CHANNEL RELEASE	The main signalling link is released.

Specific Message Contents:

CM SERVICE REQUEST

Information element	Value/remark
as default except:	
CM Service type	Emergency call establishment
Mobile station Classmark 2	
- ES IND	Shall indicate early autonomous sending of CLASSMARK CHANGE
- SoLSA	SoLSA supported

CLASSMARK CHANGE

Information element	Value/remark
as default except:	
Mobile station Classmark 2	
-ES IND	Controlled Early Classmark Sending is implemented.
-SoLSA	SoLSA supported