

26.6.6 Test of frequency redefinition

The Frequency Redefinition procedure is used by the network to change the frequencies and hopping sequences of the allocated channels.

26.6.6.1 Frequency redefinition

26.6.6.1.1 Conformance requirements

An MS, after receiving a FREQUENCY REDEFINITION message, shall start using the new frequencies and hopping sequence in the correct time slot when the MS is allocated a dedicated channel.

The behaviour described in the test purpose is applied for each combination of the value $T(k)$ ($k = 1, 2, 3$) and for each supported dedicated channel type.

References

3GPP TS 04.08 / 3GPP TS 44.018 subclauses 3.4.5, 9.1.13 and 10.5.2.13.

26.6.6.1.2 Test purpose

To verify that the MS, after receiving a Frequency Redefinition message, starts using the new frequencies and hopping sequence at the time indicated in the message.

26.6.6.1.3 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 (1), depending on the band of operation of the Mobile Station before each execution of this test.

Mobile Station:

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

Specific PICS statements

- MS supports GSM HR (TSPC_AddInfo_Halfrate)

PIXIT statements

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Foreseen Final State of the MS

"Idle, updated", with TMSI allocated.

Test Procedure

Test parameters:

ca(1) is set according to the column *ca*(1) of table below.

An arbitrary subset **CA**(1) of the set in the column *CA Range* of the table below containing **ca**(1) elements is drawn. **CA**(1) is then coded using the *coding* scheme from the table below.

An element B of the set **CA**(1) is arbitrarily chosen.

An arbitrary value **ca**(2) in the range indicated in column *ca*(2) of the table below is chosen.

An arbitrary subset **CA**(2) of the set in the column *CA Range* of the table below with **ca**(2) elements and containing B is chosen.

An arbitrary value **ca(3)** in the range indicated in column *ca(3)* of the table below is chosen.

An arbitrary subset **CA(3)** of the set in the column *CA Range* of the table below with **ca(3)** elements and containing **B** is chosen.

For $j = 1, 2, 3$, values **ma(j)** in the range $j, \dots, \mathbf{ca}(j)-1$ and values **MAIO(j)** in the range $0, \dots, \mathbf{ma}(j)-1$ are arbitrarily chosen.

Subsets **MA(j)** of **CA(j)** not containing **B** and having **ma(j)** elements are arbitrarily chosen.

Band	ca(1)	CA Range	ca(2)	ca(3)	Coding
GSM 450	32	259,...,293	17,...,31	4,...,16	Range 128
GSM 480	32	306,...,340	17,...,31	4,...,16	Range 128
GSM 710	64	438,...,511	19,...,62	3,...,18	Range 128
GSM 750	64	438,...,511	19,...,62	3,...,18	Range 128
T-GSM 810	64	438,...,511	19,...,62	3,...,18	Range 128
GSM 850	64	128,...,251	19,...,62	3,...,18	Variable bitmap
GSM 900	64	1,...,124	20,...,63	4,...,19	Bitmap 0
DCS 1 800	64	700,...,812	17,...,63	4,...,16	Variable bitmap
PCS 1 900	64	700,...,810	17,...,63	4,...,16	Variable bitmap

Let $T(1) = 91$, $T(2) = 42\ 000$.

An arbitrary value $T(3)$ in the range $92, \dots, 29999$ is chosen.

The System Simulator pages the MS and after the MS has responded with a CHANNEL REQUEST, the simulator assigns a dedicated channel (TCH/F, TCH/H or SDCCH, as defined by the execution counter R). Then the SS sends a FREQUENCY REDEFINITION message, which modifies the frequencies/hopping sequence to be used by the MS. The MS shall then, at the TDMA frame defined by the contents of the "Starting Time" information element, use the new frequencies/hopping sequence. (The value of $T(2)$ ensures that the MS believes the Starting Time has passed and so the MS shall start transmitting immediately. Immediately being in the scope of this test no later than 73 Frames for SDCCH/8 or TCH/F and 90 Frames for TCH/H after the SS sends the last burst of the first L2 frame containing the beginning of the FREQUENCY REDEFINITION message. The range for $T(3)$ ensures that the MS has to wait until the designated frame before starting transmission on the new frequencies.)

The verification is performed at the RF burst level. The MS transmits the standard test signal C1 (annex 5), and for the TCH case, the SS checks the received pattern with the expected pattern. For the SDCCH case the MS transmits fill frames, and the SS checks for each burst whether the burst is transmitted at the right frequency.

Maximum Duration of Test

$3 * (\text{number of supported channels} * T(3) + 7)$

Expected Sequence

This sequence is performed for every combination of execution counters $K = 1, 2, 3$ and $R = 1, 2, 3$:

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST TYPE 1	<p>The SS checks that the MS is transmitting on the correct frequencies without delay. See description 1 below.</p> <p>The SS checks that the MS is transmitting on the correct frequencies and that the transmissions started in the correct frame. See description 2 below.</p> <p>The SS checks that the MS is transmitting on the correct frequencies and that the transmissions started in the correct frame.</p>
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	PAGING RESPONSE	
5	-----	-----	
6	SS -> MS	FREQUENCY REDEFINITION	
7	-----	-----	
8	SS -> MS	FREQUENCY REDEFINITION	
9	-----	-----	
10	SS -> MS	CHANNEL RELEASE	

For: $K=1$, $R = 1, 2, 3$ $T(K) = T(1)$;

$$K=2, R = 1,2,3 \quad T(K) = T(2);$$

$$K=3, R = 1,2,3 \quad T(K) = T(3).$$

Specific Message Contents

IMMEDIATE ASSIGNMENT

Information Element	value/remark
L2 pseudo length	value dependent on the length of the Mobile Allocation and thus on the number of channels in CA (1).
Channel Description	
Channel type and TDMA offset	SDCCH/8 arbitrary offset, for R=1 Bm + ACCHs for R=2 Lm + ACCHs arbitrary offset, for R=3
Timeslot number	arbitrarily selected by
TSC	arbitrarily selected
Hopping channel	RF hopping channel
MAIO	MAIO(1)
HSN	0
Request reference	corresponds to the Channel Request
Timing advance	30 bit periods
Mobile Allocation	corresponds to set MA(1)
Starting Time	not present
IA rest octets	all bits are set to spare

FREQUENCY REDEFINITION (Description 1)

Information Element	value/remark
Protocol Discriminator	RR Management
Skip Indicator	0000
Message Type	00101011
Channel Description	
Channel type and TDMA offset	SDCCH/8 offset not changed, for R=1 Bm + ACCHs for R=2 Lm + ACCHs offset not changed, for R=3
Timeslot number	not changed
TSC	not changed
Hopping channel	RF hopping channel
MAIO	MAIO(2)
HSN	0
Mobile Allocation	corresponds to set MA(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(K) modulo 42 432).
Cell Channel Description	
Information element identifier	62H
contents	corresponds to set CA(2) encoded according to the table below.

Band	Cell Channel Description – coding format	
	Step 6	Step 8
GSM 450	Range 128	Range 128
GSM 480	Range 128	Range 128
GSM 710	Range 128	Range 128
GSM 750	Range 128	Range 128
T-GSM 810	Range 128	Range 128
GSM 850	Range 128	Range 128
GSM 900	Bitmap 0	Bitmap 0
DCS 1 800	Variable bitmap	K=1: Range 1 024 K=2: Range 256 K=3: Range 512
PCS 1 900	Variable bitmap	K=1: Range 1 024 K=2: Range 256 K=3: Range 512

26.6.7 Test of the channel mode modify procedure

The channel mode modify procedure allows the network to request the MS to change the channel mode for one channel. If the mobile station does not correctly respond to the CHANNEL MODE MODIFY message (with a positive acknowledgement if the new channel mode is supported, with a negative acknowledgement if the new channel mode is not supported), the network may try to repeat the procedure, release the connection, or continue to wait for the acknowledgement (the maximum time resulting from layer two re-transmissions and MS reaction time being around 5 s).

26.6.7.1 Test of the channel mode modify procedure / full rate

26.6.7.1.1 Conformance requirement

When the MS has received the CHANNEL MODE MODIFY message, the mobile station changes the mode for the indicated channel and then replies by a CHANNEL MODE MODIFY ACKNOWLEDGE message indicating the new channel mode.

If the mobile station does not support the indicated mode, it shall retain the old mode and return the associated channel mode information in the CHANNEL MODE MODIFY ACKNOWLEDGE message.

References

3GPP TS 04.08 / 3GPP TS 44.018, subclauses 3.4.6.1.2 and 3.4.6.1.3

26.6.7.1.2 Test purpose

To verify that the MS, in an RR connected state, acknowledges a CHANNEL MODE MODIFY message by sending a CHANNEL MODE MODIFY ACKNOWLEDGEMENT message specifying and switching to the correct mode.

- the new mode if that mode is supported.
- the old mode if the new mode is not supported.

This shall be verified for the channel modes

- signalling only.
- speech full rate version 1.
- data 9,6 Kb/s.
- data 4,8 Kb/s full rate.
- data 2,4 Kb/s full rate.

26.6.7.1.3 Method of test

Initial Conditions

System Simulator:

1 cells, default parameters.

Mobile Station:

The MS is "idle updated", with TMSI allocated.

Specific PICS statements

- GSM FR (TSPC_AddInfo_Full_rate_version_1)
- 9.6 k full rate data mode (TSPC_AddInfo_96Data)
- 4.8 k full rate data mode (TSPC_AddInfo_48DataF)
- 2.4 k full rate data mode (TSPC_AddInfo_24DataF)

PIXIT statements

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Foreseen Final State of the MS

"Idle, updated", with TMSI allocated.

Test procedure

A Mobile Terminated call is initiated, however following the Channel Request received from the Mobile Station, the SS sends an Immediate Assignment to the MS commanding it to go to a TCH/F. This sets the Channel Mode automatically to "Signalling Only".

The SS then sends a series of CHANNEL MODE MODIFY messages to the MS. Each time it is checked that the MS responds with a CHANNEL MODE MODIFY ACKNOWLEDGE message specifying:

- the channel mode that has been specified in the CHANNEL MODE MODIFY message, if the MS supports that mode (this mode then becomes the "channel mode in use");
- the channel mode that was in use when the CHANNEL MODE MODIFY message has been received, if the MS does not support the channel mode specified in the CHANNEL MODE MODIFY message.

Maximum Duration of Test

30 s.

Expected Sequence

Step	Direction	Message	Comments
1	SS->MS	PAGING REQUEST TYPE 1	Sent on correct paging subchannel. Establishment cause indicates "answer to paging". Assignment to a non hopping TCH/F.
2	MS->SS	CHANNEL REQUEST	
3	SS->MS	IMMEDIATE ASSIGNMENT	
4	MS->SS	PAGING RESPONSE	
5	SS->MS	CHANNEL MODE MODIFY	
6	MS->SS	CHANNEL MODE MODIFY ACKNOWLEDGE	
7	SS->MS	CHANNEL MODE MODIFY	
8	MS->SS	CHANNEL MODE MODIFY ACKNOWLEDGE	
9	SS->MS	CHANNEL MODE MODIFY	
10	MS->SS	CHANNEL MODE MODIFY ACKNOWLEDGE	
11	SS->MS	CHANNEL MODE MODIFY	
12	MS->SS	CHANNEL MODE MODIFY ACKNOWLEDGE	
13	SS->MS	CHANNEL MODE MODIFY	
14	MS->SS	CHANNEL MODE MODIFY ACKNOWLEDGE	
15	SS->MS	CHANNEL RELEASE	

Specific Message Contents

CHANNEL MODE MODIFY

Information Element	value/remark
Channel description	describes the already assigned dedicated channel.
Channel mode	
Mode	
	in step 5: speech full rate version 1
	in step 7: data 9,6 Kb/s
	in step 9: data 4,8 Kb/s full rate
	in step 11: data 2,4 Kb/s full rate
	in step 13 signalling only

CHANNEL MODE MODIFY ACKNOWLEDGE

Information Element	value/remark
Channel mode	in step 6: if TSPC_AddInfo_Full_rate_version_1: speech full rate version 1 else: signalling only in step 8: if TSPC_AddInfo_96Data: data 9.6 Kb/s else: same as in step 6 in step 10: if TSPC_AddInfo_48DataF: data 4.8 Kb/s full rate else: same as in step 8 in step 12: if TSPC_AddInfo_24DataF: data 2.4 Kb/s full rate else: same as in step 10 in step 14: signalling only
Mode	

26.6.7.2 Test of the channel mode modify procedure / half rate

This test is only applicable to an dual rate MS.

26.6.7.2.1 Conformance requirement

When the MS has received the CHANNEL MODE MODIFY message, the mobile station changes the mode for the indicated channel and then replies by a CHANNEL MODE MODIFY ACKNOWLEDGE message indicating the new channel mode.

If the mobile station does not support the indicated mode, it shall retain the old mode and return the associated channel mode information in the CHANNEL MODE MODIFY ACKNOWLEDGE message.

References

3GPP TS 04.08 / 3GPP TS 44.018, subclauses 3.4.6.1.2 and 3.4.6.1.3.

26.6.7.2.2 Test purpose

To verify that the MS, in an RR connected state, acknowledges a CHANNEL MODE MODIFY message by sending a CHANNEL MODE MODIFY ACKNOWLEDGEMENT message specifying and switches to the correct mode:

- the new mode if that mode is supported;
- the old mode if the new mode is not supported.

This shall be verified for the channel modes:

- signalling only;
- speech half rate version 1;
- data 4,8 Kb/s half rate;
- data 2,4 Kb/s half rate;
- speech half rate version 3.

26.6.7.2.3 Method of test

Initial Conditions

System Simulator:

1 cells, default parameters.

Mobile Station:

The MS is "idle updated", with TMSI allocated.

Specific PICS statements

- GSM HR (TSPC_AddInfo_Half_rate_version_1)
- 4.8 k half rate data mode (TSPC_AddInfo_48DataH)
- 2.4 k half rate data mode (TSPC_AddInfo_24DataH)
- HR AMR (TSPC_AddInfo_Half_rate_version_3)

PIXIT statements

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Foreseen Final State of the MS

"Idle, updated", with TMSI allocated.

Test procedure

A Mobile Terminated call is initiated, however following the Channel Request received from the Mobile Station, the SS sends an Immediate Assignment to the MS commanding it to go to a TCH/H. This sets the Channel Mode automatically to "Signalling Only".

The SS then sends a series of CHANNEL MODE MODIFY messages to the MS. Each time it is checked that the MS responds with a CHANNEL MODE MODIFY ACKNOWLEDGE message specifying:

- the channel mode that has been specified in the CHANNEL MODE MODIFY message, if the MS supports that mode (this mode then becomes the "channel mode in use");
- the channel mode that was in use when the CHANNEL MODE MODIFY message has been received, if the MS does not support the channel mode specified in the CHANNEL MODE MODIFY message.

Maximum Duration of Test

30 s.

Expected Sequence

Step	Direction	Message	Comments
1	SS->MS	PAGING REQUEST TYPE 1	Sent on the correct paging subchannel. Establishment cause indicates "answer to paging". Assignment to a non hopping TCH/H.
2	MS->SS	CHANNEL REQUEST	
3	SS->MS	IMMEDIATE ASSIGNMENT	
4	MS->SS	PAGING RESPONSE	
5	SS->MS	CHANNEL MODE MODIFY	
6	MS->SS	CHANNEL MODE MODIFY ACKNOWLEDGE	
7	SS->MS	CHANNEL MODE MODIFY	
8	MS->SS	CHANNEL MODE MODIFY ACKNOWLEDGE	
9	SS->MS	CHANNEL MODE MODIFY	
10	MS->SS	CHANNEL MODE MODIFY ACKNOWLEDGE	
11	SS->MS	CHANNEL MODE MODIFY	
12	MS->SS	CHANNEL MODE MODIFY ACKNOWLEDGE	
13	SS->MS	CHANNEL MODE MODIFY	
14	MS->SS	CHANNEL MODE MODIFY ACKNOWLEDGE	
15	SS->MS	CHANNEL RELEASE	

Specific Message Contents

CHANNEL MODE MODIFY

Information Element	value/remark
Channel description	describes the already assigned dedicated channel.
Channel mode	
Mode	
Multi-Rate Configuration	in step 5: speech half rate version 1 in step 7: data 4,8 Kb/s half rate in step 9: data 2,4 Kb/s half rate in step 11: speech half rate version 3 in step 13: signalling only Arbitrarily chosen

CHANNEL MODE MODIFY ACKNOWLEDGE

Information Element	value/remark
Channel mode Mode	<p>in step 6: if TSPC_AddInfo_Half_rate_version_1: Speech half rate version 1 else: signalling only</p> <p>in step 8: if TSPC_AddInfo_48DataH: data 4,8 Kb/s half rate else: same as in step 6</p> <p>in step 10: if TSPC_AddInfo_24DataH: data 2,4 Kb/s half rate else: same as in step 8</p> <p>in step 12: if TSPC_AddInfo_Half_rate_version_3: speech half rate version 3 else: same as in step 10.</p> <p>in step 14: signalling only</p>

26.6.8 Test of ciphering mode setting

The Ciphering Mode Setting Procedure can be used by the network to trigger the start and stop of stream ciphering.

The SS shall start and synchronize ciphering and deciphering according to 3GPP TS 03.20 / 3GPP TS 33.102, 3GPP TS 33.220. The bit stream shall be generated by algorithm A5 (A5/1, A5/3 and A5/4 as defined by the test case) using the encryption key Kc (A5/1, A5/3) or Kc₁₂₈ (A5/4).

For test cases using algorithm A5/4 Test USIM as specified in Annex 4A is required.

26.6.8.1 Ciphering mode / start ciphering

26.6.8.1.1 Conformance requirements

1. When the MS receives the CIPHERING MODE COMMAND message with Ciphering Mode Setting information element set to "start ciphering", the MS starts ciphering and deciphering with the algorithm indicated by the "algorithm identifier" field:
 - the MS responds with a CIPHERING MODE COMPLETE message in ciphered mode;
 - the ciphering uses the cipher key determined during the authentication procedure.
2. The MS responds to the AUTHENTICATION REQUEST message with an AUTHENTICATION RESPONSE message and continues to use the ciphering key obtained from the previous authentication procedure.

References

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.4.7.

26.6.8.1.2 Test purpose

To verify that the MS starts ciphering when it receives a CIPHERING MODE COMMAND message with Cipher Mode Setting = "Start Ciphering". To verify that it continues to use the old cipher key after it receives an AUTHENTICATION REQUEST whilst in ciphered mode.

26.6.8.1.3 Method of test

Initial Conditions

System Simulator:

1 cells, Radio_Link_Timeout set to 64.

Mobile Station:

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

Specific PICS statements

- Support for A5/3 (TSPC_Feat_A53)

PIXIT statements

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Foreseen Final State of the MS

"Idle, updated", with TMSI allocated.

Test Procedure

The MS is made to originate a call. It shall send at least one CHANNEL REQUEST message. The SS sends an IMMEDIATE ASSIGNMENT and the MS shall answer with a CM SERVICE REQUEST. The SS sends an AUTHENTICATION REQUEST and the MS shall answer with AUTHENTICATION RESPONSE. Then the SS sends a CIPHERING MODE COMMAND, ordering the MS to start ciphering with an algorithm supported by the MS. After transmission of this command the SS starts deciphering. The MS shall respond with a CIPHERING MODE COMPLETE message in ciphered mode using the cipher key determined during the authentication procedure, and continue to establish the call with a SETUP message. After reception of the CIPHERING MODE COMPLETE the SS starts enciphering.

The SS then sends another AUTHENTICATION REQUEST and the MS shall respond with an AUTHENTICATION RESPONSE. The MS shall continue to use the old cipher key.

Finally the SS sends a CHANNEL RELEASE to end the test.

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 and optionally when the MS supports A5/3 for K=3.

Step	Direction	Message	Comments
1	MS -> SS	CHANNEL REQUEST	Establ. Cause = "Originating Call" NECI not set to 1
2	SS -> MS	IMMEDIATE ASSIGNMENT	
3	MS -> SS	CM SERVICE REQUEST	
4	SS -> MS	AUTHENTICATION REQUEST	Cipher Mode Setting = "Start Ciphering; cipher with algorithm A5/K". The SS starts deciphering. Sent in ciphered mode using the cipher key determined in between steps 4&5. The SS start enciphering.
5	MS -> SS	AUTHENTICATION RESPONSE	
6	SS -> MS	CIPHERING MODE COMMAND	
7	MS -> SS	CIPHERING MODE COMPLETE	New cipher key has been calculated. Sent in ciphered mode using the cipher key determined in between steps 4&5.
8	MS -> SS	SETUP	
9	SS -> MS	AUTHENTICATION REQUEST	
10	MS -> SS	AUTHENTICATION RESPONSE	
11	SS -> MS	CHANNEL RELEASE	

Specific Message Contents

CIPHERING MODE COMMAND

For	K = 1, A5/K = A5/1 K = 3, A5/K = A5/3
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26.6.8.2 Ciphering mode / no ciphering

26.6.8.2.1 Conformance requirements

When the MS receives a CIPHERING MODE COMMAND message with Ciphering Mode Setting information element set to "no ciphering" the MS shall respond in non ciphered mode with a CIPHERING MODE COMPLETE message.

When the CIPHERING MODE COMMAND with Ciphering Mode Setting information element set to "no ciphering" is received as a response to a CM SERVICE REQUEST, the MS shall continue the establishment of the CM service.

References

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.4.7.

26.6.8.2.2 Test purpose

To verify that the MS does not start ciphering when it receives a CIPHERING MODE COMMAND message with Cipher Mode Setting = "No Ciphering".

26.6.8.2.3 Method of test

Initial Conditions

System Simulator:

1 cells, Radio_Link_Timeout set to 64.

Mobile Station:

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

Specific PICS statements

-

PIXIT statements

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Foreseen Final State of the MS

"Idle, updated", with TMSI allocated.

Test Procedure

The MS is made to originate a call. It shall send at least one CHANNEL REQUEST message. The SS sends an IMMEDIATE ASSIGNMENT and the MS shall answer with a CM SERVICE REQUEST. The SS sends an AUTHENTICATION REQUEST and the MS shall answer with an AUTHENTICATION RESPONSE. Then the SS sends a CIPHERING MODE COMMAND, ordering the MS not to start ciphering. The MS shall respond with a CIPHERING MODE COMPLETE message in non-ciphered mode and continue to establish the call with a SETUP message.

Finally the SS sends a CHANNEL RELEASE to end the test.

Maximum Duration of Test

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

Expected Sequence

Step	Direction	Message	Comments
1	MS -> SS	CHANNEL REQUEST	Establ. Cause = "Originating call; NECI not equal to 1.
2	SS -> MS	IMMEDIATE ASSIGNMENT	
3	MS -> SS	CM SERVICE REQUEST	Cipher Mode Setting = "No Ciphering". Sent in non-ciphered mode.
4	SS -> MS	AUTHENTICATION REQUEST	
5	MS -> SS	AUTHENTICATION RESPONSE	
6	SS -> MS	CIPHERING MODE COMMAND	
7	MS -> SS	CIPHERING MODE COMPLETE	
8	MS -> SS	SETUP	
11	SS -> MS	CHANNEL RELEASE	

Specific Message Contents

None.

26.6.8.3 Ciphering mode / old cipher key

26.6.8.3.1 Conformance requirements

When the MS receives the CIPHERING MODE COMMAND message with Ciphering Mode Setting information element set to "start ciphering", the MS starts ciphering and deciphering with the algorithm indicated by the "algorithm identifier" field. Also;

- the MS responds with a CIPHERING MODE COMPLETE message in the correct ciphered mode;
- the ciphering shall use the previously stored cipher key;
- in the case of a mobile originating speech call, the MS shall send a SETUP message after the completion of the ciphering procedure.

References

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.4.7.

26.6.8.3.2 Test purpose

To verify that the MS uses the stored cipher key when it receives a CIPHERING MODE COMMAND without a preceding authentication procedure.

26.6.8.3.3 Method of test

Initial Conditions

System Simulator:

1 cells, Radio_Link_Timeout = 64.

Mobile Station:

The MS is in the "idle, updated" state, with a TMSI allocated and a known cipher key stored.

Specific PICS statements

- Support for A5/3 (TSPC_Feat_A53)

PIXIT statements

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Foreseen Final State of the MS

"Idle, updated", with TMSI allocated.

Test Procedure

The MS is made to originate a call. It shall send at least one CHANNEL REQUEST message. The SS sends an IMMEDIATE ASSIGNMENT and the MS shall answer with a CM SERVICE REQUEST. The SS sends a CIPHERING MODE COMMAND, ordering the MS to start ciphering with a supported algorithm. After transmission of this command the SS starts deciphering. The MS shall respond with a CIPHERING MODE COMPLETE message in the commanded ciphered mode using the stored cipher key and continue to establish the call with a SETUP message. After reception of the CIPHERING MODE COMPLETE the SS starts enciphering.

Finally the SS sends a CHANNEL RELEASE to end the test.

Maximum Duration of Test

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

Expected Sequence

Step	Direction	Message	Comments
1	MS -> SS	CHANNEL REQUEST	Establ. Cause = "Originating Call: NECI not equal to 1. Cipher Mode Setting = "Start Ciphering", algorithm A5/1 or A5/3, if supported, is arbitrarily selected. The SS starts deciphering. Sent in commanded ciphered mode with the stored cipher key. The SS starts enciphering.
2	SS -> MS	IMMEDIATE ASSIGNMENT	
3	MS -> SS	CM SERVICE REQUEST	
4	SS -> MS	CIPHERING MODE COMMAND	
5	MS -> SS	CIPHERING MODE COMPLETE	
6	MS -> SS	SETUP	
7	SS -> MS	CHANNEL RELEASE	

Specific Message Contents

None.

26.6.8.4 Ciphering mode / change of mode, algorithm and key

Networks can be implemented that do not have the same ciphering algorithms on all base stations. In such networks changes of algorithms and ciphering mode may occur and calls will fail if MSs incorrectly handle commands or use an incorrect cipher key.

26.6.8.4.1 Conformance requirements

- When the MS in the "not ciphered" mode, receives a CIPHERING MODE COMMAND message with the Ciphering Mode Setting information element set to "start ciphering", the MS shall load the cipher key stored in the SIM into the ME, use this key to start ciphering and deciphering with the algorithm indicated by the "algorithm identifier" field and, respond with a CIPHERING MODE COMPLETE message.
- If the last timeslot of the message block containing a CIPHERING MODE COMMAND message occurs at time T, then the MS shall be ready to transmit the CIPHERING MODE COMPLETE message before T+500 ms.
- When the MS receives an ASSIGNMENT COMMAND message containing a Cipher Mode Setting IE after receipt of a CIPHERING MODE COMMAND message, the MS shall perform the assignment, use the commanded mode and/or algorithm on the new channel, and not change the ciphering key.
- When the MS receives a HANDOVER COMMAND message containing a Cipher Mode Setting IE after receipt of a CIPHERING MODE COMMAND message, the MS shall perform the handover, use the commanded mode and/or algorithm on the new channel, and not change the ciphering key.
- When the MS in the "ciphered" mode receives a CIPHERING MODE COMMAND message with Cipher Mode Setting IE set to "no ciphering", the MS shall load the cipher key stored in the SIM into the ME, load the cipher key stored in the SIM into the ME, stop ciphering and deciphering and, respond with a CIPHERING MODE COMPLETE message.
- When the MS receives an AUTHENTICATION REQUEST message, it shall process the challenge information and send back an AUTHENTICATION RESPONSE message to the network. The new ciphering key calculated from the challenge information shall overwrite the previous one and be stored on the SIM before the

AUTHENTICATION RESPONSE message is transmitted. The ciphering key stored in the SIM shall be loaded in to the ME when any valid CIPHERING MODE COMMAND is received.

- 7 When the MS in the not ciphered mode receives a CIPHERING MODE COMMAND message with Cipher Mode Setting IE set to "no ciphering", the MS shall load the cipher key stored in the SIM into the ME, stop ciphering and deciphering and, respond with a CIPHERING MODE COMPLETE message.
- 8 If a handover fails then the operational parameters used when returning to the old channel are those applied before the HANDOVER COMMAND message was received.
- 9 If an assignment fails then the operational parameters used when returning to the old channel are those applied before the ASSIGNMENT COMMAND message was received.

References

Conformance requirement 1: 3GPP TS 04.08 / 3GPP TS 44.018 subclauses 3.4.7.2 and 4.3.2.2.

Conformance requirement 2: 3GPP TS 04.13 subclause 5.2.7.

Conformance requirement 3: 3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.4.3.1.

Conformance requirement 4: 3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.4.4.1.

Conformance requirement 5: 3GPP TS 04.08 / 3GPP TS 44.018 subclauses 3.4.7.2 and 4.3.2.2.

Conformance requirement 6: 3GPP TS 04.08 / 3GPP TS 44.018 subclause 4.3.2.2.

Conformance requirement 7: 3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.4.7.2.

Conformance requirement 8: 3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.4.4.4.

Conformance requirement 9: 3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.4.3.3.

26.6.8.4.2 Test purpose

- 1 To verify that when the MS is in the "not ciphered" mode and receives the CIPHERING MODE COMMAND message with Ciphering Mode Setting information element set to "start ciphering", the MS uses the cipher key stored in the SIM to start ciphering and deciphering with the algorithm indicated by the "algorithm identifier" field and that the MS responds with a CIPHERING MODE COMPLETE message.
- 2 To verify that the MS is ready to transmit the CIPHERING MODE COMPLETE message before 500 ms after the end of the CIPHERING MODE COMMAND message.
- 3 To verify that when the MS receives an ASSIGNMENT COMMAND message containing a Cipher Mode Setting IE after receipt of a CIPHERING MODE COMMAND message, the MS shall perform the assignment, use the commanded mode and/or algorithm on the new channel, and not change the ciphering key.
- 4 To verify that when the MS receives a HANDOVER COMMAND message containing a Cipher Mode Setting IE after receipt of a CIPHERING MODE COMMAND message, the MS shall perform the handover, use the commanded mode and/or algorithm on the new channel, and not change the ciphering key
- 5 To verify that when the MS is in the "ciphered" mode and receives the CIPHERING MODE COMMAND message with Cipher Mode Setting IE set to "no ciphering", the MS loads the cipher key stored in the SIM into the ME, stops ciphering and deciphering and, responds with a CIPHERING MODE COMPLETE message.
- 6 To verify that the MS responds to an AUTHENTICATION REQUEST message with an AUTHENTICATION RESPONSE message and continues to use the cipher key obtained from the previous authentication procedure.
- 7 To verify that when the MS is in the "not ciphered" mode and receives the CIPHERING MODE COMMAND message with Ciphering Mode Setting information element set to "no ciphering", the does not start ciphering or deciphering, but does respond with a CIPHERING MODE COMPLETE message.
- 8 To verify that when the MS receives a HANDOVER COMMAND message and the handover fails, the MS sends a HANDOVER FAILURE message on the old channel using the old ciphering mode and (if ciphered) the old algorithm and old key.

- 9 To verify that when the MS receives an ASSIGNMENT COMMAND message and the assignment fails, the MS sends an ASSIGNMENT FAILURE message on the old channel using the old ciphering mode and (if ciphered) the old algorithm and old key.

26.6.8.4.3 Method of test

Initial Conditions

System Simulator:

1 cell, with a legal combination of CCCH_CONF with SDCCH/4s or SDCCH/8s is chosen arbitrarily by the SS.

Mobile Station:

The MS is in the "idle, updated" state, with a TMSI allocated and a known cipher key, K, stored in the SIM.

Specific PICS statements

- Support for A5/3 (TSPC_Feat_A53)
- TSPC_Type_xxx (all appropriate power classes)

PIXIT statements

-

Foreseen Final State of the MS

"Idle, updated", with TMSI allocated.

Test Procedure

The MS is paged. The MS shall send at least one CHANNEL REQUEST message. The SS sends an IMMEDIATE ASSIGNMENT and the MS shall answer with a PAGING RESPONSE message.

The SS sends a CIPHERING MODE COMMAND, ordering the MS to start ciphering with a supported algorithm. After transmission of this command the SS starts deciphering. The MS shall respond with a CIPHERING MODE COMPLETE message in the commanded ciphered mode using the cipher key K. After reception of the CIPHERING MODE COMPLETE the SS starts enciphering. The MS shall be ready to transmit the CIPHERING MODE COMPLETE message before 500 ms after the end of the CIPHERING MODE COMMAND message.

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

The SS sends an AUTHENTICATION REQUEST message to the MS. Cipher key L is calculated. The MS shall send an AUTHENTICATION RESPONSE message to the SS.

The SS sends a HANDOVER COMMAND (for a finely synchronized intra-BTS handover) with the Cipher Mode Setting IE set to "no ciphering". The MS shall transmit the HANDOVER COMPLETE on the commanded channel in non ciphered mode.

The SS sends an ASSIGNMENT COMMAND message containing a Cipher Mode Setting IE set to "start ciphering". The MS shall start transmitting on the commanded channel using the commanded algorithm and cipher key K. The MS shall transmit the ASSIGNMENT COMPLETE message.

The SS sends a CIPHERING MODE COMMAND, ordering the MS to stop ciphering. After transmission of this command the SS stops deciphering. The MS shall respond with a CIPHERING MODE COMPLETE message in non ciphered mode. After reception of the CIPHERING MODE COMPLETE the SS stops enciphering.

The SS sends a HANDOVER COMMAND (for a finely synchronized intra-BTS handover) with the Cipher Mode Setting IE set to "start ciphering". The MS shall transmit the HANDOVER COMPLETE on the commanded channel in ciphered mode using cipher key L and command algorithm.

The SS sends a HANDOVER COMMAND (for a finely synchronized intra-BTS handover) with the Cipher Mode Setting IE set to "start ciphering" and the algorithm identifier indicating the algorithm currently in use. The MS shall transmit the HANDOVER COMPLETE on the commanded channel in ciphered mode using the same algorithm as before the handover.

The SS sends an ASSIGNMENT COMMAND message containing a Cipher Mode Setting IE set to "no ciphering". The MS shall start transmitting on the commanded channel in non-ciphered mode. The MS shall transmit the ASSIGNMENT COMPLETE message.

The SS sends a CIPHERING MODE COMMAND, containing a Cipher Mode Setting IE set to "no ciphering". The MS shall respond with a CIPHERING MODE COMPLETE message.

The SS sends an AUTHENTICATION REQUEST message to the MS. Cipher key M is calculated. The MS shall send an AUTHENTICATION RESPONSE message to the SS.

The SS sends a HANDOVER COMMAND (for a finely synchronized intra-BTS handover) with the Cipher Mode Setting IE set to "start ciphering". The MS shall transmit the HANDOVER COMPLETE on the commanded channel using the commanded algorithm and cipher key L.

The SS sends a HANDOVER COMMAND (for a finely synchronized intra-BTS handover) with the Cipher Mode Setting IE set to "no ciphering". The SS does not activate the commanded channel. The MS's transmissions on the new channel need not be monitored. The MS shall transmit the HANDOVER FAILURE message on the "old" channel using the "old" algorithm and cipher key L and commanded algorithm.

The SS sends an ASSIGNMENT COMMAND message containing a Cipher Mode Setting IE set to "start ciphering". The SS does not activate the commanded channel. The MS's transmissions on the new channel need not be monitored. The MS shall transmit the ASSIGNMENT FAILURE message on the "old" channel using the "old" algorithm and cipher key L.

If the MS only supports one ciphering algorithm then the SS sends a CHANNEL RELEASE message.

If the MS supports more than one ciphering algorithm then the following steps are performed:

The SS sends an ASSIGNMENT COMMAND message containing a Cipher Mode Setting IE set to "start ciphering" and the Algorithm Identifier indicating a different supported algorithm to the one in use. The MS shall start transmitting on the commanded channel using the commanded algorithm. The MS shall transmit the ASSIGNMENT COMPLETE message.

The SS sends a HANDOVER COMMAND (for a finely synchronized intra-BTS handover) containing a Cipher Mode Setting IE set to "start ciphering" and the Algorithm Identifier indicating a different supported algorithm to the one in use. The MS shall transmit the HANDOVER COMPLETE on the commanded channel using the commanded algorithm.

The SS sends a CHANNEL RELEASE to end the test.

Maximum Duration of Test

3 minutes.

Expected Sequence

For MSs that only support one ciphering algorithm, the SS shall use step 61A. For MSs that support more than one ciphering algorithm, the SS shall use step 61B and the subsequent steps.

NOTE: 3GPP TS 04.08 / 3GPP TS 44.018 appears to be unclear as to whether timer T3240 shall or shall not be started as a result of the AUTHENTICATION REQUEST messages sent in steps 8 and 44. To allow a variety of test equipment implementations, the IDENTITY REQUEST messages are included in order to avoid an unexpected expiry of timer T3240 prior to the end of the expected sequence.

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST TYPE 1	
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	To either SDCCH4 or SDCCH8 depending upon CCCH_CONF arbitrarily chosen.
4	MS -> SS	PAGING RESPONSE	
5	SS -> MS	CIPHERING MODE COMMAND	Cipher Mode Setting = "Start Ciphering", algorithm arbitrarily selected from those supported by the MS. The SS starts deciphering with the selected algorithm.
6	MS -> SS	CIPHERING MODE COMPLETE	Sent in ciphered mode using key "K", the stored cipher key, and the commanded algorithm. This message shall be ready to be transmitted before 500 ms after the completion of step 5.
7	SS		- The SS starts enciphering using key "K".
8	SS -> MS	AUTHENTICATION REQUEST	Contains a new Ciphering Key Sequence Number which is associated with the new cipher key, "L".
9	MS -> SS	AUTHENTICATION RESPONSE	
10	SS -> MS	HANDOVER COMMAND	Includes Cipher Mode Setting IE set to "No Ciphering".
11	SS		The SS activates the new channel without ciphering.
12	MS -> SS	HANDOVER ACCESS	These four HANDOVER ACCESS messages are
13	MS -> SS	HANDOVER ACCESS	sent on the new channel in non ciphered
14	MS -> SS	HANDOVER ACCESS	mode.
15	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
16	MS -> SS	HANDOVER COMPLETE	Sent in non ciphered mode on the new channel.
17	SS -> MS	ASSIGNMENT COMMAND	Includes Cipher Mode Setting IE set to "Start Ciphering", with algorithm arbitrarily selected from those supported by the MS.
18	SS		The SS activates the new channel with enciphering and deciphering enabled and using cipher key "K".
19	MS -> SS	ASSIGNMENT COMPLETE	Sent on the new channel in ciphered mode using key "K" and the commanded algorithm.
20	SS -> MS	CIPHERING MODE COMMAND	Cipher Mode Setting = "No Ciphering". The SS starts receiving in non ciphered mode.
21	MS -> SS	CIPHERING MODE COMPLETE	Sent in non ciphered mode. This message shall be ready to be transmitted before 500 ms after the completion of step 20.
22	SS		The SS starts transmitting in non ciphered mode.
23	SS -> MS	HANDOVER COMMAND	Includes Cipher Mode Setting IE set to "Start Ciphering", with algorithm "X" arbitrarily selected from those supported by the MS.
24	SS		The SS activates the new channel with enciphering and deciphering enabled and using cipher key "L".
25	MS -> SS	HANDOVER ACCESS	These four HANDOVER ACCESS messages are
26	MS -> SS	HANDOVER ACCESS	sent on the new channel in the non ciphered
27	MS -> SS	HANDOVER ACCESS	mode.
28	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
29	MS -> SS	HANDOVER COMPLETE	Sent on the new channel in ciphered mode using key "L" and algorithm "X".
30	SS -> MS	IDENTITY REQUEST	
31	MS -> SS	IDENTITY RESPONSE	
32	SS -> MS	HANDOVER COMMAND	Includes Cipher Mode Setting IE set to "Start Ciphering", with algorithm identifier set to "X".
33	SS		The SS activates the new channel with enciphering and deciphering enabled.
34	MS -> SS	HANDOVER ACCESS	These four HANDOVER ACCESS messages are
35	MS -> SS	HANDOVER ACCESS	sent on the new channel in the non ciphered
36	MS -> SS	HANDOVER ACCESS	mode.
37	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

Step	Direction	Message	Comments
38	MS -> SS	HANDOVER COMPLETE	Sent on the new channel in ciphered mode using algorithm "X".
39	SS -> MS	ASSIGNMENT COMMAND	Includes Cipher Mode Setting IE set to "No Ciphering".
40	SS		The SS activates the new channel without ciphering.
41	MS -> SS	ASSIGNMENT COMPLETE	Sent in non-ciphered mode on the new channel.
42	SS -> MS	CIPHERING MODE COMMAND	Cipher Mode Setting = "No Ciphering".
43	MS -> SS	CIPHERING MODE COMPLETE	Sent in non ciphered mode. This message shall be ready to be transmitted before 500 ms after the completion of step 42.
44	SS -> MS	AUTHENTICATION REQUEST	Contains a new Ciphering Key Sequence Number which is associated with the new cipher key, "M".
45	MS -> SS	AUTHENTICATION RESPONSE	
46	SS -> MS	HANDOVER COMMAND	Includes Cipher Mode Setting IE set to "Start Ciphering", with algorithm "Y" arbitrarily selected from those supported by the MS.
47	SS		The SS activates the new channel with enciphering and deciphering enabled and using cipher key "L".
48	MS -> SS	HANDOVER ACCESS	These four HANDOVER ACCESS messages are sent on the new channel in the non ciphered mode.
49	MS -> SS	HANDOVER ACCESS	
50	MS -> SS	HANDOVER ACCESS	
51	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
52	MS -> SS	HANDOVER COMPLETE	Sent on the new channel in ciphered mode using key "L"
53	SS -> MS	HANDOVER COMMAND	Includes Cipher Mode Setting IE set to "No Ciphering".
54	SS, MS		The SS does not activate the new channel The MS's transmissions on the new channel need not be monitored.
55	MS -> SS	HANDOVER FAILURE	sent on old channel using algorithm "Y" and key "L".
56	SS -> MS	IDENTITY REQUEST	
57	MS -> SS	IDENTITY RESPONSE	
58	SS -> MS	ASSIGNMENT COMMAND	Includes Cipher Mode Setting IE set to "No Ciphering".
59	SS, MS		The SS does not activate the new channel The MS's transmissions on the new channel need not be monitored.
60	MS -> SS	ASSIGNMENT FAILURE	sent on old channel using algorithm "Y" and key "L".
61A	SS -> MS	CHANNEL RELEASE	
61B	SS -> MS	ASSIGNMENT COMMAND	Includes Cipher Mode Setting IE set to "Start Ciphering", with algorithm "Z" arbitrarily selected from those supported by the MS but different to algorithm "Y".
62B	SS		The SS activates the new channel with enciphering and deciphering enabled.
63B	MS -> SS	ASSIGNMENT COMPLETE	Sent on the new channel in ciphered mode using key "L" and algorithm "Z".
64B	SS -> MS	HANDOVER COMMAND	Includes Cipher Mode Setting IE set to "Start Ciphering" and the algorithm identifier set to "Y".
65B	SS		The SS activates the new channel with enciphering and deciphering enabled.
66B	MS -> SS	HANDOVER ACCESS	These four HANDOVER ACCESS messages are sent on the new channel in the non ciphered mode.
67B	MS -> SS	HANDOVER ACCESS	
68B	MS -> SS	HANDOVER ACCESS	
69B	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
70B	MS -> SS	HANDOVER COMPLETE	Sent on the new channel in ciphered mode using key "L" and algorithm "Y".
71B	SS -> MS	CHANNEL RELEASE	

Specific Message Contents

ASSIGNMENT COMMAND

Information Element	value/remark
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101110
Channel Description	
- Channel Type	SDCCH/8 or SDCCH4 (same type as old channel)
- TDMA offset	Chosen arbitrarily, but different to the one in use (SDCCH4), otherwise arbitrary..
- Timeslot Number	Chosen arbitrarily, but different to the one in use (SDCCH8) or Timeslot zero.(SDCCH4)
- Training Sequence Code	5 (same as the BCC).
- Hopping	Single RF channel.
- ARFCN	See table below.
Power Command	
- Power level	Chosen arbitrarily but within the range supported by the MS.
Cipher Mode Setting	As specified above.
All other information elements:	Not present.

HANDOVER COMMAND

Information Element	value/remark
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101011
Cell Description	
- Network Colour Code	1
- Base station Colour Code	5
- BCCH Carrier Number	See table below.
Channel Description	
- Channel Type	SDCCH/8 or SDCCH4(same type as old channel)
- TDMA offset	Chosen arbitrarily, but different to the one in use (SDCCH4), otherwise arbitrary.
- Timeslot Number	Chosen arbitrarily, but different to the one in use (SDCCH8) or Timeslot zero.(SDCCH4)
- Training Sequence Code	5 (same as the BCC).
- Hopping	Single RF channel.
- ARFCN	See table below.
Handover Reference	
- Handover Reference Value	Chosen arbitrarily.
Power Command	
- Power level	Chosen arbitrarily, but within the range supported by the MS.
Synchronization Indication	
- Synchronization indication	synchronized.
- Report observed time difference	not included.
- Normal cell indication	out of range ignored.
Cipher Mode setting	As specified above.
All other information elements:	Not present.

Band	ARFCN
GSM 450	265
GSM 480	315
GSM 710	467
GSM 750	467
T-GSM 810	467
GSM 850	157
GSM 900	30
DCS 1 800	650
PCS 1 900	650

CIPHER MODE COMMAND

Information Element	value/remark
As default message contents, except: Cipher Mode Setting - Algorithm Identifier - Cipher Mode Set	As specified above. As specified above.

26.6.8.5 Ciphering mode / IMEISV request

If the MS does not supply the IMEISV when requested, the network will not know whether or not the MS is type approved, i.e. whether or not it has passed any tests.

If the MS supplies its IMEISV when not requested, this may cause calls to systematically fail.

26.6.8.5.1 Conformance requirements

1. When the MS receives the CIPHERING MODE COMMAND message with Cipher Response bit set to "IMEISV shall be included" and the Cipher Mode Setting is "no ciphering", the MS shall include the IMEISV in the Mobile Identity IE in the CIPHERING MODE COMPLETE message.
2. When the MS receives the CIPHERING MODE COMMAND message with Cipher Response bit set to "IMEISV shall not be included", the MS shall not include the Mobile Identity IE in the CIPHERING MODE COMPLETE message.
3. When the MS receives the CIPHERING MODE COMMAND message with Cipher Response bit set to "IMEISV shall be included" and the Cipher Mode Setting is "Ciphering required", the MS shall include the IMEISV in the Mobile Identity IE in the CIPHERING MODE COMPLETE message.
4. When the MS receives a IDENTITY REQUEST message with ciphering enabled and the Identity Type IE set to "IMEISV", the MS shall return its IMEISV in the Mobile Identity IE contained within the IDENTITY RESPONSE message.
5. To verify that the SVN portion of the IMEISV value returned by the MS is coded using binary coded decimal digits and does not use the reserved value "99".

References

Conformance requirement 1: 3GPP TS 04.08 / 3GPP TS 44.018 subclauses 3.4.7.2 and 9.1.10.1.

Conformance requirement 2: 3GPP TS 04.08 / 3GPP TS 44.018 subclause 9.1.10.1.

Conformance requirement 3: 3GPP TS 04.08 / 3GPP TS 44.018 subclause 9.1.10.1.

Conformance requirement 4: 3GPP TS 24.008 subclauses 4.4.3.1, 4.7.1.2 and 4.7.8

Conformance requirement 5: 3GPP TS 23.003 subclause 6.2.2 / 3GPP TS 24.008 table 10.5.1.4

26.6.8.5.2 Test purpose

To verify that the MS supplies its IMEISV in the CIPHERING MODE COMPLETE message when it receives a CIPHERING MODE COMMAND message with a Cipher Response bit set to "IMEISV shall be included" and ciphering is not active/required.

To verify that the MS does not supply any Mobile Identity IE in the CIPHERING MODE COMPLETE message when it receives a CIPHERING MODE COMMAND message with a Cipher Response bit set to "IMEISV shall not be included".

To verify that the MS supplies its IMEISV in the CIPHERING MODE COMPLETE message when it receives a CIPHERING MODE COMMAND message with a Cipher Response bit set to "IMEISV shall be included" and ciphering is active/required.

To verify that the MS supplies its IMEISV in the IDENTITY RESPONSE message when it receives a IDENTITY REQUEST message with the Identity Type IE set to "IMEISV". The IDENTITY REQUEST and IDENTITY RESPONSE messages should not be ciphered (refer to 3GPP TS 24.008 clause 4.7.1.2).

To verify that the MS codes the SVN portion of the IMEISV using binary coded decimal (BCD) digits and does not use the reserved value "99".

26.6.8.5.3 Method of test

Initial Conditions

System Simulator:

1 cell.

Mobile Station:

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

Specific PICS statements

-

PIXIT statements

- IMEISV of the MS.

Foreseen Final State of the MS

"Idle, updated", with TMSI allocated.

Test Procedure

The MS is paged. It shall send at least one CHANNEL REQUEST message. The SS sends an IMMEDIATE ASSIGNMENT and the MS shall answer with a PAGING RESPONSE. Then the SS sends a CIPHERING MODE COMMAND indicating "No ciphering" and with the Cipher Response bit set to "IMEISV shall not be included". The MS shall respond with a CIPHERING MODE COMPLETE message that does not include the Mobile Identity IE.

Then the SS sends a CIPHERING MODE COMMAND indicating "No ciphering" and with the Cipher Response bit set to "IMEISV shall be included". The MS shall respond with a CIPHERING MODE COMPLETE message that carries the IMEISV in the Mobile Identity IE. The SS checks the IMEISV value and verifies that the SVN IE is coded using BCD and does not equal the reserved value "99".

The SS sends an IDENTITY REQUEST message with the Identity Type IE set to request the IMEISV value from the MS. The MS shall respond with an IDENTITY RESPONSE message that carries the IMEISV in the Mobile Identity IE. The SS then checks the IMEISV value and verifies that the SVN IE is coded using BCD and does not equal the reserved value "99".

The IDENTITY REQUEST and IDENTITY RESPONSE messages shall not be ciphered.

The SS sends a third CIPHERING MODE COMMAND indicating "ciphering required" and with the Cipher Response bit set to "IMEISV shall be included". The MS shall respond with a CIPHERING MODE COMPLETE message that carries the IMEISV in the Mobile Identity IE. The SS checks the IMEISV value and verifies that the SVN IE is coded using BCD and does not equal the reserved value "99"..

Finally the SS sends a CHANNEL RELEASE to end the test.

Maximum Duration of Test

20 s.

Expected Sequence

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST TYPE 1	
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	PAGING RESPONSE	
5	SS -> MS	CIPHERING MODE COMMAND	Cipher Mode Setting = "No Ciphering". Cipher Response = "IMEISV shall not be included".
6	MS -> SS	CIPHERING MODE COMPLETE	Shall not include Mobile Identity IE.
7	SS -> MS	CIPHERING MODE COMMAND	Cipher Mode Setting = "No Ciphering". Cipher Response = "IMEISV shall be included".
8	MS -> SS	CIPHERING MODE COMPLETE	Shall include one Mobile Identity IE carrying the MS's IMEISV. The SS checks the IMEISV value is coded in BCD digits and does not equal 99.
9	SS -> MS	IDENTITY REQUEST	Identity Type = "IMEISV"
10	MS -> SS	IDENTITY RESPONSE	The IDENTITY REQUEST message shall not be ciphered. Shall include Mobile Identity IE carrying the MS's IMEISV. The SS checks the IMEISV value is coded in BCD digits and does not equal 99.
11	SS -> MS	CIPHERING MODE COMMAND	The IDENTITY RESPONSE message shall not be ciphered. Cipher Mode Setting = "Start Ciphering".
12	MS -> SS	CIPHERING MODE COMPLETE	Cipher Response = "IMEISV shall be included". Shall include one Mobile Identity IE carrying the MS's IMEISV. The SS checks the IMEISV value is coded in BCD digits and does not equal 99. The SVN portion of the IMEISV shall not be ciphered.
13	SS -> MS	CHANNEL RELEASE	

Specific Message Contents

None.

26.6.8.6 Ciphering mode / Non support of algorithm A5/2

26.6.8.6.1 Conformance requirements

For the MS it is prohibited to implement algorithm A5/2.

References

3GPP TS 43.020 subclause 4.9

26.6.8.6.2 Test purpose

To verify that the MS does not start ciphering when it receives a CIPHERING MODE COMMAND message with Cipher Mode Setting = "Start Ciphering" and algorithm identifier set to "A5/2".

26.6.8.6.3 Method of test

Initial Conditions

System Simulator:

1 cell. ATT=1.

Mobile Station:

Power off.

Specific PICS statements

-

PIXIT statements

-

Test Procedure

The MS is powered on. The MS sends CHANNEL REQUEST for doing location update procedure. The SS sends an IMMEDIATE ASSIGNMENT and the MS shall answer with a LOCATION UPDATING REQUEST. SS checks that MS does not support A5/2 algorithm by CLASSMARK ENQUIRY Procedure. Then SS sends an AUTHENTICATION REQUEST and the MS shall answer with AUTHENTICATION RESPONSE. Then the SS sends a CIPHERING MODE COMMAND, ordering the MS to start ciphering with algorithm A5/2 which is prohibited for the MS. After transmission of this command the SS starts deciphering. The MS shall not respond with a CIPHERING MODE COMPLETE message in ciphered mode using the cipher key determined during the authentication procedure.

Maximum Duration of Test

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

Expected Sequence

Step	Direction	Message	Comments
1	MS -> SS	CHANNEL REQUEST	MS is switched on or powered on
2	SS -> MS	IMMEDIATE ASSIGNMENT	
3	MS -> SS	LOCATION UPDATING REQUEST	
4	SS->MS	CLASSMARK ENQUIRY	CLASSMARK CHANGE message is requested A5/2 algorithm = "encryption algorithm A5/2 not available" in Mobile Station Classmark 2 IE
5	MS->SS	CLASSMARK CHANGE	
6	SS -> MS	AUTHENTICATION REQUEST	Cipher Mode Setting = "Start Ciphering; cipher with algorithm A5/2". The SS starts deciphering. SS checks that there is no valid L3 message received using algorithm A5/2 (e.g. CIPHERING MODE COMPLETE) within 10s.
7	MS -> SS	AUTHENTICATION RESPONSE	
8	SS -> MS	CIPHERING MODE COMMAND	

Specific Message Contents

None.

26.6.8.7 Ciphering mode with cipher key Kc_{128}

26.6.8.7.1 Conformance requirements

- When the MS receives the CIPHERING MODE COMMAND message with Ciphering Mode Setting information element set to "start ciphering", the MS starts ciphering and deciphering with the algorithm indicated by the "algorithm identifier" field:
 - the MS responds with a CIPHERING MODE COMPLETE message in ciphered mode;
 - the ciphering uses the cipher key determined during the authentication procedure.
- The MS responds to the AUTHENTICATION REQUEST message with an AUTHENTICATION RESPONSE message and continues to use the ciphering key obtained from the previous authentication procedure.
- The ASSIGNMENT COMMAND message may contain a cipher mode setting IE. In that case, this ciphering mode has to be applied on the new channel. If no such information is present, the ciphering mode is the same as on the previous channel. In either case the ciphering key shall not be changed as long as the key length remains unchanged.

References

3GPP TS 44.018 subclause 3.4.3, 3.4.7.

3GPP TS 24.008 subclause 4.3.2.

26.6.8.7.2 Test purpose

To verify that the MS calculates the correct Kc_{128} and starts ciphering using cipher algorithm A5/4 when it receives a CIPHERINGMODE COMMAND message with Cipher Mode Setting = "Start Ciphering".

To verify that the correct Kc_{128} key is used after ASSIGNMENT COMMAND including cipher mode setting for A5/4 algorithm.

26.6.8.7.3 Method of test

Initial Conditions

System Simulator:

1 cell, default settings.

Mobile Station:

Test USIM is plugged into the MS. The MS is in the "idle, updated" state, with a TMSI allocated.

Specific PICS statements

-

PIXIT statements

-

Foreseen Final State of the MS

CC state U10-call active.

Test Procedure

The MS is made to originate a call. It shall send at least one CHANNEL REQUEST message. The SS sends an IMMEDIATE ASSIGNMENT and the MS shall answer with a CM SERVICE REQUEST. The SS sends an AUTHENTICATION REQUEST with AUTN Information Element present and the MS shall answer with AUTHENTICATION RESPONSE with correct RES. Then the SS sends a CIPHERING MODE COMMAND ordering the MS to start ciphering with algorithm A5/4. After transmission of this command the SS starts deciphering. The MS shall respond with a CIPHERING MODE COMPLETE message in ciphered mode using the 128 bit cipher key calculated during the authentication procedure and continue to establish the call with a SETUP message.

The SS sends CALL PROCEEDING and initiates a new authentication procedure by sending AUTHENTICATION REQUEST with AUTN Information Element present and different RAND value. The MS shall respond with AUTHENTICATION RESPONSE with correct RES.

The call setup is proceeded with ALERTING. SS sends ASSIGNMENT COMMAND including cipher mode setting indicating A5/4. The MS shall respond with an ASSIGNMENT COMPLETE message in ciphered mode using the 128 bit cipher key calculated during the first authentication procedure. The call establishment is finished on the ciphered channel with CONNECT and CONNECT ACKNOWLEDGEMENT.

Maximum Duration of Test

1 minute.

Expected Sequence

Step	Direction	Message	Comments
1	MS -> SS	CHANNEL REQUEST	Establ. Cause = "Originating Call" NECI not set to 1
2	SS -> MS	IMMEDIATE ASSIGNMENT	
3	MS -> SS	CM SERVICE REQUEST	
4	SS -> MS	AUTHENTICATION REQUEST	Cipher key Kc_{128} has been calculated. Correct RES Cipher Mode Setting = "Start Ciphering; cipher with algorithm A5/4". The SS starts deciphering. Sent in ciphered mode using the cipher key determined in step 5. The SS start enciphering.
5	MS -> SS	AUTHENTICATION RESPONSE	
6	SS -> MS	CIPHERING MODE COMMAND	
7	MS -> SS	CIPHERING MODE COMPLETE	
8	MS -> SS	SETUP	
9	SS -> MS	CALL PROCEEDING	A new cipher key Kc_{128} has been calculated. Correct RES Depending on the PIXIT, an alerting indication is given. Cipher Mode Setting = "Start Ciphering; cipher with algorithm A5/4" Sent in ciphered mode using the cipher key determined in step 5.
10	SS -> MS	AUTHENTICATION REQUEST	
11	MS -> SS	AUTHENTICATION RESPONSE	
12	SS -> MS	ALERTING	
13	MS		
14	SS -> MS	ASSIGNMENT COMMAND	
15	MS -> SS	ASSIGNMENT COMPLETE	
16	SS -> MS	CONNECT	
17	MS -> SS	CONNECT ACKNOWLEDGE	

Specific Message Contents

AUTHENTICATION REQUEST step 4

Information Element	value/remark
AUTN Information Element	present - Length = 16 - Calculated as defined for Test USIM

CIPHERING MODE COMMAND step 6

Information Element	value/remark
Algorithm identifier	A5/4

AUTHENTICATION REQUEST step 10

Information Element	value/remark
RAND	different than in step 4
AUTN Information Element	present - Length = 16 - Calculated as defined for Test USIM

ASSIGNMENT COMMAND step 14

Information Element	value/remark
Cipher Mode Setting	A5/4

26.6.8.8 Ciphering mode with cipher key Kc_{128} and algorithm changes

26.6.8.8.1 Conformance requirements

1. A ME supporting UMTS authentication challenge may support the following procedure: In order to avoid a synchronisation failure, if the same RAND is received twice, the mobile station shall store the received RAND together with the RES returned from the USIM in the volatile memory and compare it with any subsequently received RAND values, until the RAND value stored in the mobile station is deleted. If the stored RAND value

is equal to the new received value in the AUTHENTICATION REQUEST message, then the mobile station shall not pass the RAND to the USIM, but shall immediately send the AUTHENTICATION RESPONSE message with the stored RES. If there is no valid stored RAND in the mobile station or the stored RAND is different from the new received value in the AUTHENTICATION REQUEST message, the mobile station shall pass the RAND to the USIM, shall override any previously stored RAND and RES with the new ones and start, or reset and restart timer T3218.

- 2 The ME with a USIM in use shall compute a new GSM Kc_{128} using the UMTS ciphering key and the UMTS integrity key from an established UMTS security context as specified in 3GPP TS 33.102 [5a]. The new GSM Kc_{128} shall be stored only in the ME.
- 3 The ASSIGNMENT COMMAND message may contain a cipher mode setting IE. In that case, this ciphering mode has to be applied on the new channel. If no such information is present, the ciphering mode is the same as on the previous channel. In either case the ciphering key shall not be changed as long as the key length remains unchanged. However, in case of a switch between ciphering algorithms requiring different key lengths, i.e. 64 or 128 bits, a change from the 64 bit key to the 128 bit key or vice versa must be performed
- 4 In a UMTS authentication challenge, the new UMTS ciphering key, the new GSM ciphering key and the new UMTS integrity key calculated from the challenge information shall overwrite the previous UMTS ciphering key, GSM ciphering key and UMTS integrity key. The new UMTS ciphering key, GSM ciphering key and UMTS integrity key are stored on the USIM together with the ciphering key sequence number. Furthermore, in A/Gb mode when after the authentication procedure an A5 ciphering algorithm that requires a 128-bit ciphering key is taken into use, then a new GSM Kc_{128} shall also be calculated as described in the subclause 4.3.2.3a.

References

3GPP TS 44.018 subclause 3.4.3

3GPP TS 24.008 subclause 4.3.2

26.6.8.8.2 Test purpose

To verify that the MS handles correctly key length changes when the SS orders the MS to change from A5/1 to A5/4 and vice versa.

26.6.8.8.3 Method of test

Initial Conditions

System Simulator:

1 cell, default settings.

Mobile Station:

Test USIM is plugged into the MS. The MS is in the "idle, updated" state, with a TMSI allocated.

Specific PICS statements

-

PIXIT statements

-

Foreseen Final State of the MS

"Idle, updated", with TMSI allocated.

Test Procedure

The MS is paged. The MS shall send at least one CHANNEL REQUEST message. The SS sends an IMMEDIATE ASSIGNMENT and the MS shall answer with a PAGING RESPONSE message. The SS sends an AUTHENTICATION REQUEST with AUTN Information Element present and the MS shall answer with AUTHENTICATION RESPONSE with correct RES. Then the SS sends a CIPHERING MODE COMMAND ordering the MS to start ciphering with algorithm A5/1. After transmission of this command the SS starts deciphering. The MS

shall respond with a CIPHERING MODE COMPLETE message in ciphered mode using the 64 bit key K_c calculated during the authentication procedure.

The SS then sends another AUTHENTICATION REQUEST with AUTN Information Element present and the MS shall respond with AUTHENTICATION RESPONSE with correct RES. The MS shall continue to use the old cipher key. Then the SS sends an ASSIGNMENT COMMAND with CIPHER MODE SETTING information element indicating to use algorithm A5/4. The MS shall respond with a ASSIGNMENT COMPLETE message in ciphered mode using the 128 bit cipher key K_{c128} calculated during the previous authentication procedure.

After an identity procedure the SS then sends another AUTHENTICATION REQUEST with AUTN and the MS shall answer with an AUTHENTICATION RESPONSE with correct RES. Then the SS sends an ASSIGNMENT COMMAND with CIPHER MODE SETTING information element indicating to use algorithm A5/1. The MS completes the procedure by sending an ASSIGNMENT COMPLETE message in ciphered mode using the key calculated during the previous authentication.

After an identity procedure the SS sends a CHANNEL RELEASE to end the test.

Maximum Duration of Test

3 minutes.

Expected Sequence

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST TYPE 1	SS assigns a SDCCH8
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	PAGING RESPONSE	
5	SS -> MS	AUTHENTICATION REQUEST	Cipher keys K_c and K_{c128} have been calculated. Correct RES.
6	MS -> SS	AUTHENTICATION RESPONSE	
7	SS -> MS	CIPHERING MODE COMMAND	Cipher Mode Setting = "Start Ciphering; cipher with algorithm A5/1". The SS starts deciphering.
8	MS -> SS	CIPHERING MODE COMPLETE	Sent in ciphered mode using the cipher key K_c determined in step 6. The SS start enciphering.
9	SS -> MS	AUTHENTICATION REQUEST	New cipher keys K_c and K_{c128} have been calculated Correct RES Sent in ciphered mode using the cipher key K_c determined in step 6.
10	MS -> SS	AUTHENTICATION RESPONSE	
11	SS -> MS	ASSIGNMENT COMMAND	
12	MS -> SS	ASSIGNMENT COMPLETE	
13	SS -> MS	IDENTITY REQUEST	New cipher keys K_c and K_{c128} have been calculated Correct RES Sent in ciphered mode using the cipher key K_{c128} determined in step 6.
14	MS -> SS	IDENTITY RESPONSE	
15	SS -> MS	AUTHENTICATION REQUEST	
16	MS -> SS	AUTHENTICATION RESPONSE	
17	SS -> MS	ASSIGNMENT COMMAND	SS assigns SDCCH8 Cipher Mode Setting = "Start Ciphering; cipher with algorithm A5/1"
18	MS -> SS	ASSIGNMENT COMPLETE	Sent in ciphered mode using cipher algorithm A5/1 and the cipher key K_c determined in step 6.
19	SS -> MS	IDENTITY REQUEST	
20	MS -> SS	IDENTITY RESPONSE	
21	SS -> MS	CHANNEL RELEASE	

Specific Message Contents

AUTHENTICATION REQUEST step 5

Information Element	value/remark
RAND	Arbitrarily chosen
AUTN Information Element	present - Length = 16 - Calculated as defined for Test USIM

CIPHERING MODE COMMAND step 7

Information Element	value/remark
Algorithm identifier	A5/1

AUTHENTICATION REQUEST step 9

Information Element	value/remark
RAND	different than in step 5
AUTN Information Element	present - Length = 16 - Calculated as defined for Test USIM

ASSIGNMENT COMMAND step 11

Information Element	value/remark
Channel Description - Channel Type - TDMA offset - Timeslot Number	SDCCH4 (same type as old channel) Chosen arbitrarily, but different to the one in use. Chosen arbitrarily, but different to the one in use.
Cipher Mode Setting	A5/4.

ASSIGNMENT COMMAND step 17

Information Element	value/remark
Channel Description - Channel Type - TDMA offset - Timeslot Number - Training Sequence Code	SDCCH8 Chosen arbitrarily, but different to the one in use. Chosen arbitrarily, but different to the one in use. 5 (same as the BCC).
Cipher Mode Setting	A5/1

IDENTITY REQUEST step 17 and 19

Information Element	value/remark
Algorithm identifier	001 IMSI

AUTHENTICATION REQUEST step 15

Information Element	value/remark
RAND	different than in step 9
AUTN Information Element	present - Length = 16 - Calculated as defined for Test USIM

26.6.9 Test of additional assignment

The Additional Assignment procedure is used to change an MS's channel configuration from Lm + ACCH to Lm + Lm + ACCH. It is therefore only relevant to those mobiles which perform such an operation.

No tests are specified at the moment.

26.6.10 Test of partial release

The Partial Release procedure is used to change an MS's channel configuration from Lm + Lm + ACCH to Lm + ACCH. It is therefore only relevant to those mobiles which perform such an operation.

No tests are specified at the moment.

26.6.11 Test of classmark

References to Class Mark related PICS values are provided in the table 26.6.11a and 26.6.11b.

Table 26.6.11a: Mobile Station Classmark 2 information element

Item	IE	Values	Mnemonic
1	Revision level	Revision level Bits 7 6 0 0 GSM Phase 1 0 1 GSM Phase 2 MS 1 0 MS supporting R99 or later 1 1 Reserved for Future	TSPC_Revision_Level_GSM_Phase_1 TSPC_Revision_Level_GSM_Phase_2 TSPC_Revision_Level_MS_supporting_R99_or_later
2	ES IND	Bit 5 0 "Controlled Early Classmark Sending" option is not implemented in the MS 1 "Controlled Early Classmark Sending" option is implemented in the MS	TSPC_Controlled_Early_Classmark_Sending
3	A5/1	0 A5/1 Available 1 A5/1 not Available	TSPC_Feat_A51

Item	IE	Values	Mnemonic																																																
4	RF power capability	<p>When T-GSM 380, T-GSM 410, GSM450, GSM 480, GSM 710, GSM750, T-GSM 810, GSM850, GSM 900 P, E T [or R] band is used</p> <p>Bits</p> <table><tr><td>3</td><td>2</td><td>1</td><td></td></tr><tr><td>0</td><td>0</td><td>0</td><td>Class 1</td></tr><tr><td>0</td><td>0</td><td>1</td><td>Class 2</td></tr><tr><td>0</td><td>1</td><td>0</td><td>Class 3</td></tr><tr><td>0</td><td>1</td><td>1</td><td>Class 4</td></tr><tr><td>1</td><td>0</td><td>0</td><td>Class 5</td></tr></table> <p>Other values are reserved</p> <p>When the GSM 1800 or GSM 1900 band is used</p> <p>Bits</p> <table><tr><td>3</td><td>2</td><td>1</td><td></td></tr><tr><td>0</td><td>0</td><td>0</td><td>Class 1</td></tr><tr><td>0</td><td>0</td><td>1</td><td>Class 2</td></tr><tr><td>0</td><td>1</td><td>0</td><td>Class 3</td></tr></table> <p>Other values are reserved</p> <p>When UMTS is used, an MS not supporting any GSM band or a multiband GSM MS</p> <p>Bits</p> <table><tr><td>3</td><td>2</td><td>1</td><td></td></tr><tr><td>1</td><td>1</td><td>1</td><td>RF Power capability is irrelevant in this information element</td></tr></table> <p>Other values are reserved</p>	3	2	1		0	0	0	Class 1	0	0	1	Class 2	0	1	0	Class 3	0	1	1	Class 4	1	0	0	Class 5	3	2	1		0	0	0	Class 1	0	0	1	Class 2	0	1	0	Class 3	3	2	1		1	1	1	RF Power capability is irrelevant in this information element	TSPC_Type_GSM_Class2 TSPC_Type_GSM_Class3 TSPC_Type_GSM_Class4 TSPC_Type_GSM_Class5 TSPC_Type_DCS_Class1 TSPC_Type_DCS_Class2 TSPC_Type_DCS_Class3 TSPC_Type_PCS_Class1 TSPC_Type_PCS_Class2 TSPC_Type_PCS_Class3
3	2	1																																																	
0	0	0	Class 1																																																
0	0	1	Class 2																																																
0	1	0	Class 3																																																
0	1	1	Class 4																																																
1	0	0	Class 5																																																
3	2	1																																																	
0	0	0	Class 1																																																
0	0	1	Class 2																																																
0	1	0	Class 3																																																
3	2	1																																																	
1	1	1	RF Power capability is irrelevant in this information element																																																
5	PS capability	Bit 7 0 PS capability not present 1 PS capability present	TSPC_AddInfo_PseudoSynch																																																
6	SS Screening Indicator	Bits 6 5 0 0 defined in 3GPP TS 24.080 [24] 0 0 defined in 3GPP TS 24.080 [24] 0 1 defined in 3GPP TS 24.080 [24] 1 1 defined in 3GPP TS 24.080 [24]	TSPC_SS_Screening_Indictator_in_CM2																																																
7	SM capability	Bit 4 0 MS not support mobile terminated point to point SMS 1 MS support mobile terminated point to point SMS	TSPC_Serv_TS21																																																

Item	IE	Values	Mnemonic
8	VBS notification reception	Bit 3 0 No VBS capability or no notifications wanted 1 VBS capability and notifications wanted	TSPC_VBS_Notification_Reception
9	VGCS notification reception	Bit 2 0 No VGCS capability or no notifications wanted 1 VGCS capability and notifications wanted	TSPC_VGCS_Notification_Reception
10	Frequency Capability	When a GSM 900 band is used Bit 1 0 The MS does not support the E-GSM or R-GSM band 1 The MS does support the E-GSM or R-GSM	TSPC_Type_GSM_E_Band TSPC_Type_GSM_R_Band
11	CM3	Bit 8 0 The MS does not support any options that are indicated in CM3 1 The MS supports options that are indicated in classmark 3 IE	TSPC_ClassMK3_Info_available
12	LCS VA Capability	Bit 6 0 location request notification via CS domain not supported 1 location request notification via CS domain supported	TSPC_Location_Request_via_CS_Domain
13	UCS2 treatment	Bit 5 0 the ME has a preference for the default alphabet (defined in 3GPP TS 23.038 [8b]) over UCS2. 1 the ME has no preference between the use of the default alphabet and the use of UCS2.	TSPC_UCS2_treatment
14	SoLSA	Bit 4 0 The ME does not support SoLSA. 1 The ME supports SoLSA.	TSPC_SoLSA
15	CM Service Prompt	Bit 3 0 "Network initiated MO CM connection request" not supported. 1 "Network initiated MO CM connection request" supported for at least one CM protocol.	TSPC_CM_Service_Prompt

Item	IE	Values	Mnemonic
16	A5/3	Bit 2 0 encryption algorithm A5/3 not available 1 encryption algorithm A5/3 available	TSPC_Feat_A53
17	A5/2	Bit 1 0 encryption algorithm A5/2 not available 1 Not used.	Shall not be supported anymore

Table 26.6.11b: Mobile Station Classmark 3 Information Element

Item	IE	Values	Mnemonic
1	Multiband supported	000 101 110 001 010 100 Band 1 supported Bit 1 0 P-GSM not supported 1 P-GSM supported Band 2 supported Bit 2 0 E-GSM or R-GSM not supported 1 E-GSM or R-GSM supported Band 3 supported Bit 3 0 GSM 1800 not supported 1 GSM 1800 supported	TSPC_Type_GSM_P_Band TSPC_Type_GSM_E_Band TSPC_Type_GSM_R_Band TSPC_Type_DCS_Band Note: Due to the shared radio frequency channel numbers between DCS 1800 and PCS 1900, even if both DCS_1800_BAND and PCS_1900_BAND are set to TRUE, the MS can only ever indicate support for one of these bands
2	A5 bits	A5/4 0 Encryption algorithm A5/4 not available 1 Encryption algorithm A5/4 available A5/5 0 Encryption algorithm A5/5 not available 1 Encryption algorithm A5/5 available A5/6 0 Encryption algorithm A5/6 not available 1 Encryption algorithm A5/6 available A5/7 0 Encryption algorithm A5/7 not available 1 Encryption algorithm A5/7 available	TSPC_Feat_A54 A5/5 Feature is not available and should set to 0 A5/6 Feature is not available and should set to 0 A5/7 Feature is not available and should set to 0
3	Associated Radio capability 1 and 2	4 bit fields If either of P-GSM or E-GSM or R-GSM is supported, the radio capability 1 field indicates the radio capability for P-GSM, E-GSM or R-GSM, and the radio capability 2 field indicates the radio capability for GSM 1800 if supported, and is spare otherwise. If none of P-GSM or E-GSM or R-GSM are supported, the radio capability 1 field indicates the radio capability for GSM 1800, and the radio capability 2 field is spare. The radio capability contains the binary coding of the power class associated with the band indicated in multiband support bits (see 3GPP TS 45.005 [33]).	TSPC_Type_GSM_Class2 TSPC_Type_GSM_Class3 TSPC_Type_GSM_Class4 TSPC_Type_GSM_Class5 TSPC_Type_DCS_Class1 TSPC_Type_DCS_Class2 TSPC_Type_DCS_Class3

Item	IE	Values	Mnemonic
4	R-GSM band Associated Radio Capability	<p>3 bit field</p> <p>In case where the R-GSM band is supported the R-GSM band associated radio capability field contains the binary coding of the power class associated (see 3GPP TS 45.005) (regardless of the number of GSM bands supported). A mobile station supporting the R-GSM band shall also when appropriate, (see 10.5.1.6) indicate its support in the 'FC' bit in the Mobile Station Classmark 2 information element.</p> <p>NOTE: The coding of the power class for P-GSM, E-GSM, R-GSM and GSM 1800 in radio capability 1 and/or 2 is different to that used in the Mobile Station Classmark 1 and Mobile Station Classmark 2 information elements.</p>	<p>TSPC_Type_GSM_Class2</p> <p>TSPC_Type_GSM_Class3</p> <p>TSPC_Type_GSM_Class4</p> <p>TSPC_Type_GSM_Class5</p>
5	HSCSD Multi Slot Class	<p>5 bit field</p> <p>In case the MS supports the use of multiple timeslots for HSCSD then the HSCSD Multi Slot Class field is coded as the binary representation of the multislot class defined in 3GPP TS 45.002 [32].</p>	TSPC_Type_HSCSD_Multislot
6	UCS2 treatment	<p>0 the ME has a preference for the default alphabet over UCS2.</p> <p>1 the ME has no preference between the use of the default alphabet and the use of UCS2.</p>	TSPC_UCS2_treatment
7	Extended Measurement Capability	<p>0 the MS does not support Extended Measurements</p> <p>1 the MS supports Extended Measurements</p>	TSPC_Extended_Measurement_Capability
8	SMS_VALUE (Switch-Measure-Switch)	<p>Bits</p> <p>4 3 2 1</p> <p>0 0 0 0 1/4 timeslot (~144 microseconds)</p> <p>0 0 0 1 2/4 timeslot (~288 microseconds)</p> <p>0 0 1 0 3/4 timeslot (~433 microseconds)</p> <p>...</p> <p>1 1 1 1 16/4 timeslot (~2307 microseconds)</p>	TSPC_SMS_VALUE_SMS
9	SM_VALUE (Switch-Measure)	<p>Bits</p> <p>4 3 2 1</p> <p>0 0 0 0 1/4 timeslot (~144 microseconds)</p> <p>0 0 0 1 2/4 timeslot (~288 microseconds)</p> <p>0 0 1 0 3/4 timeslot (~433 microseconds)</p> <p>...</p> <p>1 1 1 1 16/4 timeslot (~2307 microseconds)</p>	TSPC_SMS_VALUE_SM

Item	IE	Values	Mnemonic
10	MS Positioning Method	<u>MS assisted E-OTD</u> Bit 5 0 MS assisted E-OTD not supported 1 MS assisted E-OTD supported <u>MS based E-OTD</u> Bit 4 0 MS based E-OTD not supported 1 MS based E-OTD supported <u>MS assisted GPS</u> Bit 3 0 MS assisted GPS not supported 1 MS assisted GPS supported <u>MS based GPS</u> Bit 2 0 MS based GPS not supported 1 MS based GPS supported <u>MS Conventional GPS</u> Bit 1 0 conventional GPS not supported 1 conventional GPS supported	TSPC_EOTD_ASSIST TSPC_EOTD_MS_BASED TSPC_A-GPS_Assist TSPC_A-GPS_Based TSPC_Conv-GPS
11	ECSD Multi Slot class	An MS that supports ECSD shall include this field to indicate its ECSD capability. Whether the MS is capable of 8-PSK modulation in uplink is indicated by the value of the Modulation Capability field in the 8-PSK struct. The ECSD Multi Slot Class field is coded as the binary representation of the multislot class defined in 3GPP TS 45.002 [32].	TSPC_Type_ECSD_Multislot_Class
12	8-PSK struct	0 8-PSK struct not present 1 8-PSK struct present Note: The MS shall include the 8-PSK struct if it supports ECSD or DTM EGPRS or both	TSPC_8-PSK_Struct
13	Modulation Capability	0 8-PSK supported for downlink reception only 1 8-PSK supported for uplink transmission and downlink reception	TSPC_8-PSK_Struct TSPC_Type_DTM_EGPRS_8PSK_uplink TSPC_Type_ECSD_8PSK_uplink
14	8-PSK RF Power Capability 1	Bits 2 1 0 0 Reserved 0 1 Power class E1 1 0 Power class E2 1 1 Power class E3	TSPC_8-PSK_Struct TSPC_8-PSK_PowerCap1 TSPC_Type_GSM_ClassE1 TSPC_Type_GSM_ClassE2 TSPC_Type_GSM_ClassE3 TSPC_Type_GSM_850_ClassE1 TSPC_Type_GSM_850_ClassE2 TSPC_Type_GSM_850_ClassE3
15	8-PSK RF Power Capability 2	Bits 2 1 0 0 Reserved 0 1 Power class E1 1 0 Power class E2 1 1 Power class E3	TSPC_8-PSK_Struct TSPC_8-PSK_PowerCap2 TSPC_Type_DCS_ClassE1 TSPC_Type_DCS_ClassE2 TSPC_Type_DCS_ClassE3 TSPC_Type_PCS_ClassE1 TSPC_Type_PCS_ClassE2 TSPC_Type_PCS_ClassE3
16	GSM 400 Bands Supported	Bits 2 1 0 1 GSM 480 supported, GSM 450 not supported 1 0 GSM 450 supported, GSM 480 not supported 1 1 GSM 450 supported, GSM 480 supported	TSPC_Type_GSM_450_Band TSPC_Type_GSM_480_Band

Item	IE	Values	Mnemonic
17	GSM 400 Associated Radio Capability	<p>4 Bit field</p> <p>If either GSM 450 or GSM 480 or both is supported, the GSM 400 Associated Radio Capability field indicates the radio capability for GSM 450 and/or GSM 480.</p> <p>The radio capability contains the binary coding of the power class associated with the band indicated in GSM 400 Bands Supported bits (see 3GPP TS 45.005 [33]).</p> <p>NOTE: The coding of the power class for GSM 450 and GSM 480 in GSM 400 Associated Radio Capability is different to that used in the Mobile Station Classmark 1 and Mobile Station Classmark 2 information elements.</p>	<p>TSPC_Type_GSM_400_Class2</p> <p>TSPC_Type_GSM_400_Class3</p> <p>TSPC_Type_GSM_400_Class4</p> <p>TSPC_Type_GSM_400_Class5</p>
18	GSM 850 Associated Radio Capability	<p>4 Bit field</p> <p>See the semantic rule for the sending of this field.</p> <p>This field indicates whether GSM 850 band is supported and its associated radio capability.</p> <p>The radio capability contains the binary coding of the power class associated with the GSM 850 band (see 3GPP TS 45.005 [33]).</p> <p>Note: the coding of the power class for GSM 850 in GSM 850 Associated Radio Capability is different to that used in the Mobile Station Classmark 1 and Mobile Station Classmark 2 information elements.</p>	<p>TSPC_Type_GSM_850_Class2</p> <p>TSPC_Type_GSM_850_Class3</p> <p>TSPC_Type_GSM_850_Class4</p> <p>TSPC_Type_GSM_850_Class5</p>
19	GSM 1900 Associated Radio Capability	<p>4 Bit field</p> <p>See the semantic rule for the sending of this field.</p> <p>This field indicates whether GSM 1900 band is supported and its associated radio capability.</p> <p>The radio capability contains the binary coding of the power class associated with the GSM 1900 band (see 3GPP TS 45.005 [33]).</p> <p>Note: the coding of the power class for GSM 1900 in GSM 1900 Associated Radio Capability is different to that used in the Mobile Station Classmark 1 and Mobile Station Classmark 2 information elements.</p>	<p>TSPC_Type_PCS_Class1</p> <p>TSPC_Type_PCS_Class2</p> <p>TSPC_Type_PCS_Class3</p>
20	UMTS FDD Radio Access Technology Capability	<p>0 UMTS FDD not supported</p> <p>1 UMTS FDD supported</p>	TSPC_Type_UTRAN_FDD
21	UMTS 3.84 Mcps TDD Radio Access Technology Capability	<p>0 UMTS 3.84 Mcps TDD not supported</p> <p>1 UMTS 3.84 Mcps TDD supported</p>	TSPC_Type_UTRAN3.84_TDD
22	CDMA 2000 Radio Access Technology Capability	<p>0 CDMA2000 not supported</p> <p>1 CDMA2000 supported</p>	TSPC_CDMA2000
23	DTM GPRS Multi Slot Class	<p>Bit</p> <p>2 1</p> <p>0 0 Unused. If received, the network shall interpret this as '01'</p> <p>0 1 Multislot class 5 supported</p> <p>1 0 Multislot class 9 supported</p> <p>1 1 Multislot class 11 supported</p>	<p>TSPC_DTM_GPRS_Multislot_Class_1</p> <p>TSPC_DTM_GPRS_Multislot_Class_5</p> <p>TSPC_DTM_GPRS_Multislot_Class_9</p> <p>TSPC_DTM_GPRS_Multislot_Class_11</p>
24	Single Slot DTM	<p>0 Single Slot DTM not supported</p> <p>1 Single Slot DTM supported</p>	<p>TSPC_DTM_GPRS_Singleslot_Allocation</p> <p>TSPC_DTM_EPGRS_Singleslot_Allocation</p>

Item	IE	Values	Mnemonic
25	DTMEGPRS Multi Slot Class	<p>This field indicates the DTM GPRS multislot capabilities of the MS. It is coded as follows:</p> <p>Bit</p> <p>2 1</p> <p>0 0 Unused. If received, the network shall interpret this as '01'</p> <p>0 1 Multislot class 5 supported</p> <p>1 0 Multislot class 9 supported</p> <p>1 1 Multislot class 11 supported</p> <p>If a multislot class type 1 MS indicates the support of a DTM GPRS multislot class for which three uplink timeslots can be assigned, the mobile station shall support Extended Dynamic Allocation.</p> <p>This field shall contain one of the following values if the <i>DTM GPRS High Multi Slot Class</i> field is present:</p> <ul style="list-style-type: none"> - Multislot class 9 if DTM GPRS High Multi Slot Class is set to indicate Class 31/36 or Class 41; - Multislot class 11 if DTM GPRS High Multi Slot Class is set to indicate Classes 32/37, 33/38 or Classes 42, 43, 44. <p>The same multislot capability is applicable also for EGPRS2 if supported.</p>	<p>TSPC_DTM_EGPRS_Multislot_Class_5</p> <p>TSPC_DTM_EGPRS_Multislot_Class_9</p> <p>TSPC_DTM_EGPRS_Multislot_Class_11</p>
26	Single Band Support	<p>This field shall be sent if the mobile station supports UMTS and one and only one GSM band with the exception of R-GSM; this field shall not be sent otherwise</p>	TSPC_SingleBand_Support
27	GSM Band	<p>Bits</p> <p>4 3 2 1</p> <p>0 0 0 0 E-GSM supported</p> <p>0 0 0 1 P-GSM supported</p> <p>0 0 1 0 GSM 1800 supported</p> <p>0 0 1 1 GSM 450 supported</p> <p>0 1 0 0 GSM 480 supported</p> <p>0 1 0 1 GSM 850 supported</p> <p>0 1 1 0 GSM 1900 supported</p> <p>0 1 1 1 GSM 750 supported</p> <p>1 0 0 0 GSM 710 supported</p> <p>1 0 0 1 T-GSM810 supported</p>	<p>TSPC_Type_GSM_P_Band</p> <p>TSPC_Type_GSM_E_Band</p> <p>TSPC_Type_DCS_Band</p> <p>TSPC_Type_GSM_450_Band</p> <p>TSPC_Type_GSM_480_Band</p> <p>TSPC_Type_PCS_Band</p> <p>TSPC_Type_GSM_750_Band</p> <p>TSPC_Type_GSM_850_Band</p> <p>TSPC_Type_GSM_710_Band</p> <p>TSPC_Type_T_GSM_810_Band</p>
28	GSM 750 Associated Radio Capability	<p>See the semantic rule for the sending of this field.</p> <p>This field indicates whether GSM 750 band is supported and its associated radio capability. The radio capability contains the binary coding of the power class associated with the GSM 750 band (see 3GPP TS 45.005 [33]).</p> <p>NOTE: The coding of the power class for GSM 750 in GSM 750 Associated Radio Capability is different to that used in the Mobile Station Classmark 1 and Mobile Station Classmark 2 information elements.</p>	<p>TSPC_Type_GSM_750_Class2</p> <p>TSPC_Type_GSM_750_Class3</p> <p>TSPC_Type_GSM_750_Class4</p> <p>TSPC_Type_GSM_750_Class5</p>
29	UMTS 1.28 Mcps TDD Radio Access Technology Capability	<p>0 UMTS 1.28 Mcps TDD not supported</p> <p>1 UMTS 1.28 Mcps TDD supported</p>	TSPC_Type_UTRAN1.28_TDD
30	GERAN Feature Package 1	<p>0 GERAN feature package 1 not supported.</p> <p>1 GERAN feature package 1 supported.</p>	TSPC_GERAN_FEATURE_PACKAGE_1

Item	IE	Values	Mnemonic
31	Extended DTM GPRS Multi Slot Class	<p>DGMSC Bit 2 1 Bit 2 1</p> <p>0 0 0 0 Unused. If received, it shall be interpreted as '01 00'</p> <p>0 0 0 1 Unused. If received, it shall be interpreted as '01 00'</p> <p>0 0 1 0 Unused. If received, it shall be interpreted as '01 00'</p> <p>0 0 1 1 Unused. If received, it shall be interpreted as '01 00'</p> <p>0 1 0 0 Multislot class 5 supported</p> <p>0 1 0 1 Multislot class 6 supported</p> <p>0 1 1 0 Unused. If received, it shall be interpreted as '01 00'</p> <p>0 1 1 1 Unused. If received, it shall be interpreted as '01 00'</p> <p>1 0 0 0 Multislot class 9 supported</p> <p>1 0 0 1 Multislot class 10 supported</p> <p>1 0 1 0 Unused. If received, it shall be interpreted as '10 00'</p> <p>1 0 1 1 Unused. If received, it shall be interpreted as '10 00'</p> <p>1 1 0 0 Multislot class 11 supported</p> <p>1 1 0 1 Unused. If received, it shall be interpreted as '11 00'</p> <p>1 1 1 0 Unused. If received, it shall be interpreted as '11 00'</p> <p>1 1 1 1 Unused. If received, it shall be interpreted as '11 00'</p> <p>The presence of this field indicates that the MS supports combined fullrate and halfrate GPRS channels in the downlink. When this field is not present, the MS supports the multislot class indicated by the <i>DTM GPRS Multi Slot Class field</i>.</p> <p>If this field is included, it shall contain one of the following values if the <i>DTM GPRS High Multi Slot Class</i> field is present:</p> <ul style="list-style-type: none"> - Multislot class 10 if DTM GPRS High Multi Slot Class is set to indicate Class 31/36 or Class 41; Multislot class 11 if DTM GPRS High Multi Slot Class is set to indicate Classes 32/37, 33/38 or Classes 42, 43, 44. 	<p>TSPC_DTM_GPRS_Multislot_Class_5</p> <p>TSPC_DTM_GPRS_Multislot_Class_6</p> <p>TSPC_DTM_GPRS_Multislot_Class_9</p> <p>TSPC_DTM_GPRS_Multislot_Class_10</p> <p>TSPC_DTM_GPRS_Multislot_Class_11</p> <p>TSPC_DTM_GPRS_Multislot_Class31</p> <p>Or</p> <p>TSPC_DTM_GPRS_Multislot_Class36</p> <p>Or</p> <p>TSPC_DTM_GPRS_Multislot_Class41</p> <p>TSPC_DTM_GPRS_Multislot_Class32</p> <p>Or</p> <p>TSPC_DTM_GPRS_Multislot_Class37</p> <p>TSPC_DTM_GPRS_Multislot_Class33</p> <p>Or</p> <p>TSPC_DTM_GPRS_Multislot_Class38</p> <p>or</p> <p>TSPC_DTM_GPRS_Multislot_Class42</p> <p>TSPC_DTM_GPRS_Multislot_Class43</p> <p>TSPC_DTM_GPRS_Multislot_Class44</p>

Item	IE	Values	Mnemonic
32	Extended DTMEGPRS Multi Slot Class	<p>This field is not considered when the DTM EGPRS Multi Slot Class field is not included. This field indicates the extended DTMEGPRS multislot capabilities of the MS and shall be interpreted in conjunction with the DTM EGPRS Multi Slot Class field. This field is coded as the Extended DTM GPRS Multi Slot Class field. The presence of this field indicates that the MS supports combined fullrate and halfrate GPRS channels in the downlink. When this field is not present, the MS supports the multislot class indicated by the DTMEGPRS Multi Slot Class field.</p> <p>If this field is included, it shall contain one of the following values if the DTMEGPRS High Multi Slot Class field is present:</p> <ul style="list-style-type: none"> - Multislot class 10 if DTM EGPRS High Multi Slot Class is set to indicate Class 31/36 or Class 41; - Multislot class 11 if DTM EGPRS High Multi Slot Class is set to indicate Classes 32/37, 33/38 or Classes 42, 43, 44. 	TSPC_DTM_EGPRS_Multislot_Class10 TSPC_DTM_EGPRS_Multislot_Class11 TSPC_DTM_EGPRS_Multislot_Class31 TSPC_DTM_EGPRS_Multislot_Class36 TSPC_DTM_EGPRS_Multislot_Class41 TSPC_DTM_EGPRS_Multislot_Class32 TSPC_DTM_EGPRS_Multislot_Class37 TSPC_DTM_EGPRS_Multislot_Class33 TSPC_DTM_EGPRS_Multislot_Class38 TSPC_DTM_EGPRS_Multislot_Class42 TSPC_DTM_EGPRS_Multislot_Class43 TSPC_DTM_EGPRS_Multislot_Class44
33	High Multislot Capability	<p>This field indicates the support of multislot classes 30 to 45, see 3GPP TS 45.002 [32]. The High Multislot Capability is individually combined with each multislot class field sent by the MS (the possible multislot class fields are: GPRS multislot class, EGPRS multislot class) to extend the related multislot class with the rule described in the MS Radio Access Capability IE. The same capability is applicable also to EGPRS2 if supported.</p>	TSPC_Type_GPRS_Multislot_Class30 to TSPC_Type_GPRS_Multislot_Class45 TSPC_Type_EGPRS_Multislot_Class30 to TSPC_Type_EGPRS_Multislot_Class45
34	GERAN lu Mode Capabilities	<p>This field indicates if the mobile station supports GERAN lu mode. Furthermore, it indicates the GERAN lu mode capabilities of the mobile station. The field shall be included if the mobile station supports GERAN lu mode. If the field is not present, the mobile station does not support GERAN lu mode.</p>	TSPC_GERAN_luMode_Capability
35	FLO lu Capability	0 FLO in GERAN lu mode not supported 1 FLO in GERAN lu mode supported	TSPC_FLO_lu_Capability
36	GERAN Feature Package 2	0 GERAN feature package 2 not supported. 1 GERAN feature package 2 supported.	TSPC_GERAN_FEATURE_PACKAGE_2
37	Void		
38	GMSK Multislot Power Profile	Bits 2 1 0 0 GMSK_MULTISLOT_POWER_PROFILE 0 0 1 GMSK_MULTISLOT_POWER_PROFILE 1 1 0 GMSK_MULTISLOT_POWER_PROFILE 2 1 1 GMSK_MULTISLOT_POWER_PROFILE 3	TSPC_Type_GMSK_Multislot_Power_Profile_0 TSPC_Type_GMSK_Multislot_Power_Profile_1 TSPC_Type_GMSK_Multislot_Power_Profile_2 TSPC_Type_GMSK_Multislot_Power_Profile_3

Item	IE	Values	Mnemonic
39	8-PSK Multislot Power Profile	Bits 2 1 0 0 8- PSK_MULTISLOT_POWER_PROFILE 0 0 1 8- PSK_MULTISLOT_POWER_PROFILE 1 1 0 8- PSK_MULTISLOT_POWER_PROFILE 2 1 1 8- PSK_MULTISLOT_POWER_PROFILE 3	TSPC_Type_8-PSK_Multislot_Power_Profile_0 TSPC_Type_8-PSK_Multislot_Power_Profile_1 TSPC_Type_8-PSK_Multislot_Power_Profile_2 TSPC_Type_8-PSK_Multislot_Power_Profile_3
40	T-GSM 400 Bands Supported	Bits 2 1 0 1 T-GSM 380 supported, T-GSM 410 not supported 1 0 T-GSM 410 supported, T-GSM 380 not supported 1 1 T-GSM 410 supported, T-GSM 380 supported	TSPC_Type_T_GSM_380_Band TSPC_Type_T_GSM_410_Band
41	T-GSM 400 Associated Radio Capability	If either T-GSM 410 or T-GSM 380 or both is supported, the T-GSM 400 Associated Radio Capability field indicates the radio capability for T-GSM 410 and/or T-GSM 380. The radio capability contains the binary coding of the power class associated with the band indicated in T-GSM 400 Bands Supported bits (see 3GPP TS 45.005 [33]). NOTE: The coding of the power class for T-GSM 410 and T-GSM 380 in T-GSM 400 Associated Radio Capability is different to that used in the Mobile Station Classmark 1 and Mobile Station Classmark 2 information elements.	TSPC_Type_T_GSM_400_Class2 TSPC_Type_T_GSM_400_Class3 TSPC_Type_T_GSM_400_Class4 TSPC_Type_T_GSM_400_Class5
42	T-GSM 900 Associated Radio Capability	See the semantic rule for the sending of this field. This field indicates whether T-GSM 900 band is supported and its associated radio capability. The radio capability contains the binary coding of the power class associated with the T-GSM 900 band (see 3GPP TS 45.005 [33]). Note: the coding of the power class for T-GSM 900 in T-GSM 900 Associated Radio Capability is different to that used in the Mobile Station Classmark 1 and Mobile Station Classmark 2 information elements.	Shall not be supported anymore
43	Downlink Advanced Receiver Performance	Bits 2 1 0 0 Downlink Advanced Receiver Performance not supported 0 1 Downlink Advanced Receiver Performance – phase I supported 1 0 Downlink Advanced Receiver Performance – phase II supported NOTE 1)	TSPC_DARP_Phase1 TSPC_DARP_Phase2
44	DTM Enhancements Capability	This field indicates whether the mobile station supports enhanced DTMCS establishment and enhanced DTMCS release or not. It is coded as follows: 0 The mobile station does not support enhanced DTMCS establishment and enhanced DTMCS release procedures. 1 The mobile station supports enhanced DTMCS establishment and enhanced DTMCS release procedures.	TSPC_Enhanced_DTM_CS

Item	IE	Values	Mnemonic
45	DTM GPRS High Multi Slot Class	<p>Bit</p> <p>3 2 1</p> <p>0 0 0 Unused. If received, the network shall interpret this as '0 0 1'</p> <p>0 0 1 Multislot class 31 or 36 supported</p> <p>0 1 0 Multislot class 32 or 37 supported</p> <p>0 1 1 Multislot class 33 or 38 supported</p> <p>1 0 0 Multislot class 41 supported</p> <p>1 0 1 Multislot class 42 supported</p> <p>1 1 0 Multislot class 43 supported</p> <p>1 1 1 Multislot class 44 supported</p>	<p>TSPC_DTM_GPRS_Multislot_Class_31</p> <p>TSPC_DTM_GPRS_Multislot_Class_32</p> <p>TSPC_DTM_GPRS_Multislot_Class_33</p> <p>TSPC_DTM_GPRS_Multislot_Class_36</p> <p>TSPC_DTM_GPRS_Multislot_Class_37</p> <p>TSPC_DTM_GPRS_Multislot_Class_38</p> <p>TSPC_DTM_GPRS_Multislot_Class_41</p> <p>TSPC_DTM_GPRS_Multislot_Class_42</p> <p>TSPC_DTM_GPRS_Multislot_Class_43</p> <p>TSPC_DTM_GPRS_Multislot_Class_44</p>
46	Offset required	<p>0 The mobile station does not require the offset</p> <p>1 The mobile station requires the offset</p>	TSPC_Offset_Required
47	DTM EGPRS High Multi Slot Class	<p>This field indicates the DTM EGPRS multislot capabilities of the MS. This field may be included only if the mobile station supports EGPRS DTM. This field is coded as the DTM GPRS High Multi Slot Class field. When this field is not present, the MS supports the DTM multislot class indicated by the <i>DTM EGPRS Multi Slot Class</i> field.</p> <p>The values '0 0 1', '0 1 0' and '0 1 1' shall be interpreted as indicating DTM EGPRS multislot class 36, 37 or 38 respectively if the <i>Offset required</i> field indicates that the Timing Advance offset t_0 is required; in all other cases those codepoints shall be interpreted as indicating DTM EGPRS multislot class 31, 32 or 33 respectively.</p> <p>The same multislot capability is applicable also for EGPRS2 if supported</p>	<p>TSPC_DTM_EGPRS_Multislot_Class_31</p> <p>TSPC_DTM_EGPRS_Multislot_Class_32</p> <p>TSPC_DTM_EGPRS_Multislot_Class_33</p> <p>TSPC_DTM_EGPRS_Multislot_Class_36</p> <p>TSPC_DTM_EGPRS_Multislot_Class_37</p> <p>TSPC_DTM_EGPRS_Multislot_Class_38</p>
48	Repeated ACCH Capability	<p>1 bit field</p> <p>This field indicates whether the MS supports Repeated SACCH and Repeated Downlink FACCH (see 3GPP TS 44.006 [76]). It is coded as follows:</p> <p>0 The mobile station does not support Repeated SACCH</p> <p>1 The mobile station supports Repeated SACCH and Repeated Downlink FACCH</p> <p>An MS that only supports Repeated Downlink FACCH shall set this bit field to '0'.</p> <p>NOTE 1)</p>	<p>TSPC_Repeated_SACCH</p> <p>TSPC_Repeated_FACCH</p>
49	GSM 710 Associated Radio Capability	<p>See the semantic rule for the sending of this field.</p> <p>This field indicates whether GSM 710 band is supported and its associated radio capability. The radio capability contains the binary coding of the power class associated with the GSM 710 band (see 3GPP TS 45.005 [33]).</p> <p>NOTE: The coding of the power class for GSM 710 in GSM 710 Associated Radio Capability is different to that used in the Mobile Station Classmark 1 and Mobile Station Classmark 2 information elements.</p>	<p>TSPC_Type_GSM_710_Class2</p> <p>TSPC_Type_GSM_710_Class3</p> <p>TSPC_Type_GSM_710_Class4</p> <p>TSPC_Type_GSM_710_Class5</p>

Item	IE	Values	Mnemonic
50	T-GSM 810 Associated Radio Capability	See the semantic rule for the sending of this field. This field indicates whether T- GSM 810 band is supported and its associated radio capability. The radio capability contains the binary coding of the power class associated with the T-GSM 810 band (see 3GPP TS 45.005 [33]). NOTE: The coding of the power class for T-GSM 810 in T-GSM 810 Associated Radio Capability is different to that used in the Mobile Station Classmark 1 and Mobile Station Classmark 2 information elements.	TSPC_Type_T_GSM_810_Class2 TSPC_Type_T_GSM_810_Class3 TSPC_Type_T_GSM_810_Class4 TSPC_Type_T_GSM_810_Class5
51	Ciphering Mode Setting Capability	0 The mobile station does not support the Ciphering Mode Setting IE in the DTM ASSIGNMENT COMMAND message 1 The mobile station supports the Ciphering Mode Setting IE in the DTM ASSIGNMENT COMMAND message	TSPC_Ciphering_Mode_Setting_Cap
52	Additional Positioning Capabilities	0 The mobile station does not support additional positioning capabilities which can be retrieved using RRLP 1 The mobile station supports additional positioning capabilities which can be retrieved using RRLP.	TSPC_Additional_Positioning_Cap
53	E-UTRA FDD support	Bit 0 E-UTRA FDD not supported 1 E-UTRA FDD supported	TSPC_Type_E-UTRA_FDD
54	E-UTRA TDD support	Bit 0 E-UTRA TDD not supported 1 E-UTRA TDD supported	TSPC_Type_E-UTRA_TDD
55	E-UTRA Measurement and Reporting support	Bit 0 E-UTRAN Neighbour Cell measurements and measurement reporting while having an RR connection not supported 1 E-UTRAN Neighbour Cell measurements and measurement reporting while having an RR connection supported	TSPC_E-UTRA_Measurement_Reporting
56	Priority Based Cell Reselection	Bit 0 Priority-based cell reselection not supported 1 Priority-based cell reselection supported	TSPC_Priority_Based_Cell_Reselection
57	UTRA CSG Cells Reporting	Bit 0 Reporting of UTRAN CSG cells not supported 1 Reporting of UTRAN CSG cells supported	TSPC_UTRA_CSG_Cells_Reporting
58	VAMOS Level	Bits 2 1 0 0 VAMOS not supported 0 1 VAMOS I supported 1 0 VAMOS II supported 1 1 Unused. If received, the network shall interpret this as '10'. NOTE 1)	TSPC_VAMOS_Type1 TSPC_VAMOS_Type2

Item	IE	Values	Mnemonic
59	TIGHTER Capability	Bits 2 1 0 0 TIGHTER not supported 0 1 TIGHTER supported for speech and signalling channels only 1 0 TIGHTER supported for speech and signalling channels and for GPRS and EGPRS, but not for EGPRS2 1 1 TIGHTER supported for speech and signalling channels and for GPRS, EGPRS and EGPRS2 NOTE 2)	(TSPC_TIGHTER_SPEECH_SIGNALLING OR TSPC_TIGHTER_GPRS_EGPRS OR TSPC_TIGHTER_EGPRS2) AND TSPC_DARP_Phase1
60	Selective Ciphering of Downlink SACCH	Bit 0 Selective Ciphering of Downlink SACCH not supported 1 Selective Ciphering of Downlink SACCH supported	TSPC_Selective_Ciphering_DL_SACCH
NOTE 1: An MS indicating support for VAMOS (Item 58) shall also indicate support for either "Downlink Advanced Receiver Performance – phase I" or "Downlink Advanced Receiver Performance – phase II" (Item 43), and for "Repeated SACCH and Repeated Downlink FACCH" (Item 48). ((TSPC_VAMOS_Type1 OR TSPC_VAMOS_Type2) AND (TSPC_DARP_Phase1 OR TSPC_DARP_Phase2) AND (TSPC_Repeated_SACCH OR TSPC_Repeated_FACCH)) NOTE 2: An MS indicating support for TIGHTER (Item 59) shall also indicate support for "Downlink Advanced Receiver Performance – phase I" (Item 43), ((TSPC_TIGHTER_SPEECH_SIGNALLING OR TSPC_TIGHTER_GPRS_EGPRS OR TSPC_TIGHTER_EGPRS2) AND (TSPC_DARP_Phase1))			

26.6.11.1 Classmark change

This procedure allows the MS to indicate to the network that a change in the classmark (e.g. due to addition of power amplification) has taken place.

26.6.11.1.1 Conformance requirements

If the RF power capability of the MS is changed during a call, this change shall be signalled to the network.

If the RF power capability of the MS is changed in idle mode, the up to date RF power capability shall be signalled to the network during RR connection establishment.

References

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.4.10.

26.6.11.1.2 Test purpose

To verify that if the RF power capability or any other capability indicated in a Classmark IE of the MS is changed during a call, the change is communicated on the DCCH to the network.

To verify that if the RF power capability or any other capability indicated in a Classmark IE of the MS is changed in idle mode, the out of date capabilities are not communicated to the network during RR connection establishment.

26.6.11.1.3 Method of test

Initial Conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS is in the "idle, updated" state, with a TMSI allocated and with no additional power amplification applied.

Specific PICS statements

- TSPC_Type_xxx (all appropriate power classes)

- TSPC_AddInfo_Full_rate_version_1
- TSPC_AddInfo_Full_rate_version_2
- TSPC_AddInfo_Full_rate_version_3

PIXIT statements

-

Foreseen Final State of the MS

"Idle, updated", with TMSI allocated and with no additional power amplification applied.

Test Procedure

With the MS in idle mode, the RF power capability shall be changed by the addition of power amplification, after which the MS is made to originate a call. The new RF power capability shall be included in the CM SERVICE REQUEST message. After the call has reached the Call Control state U10, the RF power capability of the MS is changed by removal of the additional power amplification. The MS shall send a CLASSMARK CHANGE message indicating the new RF power capability. The RF power capability is then changed by adding the power amplification. The MS shall again send a CLASSMARK CHANGE message indicating the new RF power capability. The call is then released by the SS.

With the MS in idle mode, the power amplification is removed. The SS then pages the MS, which in the PAGING RESPONSE message shall indicate the correct RF power capability.

Finally the SS transmits a CHANNEL RELEASE to end the test.

Maximum Duration of Test

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

Expected Sequence

Step	Direction	Message	Comments
1	-----	-----	Add power amplification.
2	-----	-----	The MS shall be made to originate a call.
3	MS -> SS	CHANNEL REQUEST	Establ. Cause = "Originating call" NECI not equal to one.
4	SS -> MS	IMMEDIATE ASSIGNMENT	
5	MS -> SS	CM SERVICE REQUEST	The "Mobile Station Classmark 2" IE shall indicate the new RF power capability.
6	SS -> MS	CM SERVICE ACCEPT	
7	MS -> SS	SETUP	
8	SS -> MS	CALL PROCEEDING	
9	SS -> MS	ALERTING	
10	SS -> MS	ASSIGNMENT COMMAND	The Channel Mode is a non-signalling mode arbitrarily selected from the full rate capabilities declared for the MS
11	MS -> SS	ASSIGNMENT COMPLETE	
12	SS -> MS	CONNECT	
13	MS -> SS	CONNECT ACKNOWLEDGE	
14	-----	-----	Remove the power amplification.
15	MS -> SS	CLASSMARK CHANGE	The "Mobile Station Classmark 2" IE shall indicate the new power capability.
16	-----	-----	Add power amplification.
17	MS -> SS	CLASSMARK CHANGE	The "Mobile Station Classmark 2" IE shall indicate the new power capability.
18	SS -> MS	CHANNEL RELEASE	
19	-----	-----	Remove the power amplification.
	-----	-----	The SS waits 12 s to allow the MS to perform cell reselection.
20	SS -> MS	PAGING REQUEST TYPE 1	
21	MS -> SS	CHANNEL REQUEST	Establ. Cause = "Answer to paging".
22	SS -> MS	IMMEDIATE ASSIGNMENT	
23	MS -> SS	PAGING RESPONSE	The "Mobile Station Classmark 2" IE shall indicate the new power capability.
24	SS -> MS	CHANNEL RELEASE	

Specific Message Contents

None.

26.6.11.2 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, if it is incorrectly implemented in the MS, the basic connection establishment procedure may systematically fail.

26.6.11.2.1 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 04.08 / 3GPP TS 44.018 subclauses 3.4.11 and 9.1.11.1.

3GPP TS 04.13 subclause 5.2.9.

26.6.11.2.2 Test purpose

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

26.6.11.2.3 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 mobile has sent the LOCATION UPDATING REQUEST message, 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 contents of the Mobile Station Classmark 2 Information element and the contents of Mobile Station Classmark 3 information element is recorded and compared to the corresponding PICS/PIXIT statement as shown in table 26.6.11a and 26.6.11b.

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

Then the SS transmits a LOCATION UPDATING ACCEPT message that does not contain a Mobile Identity IE.

Maximum Duration of Test

2 minutes.

Expected Sequence

Step	Direction	Message	Comments
1	MS		The MS is switched off (or has its power removed). IMSI attach-detach flag changed. The MS is switched on (or its power is re-applied).
2	SS		
3	MS		
4	MS -> SS	CHANNEL REQUEST	This message shall be ready to be transmitted before 300 ms after the completion of step 7. SS compares the contents of the Mobile Station Classmark 2/3 Information elements to the corresponding PICS/PIXIT statements.
5	SS -> MS	IMMEDIATE ASSIGNMENT	
6	MS -> SS	LOCATION UPDATING REQUEST	
7	SS -> MS	CLASSMARK ENQUIRY	
8	MS -> SS	CLASSMARK CHANGE	
9	SS -> MS	LOCATION UPDATING ACCEPT	
10	SS -> MS	CHANNEL RELEASE	

Specific Message Contents

Contents of LOCATION UPDATING ACCEPT message:

Protocol Discriminator	MM message
Skip Indicator	0000
Message Type	00000010
Location Area Identification	
- Mobile Country Code	001 decimal
- Mobile Network Code	01 decimal (PCS 1 900: 011 decimal)
- Location Area Code	0001H
Mobile Identity	Not present
Follow on proceed	Not present

26.6.11.3 Classmark interrogation / UTRAN Classmark Change

This procedure allows the network to request the MS to supply all its classmark information to the network. In addition the network may request a MS supporting UTRAN to send the UTRAN classmark information.

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

If the last timeslot of the message block containing a CLASSMARK ENQUIRY message occurs at time T, then the MS shall be ready to transmit the CLASSMARK CHANGE message before T + 300 ms.

26.6.11.3.1 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 04.08 / 3GPP TS 44.018 subclauses 3.4.11 and 9.1.11.1.

3GPP TS 04.13 subclause 5.2.9.

26.6.11.3.2 Test purpose

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

26.6.11.3.3 Method of test

Initial Conditions

System Simulator:

1 cell, default parameters. In SI3 is ATT flag is set to 1 and Early Classmark Sending Control flag is set to Low.

Mobile Station:

Powered off.

Specific PICS statements

-

PIXIT statements

Test Procedure

The MS is switched on (or its power is re-applied). The MS then initiates a location update attempt. After the mobile has sent the LOCATION UPDATING REQUEST message, the SS transmits a CLASSMARK ENQUIRY message. The MS shall be ready to transmit the CLASSMARK CHANGE message within 300 ms after the end of the CLASSMARK ENQUIRY message. The contents of the Mobile Station Classmark 2 Information element and the contents of Mobile Station Classmark 3 information element are compared to the corresponding PICS/PIXIT statements as shown in table 26.6.11a and 26.6.11b.

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

Then the SS transmits a LOCATION UPDATING ACCEPT message that does not contain a Mobile Identity IE.

Maximum Duration of Test

2 minutes.

Expected Sequence

Step	Direction	Message	Comments
1	MS		The MS is switched on.
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	LOCATION UPDATING REQUEST	
5	SS -> MS	CLASSMARK ENQUIRY	This message shall be ready transmitted within 300 ms after the completion of step 5. If MS support UMTS FDD: UMTS FDD Radio Access Capability = 1 If MS support UMTS TDD: UMTS TDD Radio Access Capability = 1 Contents as declared in PICS/ PIXIT.
6	MS -> SS	CLASSMARK CHANGE	
7	MS -> SS	UTRAN Classmark Change	
8	SS -> MS	LOCATION UPDATING ACCEPT	
9	SS -> MS	CHANNEL RELEASE	Contents as declared in PIXIT.

Specific Message Contents

Content of CLASSMARK ENQUIRY message:

Protocol Discriminator	RR management
Skip Indicator	0000
Message Type	00010011
Classmark Enquiry Mask value part	00001000, note
Note	CLASSMARK CHANGE message is requested; UTRAN CLASSMARK CHANGE message is requested; CDMA2000 CLASSMARK CHANGE message not requested; and GERAN IU MODE CLASSMARK CHANGE message not requested.

Contents of LOCATION UPDATING ACCEPT message:

Protocol Discriminator	MM message
Skip Indicator	0000
Message Type	00000010
Location Area Identification	
- Mobile Country Code	001 decimal
- Mobile Network Code	01 decimal (PCS 1 900: 011 decimal)
- Location Area Code	0001H
Mobile Identity	Not present
Follow on proceed	Not present

26.6.11.4 Early UTRAN Classmark Sending

This procedure allows the network to request the MS to supply all its classmark information to the network. In addition the network may request a MS supporting UTRAN to send the UTRAN classmark information.

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

26.6.11.4.1 Conformance requirements

Early classmark sending consists in the mobile station sending as early as possible after access a CLASSMARK CHANGE message to provide the network with additional classmark information. In addition a MS supporting UTRAN sends a UTRAN Classmark Change message; an MS supporting CDMA2000 sends a CDMA2000 Classmark Change. When a CLASSMARK CHANGE message and one or more additional UTRAN Classmark Change or CDMA2000 Classmark Change messages are to be sent, the CLASSMARK CHANGE message shall be sent first.

....

A mobile station which implements the support of one or more 3G Radio Access Technology shall also implement the « Controlled Early Classmark Sending » option; in this case neither UTRAN CLASSMARK CHANGE nor CDMA2000 CLASSMARK CHANGE message shall be sent by the mobile if prohibited by the 3G Early Classmark Sending Restriction parameter in the last reception in the accessed cell of the SYSTEM INFORMATION TYPE 3 message or the PACKET SYSTEM INFORMATION TYPE 2 message (see 3GPP TS 04.60). If the PACKET SYSTEM INFORMATION TYPE 2 messages have been received, but the 3G Early Classmark Sending Restriction flag is not included, the mobile station shall assume neither UTRAN nor cdma2000 classmark change message shall be sent with the Early Classmark Sending.

During a contention resolution procedure, if the last timeslot of the block containing a Layer 2 UA frame, occurs at time T, then the MS shall be ready to transmit the CLASSMARK CHANGE message, if applicable (see GSM 04.06 [3] and GSM 04.08 [4]), before T + 40 ms.

References

3GPP TS 04.08 / 3GPP TS 44.018 subclauses 3.3.1.1.4.1 and 9.1.11.1.

3GPP TS 04.13 subclause 5.2.9.

26.6.11.4.2 Test purpose

To verify that if the network requests the MS to supply all its classmark information, including the UTRAN Classmark information, then this information is communicated on the DCCH to the network. The request of the classmark information is indicated in SYSTEM INFORMATION TYPE 3.

26.6.11.4.3 Method of test

Initial Conditions

System Simulator:

1 cell, default parameters.

The SS shall transmit SI3 with ATT flag is set to 1 and both Early Classmark Sending Restriction and 3G Early Classmark Sending Restriction parameter set to High.

Mobile Station:

Powered off.

Specific PICS statements

-

PIXIT statements

- Contents of Mobile Station Classmark 2 information element
- Contents of Mobile Station Classmark 3 information element
- Contents of UTRAN Classmark Change information

Test Procedure

The MS is switched on (or its power is re-applied). The MS then initiates a location update attempt. After the mobile has sent the LOCATION UPDATING REQUEST message, the MS transmits the CLASSMARK CHANGE and UTRAN CLASSMARK CHANGE messages.

Then the SS transmits a LOCATION UPDATING ACCEPT message that does not contain a Mobile Identity IE.

Maximum Duration of Test

2 minutes.

Expected Sequence

Step	Direction	Message	Comments
1	MS		The MS is switched on.
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	LOCATION UPDATING REQUEST	(SABM)
5	SS -> MS	LOCATION UPDATING REQUEST	(UA)
6	MS -> SS	CLASSMARK CHANGE	This message shall be transmitted within 69 ms after the completion of step 5. If MS support UMTS FDD: UMTS FDD Radio Access Capability = 1 If MS support UMTS TDD: UMTS TDD Radio Access Capability = 1 Contents as declared in PIXIT.
7	MS -> SS	UTRAN CLASSMARK CHANGE	Contents as declared in PIXIT.
8	SS -> MS	LOCATION UPDATING ACCEPT	
9	SS -> MS	CHANNEL RELEASE	

Specific Message Contents

Contents of LOCATION UPDATING ACCEPT message:

Protocol Discriminator	MM message
Skip Indicator	0000
Message Type	00000010
Location Area Identification	
- Mobile Country Code	001 decimal
- Mobile Network Code	01 decimal (PCS 1 900: 011 decimal)
- Location Area Code	0001H
Mobile Identity	Not present
Follow on proceed	Not present

26.6.12 Test of channel release

The purpose of this procedure is to deactivate the dedicated channels in use. When the channels are released, the MS returns to the CCCC configuration, idle mode.

26.6.12.1 Channel release / SDCCH

26.6.12.1.1 Conformance requirements

After the acknowledgement of the Layer 2 disconnection by the network, the MS shall not produce any further RF-transmission.

References

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.4.13.1

26.6.12.1.2 Test purpose

To verify that the MS is able to correctly release an SDCCH after having received a CHANNEL RELEASE message.

26.6.12.1.3 Method of test

Initial Conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

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

Specific PICS statements

-

PIXIT statements

-

Foreseen Final State of the MS

"Idle, updated", with TMSI allocated.

Test Procedure

The MS is paged and allocated a dedicated channel and the Layer 2 signalling link is established. The SS then sends a CHANNEL RELEASE message, after which the MS shall initiate a Layer 2 disconnection process on the main signalling link. After the acknowledgement of the Layer 2 disconnection by the SS, the MS shall stop transmission of Layer 2 messages. This is verified for 3 s. The MS shall return to the idle state, which is verified through the paging procedure to which the MS shall respond.

Maximum Duration of Test

20 s.

Expected Sequence

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST TYPE 1	Establ. Cause = "Answer to paging". Channel Type = SDCCH/8 With a valid RR cause value. The MS may send the DISC message without performing a layer 2 acknowledgement of the CHANNEL RELEASE message.
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	PAGING RESPONSE	
5	SS -> MS	CHANNEL RELEASE	
6	MS -> SS	DISC	
7	SS -> MS	UA	The SS verifies for 3 s that the MS does not produce any Layer 2 messages. The SS waits 12 s to allow the MS to perform cell reselection.
	-----	-----	
	-----	-----	
8	SS -> MS	PAGING REQUEST TYPE 1	Establ. Cause = "Answer to paging".
9	MS -> SS	CHANNEL REQUEST	
10	SS -> MS	IMMEDIATE ASSIGNMENT	
11	MS -> SS	PAGING RESPONSE	
12	SS -> MS	CHANNEL RELEASE	

Specific Message Contents

None.

26.6.12.2 Channel release / SDCCH - no L2 ACK

26.6.12.2.1 Conformance requirements

After the expiry of timer T3110 the MS shall not produce any further RF-transmission.

References

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.4.13.1.

26.6.12.2.2 Test purpose

To verify that the MS is able to correctly release a SDCCH after having received a CHANNEL RELEASE message, even if the SS does not L2 acknowledge the L2 DISC frame.

26.6.12.2.3 Method of test

Initial Conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

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

Specific PICS statements

-

PIXIT statements

-

Foreseen Final State of the MS

"Idle, updated", with TMSI allocated.

Test Procedure

The MS is paged and allocated a dedicated channel and the Layer 2 signalling link is established. The SS then sends a CHANNEL RELEASE message, after which the MS shall send at least 2 L2 DISC frames. The SS does not acknowledge any of the L2 DISC frames. After 2 s, the SS verifies for 3 s that the MS has stopped transmission of Layer 2 messages. The MS shall return to the idle state, which is verified through the paging procedure to which the MS shall respond.

Maximum Duration of Test

25 s.

Expected Sequence

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST TYPE 1	Establ. Cause = "Answer to paging". Channel Type = SDCCH/8. With a valid RR cause value. The MS may send the DISC message without performing a layer 2 acknowledgement of the CHANNEL RELEASE message. The MS shall send at least 2 L2 DISC frames, to which the SS does not respond. After a period of 2 s, the SS verifies for 3 s that the MS does not produce any further Layer 2 messages. The SS waits 12 s to allow the MS to perform cell reselection.
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	PAGING RESPONSE	
5	SS -> MS	CHANNEL RELEASE	
6	MS -> SS	DISC	
	-----	-----	
7	SS -> MS	PAGING REQUEST TYPE 1	Establ. Cause = "Answer to paging".
8	MS -> SS	CHANNEL REQUEST	
9	SS -> MS	IMMEDIATE ASSIGNMENT	
10	MS -> SS	PAGING RESPONSE	
11	SS -> MS	CHANNEL RELEASE	

Specific Message Contents

None.

26.6.12.3 Channel release / TCH-F

26.6.12.3.1 Conformance requirements

After the acknowledgement of the Layer 2 disconnection by the network the MS shall not produce any further RF-transmission.

References

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.4.13.1.

26.6.12.3.2 Test purpose

To verify that the MS is able to correctly release a full-rate TCH after having received a CHANNEL RELEASE message.

26.6.12.3.3 Method of test

Initial Conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

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

Specific PICS statements

-

PIXIT statements

-

Foreseen Final State of the MS

"Idle, updated", with TMSI allocated.

Test Procedure

The MS is paged and allocated a dedicated channel and the Layer 2 signalling link is established. The SS then sends a CHANNEL RELEASE message, after which the MS shall initiate a Layer 2 disconnection process on the main signalling link. After the acknowledgement of the Layer 2 disconnection by the SS, the MS shall stop transmission of Layer 2 messages. This is verified for 3 s. The MS shall return to the idle state, which is verified through the paging procedure to which the MS shall respond.

Maximum Duration of Test

20 s.

Expected Sequence

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST TYPE 1	Establ. Cause = "Answer to paging". Channel Type = "Bm + ACCHs"
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	PAGING RESPONSE	
5	SS -> MS	CHANNEL RELEASE	With a valid RR cause value. The MS may send the DISC message without performing a layer 2 acknowledgement of the CHANNEL RELEASE message.
6	MS -> SS	DISC	
7	SS -> MS	UA	
	-----	-----	The SS verifies for 3 s that the MS does not produce any Layer 2 messages. The SS waits 12 s to allow the MS to perform cell reselection.
	-----	-----	
8	SS -> MS	PAGING REQUEST TYPE 1	Establ. Cause = "Answer to paging".
9	MS -> SS	CHANNEL REQUEST	
10	SS -> MS	IMMEDIATE ASSIGNMENT	
11	MS -> SS	PAGING RESPONSE	
12	SS -> MS	CHANNEL RELEASE	

Specific Message Contents

None.

26.6.12.4 Channel release / TCH-F - no L2 ACK

26.6.12.4.1 Conformance requirements

After the expiry of timer T3110 the MS shall not produce any further RF-transmission.

References

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.4.13.1

26.6.12.4.2 Test purpose

To verify that the MS is able to correctly release a TCH/F after having received a CHANNEL RELEASE message, even if the SS does not L2 acknowledge the L2 DISC frame.

26.6.12.4.3 Method of test

Initial Conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

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

Specific PICS statements

-

PIXIT statements

-

Foreseen Final State of the MS

"Idle, updated", with TMSI allocated.

Test Procedure

The MS is paged and allocated a dedicated channel and the Layer 2 signalling link is established. The SS then sends a CHANNEL RELEASE message (with cause "abnormal release, unspecified"), after which the MS shall send at least 2 L2 DISC frames. The SS does not acknowledge any of the L2 DISC frames. After 2 s, the SS verifies for 3 s that the MS has stopped transmission of Layer 2 messages. The MS shall return to the idle state, which is verified through the paging procedure to which the MS shall respond.

Maximum Duration of Test

25 s.

Expected Sequence

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST TYPE 1	Establ. Cause = "Answer to paging". Channel Type = "Bm + ACCHs". Cause value = "Abnormal release, unspecified". The MS may send the DISC message without performing a layer 2 acknowledgement of the CHANNEL RELEASE message. The MS shall send at least 2 L2 DISC frames, to which the SS does not respond. After a period of 2 s, the SS verifies for 3 s that the MS does not produce any further Layer 2 messages. The SS waits 12 s to allow the MS to perform cell reselection.
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	PAGING RESPONSE	
5	SS -> MS	CHANNEL RELEASE	
6	MS -> SS	DISC	
	-	-	
7	SS -> MS	PAGING REQUEST TYPE 1	Establ. Cause = "Answer to paging". Channel Type = SDCCH/8.
8	MS -> SS	CHANNEL REQUEST	
9	SS -> MS	IMMEDIATE ASSIGNMENT	
10	MS -> SS	PAGING RESPONSE	
11	SS -> MS	CHANNEL RELEASE	

Specific Message Contents

None.

26.6.13 Test of starting time

The Assignment, Handover and immediate assignment procedures can include a delayed change of frequency list, MAIO and HSN. This series of tests checks the behaviour of the Mobile Station when receiving channel allocation messages with a starting time and channel description for both before and after the starting time. Tests checking the phase 1 usage of the starting time (that is without a channel description for before the time) are included in the series related to immediate assignment, dedicated assignment and handover.

Throughout subclause 26.6.13 the defaults in the following subclauses

Table 26.6

Band	Defaults sub-clause
GSM 450	26.6.16
GSM 480	26.6.17
GSM 710	26.6.21
GSM 750	26.6.19
T-GSM 810	26.6.22
GSM 850	26.6.20
GSM 900	26.6.14
DCS 1 800	26.6.15
PCS 1 900	26.6.18

are used with the following exceptions:

Contents of IMMEDIATE ASSIGNMENT message, unless otherwise defined in the individual test cases:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the IA rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 11.
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00111111
Page Mode	
- Page Mode	Normal Paging.
Channel Description	
- Channel Type and TDMA offset	Chosen arbitrarily (see initial conditions).
- Timeslot Number	Chosen arbitrarily by the test house;
- Training Sequence Code	Chosen arbitrarily by the test house
- Hopping	Yes.
- Hopping parameters	Chosen arbitrarily.
Request Reference	Pertaining to last Channel Request sent by the MS.
Timing Advance	
- Timing advance value	30 bit periods.
Mobile Allocation	Chosen arbitrarily, at least one frequency. In case of an MA with just one frequency, the frequency should be different from the BCCH carrier.
Starting Time	Not present.
IA rest octets	Not used (all bits set to spare).

Two cells are defined:

Band	Cell A		Cell B		CA Coding format – both cells
	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	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	Bitmap 0
DCS 1 800	747	737, 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 256
PCS 1 900	647	637, 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 256

For DCS 1 800, PCS 1 900 the BCCH ARFCNs shall be added to the default BA -List.

For all other bands the BCCH ARFCNs are already included in the default BA -List.

26.6.13.1 Dedicated assignment with starting time / successful case / time not elapsed

26.6.13.1.1 Conformance requirement

A Mobile Station receiving an ASSIGNMENT COMMAND message with a starting time and channel descriptions for both after and before the starting time, and ready to access before the indicated time has elapsed, shall perform the assignment on the channels as described for before the starting time and shall start using the new frequency parameters (frequencies and hopping sequence, or single frequency) in the correct time slot indicated by the starting time.

The Mobile Station shall accept the ASSIGNMENT COMMAND message for different message formatting, differing by the information elements used to describe frequency lists.

Reference(s)

3GPP TS 04.08 / 3GPP TS 44.018 subclauses 3.4.3.1 and 9.1.2.

26.6.13.1.2 Test purpose

To verify that the MS, after receiving an ASSIGNMENT COMMAND message with a starting time and channel descriptions both for before and after the starting time, and ready to access before the indicated time, performs correctly the assignment using the description for before the time, and eventually starts using the frequency parameters for after the time at the time indicated in the message.

26.6.13.1.3 Method of test

Initial condition(s)

System Simulator:

1 cell, CCCH_CONF set to 1 basic physical channel used for CCCH, not combined with SDCCHs.

Mobile Station:

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

Specific PICS statements

- MS supports only SDCCH (TSPC_AddInfo_SDCCHOnly)
- MS supports GSM HR (TSPC_AddInfo_Halfrate)

PIXIT statements

-

Foreseen final state of the MS

"Idle, updated", with TMSI allocated.

Test procedure

The System Simulator pages the MS and after the MS has responded with a CHANNEL REQUEST, the simulator assigns a hopping SDCCH. Then the SS sends an ASSIGNMENT COMMAND message allocating a channel (TCH/F, TCH/H or SDCCH, arbitrarily chosen among the channels supported), with a starting time and channel descriptions (hopping case) for both before and after the starting time, as detailed in the "specific message contents" clause. The indicated time is such that the Mobile Station is ready to access before that time. The Mobile Station then accesses the channel as described for before the starting time. The MS shall eventually, at the TDMA frame defined by the contents of the "Starting Time" information element of the ASSIGNMENT COMMAND message, use the new frequency parameters. The verification is performed at the RF burst level.

Test parameters:

T1 is set to $T0 + 1000 \pmod{42\,432}$, where T0 is the frame number at which the first burst of the ASSIGNMENT COMMAND message is sent.

Maximum duration of test

45 s.

Expected sequence

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST TYPE 1	Hopping channel.
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	PAGING RESPONSE	
5	SS -> MS	ASSIGNMENT COMMAND	See specific message contents.
6	MS -> SS	ASSIGNMENT COMPLETE	Sent on the correct channel (before time parameters) after establishment of the main signalling link.
7	-----	Time T1	The SS checks that the MS is transmitting now on the correct frequencies (after time parameters) and that the transmission started in the correct frame.
8	SS -> MS	CHANNEL RELEASE	

Specific message contents

ASSIGNMENT COMMAND

Information element	Value/remark
Channel Description, after time	
Channel Type and TDMA offset	Chosen arbitrarily among that supported by the Mobile Station.
Timeslot Number	Chosen arbitrarily.
Training Sequence Code	Chosen arbitrarily.
Hopping	Yes.
Hopping parameters	Chosen arbitrarily.
Power Command	
Power level	Chosen arbitrarily.
Channel Mode	
Mode	Signalling Only.
Mobile Allocation, after time	Chosen arbitrarily, at least one frequency. In case of an MA with just one frequency, the frequency should be different from the BCCH carrier.
Starting Time	T1
Channel Description, before time	
Channel Type and TDMA offset	Same as after time.
Timeslot Number	Same as after time.
Training Sequence Code	Same as after time.
Hopping	Yes.
Hopping parameters	Chosen arbitrarily, different from "after time".
Mobile Allocation, before time	Chosen arbitrarily, at least one frequency and different from "Mobile Allocation, after time". In case of an MA with just one frequency, the frequency should be different from the BCCH carrier.

26.6.13.2 Dedicated assignment with starting time / successful case / time elapsed

26.6.13.2.1 Conformance requirement

A Mobile Station receiving an ASSIGNMENT COMMAND message with a starting time and channel descriptions for both after and before the starting time, and ready to access after the indicated time has elapsed, shall perform the assignment on the channels as described for after the starting time.

The Mobile Station shall accept the ASSIGNMENT COMMAND message for different message formattings, differing by the information elements used to describe frequency lists.

Reference(s):

3GPP TS 04.08 / 3GPP TS 44.018 subclauses 3.4.3.1 and 9.1.2.

26.6.13.2.2 Test purpose

To verify that the MS, after receiving an ASSIGNMENT COMMAND message with a starting time and channel descriptions both for before and after the starting time, performs correctly the assignment using the frequency parameters for after the time if the indicated time has already elapsed when the Mobile Station is ready to transmit.

26.6.13.2.3 Method of test

Initial condition(s)

System Simulator:

1 cell, CCCH_CONF set to 1 basic physical channel used for CCCH, not combined with SDCCHs.

Mobile Station:

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

Specific PICS statements

- MS supports only SDCCH (TSPC_AddInfo_SDCCHOnly)

- MS supports GSM HR (TSPC_AddInfo_HalfRate)

PIXIT statements

-

Foreseen final state of the MS

"Idle, updated", with TMSI allocated.

Test procedure

The System Simulator pages the MS and after the MS has responded with a CHANNEL REQUEST, the simulator assigns a hopping SDCCH. Then the SS sends an ASSIGNMENT COMMAND message allocating a channel (TCH/F, TCH/H or SDCCH, arbitrarily chosen among the channels supported), with a starting time and channel descriptions (hopping case) for both before and after the starting time, as detailed in the "specific message contents" clause. The indicated time is such that the Mobile Station is ready to access only after that time. The Mobile Station then accesses the channel as described for after the starting time. The verification is performed at the RF burst level.

Test parameters:

T1 is set to $T0+5 \pmod{42\,432}$, where T0 is the frame number at which the first burst of the ASSIGNMENT COMMAND message is sent.

Maximum duration of test

45 s.

Expected sequence

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST TYPE 1	Hopping channel.
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	PAGING RESPONSE	See specific message contents. Sent on the correct channel (after time parameters) after establishment of the main signalling link.
5	SS -> MS	ASSIGNMENT COMMAND	
6	MS -> SS	ASSIGNMENT COMPLETE	
7	SS -> MS	CHANNEL RELEASE	

Specific message contents

ASSIGNMENT COMMAND

Information element	Value/remark
Channel Description, after time	
Channel Type and TDMA offset	Chosen arbitrarily among that supported by the Mobile Station.
Timeslot Number	Chosen arbitrarily.
Training Sequence Code	Chosen arbitrarily.
Hopping	Yes.
Hopping parameters	Chosen arbitrarily.
Power Command	
Power level	Chosen arbitrarily.
Channel Mode	
Mode	Signalling Only.
Mobile Allocation, after time	Chosen arbitrarily, at least one frequency. In case of an MA with just one frequency, the frequency should be different from the BCCH carrier.
Starting Time	T1
Channel Description, before time	
Channel Type and TDMA offset	Same as after time.
Timeslot Number	Same as after time.
Training Sequence Code	Same as after time.
Hopping	Yes.
Hopping parameters	Chosen arbitrarily, different from "after time".
Mobile Allocation, before time	Chosen arbitrarily, at least one frequency and different from "Mobile Allocation, after time". In case of an MA with just one frequency, the frequency should be different from the BCCH carrier.

26.6.13.3 Dedicated assignment with starting time and frequency redefinition / failure case / time not elapsed

26.6.13.3.1 Conformance requirement

An MS, after receiving a FREQUENCY REDEFINITION message, shall keep the provided information until the time is elapsed. The Mobile Station must accept an intervening dedicated assignment, and, in case of failure of this assignment resulting in a return to the old channel before the time indicated in the FREQUENCY REDEFINITION message, shall return on the old channel with the frequency parameters in use at the moment of the reception of the FREQUENCY REDEFINITION message, and shall eventually start using the new frequency parameters in the correct time slot indicated by the starting time of the FREQUENCY REDEFINITION message.

Reference(s):

3GPP TS 04.08 / 3GPP TS 44.018 subclauses 3.4.3 and 3.4.5.

26.6.13.3.2 Test purpose

To verify that the MS, after receiving a FREQUENCY REDEFINITION and then an ASSIGNMENT COMMAND message with a starting time and channel descriptions both for before and after the starting time, failing the assignment and returning on the old channel, and ready to access before the time indicated in the FREQUENCY REDEFINITION, resumes transmission on the channels used at the time of the reception of the FREQUENCY REDEFINITION message and eventually starts using the new frequency parameters at the time indicated in the FREQUENCY REDEFINITION message.

26.6.13.3.3 Method of test

Initial condition(s)

System Simulator:

1 cell, CCCH_CONF set to 1 basic physical channel used for CCCH, not combined with SDCCHs.

Mobile Station:

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

Specific PICS statements

- MS supports only SDCCH (TSPC_AddInfo_SDCCHOnly)
- MS supports GSM HR (TSPC_AddInfo_HalfRate)

PIXIT statements

-

Foreseen final state of the MS

"Idle, updated", with TMSI allocated.

Test procedure

The System Simulator pages the MS and after the MS has responded with a CHANNEL REQUEST, the simulator assigns allocating a hopping channel (TCH/F, TCH/H or SDCCH, arbitrarily chosen among the channels supported). Then the SS sends a FREQUENCY REDEFINITION message (starting time T1), which modifies the frequency parameters to be used by the MS. Then the SS sends an ASSIGNMENT COMMAND message, with a starting time (T2) and channel descriptions for both before and after the starting time. The channels and hopping sequences so allocated are distinct from those used and from those described by the FREQUENCY REDEFINITION message. The System Simulator does not activate the channels defined in the ASSIGNMENT COMMAND. The MS shall try to activate the new channel (this is not verified) and shall then reactivate the old channel and trigger the establishment of the main signalling link on the old channel. Then the MS shall send an ASSIGNMENT FAILURE message. Time T1 is chosen so it is reached only after the sending of the ASSIGNMENT FAILURE message. The MS shall eventually, at the TDMA frame defined by the contents of the "Starting Time" information element of the FREQUENCY REDEFINITION message, use the new frequency parameters. The verification is performed at the RF burst level.

Test parameters:

T1 is set to $T0 + 5000 \pmod{42432}$, where T0 is the frame number at which the first burst of the FREQUENCY REDEFINITION message is sent.

T2 is set to $T0 + 4000 \pmod{42432}$, where T0 is the frame number at which the first burst of the FREQUENCY REDEFINITION message is sent.

Maximum duration of test

180 s.

Expected sequence

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST TYPE 1	Hopping channel. Hopping channel, type among possible, signalling mode. Sent on the correct channel (original parameters) after establishment of the main signalling link. The SS checks that the MS is transmitting now on the correct frequencies (parameters of the FREQUENCY REDEFINITION message) and that the transmissions started in the correct frame.
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	PAGING RESPONSE	
5	SS -> MS	FREQUENCY REDEFINITION	
6	SS -> MS	ASSIGNMENT COMMAND	
7	MS -> SS	ASSIGNMENT FAILURE	
8	-----	Time T1	
9	SS -> MS	CHANNEL RELEASE	

Specific message contents

FREQUENCY REDEFINITION

Information element	Value/remark
Channel Description	
Channel Type and TDMA offset	Same as in IMMEDIATE ASSIGNMENT
Timeslot Number	Same as in IMMEDIATE ASSIGNMENT
Training Sequence Code	Same as in IMMEDIATE ASSIGNMENT
Hopping	Yes
Hopping parameters	Chosen arbitrarily, different than those of the IMMEDIATE ASSIGNMENT message, HSN same as in IMMEDIATE ASSIGNMENT.
Mobile Allocation	Chosen arbitrarily, at least two frequencies, different than those of the IMMEDIATE ASSIGNMENT message.
Starting Time	T1

ASSIGNMENT COMMAND:

Information element	Value/remark
Channel Description, after time	
Channel Type and TDMA offset	Chosen arbitrarily among that supported by the Mobile Station.
Timeslot Number	Chosen arbitrarily.
Training Sequence Code	Chosen arbitrarily.
Hopping	Yes.
Hopping parameters	Chosen arbitrarily.
Power Command	
Power level	Chosen arbitrarily.
Channel Mode	
Mode	Signalling Only.
Mobile Allocation, after time	Chosen arbitrarily, at least two frequency.
Starting Time	T2
Channel Description, before time	
Channel Type and TDMA offset	Same as after time.
Timeslot Number	Same as after time.
Training Sequence Code	Same as after time.
Hopping	Yes.
Hopping parameters	Chosen arbitrarily, different from "after time".
Mobile Allocation, before time	Chosen arbitrarily, at least two frequencies, different from "Mobile Allocation, after time".

26.6.13.4 Dedicated assignment with starting time and frequency redefinition / failure case / time elapsed

26.6.13.4.1 Conformance requirement

An MS, after receiving a FREQUENCY REDEFINITION message, shall keep the provided information until the time is elapsed. The Mobile Station must accept an intervening dedicated assignment, and, in case of failure of this assignment resulting in a return to the old channel after the time indicated in the FREQUENCY REDEFINITION message, shall return on the old channel with the frequency parameters indicated in the FREQUENCY REDEFINITION message.

Reference(s):

3GPP TS 04.08 / 3GPP TS 44.018 subclauses 3.4.3 and 3.4.5.

26.6.13.4.2 Test purpose

To verify that the MS, after receiving a FREQUENCY REDEFINITION and then an ASSIGNMENT COMMAND message with a starting time and channel descriptions both for before and after the starting time, failing the assignment and returning on the old channel, and ready to access after the time indicated in the FREQUENCY REDEFINITION, resumes transmission using the new frequency parameters indicated in the FREQUENCY REDEFINITION message.

26.6.13.4.3 Method of test

Initial condition(s)

System Simulator:

1 cell, CCCH_CONF set to 1 basic physical channel used for CCCH, not combined with SDCCHs.

Mobile Station:

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

Specific PICS statements

-

PIXIT statements

-

Foreseen final state of the MS

"Idle, updated", with TMSI allocated.

Test procedure

The System Simulator pages the MS and after the MS has responded with a CHANNEL REQUEST, the simulator assigns allocating a hopping channel (SDCCH). Then the SS sends a FREQUENCY REDEFINITION message (starting time T1), which modifies the frequency parameters to be used by the MS. Then the SS sends an ASSIGNMENT COMMAND message, with a starting time (T2) and channel descriptions for both before and after the starting time. Time T1 is chosen so it is reached after the sending of the ASSIGNMENT COMMAND message, but before the return on the old channel. The System Simulator does not activate the channels defined in the ASSIGNMENT COMMAND. The MS shall try to activate the new channel (this is not verified) and shall then reactivate the old channel with the new frequency parameters as indicated by the FREQUENCY REDEFINITION message, and trigger the establishment of the main signalling link on the old channel. Then the MS shall send an ASSIGNMENT FAILURE message. The verification is performed at the RF burst level.

Test parameters:

i.e. for SDCCH

T2 is set to $T0 + 5000 \pmod{42\,432}$, where T0 is the frame number at which the first burst of the FREQUENCY REDEFINITION message is sent.

T1 is set to $T0 + 214 \pmod{42\,432}$, where T0 is the frame number at which the first burst of the FREQUENCY REDEFINITION message is sent.

NOTE: $T0 + 214$ is calculated for a maximum execution time of:

FREQUENCY REDEFINITION	using 1 L2 frame	51 frames
ASSIGNMENT COMMAND	using 2 L2 frames	102 frames
+ 120 ms maximum time for a channel change		25 frames
+ some frames contention (here 36)		

Maximum duration of test

180 s.

Expected sequence

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST TYPE 1	Hopping channel.
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	PAGING RESPONSE	Hopping channel, type among possible, signalling mode. Sent on the correct channel (parameters from the FREQUENCY REDEFINITION message) after establishment of the main signalling link.
5	SS -> MS	FREQUENCY REDEFINITION	
6	SS -> MS	ASSIGNMENT COMMAND	
7	MS -> SS	ASSIGNMENT FAILURE	
8	SS -> MS	CHANNEL RELEASE	

Specific message contents

FREQUENCY REDEFINITION

Information element	Value/remark
Channel Description	
Channel Type and TDMA offset	Same as in IMMEDIATE ASSIGNMENT
Timeslot Number	Same as in IMMEDIATE ASSIGNMENT
Training Sequence Code	Same as in IMMEDIATE ASSIGNMENT
Hopping	Yes
Hopping parameters	Chosen arbitrarily, different than those of the IMMEDIATE ASSIGNMENT message.
Mobile Allocation	Chosen arbitrarily, at least two frequencies, different than those of the IMMEDIATE ASSIGNMENT message, HSN same as in IMMEDIATE ASSIGNMENT.
Starting Time	T1

ASSIGNMENT COMMAND

Information element	Value/remark
Channel Description, after time	
Channel Type and TDMA offset	Chosen arbitrarily among that supported by the Mobile Station.
Timeslot Number	Chosen arbitrarily.
Training Sequence Code	Chosen arbitrarily.
Hopping	Yes.
Hopping parameters	Chosen arbitrarily.
Power Command	
Power level	Chosen arbitrarily.
Channel Mode	
Mode	Signalling Only.
Mobile Allocation, after time	Chosen arbitrarily, at least two frequencies.
Starting Time	T2
Channel Description, before time	
Channel Type and TDMA offset	Same as after time.
Timeslot Number	Same as after time.
Training Sequence Code	Same as after time.
Hopping	Yes.
Hopping parameters	Chosen arbitrarily, different from "after time".
Mobile Allocation, before time	Chosen arbitrarily, at least two frequencies, different from "Mobile Allocation, after time".

26.6.13.5 Handover with starting time / successful case / time not elapsed

26.6.13.5.1 Conformance requirement

A Mobile Station receiving an HANDOVER COMMAND message with a starting time and channel descriptions for both after and before the starting time, and ready to access before the indicated time has elapsed, shall perform the handover on the channels as described for before the starting time and shall, if specified, use the parameters in the frequency list, MAIO and HSN, in the correct time slot indicated by the starting time.

The Mobile Station shall accept the HANDOVER COMMAND message for different message formatting, differing by the information elements used to describe frequency lists.

Reference(s):

3GPP TS 04.08 / 3GPP TS 44.018 subclauses 3.4.4.1 and 9.1.15.

26.6.13.5.2 Test purpose

To verify that the MS, after receiving a HANDOVER COMMAND message with a starting time and channel descriptions both for before and after the starting time, and ready to access before the indicated time, performs correctly the handover using the description for before the time, and then starts using the frequency parameters for after the time at the time indicated in the message.

26.6.13.5.3 Method of test

Initial condition(s)

System Simulator:

2 cells, CCCH_CONF set to 1 basic physical channel used for CCCH, not combined with SDCCHs.

Mobile Station:

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

Specific PICS statements

- MS supports only SDCCH (TSPC_AddInfo_SDCCHOnly)
- MS supports GSM HR (TSPC_AddInfo_HalfRate)

PIXIT statements

-

Foreseen final state of the MS

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

Test procedure

The System Simulator pages the MS and after the MS has responded with a CHANNEL REQUEST, the simulator assigns a hopping SDCCH. After the SS has received measurements concerning cell B, the SS sends a HANDOVER COMMAND message allocating a channel (TCH/F, TCH/H or SDCCH, arbitrarily chosen among the channels supported), with a starting time and channel descriptions (hopping case) for both before and after the starting time, as detailed in the "specific message contents" clause. The indicated time is such that the Mobile Station is ready to access before that time. The Mobile Station then accesses the channel as described for before the starting time. The MS shall eventually, at the TDMA frame defined by the contents of the "Starting Time" information element of the HANDOVER COMMAND message, use the new frequency parameters. The verification is performed at the RF burst level.

Test parameters:

T1 is set to $T0 + 1000 \pmod{42432}$, where T0 is the frame number at which the first burst of the HANDOVER COMMAND message is sent.

Maximum duration of test

120 s.

Expected sequence

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST TYPE 1	Hopping channel. See specific message contents. Repeated on every burst of the uplink main DCCH (and optionally on the SACCH) until reception of PHYSICAL INFORMATION.
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	PAGING RESPONSE	
5	SS -> MS	HANDOVER COMMAND	
6	MS -> SS	HANDOVER ACCESS	
7	SS -> MS	PHYSICAL INFORMATION	Sent on the correct channel (before time parameters) after establishment of the main signalling link. The SS checks that the MS is transmitting now on the correct frequencies (after time parameters) and that the transmissions started in the correct frame.
8	MS -> SS	HANDOVER COMPLETE	
9	-----	Time T1	
10	SS -> MS	CHANNEL RELEASE	

Specific message contents

HANDOVER COMMAND:

Information element	Value/remark
Cell Description	As for cell B.
Channel Description, after time	
Channel Type and TDMA offset	Chosen arbitrarily among that supported by the Mobile Station.
Timeslot Number	Chosen arbitrarily.
Training Sequence Code	Chosen arbitrarily.
Hopping	Yes.
Hopping parameters	Chosen arbitrarily.
Power Command	
Power level	Chosen arbitrarily.
Synchronization indication	Non synchronized.
Cell Channel Description	As for cell B.
Channel Mode	
Mode	Signalling Only.
Mobile Allocation, after time	Chosen arbitrarily, at least one frequency. In case of an MA with just one frequency, the frequency should be different from the BCCH carrier.
Starting Time	T1
Channel Description, before time	
Channel Type and TDMA offset	Same as after time.
Timeslot Number	Same as after time.
Training Sequence Code	Same as after time.
Hopping	Yes.
Hopping parameters	Chosen arbitrarily, different from "after time".
Mobile Allocation, before time	Chosen arbitrarily, at least one frequency, different from "Mobile Allocation, after time". In case of an MA with just one frequency, the frequency should be different from the BCCH carrier.

26.6.13.6 Handover with starting time / successful case / time elapsed

26.6.13.6.1 Conformance requirement

A Mobile Station receiving a HANDOVER COMMAND message with a starting time and channel descriptions for both after and before the starting time, and ready to access after the indicated time has elapsed, shall perform the handover on the channels as described for after the starting time.

The Mobile Station shall accept the HANDOVER COMMAND message for different message formattings, differing by the information elements used to describe frequency lists.

Reference(s):

3GPP TS 04.08 / 3GPP TS 44.018 sub-clauses 3.4.4.1 and 9.1.15.

26.6.13.6.2 Test purpose:

To verify that the MS, after receiving a HANDOVER COMMAND message with a starting time and channel descriptions both for before and after the starting time, and ready to transmit after the indicated time, performs correctly the handover using the frequency parameters for after the time.

26.6.13.6.3 Method of test

Initial condition(s)

System Simulator:

2 cells, CCCH_CONF set to 1 basic physical channel used for CCCH, not combined with SDCCHs.

Mobile Station:

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

Specific PICS statements

- MS supports only SDCCH (TSPC_AddInfo_SDCCHOnly)
- MS supports GSM HR (TSPC_AddInfo_Halfrate)

PIXIT statements

-

Foreseen final state of the MS

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

Test procedure

The System Simulator pages the MS and after the MS has responded with a CHANNEL REQUEST, the simulator assigns a hopping SDCCH. After the SS has received measurements concerning cell B, the SS sends a HANDOVER COMMAND message allocating a channel (TCH/F, TCH/H or SDCCH, arbitrarily chosen among the channels supported), with a starting time and channel descriptions (hopping case) for both before and after the starting time., as detailed in the "specific message contents" clause. The indicated time is such that the Mobile Station is ready to access only after that time. The Mobile Station then accesses the channel as described for after the starting time. The verification is performed at the RF burst level.

Test parameters:

T1 is set to $T0+5 \pmod{42\,432}$, where T0 is the frame number at which the first burst of the HANDOVER COMMAND message is sent.

Maximum duration of test

120 s.

Expected sequence

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST TYPE 1	Hopping channel. See specific message contents. Repeated on every burst of the uplink main DCCH (and optionally on the SACCH) until reception of PHYSICAL INFORMATION.
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	PAGING RESPONSE	
5	SS -> MS	HANDOVER COMMAND	
6	MS -> SS	HANDOVER ACCESS	
7	SS -> MS	PHYSICAL INFORMATION	Sent on the correct channel (after time parameters) after establishment of the main signalling link.
8	MS -> SS	HANDOVER COMPLETE	
9	SS -> MS	CHANNEL RELEASE	

Specific message contents

HANDOVER COMMAND:

Information element	Value/remark
Cell Description	As for cell B.
Channel Description, after time	
Channel Type and TDMA offset	Chosen arbitrarily among that supported by the Mobile Station.
Timeslot Number	Chosen arbitrarily.
Training Sequence Code	Chosen arbitrarily.
Hopping	Yes.
Hopping parameters	Chosen arbitrarily.
Power Command	
Power level	Chosen arbitrarily.
Synchronization indication	Non synchronized.
Cell Channel Description	As for cell B.
Channel Mode	
Mode	Signalling Only.
Mobile Allocation, after time	Chosen arbitrarily, at least one frequency. In case of an MA with just one frequency, the frequency should be different from the BCCH carrier.
Starting Time	T1
Channel Description, before time	
Channel Type and TDMA offset	Same as after time.
Timeslot Number	Same as after time.
Training Sequence Code	Same as after time.
Hopping	Yes.
Hopping parameters	Chosen arbitrarily, different from "after time".
Mobile Allocation, before time	Chosen arbitrarily, at least one frequency and different from "Mobile Allocation, after time". In case of an MA with just one frequency, the frequency should be different from the BCCH carrier.

26.6.13.7 Handover with starting time and frequency redefinition / failure case / time not elapsed

26.6.13.7.1 Conformance requirement

An MS, after receiving a FREQUENCY REDEFINITION message, shall keep the provided information until the time is elapsed. The Mobile Station must accept an intervening handover, and, in case of failure of this handover resulting in a return to the old channel before the time indicated in the FREQUENCY REDEFINITION message, shall return on the old channel with the frequency parameters in use at the moment of the reception of the FREQUENCY REDEFINITION message, and shall eventually start using the new frequency parameters in the correct time slot indicated by the starting time of the FREQUENCY REDEFINITION message.

Reference(s):

3GPP TS 04.08 / 3GPP TS 44.018 subclauses 3.4.4 and 3.4.5.

26.6.13.7.2 Test purpose:

To verify that the MS, after receiving a FREQUENCY REDEFINITION and then a HANDOVER COMMAND message with a starting time and channel descriptions both for before and after the starting time, failing the handover, and ready to access on the old channel before the time indicated in the FREQUENCY REDEFINITION, resumes transmission on the channels used at the time of the reception of the FREQUENCY REDEFINITION message and eventually starts using the new frequency parameters at the time indicated in the FREQUENCY REDEFINITION message.

26.6.13.7.3 Method of test

Initial condition(s)

System Simulator:

2 cells, CCCH_CONF set to 1 basic physical channel used for CCCH, not combined with SDCCHs.

Mobile Station:

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

Specific PICS statements

- MS supports only SDCCH (TSPC_AddInfo_SDCCHOnly)
- MS supports GSM HR (TSPC_AddInfo_Halfrate)

PIXIT statements

-

Foreseen final state of the MS

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

Test procedure

The System Simulator pages the MS and after the MS has responded with a CHANNEL REQUEST, the simulator assigns allocating a hopping channel (TCH/F, TCH/H or SDCCH, arbitrarily chosen among the channels supported). Then the SS sends a FREQUENCY REDEFINITION message (starting time T1), which modifies the frequency parameters to be used by the MS. Then the SS sends a HANDOVER COMMAND message, with a starting time (T2) and channel descriptions for both before and after the starting time. The MS shall try to activate the new channel (this is not verified) and shall then reactivate the old channel and trigger the establishment of the main signalling link on the old channel. The System Simulator does not activate the channels defined in the HANDOVER COMMAND. Then the MS shall send a HANDOVER FAILURE message. Time T1 is chosen so it is reached only after the sending of the HANDOVER FAILURE message. The MS shall eventually, at the TDMA frame defined by the contents of the "Starting Time" information element of the FREQUENCY REDEFINITION message, use the new frequency parameters. The verification is performed at the RF burst level.

Test parameters:

T1 is set to $T0 + 5000 \pmod{42\,432}$, where T0 is the frame number at which the first burst of the FREQUENCY REDEFINITION message is sent.

T2 is set to $T0 + 4000 \pmod{42\,432}$, where T0 is the frame number at which the first burst of the FREQUENCY REDEFINITION message is sent.

Maximum duration of test

180 s.

Expected sequence

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST TYPE 1	Hopping channel.
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	PAGING RESPONSE	
5	SS -> MS	FREQUENCY REDEFINITION	Hopping channel, type among possible, signalling mode. Not checked. Sent on the correct channel (original parameters) after establishment of the main signalling link. The SS checks that the MS is transmitting now on the correct frequencies (parameters of the FREQUENCY REDEFINITION message) and that the transmissions started in the correct frame.
6	SS -> MS	HANDOVER COMMAND	
7	MS -> SS	HANDOVER ACCESS	
8	MS -> SS	HANDOVER FAILURE	
9	-----	Time T1	
10	SS -> MS	CHANNEL RELEASE	

Specific message contents

FREQUENCY REDEFINITION

Information element	Value/remark
Channel Description	
Channel Type and TDMA offset	Same as in IMMEDIATE ASSIGNMENT
Timeslot Number	Same as in IMMEDIATE ASSIGNMENT
Training Sequence Code	Same as in IMMEDIATE ASSIGNMENT
Hopping	Yes
Hopping parameters	Chosen arbitrarily, different than those of the IMMEDIATE ASSIGNMENT message, HSN same as in IMMEDIATE ASSIGNMENT.
Mobile Allocation	Chosen arbitrarily, at least two frequencies, different than those of the IMMEDIATE ASSIGNMENT message.
Starting Time	T1

HANDOVER COMMAND:

Information element	Value/remark
Cell Description	As for cell B.
Channel Description, after time	
Channel Type and TDMA offset	Chosen arbitrarily among that supported by the Mobile Station.
Timeslot Number	Chosen arbitrarily.
Training Sequence Code	Chosen arbitrarily.
Hopping	Yes.
Hopping parameters	Chosen arbitrarily.
Power Command	
Power level	Chosen arbitrarily.
Synchronization indication	Non synchronized.
Cell Channel Description	As for cell B.
Channel Mode	
Mode	Signalling Only.
Mobile Allocation, after time	Chosen arbitrarily, at least one frequency. In case of an MA with just one frequency, the frequency should be different from the BCCH carrier.
Starting Time	T2
Channel Description, before time	
Channel Type and TDMA offset	Same as after time.
Timeslot Number	Same as after time.
Training Sequence Code	Same as after time.
Hopping	Yes.
Hopping parameters	Chosen arbitrarily, different from "after time".
Mobile Allocation, before time	Chosen arbitrarily, at least one frequency and different from "Mobile Allocation, after time". In case of an MA with just one frequency, the frequency should be different from the BCCH carrier.

26.6.13.8 Handover with starting time and frequency redefinition / failure case / time elapsed

26.6.13.8.1 Conformance requirement

An MS, after receiving a FREQUENCY REDEFINITION message, shall keep the provided information until the time is elapsed. The Mobile Station must accept an intervening handover, and, in case of failure of this handover resulting in a return to the old channel after the time indicated in the FREQUENCY REDEFINITION message, shall return on the old channel with the frequency parameters indicated in the FREQUENCY REDEFINITION message.

Reference(s):

3GPP TS 04.08 / 3GPP TS 44.018 subclauses 3.4.4 and 3.4.5.

26.6.13.8.2 Test purpose:

To verify that the MS, after receiving a FREQUENCY REDEFINITION and then a HANDOVER COMMAND message with a starting time and channel descriptions both for before and after the starting time, failing the handover and returning on the old channel, and ready to access after the time indicated in the FREQUENCY REDEFINITION, resumes transmission using the new frequency parameters indicated in the FREQUENCY REDEFINITION message.

26.6.13.8.3 Method of test

Initial condition(s)

System Simulator:

2 cells, CCCH_CONF set to 1 basic physical channel used for CCCH, not combined with SDCCHs.

Mobile Station:

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

Specific PICS statements

-

PIXIT statements

-

Foreseen final state of the MS

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

Test procedure

The System Simulator pages the MS and after the MS has responded with a CHANNEL REQUEST, the simulator assigns a hopping channel (SDCCH). Then the SS sends a FREQUENCY REDEFINITION message (starting time T1), which modifies the frequency parameters to be used by the MS. Then the SS sends a HANDOVER COMMAND message, with a starting time (T2) and channel descriptions for both before and after the starting time. Time T1 is chosen so it is reached after the sending of the HANDOVER COMMAND message, but before the return on the old channel. The System Simulator does not activate the channels defined in the HANDOVER COMMAND. The MS shall try to activate the new channel (this is not verified) and shall then reactivate the old channel with the new frequency parameters as indicated by the FREQUENCY REDEFINITION message, and trigger the establishment of the main signalling link on the old channel. Then the MS shall send a HANDOVER FAILURE message. The verification is performed at the RF burst level.

Test parameters:

i.e. for SDCCH

T2 is set to $T0 + 5000 \pmod{42\,432}$, where T0 is the frame number at which the first burst of the FREQUENCY REDEFINITION message is sent.

T1 is set to $T0 + 265 \pmod{42\,432}$, where T0 is the frame number at which the first burst of the FREQUENCY REDEFINITION message is sent.

NOTE: $T0 + 265$ is calculated for a maximum execution time of:

FREQUENCY REDEFINITION	using 1 L2 frame	51 frames
HANDOVER COMMAND	using 3 L2 frames	153 frames
+ 120 ms maximum time for a channel change		25 frames
+ some frames contention (here 36)		

Maximum duration of test

180 s.

Expected sequence

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST TYPE 1	Hopping channel.
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	Hopping channel, type among possible, signalling mode. Not checked. Sent on the correct channel (parameters from the FREQUENCY REDEFINITION message) after establishment of the main signalling link.
4	MS -> SS	PAGING RESPONSE	
5	SS -> MS	FREQUENCY REDEFINITION	
6	SS -> MS	HANDOVER COMMAND	
7	MS -> SS	HANDOVER ACCESS	
8	MS -> SS	HANDOVER FAILURE	
9	SS -> MS	CHANNEL RELEASE	

Specific message contents

FREQUENCY REDEFINITION

Information element	Value/remark
Channel Description	
Channel Type and TDMA offset	Same as in IMMEDIATE ASSIGNMENT
Timeslot Number	Same as in IMMEDIATE ASSIGNMENT
Training Sequence Code	Same as in IMMEDIATE ASSIGNMENT
Hopping	Yes.
Hopping parameters	Chosen arbitrarily, different than those of the IMMEDIATE ASSIGNMENT message, HSN same as in IMMEDIATE ASSIGNMENT.
Mobile Allocation	Chosen arbitrarily, at least two frequencies, different than those of the IMMEDIATE ASSIGNMENT message
Starting Time	T1

HANDOVER COMMAND

Information element	Value/remark
Cell Description	As for cell B.
Channel Description, after time	
Channel Type and TDMA offset	Chosen arbitrarily among that supported by the Mobile Station.
Timeslot Number	Chosen arbitrarily.
Training Sequence Code	Chosen arbitrarily.
Hopping	Yes.
Hopping parameters	Chosen arbitrarily.
Power Command	
Power level	Chosen arbitrarily.
Synchronization indication	Non synchronized.
Cell Channel Description	As for cell B.
Channel Mode	
Mode	Signalling Only.
Mobile Allocation, after time	Chosen arbitrarily, at least one frequency. In case of an MA with just one frequency, the frequency should be different from the BCCH carrier.
Starting Time	T2
Channel Description, before time	
Channel Type and TDMA offset	Same as after time.
Timeslot Number	Same as after time.
Training Sequence Code	Same as after time.
Hopping	Yes.
Hopping parameters	Chosen arbitrarily, different from "after time".
Mobile Allocation, before time	Chosen arbitrarily, at least one frequency and different from "Mobile Allocation, after time". In case of an MA with just one frequency, the frequency should be different from the BCCH carrier.

26.6.13.9 Immediate assignment with starting time / successful case / time not elapsed

26.6.13.9.1 Conformance requirement

A Mobile Station receiving an IMMEDIATE ASSIGNMENT message with a starting time and channel descriptions for both after and before the starting time, and ready to access before the indicated time has elapsed, shall perform the assignment on the channels as described for before the starting time and shall start using the new frequencies and hopping sequence in the correct time slot when the MS is allocated a dedicated channel.

Reference(s):

3GPP TS 04.08 / 3GPP TS 44.018 subclauses 3.3.1.1.3.1 and 9.1.18.

26.6.13.9.2 Test purpose

To verify that the MS, after receiving an IMMEDIATE ASSIGNMENT message with a starting time and channel descriptions both for before and after the starting time, and ready to access before the indicated time, performs correctly the assignment using the description for before the time, and then starts using the frequency parameters for after the time at the time indicated in the message.

26.6.13.9.3 Method of test

Initial condition(s)

System Simulator:

1 cell, CCCH_CONF set to 1 basic physical channel used for CCCH, not combined with SDCCHs.

Mobile Station:

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

Specific PICS statements

- MS supports only SDCCH (TSPC_AddInfo_SDCCHOnly)
- MS supports GSM HR (TSPC_AddInfo_Halfrate)

PIXIT statements

-

Foreseen final state of the MS

"Idle, updated", with TMSI allocated.

Test procedure

The System Simulator pages the MS and after the MS has responded with a CHANNEL REQUEST, the simulator sends an IMMEDIATE ASSIGNMENT message allocating a hopping channel (TCH/F, TCH/H or SDCCH, arbitrarily chosen among the channels supported), with a starting time and channel descriptions for both before and after the starting time. The indicated time is such that the Mobile Station is ready to access before that time. The Mobile Station then accesses the channel as described for before the starting time. The MS shall eventually, at the TDMA frame defined by the contents of the "Starting Time" information element of the IMMEDIATE ASSIGNMENT message, use the new frequency parameters. The verification is performed at the RF burst level.

Test parameters:

T1 is chosen arbitrarily to be between T0+60 and T0+100 (mod 42 432), where T0 is the frame number at which the first burst of the IMMEDIATE ASSIGNMENT COMMAND message is sent.

Maximum duration of test

45 s.

Expected sequence

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST TYPE 1	See specific message contents. The SS checks that the MS is transmitting now on the correct frequencies (after time parameters) and that the transmissions started in the correct frame.
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	PAGING RESPONSE	
5	-----	Time T1	
6	SS -> MS	CHANNEL RELEASE	

Specific message contents

IMMEDIATE ASSIGNMENT

Information element	Value/remark
Page Mode	Normal.
Channel Description	
Channel Type and TDMA offset	Chosen arbitrarily among that supported by the Mobile Station.
Timeslot Number	Chosen arbitrarily.
Training Sequence Code	Chosen arbitrarily.
Hopping	Yes.
Hopping parameters	Chosen arbitrarily.
Timing Advance	As needed.
Mobile Allocation (after time)	Chosen arbitrarily, at least one frequency. In case of an MA with just one frequency, the frequency should be different from the BCCH carrier.
Starting Time	T1
IA Rest Octet	
MAIO	Chosen arbitrarily, different from "after time".
Mobile Allocation (before time)	Chosen arbitrarily, at least one frequency and different from "Mobile Allocation, after time". In case of an MA with just one frequency, the frequency should be different from the BCCH carrier.

26.6.13.10 Immediate assignment with starting time / successful case / time elapsed

26.6.13.10.1 Conformance requirement

A Mobile Station receiving an IMMEDIATE ASSIGNMENT message with a starting time and channel descriptions for both after and before the starting time, and ready to access after the indicated time has elapsed, shall perform the assignment on the channels as described for after the starting time.

Reference(s):

3GPP TS 04.08 / 3GPP TS 44.018 subclauses 3.3.1.1.3.1 and 9.1.18.

26.6.13.10.2 Test purpose

To verify that the MS, after receiving an IMMEDIATE ASSIGNMENT message with a starting time and channel descriptions both for before and after the starting time, performs correctly the assignment using the frequencies and hopping sequence for after the time if the indicated time has already elapsed when the Mobile Station is ready to transmit.

26.6.13.10.3 Method of test

Initial condition(s)

System Simulator:

1 cell, CCCH_CONF set to 1 basic physical channel used for CCCH, not combined with SDCCHs.

Mobile Station:

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

Specific PICS statements

- MS supports only SDCCH (TSPC_AddInfo_SDCCHOnly)
- MS supports GSM HR (TSPC_AddInfo_Halfrate)

PIXIT statements

-

Foreseen final state of the MS

"Idle, updated", with TMSI allocated.

Test procedure

The System Simulator pages the MS and after the MS has responded with a CHANNEL REQUEST, the simulator sends an IMMEDIATE ASSIGNMENT message allocating a hopping channel (TCH/F, TCH/H or SDCCH, arbitrarily chosen among the channels supported), with a starting time and channel descriptions for both before and after the starting time. The indicated time is such that the Mobile Station is ready to access only after that time. The Mobile Station then accesses the channel as described for after the starting time. The verification is performed at the RF burst level.

Test parameters:

T1 is set to $T0+5 \pmod{42\,432}$, where T0 is the frame number at which the first burst of the IMMEDIATE ASSIGNMENT COMMAND message is sent.

Maximum duration of test

45 s

Expected sequence

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST TYPE 1	See specific message contents. The SS checks that the MS is transmitting now on the correct frequencies (after time parameters).
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	PAGING RESPONSE	
5	SS -> MS	CHANNEL RELEASE	

Specific message contents

IMMEDIATE ASSIGNMENT:

Information element	Value/remark
Page Mode	Normal.
Channel Description	
Channel Type and TDMA offset	Chosen arbitrarily among that supported by the Mobile Station.
Timeslot Number	Chosen arbitrarily.
Training Sequence Code	Chosen arbitrarily.
Hopping	Yes.
Hopping parameters	Chosen arbitrarily.
Timing Advance	As needed.
Mobile Allocation (after time)	Chosen arbitrarily, at least one frequency. In case of an MA with just one frequency, the frequency should be different from the BCCH carrier.
Starting Time	T1
IA Rest Octet	
MAIO	Chosen arbitrarily, different from "after time".
Mobile Allocation (before time)	Chosen arbitrarily, at least one frequency and different from "Mobile Allocation, after time". In case of an MA with just one frequency, the frequency should be different from the BCCH carrier.

26.6.14 Default contents of GSM 900 layer 3 messages for RR tests

This subclause contains the default values of GSM 900 L3 messages, which unless indicated otherwise in subclause 26.6 shall be transmitted by the system simulator and which are required to be received from the GSM 900 MS under test. These values are used in order to be consistent with the phase 2 version of 26.6.

The necessary L3 messages are listed in alphabetic order, with the exception of the SYSTEM INFORMATION messages, where it is the information elements which are listed in alphabetic order (this is because some information elements occur in several SYSTEM INFORMATION types).

In this subclause, decimal values are normally used. However, sometimes a hexadecimal value, indicated by an "H", or a binary value, indicated by a "B" is used.

Default SYSTEM INFORMATION:

NOTE 1: SYSTEM INFORMATION 2 bis, SYSTEM INFORMATION 5 bis, SYSTEM INFORMATION 7, and SYSTEM INFORMATION 8 messages are not used.

Cell A

Contents of information elements in SYSTEM INFORMATION TYPE 1 to 6 messages for cell A.

(CBCH) Channel Description	Not present.
(CBCH) Mobile Allocation	Not present.
Cell Channel Description	
- Format identifier	bit map 0.
- Cell Allocation ARFCN	Channel Numbers 20, 30, 50 and 70.
Cell Identity	
- Cell Identity Value	0001H
Cell Options	
- Power Control Indicator	Power Control Indicator is not set.
- DTX Indicator	MS shall not use DTX.
- Radio_Link_Timeout	8 SACCH blocks.
Cell Selection Parameters	
- Cell_Reselect_Hysteresis	12 dB.
- MX_TXPWR_MAX_CCH	Minimum level.
- ACS	No addition cell parameters are present in SYSTEM INFORMATION messages 7 and 8.
- NECI	New establishment causes not supported.
- RXLEV_ACCESS_MIN	Minimum level.
Control Channel Description	
- Attach-Detach allowed	No Attach/Detach.
- BS_AG_BLKES_RES	0 blocks reserved for access grant.
- CCCH_CONF	1 basic physical channel used for CCCH, combined with SDCCHs.
- BS_PA_MFRMS	5 multiframe periods for transmission of paging messages.
- T3212 Time-out value	Infinite.
L2 pseudo length	
- System information 1	21
- System information 2	22
- System information 3	18
- System information 4	12
Location Area Identification	
- Mobile Country Code	001 decimal
- Mobile Network Code	01 decimal
- Location Area Code	0001H
Message Type	
- System information 1	00011001
- System information 2	00011010
- System information 3	00011011
- System information 4	00011100
- System information 5	00011101
- System information 6	00011110
Neighbour Cells Description	
- Format identifier	bit map 0.
- BCCH Allocation Sequence	0
- BCCH Allocation ARFCN	Channels numbers 10, 20, 40, 80, 90, 100, 110 and 120.
- EXT-IND	This IE carries the complete BA.
NCC Permitted	0000 0010
RACH Control Parameters	
- Max Retrans	Max 1 retrans.
- Tx-integer	5 slots used.
- Cell Barred for Access	Cell is not barred.
- Call Reestablishment Allowed	Not allowed.
- Access Control Class	Access is not barred.
- Emergency Call allowed	Yes.
SI 1 rest octets	Not used (all bits are set to spare).
SI 2 rest octets	Not used (all bits are set to spare).
SI 3 rest octets	Not used (all bits are set to spare).
SI 4 rest octets	Not used (all bits are set to spare).

Default settings for cell A:

Downlink input level	63 dBm
Uplink output power	microVolt emf. minimum supported by the MS's power class.
Propagation profile	static.
BCCH/CCCH carrier number	20

Cell B

The contents of SYSTEM INFORMATION TYPE 1 to 6 messages for cell B are identical to those of cell A with the following exceptions:

Cell Channel Description - Format Identifier - Cell Allocation ARFCN	Bit map 0. Channel Number 10.
--	----------------------------------

NOTE 2: This IE needs modification when used in handover tests which command the MS to go to a frequency hopping channel in cell B.

Cell Identity

- Cell Identity Value 0002H

Default settings for cell B:

Downlink input level	53 dBm
Uplink output power	microVolt emf. minimum supported by the MS's power class.
Propagation profile	static.
BCCH/CCCH carrier number	10

Contents of ALERTING message (SS to MS):

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	1 (destination side).
Message Type	00000001
All other information elements	Not present.

Contents of ASSIGNMENT COMMAND message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101110
Channel Description	
- Channel Type and TDMA offset	Bm + ACCHs
- Timeslot Number	Chosen arbitrarily by the test house.
- Training Sequence Code	Chosen arbitrarily by the test house.
- Hopping	Single RF channel.
- ARFCN	Channel number 30.
Power Command	
- EPC mode (for R5 and after MS only)	0 (Channel not in EPC mode)
- FPC (for R99 and R4 MS only)	0 (FPC not in use)
- FPC_EPC mode (for R5 and after MS only)	0 (FPC or EPC not in use)
- Power level	Chosen arbitrarily by the test house.
All other information elements	Not present.

Contents of ASSIGNMENT COMPLETE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101001
RR Cause	
- RR Cause Value	Normal event.

Contents of ASSIGNMENT FAILURE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101111
RR Cause	
- RR Cause Value	Depending on test.

Contents of AUTHENTICATION REQUEST message:

Protocol Discriminator	MM message.
Skip Indicator	0000
Message Type	00010010
Ciphering Key Sequence Number	
- Key Sequence	Chosen arbitrarily by the test house from the range 0 to 6.
Authentication Parameter RAND	
- RAND value	Chosen arbitrarily by the test house.

Contents of AUTHENTICATION RESPONSE message:

Protocol Discriminator	MM message.
Skip Indicator	0000
Message Type	0X010100
Other information element(s)	Not checked.

Contents of CALL PROCEEDING message:

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	1 (destination side).
Message Type	00000010
All other information elements	Not present.

Contents of CHANNEL MODE MODIFY message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00010000
Channel Description	
- Channel Type and TDMA offset	Depending on test.
- Timeslot Number	Chosen arbitrarily by the test house.
- Training Sequence Code	Chosen arbitrarily by the test house.
- Hopping	Single RF channel.
- ARFCN	Channel number 30.
Channel Mode	
- Mode	Depending on test.

Contents of CHANNEL MODE MODIFY ACKNOWLEDGE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00010111
Channel Description	
- Channel Type and TDMA offset	Depending on test.
- Timeslot Number	Same as in the CHANNEL MODE MODIFY message.
- Training Sequence Code	Same as in the CHANNEL MODE MODIFY message.
- Hopping	Single RF channel.
- Frequency Band	Band number 0.
- ARFCN	Channel number 30.
Channel Mode	
- Mode	Same as in the CHANNEL MODE MODIFY message.

Contents of CHANNEL RELEASE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00001101
RR Cause	
- RR Cause Value	Normal event.

Contents of CHANNEL REQUEST message

Establishment Cause	Not checked.
Random Reference	Not checked.

Contents of CIPHERING MODE COMMAND message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00110101
Cipher Mode Setting	
- algorithm identifier	cipher with A5/1.
- SC	Start ciphering.
Cipher Response	IMEI shall not be included.

Contents of CIPHERING MODE COMPLETE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00110010
Mobile Identity	Not present.

Contents of the CLASSMARK CHANGE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	000100110
Mobile Station Classmark 2	See PIXIT.
Mobile Station Classmark 3	For presence and contents see PIXIT.

Contents of CM SERVICE ACCEPT message:

Protocol Discriminator	Mobility Management.
Skip Indicator	0000
Message Type	00100001

Contents of CM SERVICE REQUEST message

Protocol Discriminator	Mobility Management.
Skip Indicator	0000
Message Type	0X100100
Other information elements	Not checked.

Contents of CONNECT message (SS to MS)

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	1
Message Type	00000111
All other information elements	Not present.

Contents of CONNECT ACKNOWLEDGE message (MS to SS)

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	0
Message Type	0X001111

Contents of HANDOVER ACCESS message:

Handover Reference	Equal to the value included in the Handover Command message.
--------------------	--

Contents of HANDOVER COMMAND message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101011
Cell Description	
- Network Colour Code	1
- Base station Colour Code	Corresponding to target cell
- BCCH Carrier Number	Set to the BCCH carrier number of cell B. (one of 10, 20, 80, 90, 100, 110 or 120).
Channel Description	
- Channel Type and TDMA offset	Bm + ACCHs.
- Timeslot Number	Chosen arbitrarily by the test house.
- Training Sequence Code	Chosen arbitrarily by the test house.
- Hopping	Single RF channel.
- ARFCN	Chosen arbitrarily by the test house from those supported on the target cell.
Handover Reference	
- Handover Reference Value	Chosen arbitrarily by the test house.
Power Command	
- ATC	0 (Sending of Handover Access is mandatory)
- EPC mode (for R5 and after MS only)	0 (Channel not in EPC mode)
- FPC (for R99 and R4 MS only)	0 (FPC not in use)
- FPC_EPC mode (for R5 and after MS only)	0 (FPC or EPC not in use)
- Power level	Chosen arbitrarily by the test house.
All other information elements	Not present.

Contents of HANDOVER COMPLETE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101100
RR cause	Normal event.
Time difference	Not present.

Contents of HANDOVER FAILURE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101000
RR cause	Dependent on the test.

IDENTITY REQUEST

Information element	Value/remark
Identity type	IMEI
Spare half octet	0000

IDENTITY RESPONSE

Information element	Value/remark
Mobile identity	not checked

Contents of IMMEDIATE ASSIGNMENT message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the IA rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 11.
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00111111
Page Mode	
- Page Mode	Normal Paging.
Channel Description	
- Channel Type and TDMA offset	For non-combined CCCH/SDCCH (see initial conditions), SDCCH/8, with subchannel chosen arbitrarily by the test house For combined CCCH/SDCCH (default SS conditions), SDCCH/4, with subchannel chosen arbitrarily by the test house.
- Timeslot Number	For non-combined CCCH/SDCCH (see initial conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, timeslot zero.
- Training Sequence Code	For non-combined CCCH/SDCCH (see initial conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, TSC=5 (same as the BCC).
- Hopping	Single RF channel.
- ARFCN	For non-combined CCCH/SDCCH (see initial conditions), Channel number 30; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, Channel number 20.
Request Reference	Pertaining to last Channel Request sent by the MS.
Timing Advance	
- Timing advance value	30 bit periods.
Mobile Allocation	
- Length	0
Starting Time	Not present.
IA rest octets	Not used (all bits set to spare).

Contents of IMMEDIATE ASSIGNMENT EXTENDED message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the IAX rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 18.
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00111001
Page Mode	
- Page Mode	Normal Paging.
Channel Description 1	
- Channel Type and TDMA offset	For non-combined CCCH/SDCCH (see test conditions), SDCCH/8, with subchannel chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, with subchannel chosen arbitrarily by the test house.
- Timeslot Number	For non-combined CCCH/SDCCH (see test conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, timeslot zero.
- Training Sequence Code	For non-combined CCCH/SDCCH (see initial conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, TSC=5 (same as the BCC).
- Hopping	Single RF channel.
- ARFCN	For non-combined CCCH/SDCCH (see initial conditions), Channel number 30; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, Channel number 20.
Request Reference 1	Pertaining to last Channel Request sent by the MS.
Timing Advance 1	
- Timing advance value	Chosen arbitrarily by the test house.
Channel Description 2	
- Channel Type and TDMA offset	Same channel type as in Channel Description 1, but different TDMA offset to that in Channel Description 1.
- Timeslot Number	equal to the value in Channel Description 1.
- Training Sequence Code	equal to the value in Channel Description 1.
- Hopping	Single RF channel.
- ARFCN	equal to the value in Channel Description 1.
Request Reference 2	Not pertaining to any Channel Requests sent by the MS.
Timing Advance 2	
- Timing advance value	Chosen arbitrarily by the test house.
Mobile Allocation	
- Length	0
Starting Time	Not present.
IAX rest octets	Not used (all bits set to spare).

Contents of IMMEDIATE ASSIGNMENT REJECT message:

L2 pseudo length	19
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00111010
Page Mode	
- Page Mode	Normal Paging.
Request Reference	Pertaining to last Channel Request sent by the MS.
Wait Indication	0 s.
Request Reference	Not pertaining to the MS under test.
Wait Indication	0 s.
Request Reference	Not pertaining to the MS under test.
Wait Indication	0 s.
Request Reference	Not pertaining to the MS under test.
Wait Indication	0 s.
IAR rest octets	Not used (all bits set to spare).

Contents of LOCATION UPDATING REQUEST message:

Protocol Discriminator	MM message.
Skip Indicator	0000
Message Type	0X001000
Other information elements	Not checked.

Contents of PAGING REQUEST TYPE 1 message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the P1 rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 9.
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00100001
Page Mode	
- Page Mode	Normal Paging.
Channels needed	
- first channel	any channel.
- second channel	any channel.
Mobile Identity 1	
- odd/even indication	Even.
- Type of Identity	TMSI.
- Identity Digits	TMSI previously allocated to MS.
Mobile Identity 2	Not present.
P1 rest octets	Not used (all bits set to spare).

Contents of PAGING REQUEST TYPE 2 message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the P2 rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 11.
Protocol Discriminator	RR Management..
Skip Indicator	0000
Message Type	00100010
Page Mode	
- Page Mode	Normal Paging.
Channels needed	
- first channel	any channel.
- second channel	any channel.
Mobile Identity 1	
- TMSI value	TMSI previously allocated to MS.
Mobile Identity 2	
- TMSI value	TMSI not allocated to MS.
Mobile Identity	Not present.
P2 rest octets	Not used (all bits set to spare).

Contents of PAGING REQUEST TYPE 3 message:

L2 pseudo length	19
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00100100
Page Mode	
- Page Mode	Normal Paging.
Channels needed	
- first channel	any channel.
- second channel	any channel.
Mobile identity 1	
- TMSI value	TMSI previously allocated to MS.
Mobile identity 2	
- TMSI value	TMSI not allocated to MS.
Mobile identity 3	
- TMSI value	TMSI not allocated to MS.
Mobile identity 4	
- TMSI value	TMSI not allocated to MS.
P3 rest octets	Not used (all bits set to spare).

Contents of PAGING RESPONSE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00100111
Ciphering Key Sequence Number	
- Key Sequence	Key sequence number previously allocated to MS, or "111" if no key is available.
Mobile Station Classmark 2	
Mobile Identity	
- odd/even indication	Even
- Type of identity	TMSI
- Identity Digits	TMSI previously allocated to MS.

Contents of PHYSICAL INFORMATION message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101101
Timing advance	20 bit periods.

Contents of SETUP message; (MS to SS):

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	any value from the set {0, ..., 6}.
TI flag	0
Message Type	0X000101
Other information elements	Not checked.

26.6.15 Default contents of DCS 1 800 layer 3 messages for RR tests

This subclause contains the default values of DCS 1 800 L3 messages, which unless indicated otherwise in subclause 26.6 shall be transmitted by the system simulator and which are required to be received from the DCS 1 800 MS under test. These values are used in order to be consistent with the phase 2 version of 26.6.

The necessary L3 messages are listed in alphabetic order, with the exception of the SYSTEM INFORMATION messages, where it is the information elements which are listed in alphabetic order (this is because some information elements occur in several SYSTEM INFORMATION types).

In this subclause, decimal values are normally used. However, sometimes a hexadecimal value, indicated by an "H", or a binary value, indicated by a "B" is used.

Default SYSTEM INFORMATION:

NOTE 1: SYSTEM INFORMATION 2 bis, SYSTEM INFORMATION 7, and SYSTEM INFORMATION 8 messages are not used.

SYSTEM INFORMATION 5 bis is not sent as a default message. For those tests which require SYSTEM INFORMATION 5 bis see the specific message contents for that test.

Cell A

Contents of information elements in SYSTEM INFORMATION TYPE 1 to 6 messages for cell A.

(CBCH) Channel Description	Not present.
(CBCH) Mobile Allocation	Not present.
Cell Channel Description	
- Format identifier	Range 512.
- Cell Allocation ARFCN	Channel Numbers, 590, 650, 750 and 850.
Cell Identity	
- Cell Identity Value	0001H
Cell Options	
- Power Control Indicator	Power Control Indicator is not set, 0
- DTX Indicator	MS shall not use DTX.
- Radio_Link_Timeout	8 SACCH blocks.
Cell Selection Parameters	
- Cell_Reselect_Hysteresis	12 dB
- MX_TXPWR_MAX_CCH	Minimum level.
- ACS	No addition cell parameters are present in SYSTEM INFORMATION messages 7 and 8.
- NECI	New establishment causes not supported.
- RXLEV_ACCESS_MIN	Minimum level.
Control Channel Description	
- Attach-Detach allowed	MS shall not apply.
- BS_AG_BLKES_RES	0 blocks reserved for access grant.
- CCCH_CONF	1 basic physical channel used for CCCH, combined with SDCCHs.
- BS_PA_MFRMS	5 multiframe periods for transmission of paging messages.
- T3212 Time-out value	Infinite.
L2 pseudo length	
- System information 1	21
- System information 2	22
- System information 3	18
- System information 4	12
Location Area Identification	
- Mobile Country Code	001 decimal.
- Mobile Network Code	01 decimal.
- Location Area Code	0001H
Message Type	
- System information 1	00011001
- System information 2	00011010
- System information 3	00011011
- System information 4	00011100
- System information 5	00011101
- System information 6	00011110
Neighbour Cells Description	
- Format identifier	Range 512.
- BCCH Allocation Sequence	0
- BCCH Allocation ARFCN	Channels numbers, 520, 590, 600, 700, 747, 764, 780, 810, 870.
- EXT-IND	This IE carries the complete BA. EXT-IND is 0.
NCC Permitted	0000 0010
RACH Control Parameters	
- Max Retrans	Max 1 retrans.
- Tx-integer	5 slots used.
- Cell Barred for Access	Cell is not barred.
- Call Reestablishment Allowed	Not Allowed.
- Access Control Class	Access is not barred.
- Emergency Call allowed	Yes.
SI 1 rest octets	Not used (all bits are set to spare).
SI 2 rest octets	Not used (all bits are set to spare).
SI 3 rest octets	Not used (all bits are set to spare).
SI 4 rest octets	Not used (all bits are set to spare).

Default settings for cell A:

Downlink input level	63 dBm
Uplink output power	microVolt emf().
Propagation profile	minimum supported by the MS's power class
BCCH/CCCH carrier number	static.
	ARFN 590.

Cell B

The contents of SYSTEM INFORMATION TYPE 1 to 6 messages for cell B are identical to those of cell A with the following exceptions:

Cell Channel Description	
- Format Identifier	Range 512.
- Cell Allocation ARFCN	Channel Number 520.

NOTE 2: This IE needs modification when used in handover tests which command the MS to go to a frequency hopping channel in cell B.

Cell Identity	
- Cell Identity Value	0002H

Default settings for cell B:

Downlink input level	53 dBm
Uplink output power	microVolt emf().
Propagation profile	minimum supported by the MS's power class
BCCH/CCCH carrier number	static.
	520

Contents of ALERTING message (SS to MS):

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	1 (destination side).
Message Type	00000001
All other information elements	Not present.

Contents of ASSIGNMENT COMMAND message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101110
Channel Description	
- Channel Type and TDMA offset	Bm + ACCHs.
- Timeslot Number	Chosen arbitrarily by the test house.
- Training Sequence Code	Chosen arbitrarily by the test house.
- Hopping	Single RF channel.
- ARFCN	Channel number 650.
Power Command	
- EPC mode (for R5 and after MS only)	0 (Channel not in EPC mode)
- FPC (for R99 and R4 MS only)	0 (FPC not in use)
- FPC_EPC mode (for R5 and after MS only)	0 (FPC or EPC not in use)
- Power level	Chosen arbitrarily by the test house.
All other information elements	Not present.

Contents of ASSIGNMENT COMPLETE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101001
RR Cause	
- RR Cause Value	Normal event.

Contents of ASSIGNMENT FAILURE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101111
RR Cause	
- RR Cause Value	Depending on test.

Contents of AUTHENTICATION REQUEST message:

Protocol Discriminator	MM message.
Skip Indicator	0000
Message Type	00010010
Ciphering Key Sequence Number	
- Key Sequence	Chosen arbitrarily by the test house from the range 0 to 6.
Authentication Parameter RAND	
- RAND value	Chosen arbitrarily by the test house.

Contents of AUTHENTICATION RESPONSE message:

Protocol Discriminator	MM message.
Skip Indicator	0000
Message Type	0X010100
Other information element(s)	Not checked.

Contents of CALL PROCEEDING message:

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	1 (destination side).
Message Type	00000010
All other information elements	Not present.

Contents of CHANNEL MODE MODIFY message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00010000
Channel Description	
- Channel Type and TDMA offset	Depending on test.
- Timeslot Number	Chosen arbitrarily by the test house.
- Training Sequence Code	Chosen arbitrarily by the test house.
- Hopping	Single RF channel.
- ARFCN	Channel number 650.
Channel Mode	
- Mode	Depending on test.

Contents of CHANNEL MODE MODIFY ACKNOWLEDGE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00010111
Channel Description	
- Channel Type and TDMA offset	Depending on test.
- Timeslot Number	Same as in the CHANNEL MODE MODIFY message.
- Training Sequence Code	Same as in the CHANNEL MODE MODIFY message.
- Hopping	Single RF channel.
- Frequency Band	Band number 0.
- ARFCN	Channel number 650.
Channel Mode	
- Mode	Same as in the CHANNEL MODE MODIFY message.

Contents of CHANNEL RELEASE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00001101
RR Cause	
- RR Cause Value	Normal event.

Contents of CHANNEL REQUEST message:

Establishment Cause	Not checked.
Random Reference	Not checked.

Contents of CIPHERING MODE COMMAND message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00110101
Cipher Mode Setting	
- algorithm identifier	cipher with A5/1.
- SC	Start ciphering.
Cipher Response	IMEI shall not be included.

Contents of CIPHERING MODE COMPLETE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00110010
Mobile Identity	Not present.

Contents of the CLASSMARK CHANGE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	000100110
Mobile Station Classmark 2	
- RF Power Capability	See PIXIT.
- Frequency Capability	Set to 0.
Mobile Station Classmark 3	For presence and contents see PIXIT.

Contents of CM SERVICE ACCEPT message:

Protocol Discriminator	Mobility Management.
Skip Indicator	0000
Message Type	00100001

Contents of CM SERVICE REQUEST message:

Protocol Discriminator	Mobility Management.
Skip Indicator	0000
Message Type	0X100100
Other information elements	Not checked.

Contents of CONNECT message (SS to MS):

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	1
Message Type	00000111
All other information elements	Not present.

Contents of CONNECT ACKNOWLEDGE message (MS to SS):

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	0
Message Type	0X001111

Contents of HANDOVER ACCESS message:

Handover Reference	Equal to the value included in the Handover Command message.
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Contents of HANDOVER COMMAND message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101011
Cell Description	
- Network Colour Code	1
- Base station Colour Code	Corresponding to target cell
- BCCH Carrier Number	Set to the BCCH carrier number of cell B. (one of 520, 590, 600, 700, 780, 810 or 870).
Channel Description	
- Channel Type and TDMA offset	Bm + ACCHs.
- Timeslot Number	Chosen arbitrarily by the test house.
- Training Sequence Code	Chosen arbitrarily by the test house.
- Hopping	Single RF channel.
- ARFCN	Chosen arbitrarily by the test house from those supported on the target cell.
Handover Reference	
- Handover Reference Value	Chosen arbitrarily by the test house.
Power Command	
- ATC	0 (Sending of Handover Access is mandatory)
- EPC mode (for R5 and after MS only)	0 (Channel not in EPC mode)
- FPC (for R99 and R4 MS only)	0 (FPC not in use)
- FPC_EPC mode (for R5 and after MS only)	0 (FPC or EPC not in use)
- Power level	Chosen arbitrarily by the test house.
All other information elements	Not present.

Contents of HANDOVER COMPLETE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101100
RR cause	Normal event.
Time difference	Not present.

Contents of HANDOVER FAILURE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101000
RR cause	Dependent on the test.

IDENTITY REQUEST

Information element	Value/remark
Identity type	IMEI
Spare half octet	0000

IDENTITY RESPONSE

Information element	Value/remark
Mobile identity	not checked

Contents of IMMEDIATE ASSIGNMENT message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the IA rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 11.
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00111111
Page Mode	
- Page Mode	Normal Paging.
Channel Description	
- Channel Type and TDMA offset	For non-combined CCCH/SDCCH (see initial conditions), SDCCH/8, with subchannel chosen arbitrarily by the test house For combined CCCH/SDCCH (default SS conditions), SDCCH/4, with subchannel chosen arbitrarily by the test house.
- Timeslot Number	For non-combined CCCH/SDCCH (see initial conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, timeslot zero.
- Training Sequence Code	For non-combined CCCH/SDCCH (see initial conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, TSC=5 (same as the BCC).
- Hopping	Single RF channel.
- ARFCN	For non-combined CCCH/SDCCH (see initial conditions), Channel number 650; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, Channel number 590.
Request Reference	Pertaining to last Channel Request sent by the MS.
Timing Advance	
- Timing advance value	30 bit periods.
Mobile Allocation	
- Length	0
Starting Time	Not present.
IA rest octets	Not used (all bits set to spare).

Contents of IMMEDIATE ASSIGNMENT EXTENDED message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the IAX rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 18.
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00111001
Page Mode	
- Page Mode	Normal Paging.
Channel Description 1	
- Channel Type and TDMA offset	For non-combined CCCH/SDCCH (see test conditions), SDCCH/8, with subchannel chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, with subchannel chosen arbitrarily by the test house.
- Timeslot Number	For non-combined CCCH/SDCCH (see test conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, timeslot zero.
- Training Sequence Code	For non-combined CCCH/SDCCH (see initial conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, TSC=5 (same as the BCC).
- Hopping	Single RF channel.
- ARFCN	For non-combined CCCH/SDCCH (see initial conditions), Channel number 650; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, Channel number 590.
Request Reference 1	Pertaining to last Channel Request sent by the MS.
Timing Advance 1	
- Timing advance value	Chosen arbitrarily by the test house.
Channel Description 2	
- Channel Type and TDMA offset	Same channel type as in Channel Description 1, but different TDMA offset to that in Channel Description 1.
- Timeslot Number	equal to the value in Channel Description 1.
- Training Sequence Code	equal to the value in Channel Description 1.
- Hopping	Single RF channel.
- ARFCN	equal to the value in Channel Description 1.
Request Reference 2	Not pertaining to any Channel Requests sent by the MS.
Timing Advance 2	
- Timing advance value	Chosen arbitrarily by the test house.
Mobile Allocation	
- Length	0
Starting Time	Not present.
IAX rest octets	Not used (all bits set to spare).

Contents of IMMEDIATE ASSIGNMENT REJECT message:

L2 pseudo length	19
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00111010
Page Mode	
- Page Mode	Normal Paging.
Request Reference	Pertaining to last Channel Request sent by the MS.
Wait Indication	0 s.
Request Reference	Not pertaining to the MS under test.
Wait Indication	0 s.
Request Reference	Not pertaining to the MS under test.
Wait Indication	0 s.
Request Reference	Not pertaining to the MS under test.
Wait Indication	0 s.
IAR rest octets	Not used (all bits set to spare).

Contents of LOCATION UPDATING REQUEST message:

Protocol Discriminator	MM message.
Skip Indicator	0000
Message Type	0X001000
Other information elements	Not checked.

Contents of PAGING REQUEST TYPE 1 message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the P1 rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 9.
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00100001
Page Mode	
- Page Mode	Normal Paging.
Channels needed	
- first channel	any channel.
- second channel	any channel.
Mobile Identity 1	
- odd/even indication	Even.
- Type of Identity	TMSI.
- Identity Digits	TMSI previously allocated to MS.
Mobile Identity 2	Not present.
P1 rest octets	Not used (all bits set to spare).

Contents of PAGING REQUEST TYPE 2 message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the P2 rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 11.
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00100010
Page Mode	
- Page Mode	Normal Paging.
Channels needed	
- first channel	any channel.
- second channel	any channel.
Mobile Identity 1	
- TMSI value	TMSI previously allocated to MS.
Mobile Identity 2	
- TMSI value	TMSI not allocated to MS.
Mobile Identity	Not present.
P2 rest octets	Not used (all bits set to spare).

Contents of PAGING REQUEST TYPE 3 message:

L2 pseudo length	19
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00100100
Page Mode	
- Page Mode	Normal Paging.
Channels needed	
- first channel	any channel.
- second channel	any channel.
Mobile identity 1	
- TMSI value	TMSI previously allocated to MS.
Mobile identity 2	
- TMSI value	TMSI not allocated to MS.
Mobile identity 3	
- TMSI value	TMSI not allocated to MS.
Mobile identity 4	
- TMSI value	TMSI not allocated to MS.
P3 rest octets	Not used (all bits set to spare).

Contents of PAGING RESPONSE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00100111
Ciphering Key Sequence Number	
- Key Sequence	Key sequence number previously allocated to MS, or "111" if no key is available.
Mobile Station Classmark 2	
Mobile Identity	
- odd/even indication	Even.
- Type of identity	TMSI
- Identity Digits	TMSI previously allocated to MS.

Contents of PHYSICAL INFORMATION message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101101
Timing advance	20 bit periods.

Contents of SETUP message; (MS to SS):

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	any value from the set {0, ..., 6}.
TI flag	0
Message Type	0X000101
Other information elements	Not checked.

26.6.16 Default contents of GSM 450 layer 3 messages for RR tests

This subclause contains the default values of GSM 450 L3 messages, which unless indicated otherwise in subclause 26.6 shall be transmitted by the system simulator and which are required to be received from the GSM 450 MS under test. These values are used in order to be consistent with the phase 2 version of subclause 26.6.

The necessary L3 messages are listed in alphabetic order, with the exception of the SYSTEM INFORMATION messages, where it is the information elements which are listed in alphabetic order (this is because some information elements occur in several SYSTEM INFORMATION types).

In this subclause, decimal values are normally used. However, sometimes a hexadecimal value, indicated by an "H", or a binary value, indicated by a "B" is used.

Default SYSTEM INFORMATION:

NOTE 1: SYSTEM INFORMATION 2 bis, SYSTEM INFORMATION 5 bis, SYSTEM INFORMATION 7, and SYSTEM INFORMATION 8 messages are not used.

Cell A

Contents of information elements in SYSTEM INFORMATION TYPE 1 to 6 messages for cell A.

(CBCH) Channel Description	Not present.
(CBCH) Mobile Allocation	Not present.
Cell Channel Description	
- Format identifier	Range 128.
- Cell Allocation ARFCN	Channel Numbers 263, 267, 275 and 279.
Cell Identity	
- Cell Identity Value	0001H
Cell Options	
- Power Control Indicator	Power Control Indicator is not set.
- DTX Indicator	MS shall not use DTX.
- Radio_Link_Timeout	8 SACCH blocks.
Cell Selection Parameters	
- Cell_Reselect_Hysteresis	12 dB.
- MX_TXPWR_MAX_CCH	Minimum level.
- ACS	No addition cell parameters are present in SYSTEM INFORMATION messages 7 and 8.
- NECI	New establishment causes not supported.
- RXLEV_ACCESS_MIN	Minimum level.
Control Channel Description	
- Attach-Detach allowed	No Attach/Detach.
- BS_AG_BLKES_RES	0 blocks reserved for access grant.
- CCCH_CONF	1 basic physical channel used for CCCH, combined with SDCCCHs.
- BS_PA_MFRMS	5 multiframe periods for transmission of paging messages.
- T3212 Time-out value	Infinite.
L2 pseudo length	
- System information 1	21
- System information 2	22
- System information 3	18
- System information 4	12
Location Area Identification	
- Mobile Country Code	001 decimal
- Mobile Network Code	01 decimal
- Location Area Code	0001H
Message Type	
- System information 1	00011001
- System information 2	00011010
- System information 3	00011011
- System information 4	00011100
- System information 5	00011101
- System information 6	00011110
Neighbour Cells Description	
- Format identifier	128 range.
- BCCH Allocation Sequence	0
- BCCH Allocation ARFCN	Channels numbers 262, 263, 274, 282, 284, 287, 290 and 293.
- EXT-IND	This IE carries the complete BA.
NCC Permitted	0000 0010
RACH Control Parameters	
- Max Retrans	Max 1 retrans.
- Tx-integer	5 slots used.
- Cell Barred for Access	Cell is not barred.
- Call Reestablishment Allowed	Not allowed.
- Access Control Class	Access is not barred.
- Emergency Call allowed	Yes.
SI 1 rest octets	Not used (all bits are set to spare).
SI 2 rest octets	Not used (all bits are set to spare).
SI 3 rest octets	Not used (all bits are set to spare).
SI 4 rest octets	Not used (all bits are set to spare).

Default settings for cell A:

Downlink input level	63 dBm
Uplink output power	microVolt emf. minimum supported by the MS's power class.
Propagation profile	static.
BCCH/CCCH carrier number	263

Cell B

The contents of SYSTEM INFORMATION TYPE 1 to 6 messages for cell B are identical to those of cell A with the following exceptions:

Cell Channel Description - Format Identifier - Cell Allocation ARFCN	128 range. Channel Number 261.
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NOTE 2: This IE needs modification when used in handover tests which command the MS to go to a frequency hopping channel in cell B.

Cell Identity

- Cell Identity Value 0002H

Default settings for cell B:

Downlink input level	53 dBm
Uplink output power	microVolt emf. minimum supported by the MS's power class.
Propagation profile	static.
BCCH/CCCH carrier number	261

Contents of ALERTING message (SS to MS):

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	1 (destination side).
Message Type	00000001
All other information elements	Not present.

Contents of ASSIGNMENT COMMAND message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101110
Channel Description	
- Channel Type and TDMA offset	Bm + ACCHs
- Timeslot Number	Chosen arbitrarily by the test house.
- Training Sequence Code	Chosen arbitrarily by the test house.
- Hopping	Single RF channel.
- ARFCN	Channel number 267.
Power Command	
Power Command	
- EPC mode (for R5 and after MS only)	0 (Channel not in EPC mode)
- FPC (for R99 and R4 MS only)	0 (FPC not in use)
- FPC_EPC mode (for R5 and after MS only)	0 (FPC or EPC not in use)
- Power level	Chosen arbitrarily by the test house.
All other information elements	Not present.

Contents of ASSIGNMENT COMPLETE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101001
RR Cause	
- RR Cause Value	Normal event.

Contents of ASSIGNMENT FAILURE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101111
RR Cause	
- RR Cause Value	Depending on test.

Contents of AUTHENTICATION REQUEST message:

Protocol Discriminator	MM message.
Skip Indicator	0000
Message Type	00010010
Ciphering Key Sequence Number	
- Key Sequence	Chosen arbitrarily by the test house from the range 0 to 6.
Authentication Parameter RAND	
- RAND value	Chosen arbitrarily by the test house.

Contents of AUTHENTICATION RESPONSE message:

Protocol Discriminator	MM message.
Skip Indicator	0000
Message Type	0X010100
Other information element(s)	Not checked.

Contents of CALL PROCEEDING message:

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	1 (destination side).
Message Type	00000010
All other information elements	Not present.

Contents of CHANNEL MODE MODIFY message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00010000
Channel Description	
- Channel Type and TDMA offset	Depending on test.
- Timeslot Number	Chosen arbitrarily by the test house.
- Training Sequence Code	Chosen arbitrarily by the test house.
- Hopping	Single RF channel.
- ARFCN	Channel number 267.
Channel Mode	
- Mode	Depending on test.

Contents of CHANNEL MODE MODIFY ACKNOWLEDGE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00010111
Channel Description	
- Channel Type and TDMA offset	Depending on test.
- Timeslot Number	Same as in the CHANNEL MODE MODIFY message.
- Training Sequence Code	Same as in the CHANNEL MODE MODIFY message.
- Hopping	Single RF channel.
- Frequency Band	Band number 0.
- ARFCN	Channel number 267.
Channel Mode	
- Mode	Same as in the CHANNEL MODE MODIFY message.

Contents of CHANNEL RELEASE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00001101
RR Cause	
- RR Cause Value	Normal event.

Contents of CHANNEL REQUEST message

Establishment Cause	Not checked.
Random Reference	Not checked.

Contents of CIPHERING MODE COMMAND message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00110101
Cipher Mode Setting	
- algorithm identifier	cipher with A5/1.
- SC	Start ciphering.
Cipher Response	IMEI shall not be included.

Contents of CIPHERING MODE COMPLETE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00110010
Mobile Identity	Not present.

Contents of the CLASSMARK CHANGE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	000100110
Mobile Station Classmark 2	See PIXIT.
Mobile Station Classmark 3	For presence and contents see PIXIT.

Contents of CM SERVICE ACCEPT message:

Protocol Discriminator	Mobility Management.
Skip Indicator	0000
Message Type	00100001

Contents of CM SERVICE REQUEST message

Protocol Discriminator	Mobility Management.
Skip Indicator	0000
Message Type	0X100100
Other information elements	Not checked.

Contents of CONNECT message (SS to MS)

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	1
Message Type	00000111
All other information elements	Not present.

Contents of CONNECT ACKNOWLEDGE message (MS to SS)

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	0
Message Type	0X001111

Contents of HANDOVER ACCESS message:

Handover Reference	Equal to the value included in the Handover Command message.
--------------------	--

Contents of HANDOVER COMMAND message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101011
Cell Description	
- Network Colour Code	1
- Base station Colour Code	Corresponding to target cell
- BCCH Carrier Number	Set to the BCCH carrier number of cell B. (one of 261, 263, 282, 284, 287, 290 or 293).
Channel Description	
- Channel Type and TDMA offset	Bm + ACCHs.
- Timeslot Number	Chosen arbitrarily by the test house.
- Training Sequence Code	Chosen arbitrarily by the test house.
- Hopping	Single RF channel.
- ARFCN	Chosen arbitrarily by the test house from those supported on the target cell.
Handover Reference	
- Handover Reference Value	Chosen arbitrarily by the test house.
Power Command	
- ATC	0 (Sending of Handover Access is mandatory)
- EPC mode (for R5 and after MS only)	0 (Channel not in EPC mode)
- FPC (for R99 and R4 MS only)	0 (FPC not in use)
- FPC_EPC mode (for R5 and after MS only)	0 (FPC or EPC not in use)
- Power level	Chosen arbitrarily by the test house.
All other information elements	Not present.

Contents of HANDOVER COMPLETE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101100
RR cause	Normal event.
Time difference	Not present.

Contents of HANDOVER FAILURE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101000
RR cause	Dependent on the test.

IDENTITY REQUEST

Information element	Value/remark
Identity type	IMEI
Spare half octet	0000

IDENTITY RESPONSE

Information element	Value/remark
Mobile identity	not checked

Contents of IMMEDIATE ASSIGNMENT message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the IA rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 11.
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00111111
Page Mode	
- Page Mode	Normal Paging.
Channel Description	
- Channel Type and TDMA offset	For non-combined CCCH/SDCCH (see initial conditions), SDCCH/8, with subchannel chosen arbitrarily by the test house For combined CCCH/SDCCH (default SS conditions), SDCCH/4, with subchannel chosen arbitrarily by the test house.
- Timeslot Number	For non-combined CCCH/SDCCH (see initial conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, timeslot zero.
- Training Sequence Code	For non-combined CCCH/SDCCH (see initial conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, TSC=5 (same as the BCC).
- Hopping	Single RF channel.
- ARFCN	For non-combined CCCH/SDCCH (see initial conditions), Channel number 30; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, Channel number 263.
Request Reference	Pertaining to last Channel Request sent by the MS.
Timing Advance	
- Timing advance value	30 bit periods.
Mobile Allocation	
- Length	0
Starting Time	Not present.
IA rest octets	Not used (all bits set to spare).

Contents of IMMEDIATE ASSIGNMENT EXTENDED message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the IAX rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 18.
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00111001
Page Mode	
- Page Mode	Normal Paging.
Channel Description 1	
- Channel Type and TDMA offset	For non-combined CCCH/SDCCH (see test conditions), SDCCH/8, with subchannel chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, with subchannel chosen arbitrarily by the test house.
- Timeslot Number	For non-combined CCCH/SDCCH (see test conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, timeslot zero.
- Training Sequence Code	For non-combined CCCH/SDCCH (see initial conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, TSC=5 (same as the BCC).
- Hopping	Single RF channel.
- ARFCN	For non-combined CCCH/SDCCH (see initial conditions), Channel number 30; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, Channel number 263.
Request Reference 1	Pertaining to last Channel Request sent by the MS.
Timing Advance 1	
- Timing advance value	Chosen arbitrarily by the test house.
Channel Description 2	
- Channel Type and TDMA offset	Same channel type as in Channel Description 1, but different TDMA offset to that in Channel Description 1.
- Timeslot Number	equal to the value in Channel Description 1.
- Training Sequence Code	equal to the value in Channel Description 1.
- Hopping	Single RF channel.
- ARFCN	equal to the value in Channel Description 1.
Request Reference 2	Not pertaining to any Channel Requests sent by the MS.
Timing Advance 2	
- Timing advance value	Chosen arbitrarily by the test house.
Mobile Allocation	
- Length	0
Starting Time	Not present.
IAX rest octets	Not used (all bits set to spare).

Contents of IMMEDIATE ASSIGNMENT REJECT message:

L2 pseudo length	19
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00111010
Page Mode	
- Page Mode	Normal Paging.
Request Reference	Pertaining to last Channel Request sent by the MS.
Wait Indication	0 s.
Request Reference	Not pertaining to the MS under test.
Wait Indication	0 s.
Request Reference	Not pertaining to the MS under test.
Wait Indication	0 s.
Request Reference	Not pertaining to the MS under test.
Wait Indication	0 s.
IAR rest octets	Not used (all bits set to spare).

Contents of LOCATION UPDATING REQUEST message:

Protocol Discriminator	MM message.
Skip Indicator	0000
Message Type	0X001000
Other information elements	Not checked.

Contents of PAGING REQUEST TYPE 1 message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the P1 rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 9.
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00100001
Page Mode	
- Page Mode	Normal Paging.
Channels needed	
- first channel	any channel.
- second channel	any channel.
Mobile Identity 1	
- odd/even indication	Even.
- Type of Identity	TMSI.
- Identity Digits	TMSI previously allocated to MS.
Mobile Identity 2	Not present.
P1 rest octets	Not used (all bits set to spare).

Contents of PAGING REQUEST TYPE 2 message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the P2 rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 11.
Protocol Discriminator	RR Management..
Skip Indicator	0000
Message Type	00100010
Page Mode	
- Page Mode	Normal Paging.
Channels needed	
- first channel	any channel.
- second channel	any channel.
Mobile Identity 1	
- TMSI value	TMSI previously allocated to MS.
Mobile Identity 2	
- TMSI value	TMSI not allocated to MS.
Mobile Identity	Not present.
P2 rest octets	Not used (all bits set to spare).

Contents of PAGING REQUEST TYPE 3 message:

L2 pseudo length	19
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00100100
Page Mode	
- Page Mode	Normal Paging.
Channels needed	
- first channel	any channel.
- second channel	any channel.
Mobile identity 1	
- TMSI value	TMSI previously allocated to MS.
Mobile identity 2	
- TMSI value	TMSI not allocated to MS.
Mobile identity 3	
- TMSI value	TMSI not allocated to MS.
Mobile identity 4	
- TMSI value	TMSI not allocated to MS.
P3 rest octets	Not used (all bits set to spare).

Contents of PAGING RESPONSE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00100111
Ciphering Key Sequence Number	
- Key Sequence	Key sequence number previously allocated to MS, or "111" if no key is available.
Mobile Station Classmark 2	
Mobile Identity	
- odd/even indication	Even
- Type of identity	TMSI
- Identity Digits	TMSI previously allocated to MS.

Contents of PHYSICAL INFORMATION message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101101
Timing advance	20 bit periods.

Contents of SETUP message; (MS to SS):

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	any value from the set {0, ..., 6}.
TI flag	0
Message Type	0X000101
Other information elements	Not checked.

26.6.17 Default contents of GSM 480 layer 3 messages for RR tests

This subclause contains the default values of GSM 480 L3 messages, which unless indicated otherwise in subclause 26.6 shall be transmitted by the system simulator and which are required to be received from the GSM 480 MS under test. These values are used in order to be consistent with the phase 2 version of 26.6.

The necessary L3 messages are listed in alphabetic order, with the exception of the SYSTEM INFORMATION messages, where it is the information elements which are listed in alphabetic order (this is because some information elements occur in several SYSTEM INFORMATION types).

In this subclause, decimal values are normally used. However, sometimes a hexadecimal value, indicated by an "H", or a binary value, indicated by a "B" is used.

Default SYSTEM INFORMATION:

NOTE 1: SYSTEM INFORMATION 2 bis, SYSTEM INFORMATION 5 bis, SYSTEM INFORMATION 7, and SYSTEM INFORMATION 8 messages are not used.

Cell A

Contents of information elements in SYSTEM INFORMATION TYPE 1 to 6 messages for cell A.

(CBCH) Channel Description	Not present.
(CBCH) Mobile Allocation	Not present.
Cell Channel Description	
- Format identifier	128 range.
- Cell Allocation ARFCN	Channel Numbers 310, 315, 322 and 326.
Cell Identity	
- Cell Identity Value	0001H
Cell Options	
- Power Control Indicator	Power Control Indicator is not set.
- DTX Indicator	MS shall not use DTX.
- Radio_Link_Timeout	8 SACCH blocks.
Cell Selection Parameters	
- Cell_Reselect_Hysteresis	12 dB.
- MX_TXPWR_MAX_CCH	Minimum level.
- ACS	No addition cell parameters are present in SYSTEM INFORMATION messages 7 and 8.
- NECI	New establishment causes not supported.
- RXLEV_ACCESS_MIN	Minimum level.
Control Channel Description	
- Attach-Detach allowed	No Attach/Detach.
- BS_AG_BLKES_RES	0 blocks reserved for access grant.
- CCCH_CONF	1 basic physical channel used for CCCH, combined with SDCCCHs.
- BS_PA_MFRMS	5 multiframe periods for transmission of paging messages.
- T3212 Time-out value	Infinite.
L2 pseudo length	
- System information 1	21
- System information 2	22
- System information 3	18
- System information 4	12
Location Area Identification	
- Mobile Country Code	001 decimal
- Mobile Network Code	01 decimal
- Location Area Code	0001H
Message Type	
- System information 1	00011001
- System information 2	00011010
- System information 3	00011011
- System information 4	00011100
- System information 5	00011101
- System information 6	00011110
Neighbour Cells Description	
- Format identifier	128 range.
- BCCH Allocation Sequence	0
- BCCH Allocation ARFCN	Channels numbers 308, 310, 321, 329, 331, 334, 337 and 340.
- EXT-IND	This IE carries the complete BA.
NCC Permitted	0000 0010
RACH Control Parameters	
- Max Retrans	Max 1 retrans.
- Tx-integer	5 slots used.
- Cell Barred for Access	Cell is not barred.
- Call Reestablishment Allowed	Not allowed.
- Access Control Class	Access is not barred.
- Emergency Call allowed	Yes.
SI 1 rest octets	Not used (all bits are set to spare).
SI 2 rest octets	Not used (all bits are set to spare).
SI 3 rest octets	Not used (all bits are set to spare).
SI 4 rest octets	Not used (all bits are set to spare).

Default settings for cell A:

Downlink input level	63 dBmicroVolt emf.
Uplink output power	minimum supported by the MS's power class.
Propagation profile	static.
BCCH/CCCH carrier number	310

Cell B

The contents of SYSTEM INFORMATION TYPE 1 to 6 messages for cell B are identical to those of cell A with the following exceptions:

Cell Channel Description - Format Identifier - Cell Allocation ARFCN	128 range. Channel Number 308.
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NOTE 2: This IE needs modification when used in handover tests which command the MS to go to a frequency hopping channel in cell B.

Cell Identity

- Cell Identity Value 0002H

Default settings for cell B:

Downlink input level	53 dBmicroVolt emf.
Uplink output power	minimum supported by the MS's power class.
Propagation profile	static.
BCCH/CCCH carrier number	308

Contents of ALERTING message (SS to MS):

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	1 (destination side).
Message Type	00000001
All other information elements	Not present.

Contents of ASSIGNMENT COMMAND message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101110
Channel Description	
- Channel Type and TDMA offset	Bm + ACCHs
- Timeslot Number	Chosen arbitrarily by the test house.
- Training Sequence Code	Chosen arbitrarily by the test house.
- Hopping	Single RF channel.
- ARFCN	Channel number 315.
Power Command	
- ATC	0 (Sending of Handover Access is mandatory)
- EPC mode (for R5 and after MS only)	0 (Channel not in EPC mode)
- FPC (for R99 and R4 MS only)	0 (FPC not in use)
- FPC_EPC mode (for R5 and after MS only)	0 (FPC or EPC not in use)
- Power level	Chosen arbitrarily by the test house.
All other information elements	Not present.

Contents of ASSIGNMENT COMPLETE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101001
RR Cause	
- RR Cause Value	Normal event.

Contents of ASSIGNMENT FAILURE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101111
RR Cause	
- RR Cause Value	Depending on test.

Contents of AUTHENTICATION REQUEST message:

Protocol Discriminator	MM message.
Skip Indicator	0000
Message Type	00010010
Ciphering Key Sequence Number	
- Key Sequence	Chosen arbitrarily by the test house from the range 0 to 6.
Authentication Parameter RAND	
- RAND value	Chosen arbitrarily by the test house.

Contents of AUTHENTICATION RESPONSE message:

Protocol Discriminator	MM message.
Skip Indicator	0000
Message Type	0X010100
Other information element(s)	Not checked.

Contents of CALL PROCEEDING message:

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	1 (destination side).
Message Type	00000010
All other information elements	Not present.

Contents of CHANNEL MODE MODIFY message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00010000
Channel Description	
- Channel Type and TDMA offset	Depending on test.
- Timeslot Number	Chosen arbitrarily by the test house.
- Training Sequence Code	Chosen arbitrarily by the test house.
- Hopping	Single RF channel.
- ARFCN	Channel number 315.
Channel Mode	
- Mode	Depending on test.

Contents of CHANNEL MODE MODIFY ACKNOWLEDGE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00010111
Channel Description	
- Channel Type and TDMA offset	Depending on test.
- Timeslot Number	Same as in the CHANNEL MODE MODIFY message.
- Training Sequence Code	Same as in the CHANNEL MODE MODIFY message.
- Hopping	Single RF channel.
- Frequency Band	Band number 0.
- ARFCN	Channel number 315.
Channel Mode	
- Mode	Same as in the CHANNEL MODE MODIFY message.

Contents of CHANNEL RELEASE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00001101
RR Cause	
- RR Cause Value	Normal event.

Contents of CHANNEL REQUEST message

Establishment Cause	Not checked.
Random Reference	Not checked.

Contents of CIPHERING MODE COMMAND message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00110101
Cipher Mode Setting	
- algorithm identifier	cipher with A5/1.
- SC	Start ciphering.
Cipher Response	IMEI shall not be included.

Contents of CIPHERING MODE COMPLETE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00110010
Mobile Identity	Not present.

Contents of the CLASSMARK CHANGE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	000100110
Mobile Station Classmark 2	See PIXIT.
Mobile Station Classmark 3	For presence and contents see PIXIT.

Contents of CM SERVICE ACCEPT message:

Protocol Discriminator	Mobility Management.
Skip Indicator	0000
Message Type	00100001

Contents of CM SERVICE REQUEST message

Protocol Discriminator	Mobility Management.
Skip Indicator	0000
Message Type	0X100100
Other information elements	Not checked.

Contents of CONNECT message (SS to MS)

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	1
Message Type	00000111
All other information elements	Not present.

Contents of CONNECT ACKNOWLEDGE message (MS to SS)

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	0
Message Type	0X001111

Contents of HANDOVER ACCESS message:

Handover Reference	Equal to the value included in the Handover Command message.
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Contents of HANDOVER COMMAND message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101011
Cell Description	
- Network Colour Code	1
- Base station Colour Code	Corresponding to target cell
- BCCH Carrier Number	Set to the BCCH carrier number of cell B. (one of 308, 310, 329, 331, 334, 337 or 340).
Channel Description	
- Channel Type and TDMA offset	Bm + ACCHs.
- Timeslot Number	Chosen arbitrarily by the test house.
- Training Sequence Code	Chosen arbitrarily by the test house.
- Hopping	Single RF channel.
- ARFCN	Chosen arbitrarily by the test house from those supported on the target cell.
Handover Reference	
- Handover Reference Value	Chosen arbitrarily by the test house.
Power Command	
- ATC	0 (Sending of Handover Access is mandatory)
- EPC mode (for R5 and after MS only)	0 (Channel not in EPC mode)
- FPC (for R99 and R4 MS only)	0 (FPC not in use)
- FPC_EPC mode (for R5 and after MS only)	0 (FPC or EPC not in use)
- Power level	Chosen arbitrarily by the test house.
All other information elements	Not present.

Contents of HANDOVER COMPLETE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101100
RR cause	Normal event.
Time difference	Not present.

Contents of HANDOVER FAILURE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101000
RR cause	Dependent on the test.

IDENTITY REQUEST

Information element	Value/remark
Identity type	IMEI
Spare half octet	0000

IDENTITY RESPONSE

Information element	Value/remark
Mobile identity	not checked

Contents of IMMEDIATE ASSIGNMENT message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the IA rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 11.
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00111111
Page Mode	
- Page Mode	Normal Paging.
Channel Description	
- Channel Type and TDMA offset	For non-combined CCCH/SDCCH (see initial conditions), SDCCH/8, with subchannel chosen arbitrarily by the test house For combined CCCH/SDCCH (default SS conditions), SDCCH/4, with subchannel chosen arbitrarily by the test house.
- Timeslot Number	For non-combined CCCH/SDCCH (see initial conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, timeslot zero.
- Training Sequence Code	For non-combined CCCH/SDCCH (see initial conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, TSC=5 (same as the BCC).
- Hopping	Single RF channel.
- ARFCN	For non-combined CCCH/SDCCH (see initial conditions), Channel number 30; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, Channel number 310.
Request Reference	Pertaining to last Channel Request sent by the MS.
Timing Advance	
- Timing advance value	30 bit periods.
Mobile Allocation	
- Length	0
Starting Time	Not present.
IA rest octets	Not used (all bits set to spare).

Contents of IMMEDIATE ASSIGNMENT EXTENDED message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the IAX rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 18.
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00111001
Page Mode	
- Page Mode	Normal Paging.
Channel Description 1	
- Channel Type and TDMA offset	For non-combined CCCH/SDCCH (see test conditions), SDCCH/8, with subchannel chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, with subchannel chosen arbitrarily by the test house.
- Timeslot Number	For non-combined CCCH/SDCCH (see test conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, timeslot zero.
- Training Sequence Code	For non-combined CCCH/SDCCH (see initial conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, TSC=5 (same as the BCC).
- Hopping	Single RF channel.
- ARFCN	For non-combined CCCH/SDCCH (see initial conditions), Channel number 30; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, Channel number 310.
Request Reference 1	Pertaining to last Channel Request sent by the MS.
Timing Advance 1	
- Timing advance value	Chosen arbitrarily by the test house.
Channel Description 2	
- Channel Type and TDMA offset	Same channel type as in Channel Description 1, but different TDMA offset to that in Channel Description 1.
- Timeslot Number	equal to the value in Channel Description 1.
- Training Sequence Code	equal to the value in Channel Description 1.
- Hopping	Single RF channel.
- ARFCN	equal to the value in Channel Description 1.
Request Reference 2	Not pertaining to any Channel Requests sent by the MS.
Timing Advance 2	
- Timing advance value	Chosen arbitrarily by the test house.
Mobile Allocation	
- Length	0
Starting Time	Not present.
IAX rest octets	Not used (all bits set to spare).

Contents of IMMEDIATE ASSIGNMENT REJECT message:

L2 pseudo length	19
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00111010
Page Mode	
- Page Mode	Normal Paging.
Request Reference	Pertaining to last Channel Request sent by the MS.
Wait Indication	0 s.
Request Reference	Not pertaining to the MS under test.
Wait Indication	0 s.
Request Reference	Not pertaining to the MS under test.
Wait Indication	0 s.
Request Reference	Not pertaining to the MS under test.
Wait Indication	0 s.
IAR rest octets	Not used (all bits set to spare).

Contents of LOCATION UPDATING REQUEST message:

Protocol Discriminator	MM message.
Skip Indicator	0000
Message Type	0X001000
Other information elements	Not checked.

Contents of PAGING REQUEST TYPE 1 message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the P1 rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 9.
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00100001
Page Mode	
- Page Mode	Normal Paging.
Channels needed	
- first channel	any channel.
- second channel	any channel.
Mobile Identity 1	
- odd/even indication	Even.
- Type of Identity	TMSI.
- Identity Digits	TMSI previously allocated to MS.
Mobile Identity 2	Not present.
P1 rest octets	Not used (all bits set to spare).

Contents of PAGING REQUEST TYPE 2 message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the P2 rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 11.
Protocol Discriminator	RR Management..
Skip Indicator	0000
Message Type	00100010
Page Mode	
- Page Mode	Normal Paging.
Channels needed	
- first channel	any channel.
- second channel	any channel.
Mobile Identity 1	
- TMSI value	TMSI previously allocated to MS.
Mobile Identity 2	
- TMSI value	TMSI not allocated to MS.
Mobile Identity	Not present.
P2 rest octets	Not used (all bits set to spare).

Contents of PAGING REQUEST TYPE 3 message:

L2 pseudo length	19
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00100100
Page Mode	
- Page Mode	Normal Paging.
Channels needed	
- first channel	any channel.
- second channel	any channel.
Mobile identity 1	
- TMSI value	TMSI previously allocated to MS.
Mobile identity 2	
- TMSI value	TMSI not allocated to MS.
Mobile identity 3	
- TMSI value	TMSI not allocated to MS.
Mobile identity 4	
- TMSI value	TMSI not allocated to MS.
P3 rest octets	Not used (all bits set to spare).

Contents of PAGING RESPONSE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00100111
Ciphering Key Sequence Number	
- Key Sequence	Key sequence number previously allocated to MS, or "111" if no key is available.
Mobile Station Classmark 2	
Mobile Identity	
- odd/even indication	Even
- Type of identity	TMSI
- Identity Digits	TMSI previously allocated to MS.

Contents of PHYSICAL INFORMATION message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101101
Timing advance	20 bit periods.

Contents of SETUP message; (MS to SS):

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	any value from the set {0, ..., 6}.
TI flag	0
Message Type	0X000101
Other information elements	Not checked.

26.6.18 Default contents of PCS 1 900 layer 3 messages for RR tests

This subclause contains the default values of PCS 1 900 L3 messages, which unless indicated otherwise in subclause 26.6 shall be transmitted by the system simulator and which are required to be received from the PCS 1 900 MS under test. These values are used in order to be consistent with the phase 2 version of 26.6.

The necessary L3 messages are listed in alphabetic order, with the exception of the SYSTEM INFORMATION messages, where it is the information elements which are listed in alphabetic order (this is because some information elements occur in several SYSTEM INFORMATION types).

In this subclause, decimal values are normally used. However, sometimes a hexadecimal value, indicated by an "H", or a binary value, indicated by a "B" is used.

Default SYSTEM INFORMATION:

NOTE 1: SYSTEM INFORMATION 2 bis, SYSTEM INFORMATION 7, and SYSTEM INFORMATION 8 messages are not used.

SYSTEM INFORMATION 5 bis is not sent as a default message. For those tests which require SYSTEM INFORMATION 5 bis see the specific message contents for that test.

Cell A

Contents of information elements in SYSTEM INFORMATION TYPE 1 to 6 messages for cell A.

(CBCH) Channel Description	Not present.
(CBCH) Mobile Allocation	Not present.
Cell Channel Description	
- Format identifier	Range 512.
- Cell Allocation ARFCN	Channel Numbers, 590, 650, 750 and 780.
Cell Identity	
- Cell Identity Value	0001H
Cell Options	
- Power Control Indicator	Power Control Indicator is not set, 0
- DTX Indicator	MS shall not use DTX.
- Radio_Link_Timeout	8 SACCH blocks.
Cell Selection Parameters	
- Cell_Reselect_Hysteresis	12 dB
- MX_TXPWR_MAX_CCH	Minimum level.
- ACS	No addition cell parameters are present in SYSTEM INFORMATION messages 7 and 8.
- NECI	New establishment causes not supported.
- RXLEV_ACCESS_MIN	Minimum level.
Control Channel Description	
- Attach-Detach allowed	MS shall not apply.
- BS_AG_BLKES_RES	0 blocks reserved for access grant.
- CCCH_CONF	1 basic physical channel used for CCCH, combined with SDCCHs.
- BS_PA_MFRMS	5 multiframe periods for transmission of paging messages.
- T3212 Time-out value	Infinite.
L2 pseudo length	
- System information 1	21
- System information 2	22
- System information 3	18
- System information 4	12
Location Area Identification	
- Mobile Country Code	001 decimal.
- Mobile Network Code	011 decimal.
- Location Area Code	0001H
Message Type	
- System information 1	00011001
- System information 2	00011010
- System information 3	00011011
- System information 4	00011100
- System information 5	00011101
- System information 6	00011110
Neighbour Cells Description	
- Format identifier	Range 512.
- BCCH Allocation Sequence	0
- BCCH Allocation ARFCN	Channels numbers, 520, 590, 600, 647, 664, 700, 720, 760, 780.
- EXT-IND	This IE carries the complete BA. EXT-IND is 0.
NCC Permitted	0000 0010
RACH Control Parameters	
- Max Retrans	Max 1 retrans.
- Tx-integer	5 slots used.
- Cell Barred for Access	Cell is not barred.
- Call Reestablishment Allowed	Not Allowed.
- Access Control Class	Access is not barred.
- Emergency Call allowed	Yes.
SI 1 rest octets	Not used (all bits are set to spare).
SI 2 rest octets	Not used (all bits are set to spare).
SI 3 rest octets	Not used (all bits are set to spare).
SI 4 rest octets	Not used (all bits are set to spare).

Default settings for cell A:

Downlink input level	63 dBm
Uplink output power	microVolt emf().
Propagation profile	minimum supported by the MS's power class.
BCCH/CCCH carrier number	static.
	ARFN 590.

Cell B

The contents of SYSTEM INFORMATION TYPE 1 to 6 messages for cell B are identical to those of cell A with the following exceptions:

Cell Channel Description	
- Format Identifier	Range 512.
- Cell Allocation ARFCN	Channel Number 520.

NOTE 2: This IE needs modification when used in handover tests which command the MS to go to a frequency hopping channel in cell B.

Cell Identity	
- Cell Identity Value	0002H

Default settings for cell B:

Downlink input level	53 dBm
Uplink output power	microVolt emf().
Propagation profile	minimum supported by the MS's power class.
BCCH/CCCH carrier number	static.
	520

Contents of ALERTING message (SS to MS):

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	1 (destination side).
Message Type	00000001
All other information elements	Not present.

Contents of ASSIGNMENT COMMAND message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101110
Channel Description	
- Channel Type and TDMA offset	Bm + ACCHs.
- Timeslot Number	Chosen arbitrarily by the test house.
- Training Sequence Code	Chosen arbitrarily by the test house.
- Hopping	Single RF channel.
- ARFCN	Channel number 650.
Power Command	
- EPC mode (for R5 and after MS only)	0 (Channel not in EPC mode)
- FPC (for R99 and R4 MS only)	0 (FPC not in use)
- FPC_EPC mode (for R5 and after MS only)	0 (FPC or EPC not in use)
- Power level	Chosen arbitrarily by the test house.
All other information elements	Not present.

Contents of ASSIGNMENT COMPLETE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101001
RR Cause	
- RR Cause Value	Normal event.

Contents of ASSIGNMENT FAILURE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101111
RR Cause	
- RR Cause Value	Depending on test.

Contents of AUTHENTICATION REQUEST message:

Protocol Discriminator	MM message.
Skip Indicator	0000
Message Type	00010010
Ciphering Key Sequence Number	
- Key Sequence	Chosen arbitrarily by the test house from the range 0 to 6.
Authentication Parameter RAND	
- RAND value	Chosen arbitrarily by the test house.

Contents of AUTHENTICATION RESPONSE message:

Protocol Discriminator	MM message.
Skip Indicator	0000
Message Type	0X010100
Other information element(s)	Not checked.

Contents of CALL PROCEEDING message:

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	1 (destination side).
Message Type	00000010
All other information elements	Not present.

Contents of CHANNEL MODE MODIFY message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00010000
Channel Description	
- Channel Type and TDMA offset	Depending on test.
- Timeslot Number	Chosen arbitrarily by the test house.
- Training Sequence Code	Chosen arbitrarily by the test house.
- Hopping	Single RF channel.
- ARFCN	Channel number 650.
Channel Mode	
- Mode	Depending on test.

Contents of CHANNEL MODE MODIFY ACKNOWLEDGE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00010111
Channel Description	
- Channel Type and TDMA offset	Depending on test.
- Timeslot Number	Same as in the CHANNEL MODE MODIFY message.
- Training Sequence Code	Same as in the CHANNEL MODE MODIFY message.
- Hopping	Single RF channel.
- Frequency Band	Band number 0.
- ARFCN	Channel number 650.
Channel Mode	
- Mode	Same as in the CHANNEL MODE MODIFY message.

Contents of CHANNEL RELEASE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00001101
RR Cause	
- RR Cause Value	Normal event.

Contents of CHANNEL REQUEST message:

Establishment Cause	Not checked.
Random Reference	Not checked.

Contents of CIPHERING MODE COMMAND message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00110101
Cipher Mode Setting	
- algorithm identifier	cipher with A5/1.
- SC	Start ciphering.
Cipher Response	IMEI shall not be included.

Contents of CIPHERING MODE COMPLETE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00110010
Mobile Identity	Not present.

Contents of the CLASSMARK CHANGE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	000100110
Mobile Station Classmark 2	
- RF Power Capability	See PIXIT.
- Frequency Capability	Set to 0.
Mobile Station Classmark 3	For presence and contents see PIXIT.

Contents of CM SERVICE ACCEPT message:

Protocol Discriminator	Mobility Management.
Skip Indicator	0000
Message Type	00100001

Contents of CM SERVICE REQUEST message:

Protocol Discriminator	Mobility Management.
Skip Indicator	0000
Message Type	0X100100
Other information elements	Not checked.

Contents of CONNECT message (SS to MS):

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	1
Message Type	00000111
All other information elements	Not present.

Contents of CONNECT ACKNOWLEDGE message (MS to SS):

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	0
Message Type	0X001111

Contents of HANDOVER ACCESS message:

Handover Reference	Equal to the value included in the Handover Command message.
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Contents of HANDOVER COMMAND message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101011
Cell Description	
- Network Colour Code	1
- Base station Colour Code	5
- BCCH Carrier Number	Set to the BCCH carrier number of cell B. (one of 520, 590, 600, 700, 720, 760 or 780).
Channel Description	
- Channel Type and TDMA offset	Bm + ACCHs.
- Timeslot Number	Chosen arbitrarily by the test house.
- Training Sequence Code	Chosen arbitrarily by the test house.
- Hopping	Single RF channel.
- ARFCN	Chosen arbitrarily by the test house from those supported on the target cell.
Handover Reference	
- Handover Reference Value	Chosen arbitrarily by the test house.
Power Command	
- ATC	0 (Sending of Handover Access is mandatory)
- EPC mode (for R5 and after MS only)	0 (Channel not in EPC mode)
- FPC (for R99 and R4 MS only)	0 (FPC not in use)
- FPC_EPC mode (for R5 and after MS only)	0 (FPC or EPC not in use)
- Power level	Chosen arbitrarily by the test house.
All other information elements	Not present.

Contents of HANDOVER COMPLETE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101100
RR cause	Normal event.
Time difference	Not present.

Contents of HANDOVER FAILURE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101000
RR cause	Dependent on the test.

Contents of IMMEDIATE ASSIGNMENT message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the IA rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 11.
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00111111
Page Mode	
- Page Mode	Normal Paging.
Channel Description	
- Channel Type and TDMA offset	For non-combined CCCH/SDCCH (see initial conditions), SDCCH/8, with subchannel chosen arbitrarily by the test house For combined CCCH/SDCCH (default SS conditions), SDCCH/4, with subchannel chosen arbitrarily by the test house.
- Timeslot Number	For non-combined CCCH/SDCCH (see initial conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, timeslot zero.
- Training Sequence Code	For non-combined CCCH/SDCCH (see initial conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, TSC=5 (same as the BCC).
- Hopping	Single RF channel.
- ARFCN	For non-combined CCCH/SDCCH (see initial conditions), Channel number 650; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, Channel number 590.
Request Reference	Pertaining to last Channel Request sent by the MS.
Timing Advance	
- Timing advance value	30 bit periods.
Mobile Allocation	
- Length	0
Starting Time	Not present.
IA rest octets	Not used (all bits set to spare).

Contents of IMMEDIATE ASSIGNMENT EXTENDED message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the IAX rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 18.
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00111001
Page Mode	
- Page Mode	Normal Paging.
Channel Description 1	
- Channel Type and TDMA offset	For non-combined CCCH/SDCCH (see test conditions), SDCCH/8, with subchannel chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, with subchannel chosen arbitrarily by the test house.
- Timeslot Number	For non-combined CCCH/SDCCH (see test conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, timeslot zero.
- Training Sequence Code	For non-combined CCCH/SDCCH (see initial conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, TSC=5 (same as the BCC).
- Hopping	Single RF channel.
- ARFCN	For non-combined CCCH/SDCCH (see initial conditions), Channel number 650; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, Channel number 590.
Request Reference 1	Pertaining to last Channel Request sent by the MS.
Timing Advance 1	
- Timing advance value	Chosen arbitrarily by the test house.
Channel Description 2	
- Channel Type and TDMA offset	Same channel type as in Channel Description 1, but different TDMA offset to that in Channel Description 1.
- Timeslot Number	equal to the value in Channel Description 1.
- Training Sequence Code	equal to the value in Channel Description 1.
- Hopping	Single RF channel.
- ARFCN	equal to the value in Channel Description 1.
Request Reference 2	Not pertaining to any Channel Requests sent by the MS.
Timing Advance 2	
- Timing advance value	Chosen arbitrarily by the test house.
Mobile Allocation	
- Length	0
Starting Time	Not present.
IAX rest octets	Not used (all bits set to spare).

Contents of IMMEDIATE ASSIGNMENT REJECT message:

L2 pseudo length	19
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00111010
Page Mode	
- Page Mode	Normal Paging.
Request Reference	Pertaining to last Channel Request sent by the MS.
Wait Indication	0 s.
Request Reference	Not pertaining to the MS under test.
Wait Indication	0 s.
Request Reference	Not pertaining to the MS under test.
Wait Indication	0 s.
Request Reference	Not pertaining to the MS under test.
Wait Indication	0 s.
IAR rest octets	Not used (all bits set to spare).

Contents of LOCATION UPDATING REQUEST message:

Protocol Discriminator	MM message.
Skip Indicator	0000
Message Type	0X001000
Other information elements	Not checked.

Contents of PAGING REQUEST TYPE 1 message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the P1 rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 9.
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00100001
Page Mode	
- Page Mode	Normal Paging.
Channels needed	
- first channel	any channel.
- second channel	any channel.
Mobile Identity 1	
- odd/even indication	Even.
- Type of Identity	TMSI.
- Identity Digits	TMSI previously allocated to MS.
Mobile Identity 2	Not present.
P1 rest octets	Not used (all bits set to spare).

Contents of PAGING REQUEST TYPE 2 message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the P2 rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 11.
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00100010
Page Mode	
- Page Mode	Normal Paging.
Channels needed	
- first channel	any channel.
- second channel	any channel.
Mobile Identity 1	
- TMSI value	TMSI previously allocated to MS.
Mobile Identity 2	
- TMSI value	TMSI not allocated to MS.
Mobile Identity	Not present.
P2 rest octets	Not used (all bits set to spare).

Contents of PAGING REQUEST TYPE 3 message:

L2 pseudo length	19
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00100100
Page Mode	
- Page Mode	Normal Paging.
Channels needed	
- first channel	any channel.
- second channel	any channel.
Mobile identity 1	
- TMSI value	TMSI previously allocated to MS.
Mobile identity 2	
- TMSI value	TMSI not allocated to MS.
Mobile identity 3	
- TMSI value	TMSI not allocated to MS.
Mobile identity 4	
- TMSI value	TMSI not allocated to MS.
P3 rest octets	Not used (all bits set to spare).

Contents of PAGING RESPONSE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00100111
Ciphering Key Sequence Number	
- Key Sequence	Key sequence number previously allocated to MS, or "111" if no key is available.
Mobile Station Classmark 2	
Mobile Identity	
- odd/even indication	Even.
- Type of identity	TMSI
- Identity Digits	TMSI previously allocated to MS.

Contents of PHYSICAL INFORMATION message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101101
Timing advance	20 bit periods.

Contents of SETUP message; (MS to SS):

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	any value from the set {0, ..., 6}.
TI flag	0
Message Type	0X000101
Other information elements	Not checked.

26.6.19 Default contents of GSM 750 layer 3 messages for RR tests

This subclause contains the default values of GSM 750 L3 messages, which unless indicated otherwise in subclause 26.6 shall be transmitted by the system simulator and which are required to be received from the GSM 750 MS under test. These values are used in order to be consistent with the phase 2 version of 26.6.

The necessary L3 messages are listed in alphabetic order, with the exception of the SYSTEM INFORMATION messages, where it is the information elements which are listed in alphabetic order (this is because some information elements occur in several SYSTEM INFORMATION types).

In this subclause, decimal values are normally used. However, sometimes a hexadecimal value, indicated by an "H", or a binary value, indicated by a "B" is used.

Default SYSTEM INFORMATION:

NOTE 1: SYSTEM INFORMATION 2 bis, SYSTEM INFORMATION 5 bis, SYSTEM INFORMATION 7, and SYSTEM INFORMATION 8 messages are not used.

Cell A

Contents of information elements in SYSTEM INFORMATION TYPE 1 to 6 messages for cell A.

(CBCH) Channel Description	Not present.
(CBCH) Mobile Allocation	Not present.
Cell Channel Description	
- Format identifier	128 range.
- Cell Allocation ARFCN	Channel Numbers 457, 467, 470 and 475.
Cell Identity	
- Cell Identity Value	0001H
Cell Options	
- Power Control Indicator	Power Control Indicator is not set.
- DTX Indicator	MS shall not use DTX.
- Radio_Link_Timeout	8 SACCH blocks.
Cell Selection Parameters	
- Cell_Reselect_Hysteresis	12 dB.
- MX_TXPWR_MAX_CCH	Minimum level.
- ACS	No addition cell parameters are present in SYSTEM INFORMATION messages 7 and 8.
- NECI	New establishment causes not supported.
- RXLEV_ACCESS_MIN	Minimum level.
Control Channel Description	
- Attach-Detach allowed	No Attach/Detach.
- BS_AG_BLKs_RES	0 blocks reserved for access grant.
- CCCH_CONF	1 basic physical channel used for CCCH, combined with SDCCCHs.
- BS_PA_MFRMS	5 multiframe periods for transmission of paging messages.
- T3212 Time-out value	Infinite.
L2 pseudo length	
- System information 1	21
- System information 2	22
- System information 3	18
- System information 4	12
Location Area Identification	
- Mobile Country Code	001 decimal
- Mobile Network Code	01 decimal
- Location Area Code	0001H
Message Type	
- System information 1	00011001
- System information 2	00011010
- System information 3	00011011
- System information 4	00011100
- System information 5	00011101
- System information 6	00011110
Neighbour Cells Description	
- Format identifier	Range 128.
- BCCH Allocation Sequence	0
- BCCH Allocation ARFCN	Channels numbers 447, 457, 477, 480, 499, 504, 507 and 510.
- EXT-IND	This IE carries the complete BA.
NCC Permitted	0000 0010
RACH Control Parameters	
- Max Retrans	Max 1 retrans.
- Tx-integer	5 slots used.
- Cell Barred for Access	Cell is not barred.
- Call Reestablishment Allowed	Not allowed.
- Access Control Class	Access is not barred.
- Emergency Call allowed	Yes.
SI 1 rest octets	Not used (all bits are set to spare).
SI 2 rest octets	Not used (all bits are set to spare).
SI 3 rest octets	Not used (all bits are set to spare).
SI 4 rest octets	Not used (all bits are set to spare).

Default settings for cell A:

Downlink input level	63 dBmicroVolt emf.
Uplink output power	Minimum supported by the MS's power class.
Propagation profile	static.
BCCH/CCCH carrier number	457

Cell B

The contents of SYSTEM INFORMATION TYPE 1 to 6 messages for cell B are identical to those of cell A with the following exceptions:

Cell Channel Description - Format Identifier - Cell Allocation ARFCN	128 range. Channel Number 447.
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NOTE 2: This IE needs modification when used in handover tests which command the MS to go to a frequency hopping channel in cell B.

Cell Identity

- Cell Identity Value 0002H

Default settings for cell B:

Downlink input level	53 dBmicroVolt emf.
Uplink output power	minimum supported by the MS's power class.
Propagation profile	static.
BCCH/CCCH carrier number	447

Contents of ALERTING message (SS to MS):

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	1 (destination side).
Message Type	00000001
All other information elements	Not present.

Contents of ASSIGNMENT COMMAND message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101110
Channel Description	
- Channel Type and TDMA offset	Bm + ACCHs
- Timeslot Number	Chosen arbitrarily by the test house.
- Training Sequence Code	Chosen arbitrarily by the test house.
- Hopping	Single RF channel.
- ARFCN	Channel number 467.
Power Command	
- EPC mode (for R5 and after MS only)	0 (Channel not in EPC mode)
- FPC (for R99 and R4 MS only)	0 (FPC not in use)
- FPC_EPC mode (for R5 and after MS only)	0 (FPC or EPC not in use)
- Power level	Chosen arbitrarily by the test house.
All other information elements	Not present.

Contents of ASSIGNMENT COMPLETE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101001
RR Cause	
- RR Cause Value	Normal event.

Contents of ASSIGNMENT FAILURE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101111
RR Cause	
- RR Cause Value	Depending on test.

Contents of AUTHENTICATION REQUEST message:

Protocol Discriminator	MM message.
Skip Indicator	0000
Message Type	00010010
Ciphering Key Sequence Number	
- Key Sequence	Chosen arbitrarily by the test house from the range 0 to 6.
Authentication Parameter RAND	
- RAND value	Chosen arbitrarily by the test house.

Contents of AUTHENTICATION RESPONSE message:

Protocol Discriminator	MM message.
Skip Indicator	0000
Message Type	0X010100
Other information element(s)	Not checked.

Contents of CALL PROCEEDING message:

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	1 (destination side).
Message Type	00000010
All other information elements	Not present.

Contents of CHANNEL MODE MODIFY message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00010000
Channel Description	
- Channel Type and TDMA offset	Depending on test.
- Timeslot Number	Chosen arbitrarily by the test house.
- Training Sequence Code	Chosen arbitrarily by the test house.
- Hopping	Single RF channel.
- ARFCN	Channel number 467.
Channel Mode	
- Mode	Depending on test.

Contents of CHANNEL MODE MODIFY ACKNOWLEDGE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00010111
Channel Description	
- Channel Type and TDMA offset	Depending on test.
- Timeslot Number	Same as in the CHANNEL MODE MODIFY message.
- Training Sequence Code	Same as in the CHANNEL MODE MODIFY message.
- Hopping	Single RF channel.
- Frequency Band	Band number 0.
- ARFCN	Channel number 467.
Channel Mode	
- Mode	Same as in the CHANNEL MODE MODIFY message.

Contents of CHANNEL RELEASE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00001101
RR Cause	
- RR Cause Value	Normal event.

Contents of CHANNEL REQUEST message

Establishment Cause	Not checked.
Random Reference	Not checked.

Contents of CIPHERING MODE COMMAND message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00110101
Cipher Mode Setting	
- algorithm identifier	cipher with A5/1.
- SC	Start ciphering.
Cipher Response	IMEI shall not be included.

Contents of CIPHERING MODE COMPLETE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00110010
Mobile Identity	Not present.

Contents of the CLASSMARK CHANGE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	000100110
Mobile Station Classmark 2	See PIXIT.
Mobile Station Classmark 3	For presence and contents see PIXIT.

Contents of CM SERVICE ACCEPT message:

Protocol Discriminator	Mobility Management.
Skip Indicator	0000
Message Type	00100001

Contents of CM SERVICE REQUEST message

Protocol Discriminator	Mobility Management.
Skip Indicator	0000
Message Type	0X100100
Other information elements	Not checked.

Contents of CONNECT message (SS to MS)

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	1
Message Type	00000111
All other information elements	Not present.

Contents of CONNECT ACKNOWLEDGE message (MS to SS)

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	0
Message Type	0X001111

Contents of HANDOVER ACCESS message:

Handover Reference	Equal to the value included in the Handover Command message.
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Contents of HANDOVER COMMAND message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101011
Cell Description	
- Network Colour Code	1
- Base station Colour Code	Corresponding to target cell
- BCCH Carrier Number	Set to the BCCH carrier number of cell B. (one of 447, 457, 480, 499, 504, 507 or 510).
Channel Description	
- Channel Type and TDMA offset	Bm + ACCHs.
- Timeslot Number	Chosen arbitrarily by the test house.
- Training Sequence Code	Chosen arbitrarily by the test house.
- Hopping	Single RF channel.
- ARFCN	Chosen arbitrarily by the test house from those supported on the target cell.
Handover Reference	
- Handover Reference Value	Chosen arbitrarily by the test house.
Power Command	
- ATC	0 (Sending of Handover Access is mandatory)
- EPC mode (for R5 and after MS only)	0 (Channel not in EPC mode)
- FPC (for R99 and R4 MS only)	0 (FPC not in use)
- FPC_EPC mode (for R5 and after MS only)	0 (FPC or EPC not in use)
- Power level	Chosen arbitrarily by the test house.
All other information elements	Not present.

Contents of HANDOVER COMPLETE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101100
RR cause	Normal event.
Time difference	Not present.

Contents of HANDOVER FAILURE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101000
RR cause	Dependent on the test.

IDENTITY REQUEST

Information element	Value/remark
Identity type	IMEI
Spare half octet	0000

IDENTITY RESPONSE

Information element	Value/remark
Mobile identity	not checked

Contents of IMMEDIATE ASSIGNMENT message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the IA rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 11.
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00111111
Page Mode	
- Page Mode	Normal Paging.
Channel Description	
- Channel Type and TDMA offset	For non-combined CCCH/SDCCH (see initial conditions), SDCCH/8, with subchannel chosen arbitrarily by the test house For combined CCCH/SDCCH (default SS conditions), SDCCH/4, with subchannel chosen arbitrarily by the test house.
- Timeslot Number	For non-combined CCCH/SDCCH (see initial conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, timeslot zero.
- Training Sequence Code	For non-combined CCCH/SDCCH (see initial conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, TSC=5 (same as the BCC).
- Hopping	Single RF channel.
- ARFCN	For non-combined CCCH/SDCCH (see initial conditions), Channel number 467; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, Channel number 457.
Request Reference	Pertaining to last Channel Request sent by the MS.
Timing Advance	
- Timing advance value	30 bit periods.
Mobile Allocation	
- Length	0
Starting Time	Not present.
IA rest octets	Not used (all bits set to spare).

Contents of IMMEDIATE ASSIGNMENT EXTENDED message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the IAX rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 18.
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00111001
Page Mode	
- Page Mode	Normal Paging.
Channel Description 1	
- Channel Type and TDMA offset	For non-combined CCCH/SDCCH (see test conditions), SDCCH/8, with subchannel chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, with subchannel chosen arbitrarily by the test house.
- Timeslot Number	For non-combined CCCH/SDCCH (see test conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, timeslot zero.
- Training Sequence Code	For non-combined CCCH/SDCCH (see initial conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, TSC=5 (same as the BCC).
- Hopping	Single RF channel.
- ARFCN	For non-combined CCCH/SDCCH (see initial conditions), Channel number 467; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, Channel number 457.
Request Reference 1	Pertaining to last Channel Request sent by the MS.
Timing Advance 1	
- Timing advance value	Chosen arbitrarily by the test house.
Channel Description 2	
- Channel Type and TDMA offset	Same channel type as in Channel Description 1, but different TDMA offset to that in Channel Description 1.
- Timeslot Number	equal to the value in Channel Description 1.
- Training Sequence Code	equal to the value in Channel Description 1.
- Hopping	Single RF channel.
- ARFCN	equal to the value in Channel Description 1.
Request Reference 2	Not pertaining to any Channel Requests sent by the MS.
Timing Advance 2	
- Timing advance value	Chosen arbitrarily by the test house.
Mobile Allocation	
- Length	0
Starting Time	Not present.
IAX rest octets	Not used (all bits set to spare).

Contents of IMMEDIATE ASSIGNMENT REJECT message:

L2 pseudo length	19
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00111010
Page Mode	
- Page Mode	Normal Paging.
Request Reference	Pertaining to last Channel Request sent by the MS.
Wait Indication	0 s.
Request Reference	Not pertaining to the MS under test.
Wait Indication	0 s.
Request Reference	Not pertaining to the MS under test.
Wait Indication	0 s.
Request Reference	Not pertaining to the MS under test.
Wait Indication	0 s.
IAR rest octets	Not used (all bits set to spare).

Contents of LOCATION UPDATING REQUEST message:

Protocol Discriminator	MM message.
Skip Indicator	0000
Message Type	0X001000
Other information elements	Not checked.

Contents of PAGING REQUEST TYPE 1 message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the P1 rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 9.
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00100001
Page Mode	
- Page Mode	Normal Paging.
Channels needed	
- first channel	any channel.
- second channel	any channel.
Mobile Identity 1	
- odd/even indication	Even.
- Type of Identity	TMSI.
- Identity Digits	TMSI previously allocated to MS.
Mobile Identity 2	Not present.
P1 rest octets	Not used (all bits set to spare).

Contents of PAGING REQUEST TYPE 2 message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the P2 rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 11.
Protocol Discriminator	RR Management..
Skip Indicator	0000
Message Type	00100010
Page Mode	
- Page Mode	Normal Paging.
Channels needed	
- first channel	any channel.
- second channel	any channel.
Mobile Identity 1	
- TMSI value	TMSI previously allocated to MS.
Mobile Identity 2	
- TMSI value	TMSI not allocated to MS.
Mobile Identity	Not present.
P2 rest octets	Not used (all bits set to spare).

Contents of PAGING REQUEST TYPE 3 message:

L2 pseudo length	19
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00100100
Page Mode	
- Page Mode	Normal Paging.
Channels needed	
- first channel	any channel.
- second channel	any channel.
Mobile identity 1	
- TMSI value	TMSI previously allocated to MS.
Mobile identity 2	
- TMSI value	TMSI not allocated to MS.
Mobile identity 3	
- TMSI value	TMSI not allocated to MS.
Mobile identity 4	
- TMSI value	TMSI not allocated to MS.
P3 rest octets	Not used (all bits set to spare).

Contents of PAGING RESPONSE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00100111
Ciphering Key Sequence Number	
- Key Sequence	Key sequence number previously allocated to MS, or "111" if no key is available.
Mobile Station Classmark 2	
Mobile Identity	
- odd/even indication	Even
- Type of identity	TMSI
- Identity Digits	TMSI previously allocated to MS.

Contents of PHYSICAL INFORMATION message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101101
Timing advance	20 bit periods.

Contents of SETUP message; (MS to SS):

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	any value from the set {0, ..., 6}.
TI flag	0
Message Type	0X000101
Other information elements	Not checked.

26.6.20 Default contents of GSM 850 layer 3 messages for RR tests

This subclause contains the default values of GSM 850 L3 messages, which unless indicated otherwise in subclause 26.6 shall be transmitted by the system simulator and which are required to be received from the GSM 850 MS under test. These values are used in order to be consistent with the phase 2 version of 26.6.

The necessary L3 messages are listed in alphabetic order, with the exception of the SYSTEM INFORMATION messages, where it is the information elements which are listed in alphabetic order (this is because some information elements occur in several SYSTEM INFORMATION types).

In this subclause, decimal values are normally used. However, sometimes a hexadecimal value, indicated by an "H", or a binary value, indicated by a "B" is used.

Default SYSTEM INFORMATION:

NOTE 1: SYSTEM INFORMATION 2 bis, SYSTEM INFORMATION 5 bis, SYSTEM INFORMATION 7, and SYSTEM INFORMATION 8 messages are not used.

Cell A

Contents of information elements in SYSTEM INFORMATION TYPE 1 to 6 messages for cell A.

(CBCH) Channel Description	Not present.
(CBCH) Mobile Allocation	Not present.
Cell Channel Description	
- Format identifier	128 range.
- Cell Allocation ARFCN	Channel Numbers 147, 157, 177 and 197.
Cell Identity	
- Cell Identity Value	0001H
Cell Options	
- Power Control Indicator	Power Control Indicator is not set.
- DTX Indicator	MS shall not use DTX.
- Radio_Link_Timeout	8 SACCH blocks.
Cell Selection Parameters	
- Cell_Reselect_Hysteresis	12 dB.
- MX_TXPWR_MAX_CCH	Minimum level.
- ACS	No addition cell parameters are present in SYSTEM INFORMATION messages 7 and 8.
- NECI	New establishment causes not supported.
- RXLEV_ACCESS_MIN	Minimum level.
Control Channel Description	
- Attach-Detach allowed	No Attach/Detach.
- BS_AG_BLKs_RES	0 blocks reserved for access grant.
- CCCH_CONF	1 basic physical channel used for CCCH, combined with SDCCCHs.
- BS_PA_MFRMS	5 multiframe periods for transmission of paging messages.
- T3212 Time-out value	Infinite.
L2 pseudo length	
- System information 1	21
- System information 2	22
- System information 3	18
- System information 4	12
Location Area Identification	
- Mobile Country Code	001 decimal
- Mobile Network Code	01 decimal
- Location Area Code	0001H
Message Type	
- System information 1	00011001
- System information 2	00011010
- System information 3	00011011
- System information 4	00011100
- System information 5	00011101
- System information 6	00011110
Neighbour Cells Description	
- Format identifier	128 range.
- BCCH Allocation Sequence	0
- BCCH Allocation ARFCN	Channels numbers 137, 147, 167, 207, 217, 227, 237 and 247.
- EXT-IND	This IE carries the complete BA.
NCC Permitted	0000 0010
RACH Control Parameters	
- Max Retrans	Max 1 retrans.
- Tx-integer	5 slots used.
- Cell Barred for Access	Cell is not barred.
- Call Reestablishment Allowed	Not allowed.
- Access Control Class	Access is not barred.
- Emergency Call allowed	Yes.
SI 1 rest octets	Not used (all bits are set to spare).
SI 2 rest octets	Not used (all bits are set to spare).
SI 3 rest octets	Not used (all bits are set to spare).
SI 4 rest octets	Not used (all bits are set to spare).
SI 6 rest octets	2B2B2B2B2B2B2B

Default settings for cell A:

Downlink input level	63 dBm
Uplink output power	microVolt emf. minimum supported by the MS's power class.
Propagation profile	static.
BCCH/CCCH carrier number	147

Cell B

The contents of SYSTEM INFORMATION TYPE 1 to 6 messages for cell B are identical to those of cell A with the following exceptions:

Cell Channel Description	
- Format Identifier	128 range.
- Cell Allocation ARFCN	Channel Number 137.

NOTE 2: This IE needs modification when used in handover tests which command the MS to go to a frequency hopping channel in cell B.

Cell Identity

- Cell Identity Value 0002H

Default settings for cell B:

Downlink input level	53 dBm
Uplink output power	microVolt emf. minimum supported by the MS's power class.
Propagation profile	static.
BCCH/CCCH carrier number	137

Contents of ALERTING message (SS to MS):

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	1 (destination side).
Message Type	00000001
All other information elements	Not present.

Contents of ASSIGNMENT COMMAND message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101110
Channel Description	
- Channel Type and TDMA offset	Bm + ACCHs
- Timeslot Number	Chosen arbitrarily by the test house.
- Training Sequence Code	Chosen arbitrarily by the test house.
- Hopping	Single RF channel.
- ARFCN	Channel number 157.
Power Command	
- EPC mode (for R5 and after MS only)	0 (Channel not in EPC mode)
- FPC (for R99 and R4 MS only)	0 (FPC not in use)
- FPC_EPC mode (for R5 and after MS only)	0 (FPC or EPC not in use)
- Power level	Chosen arbitrarily by the test house.
All other information elements	Not present.

Contents of ASSIGNMENT COMPLETE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101001
RR Cause	
- RR Cause Value	Normal event.

Contents of ASSIGNMENT FAILURE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101111
RR Cause	
- RR Cause Value	Depending on test.

Contents of AUTHENTICATION REQUEST message:

Protocol Discriminator	MM message.
Skip Indicator	0000
Message Type	00010010
Ciphering Key Sequence Number	
- Key Sequence	Chosen arbitrarily by the test house from the range 0 to 6.
Authentication Parameter RAND	
- RAND value	Chosen arbitrarily by the test house.

Contents of AUTHENTICATION RESPONSE message:

Protocol Discriminator	MM message.
Skip Indicator	0000
Message Type	0X010100
Other information element(s)	Not checked.

Contents of CALL PROCEEDING message:

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	1 (destination side).
Message Type	00000010
All other information elements	Not present.

Contents of CHANNEL MODE MODIFY message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00010000
Channel Description	
- Channel Type and TDMA offset	Depending on test.
- Timeslot Number	Chosen arbitrarily by the test house.
- Training Sequence Code	Chosen arbitrarily by the test house.
- Hopping	Single RF channel.
- ARFCN	Channel number 157.
Channel Mode	
- Mode	Depending on test.

Contents of CHANNEL MODE MODIFY ACKNOWLEDGE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00010111
Channel Description	
- Channel Type and TDMA offset	Depending on test.
- Timeslot Number	Same as in the CHANNEL MODE MODIFY message.
- Training Sequence Code	Same as in the CHANNEL MODE MODIFY message.
- Hopping	Single RF channel.
- Frequency Band	Band number 0.
- ARFCN	Channel number 157.
Channel Mode	
- Mode	Same as in the CHANNEL MODE MODIFY message.

Contents of CHANNEL RELEASE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00001101
RR Cause	
- RR Cause Value	Normal event.

Contents of CHANNEL REQUEST message

Establishment Cause	Not checked.
Random Reference	Not checked.

Contents of CIPHERING MODE COMMAND message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00110101
Cipher Mode Setting	
- algorithm identifier	cipher with A5/1.
- SC	Start ciphering.
Cipher Response	IMEI shall not be included.

Contents of CIPHERING MODE COMPLETE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00110010
Mobile Identity	Not present.

Contents of the CLASSMARK CHANGE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	000100110
Mobile Station Classmark 2	See PIXIT.
Mobile Station Classmark 3	For presence and contents see PIXIT.

Contents of CM SERVICE ACCEPT message:

Protocol Discriminator	Mobility Management.
Skip Indicator	0000
Message Type	00100001

Contents of CM SERVICE REQUEST message

Protocol Discriminator	Mobility Management.
Skip Indicator	0000
Message Type	0X100100
Other information elements	Not checked.

Contents of CONNECT message (SS to MS)

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	1
Message Type	00000111
All other information elements	Not present.

Contents of CONNECT ACKNOWLEDGE message (MS to SS)

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	0
Message Type	0X001111

Contents of HANDOVER ACCESS message:

Handover Reference	Equal to the value included in the Handover Command message.
--------------------	--

Contents of HANDOVER COMMAND message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101011
Cell Description	
- Network Colour Code	1
- Base station Colour Code	Corresponding to target cell
- BCCH Carrier Number	Set to the BCCH carrier number of cell B. (one of 137, 147, 207, 217, 227, 237 or 247).
Channel Description	
- Channel Type and TDMA offset	Bm + ACCHs.
- Timeslot Number	Chosen arbitrarily by the test house.
- Training Sequence Code	Chosen arbitrarily by the test house.
- Hopping	Single RF channel.
- ARFCN	Chosen arbitrarily by the test house from those supported on the target cell.
Handover Reference	
- Handover Reference Value	Chosen arbitrarily by the test house.
Power Command	
- ATC	0 (Sending of Handover Access is mandatory)
- EPC mode (for R5 and after MS only)	0 (Channel not in EPC mode)
- FPC (for R99 and R4 MS only)	0 (FPC not in use)
- FPC_EPC mode (for R5 and after MS only)	0 (FPC or EPC not in use)
- Power level	Chosen arbitrarily by the test house.
All other information elements	Not present.

Contents of HANDOVER COMPLETE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101100
RR cause	Normal event.
Time difference	Not present.

Contents of HANDOVER FAILURE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101000
RR cause	Dependent on the test.

IDENTITY REQUEST

Information element	Value/remark
Identity type	IMEI
Spare half octet	0000

IDENTITY RESPONSE

Information element	Value/remark
Mobile identity	not checked

Contents of IMMEDIATE ASSIGNMENT message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the IA rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 11.
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00111111
Page Mode	
- Page Mode	Normal Paging.
Channel Description	
- Channel Type and TDMA offset	For non-combined CCCH/SDCCH (see initial conditions), SDCCH/8, with subchannel chosen arbitrarily by the test house For combined CCCH/SDCCH (default SS conditions), SDCCH/4, with subchannel chosen arbitrarily by the test house.
- Timeslot Number	For non-combined CCCH/SDCCH (see initial conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, timeslot zero.
- Training Sequence Code	For non-combined CCCH/SDCCH (see initial conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, TSC=5 (same as the BCC).
- Hopping	Single RF channel.
- ARFCN	For non-combined CCCH/SDCCH (see initial conditions), Channel number 157; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, Channel number 147.
Request Reference	Pertaining to last Channel Request sent by the MS.
Timing Advance	
- Timing advance value	30 bit periods.
Mobile Allocation	
- Length	0
Starting Time	Not present.
IA rest octets	Not used (all bits set to spare).

Contents of IMMEDIATE ASSIGNMENT EXTENDED message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the IAX rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 18.
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00111001
Page Mode	
- Page Mode	Normal Paging.
Channel Description 1	
- Channel Type and TDMA offset	For non-combined CCCH/SDCCH (see test conditions), SDCCH/8, with subchannel chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, with subchannel chosen arbitrarily by the test house.
- Timeslot Number	For non-combined CCCH/SDCCH (see test conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, timeslot zero.
- Training Sequence Code	For non-combined CCCH/SDCCH (see initial conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, TSC=5 (same as the BCC).
- Hopping	Single RF channel.
- ARFCN	For non-combined CCCH/SDCCH (see initial conditions), Channel number 157; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, Channel number 147.
Request Reference 1	Pertaining to last Channel Request sent by the MS.
Timing Advance 1	
- Timing advance value	Chosen arbitrarily by the test house.
Channel Description 2	
- Channel Type and TDMA offset	Same channel type as in Channel Description 1, but different TDMA offset to that in Channel Description 1.
- Timeslot Number	equal to the value in Channel Description 1.
- Training Sequence Code	equal to the value in Channel Description 1.
- Hopping	Single RF channel.
- ARFCN	equal to the value in Channel Description 1.
Request Reference 2	Not pertaining to any Channel Requests sent by the MS.
Timing Advance 2	
- Timing advance value	Chosen arbitrarily by the test house.
Mobile Allocation	
- Length	0
Starting Time	Not present.
IAX rest octets	Not used (all bits set to spare).

Contents of IMMEDIATE ASSIGNMENT REJECT message:

L2 pseudo length	19
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00111010
Page Mode	
- Page Mode	Normal Paging.
Request Reference	Pertaining to last Channel Request sent by the MS.
Wait Indication	0 s.
Request Reference	Not pertaining to the MS under test.
Wait Indication	0 s.
Request Reference	Not pertaining to the MS under test.
Wait Indication	0 s.
Request Reference	Not pertaining to the MS under test.
Wait Indication	0 s.
IAR rest octets	Not used (all bits set to spare).

Contents of LOCATION UPDATING REQUEST message:

Protocol Discriminator	MM message.
Skip Indicator	0000
Message Type	0X001000
Other information elements	Not checked.

Contents of PAGING REQUEST TYPE 1 message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the P1 rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 9.
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00100001
Page Mode	
- Page Mode	Normal Paging.
Channels needed	
- first channel	any channel.
- second channel	any channel.
Mobile Identity 1	
- odd/even indication	Even.
- Type of Identity	TMSI.
- Identity Digits	TMSI previously allocated to MS.
Mobile Identity 2	Not present.
P1 rest octets	Not used (all bits set to spare).

Contents of PAGING REQUEST TYPE 2 message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the P2 rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 11.
Protocol Discriminator	RR Management..
Skip Indicator	0000
Message Type	00100010
Page Mode	
- Page Mode	Normal Paging.
Channels needed	
- first channel	any channel.
- second channel	any channel.
Mobile Identity 1	
- TMSI value	TMSI previously allocated to MS.
Mobile Identity 2	
- TMSI value	TMSI not allocated to MS.
Mobile Identity	Not present.
P2 rest octets	Not used (all bits set to spare).

Contents of PAGING REQUEST TYPE 3 message:

L2 pseudo length	19
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00100100
Page Mode	
- Page Mode	Normal Paging.
Channels needed	
- first channel	any channel.
- second channel	any channel.
Mobile identity 1	
- TMSI value	TMSI previously allocated to MS.
Mobile identity 2	
- TMSI value	TMSI not allocated to MS.
Mobile identity 3	
- TMSI value	TMSI not allocated to MS.
Mobile identity 4	
- TMSI value	TMSI not allocated to MS.
P3 rest octets	Not used (all bits set to spare).

Contents of PAGING RESPONSE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00100111
Ciphering Key Sequence Number	
- Key Sequence	Key sequence number previously allocated to MS, or "111" if no key is available.
Mobile Station Classmark 2	
Mobile Identity	
- odd/even indication	Even
- Type of identity	TMSI
- Identity Digits	TMSI previously allocated to MS.

Contents of PHYSICAL INFORMATION message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101101
Timing advance	20 bit periods.

Contents of SETUP message; (MS to SS):

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	any value from the set {0, ..., 6}.
TI flag	0
Message Type	0X000101
Other information elements	Not checked.

26.6.21 Default contents of GSM 710 layer 3 messages for RR tests

This subclause contains the default values of GSM 710 L3 messages, which unless indicated otherwise in subclause 26.6 shall be transmitted by the system simulator and which are required to be received from the GSM 710 MS under test. These values are used in order to be consistent with the phase 2 version of 26.6.

The necessary L3 messages are listed in alphabetic order, with the exception of the SYSTEM INFORMATION messages, where it is the information elements which are listed in alphabetic order (this is because some information elements occur in several SYSTEM INFORMATION types).

In this subclause, decimal values are normally used. However, sometimes a hexadecimal value, indicated by an "H", or a binary value, indicated by a "B" is used.

Default SYSTEM INFORMATION:

NOTE 1: SYSTEM INFORMATION 2 bis, SYSTEM INFORMATION 5 bis, SYSTEM INFORMATION 7, and SYSTEM INFORMATION 8 messages are not used.

Cell A

Contents of information elements in SYSTEM INFORMATION TYPE 1 to 6 messages for cell A.

(CBCH) Channel Description	Not present.
(CBCH) Mobile Allocation	Not present.
Cell Channel Description	
- Format identifier	128 range.
- Cell Allocation ARFCN	Channel Numbers 457, 467, 470 and 475.
Cell Identity	
- Cell Identity Value	0001H
Cell Options	
- Power Control Indicator	Power Control Indicator is not set.
- DTX Indicator	MS shall not use DTX.
- Radio_Link_Timeout	8 SACCH blocks.
Cell Selection Parameters	
- Cell_Reselect_Hysteresis	12 dB.
- MX_TXPWR_MAX_CCH	Minimum level.
- ACS	No addition cell parameters are present in SYSTEM INFORMATION messages 7 and 8.
- NECI	New establishment causes not supported.
- RXLEV_ACCESS_MIN	Minimum level.
Control Channel Description	
- Attach-Detach allowed	No Attach/Detach.
- BS_AG_BLKES_RES	0 blocks reserved for access grant.
- CCCH_CONF	1 basic physical channel used for CCCH, combined with SDCCCHs.
- BS_PA_MFRMS	5 multiframe periods for transmission of paging messages.
- T3212 Time-out value	Infinite.
L2 pseudo length	
- System information 1	21
- System information 2	22
- System information 3	18
- System information 4	12
Location Area Identification	
- Mobile Country Code	001 decimal
- Mobile Network Code	01 decimal
- Location Area Code	0001H
Message Type	
- System information 1	00011001
- System information 2	00011010
- System information 3	00011011
- System information 4	00011100
- System information 5	00011101
- System information 6	00011110
Neighbour Cells Description	
- Format identifier	Range 128.
- BCCH Allocation Sequence	0
- BCCH Allocation ARFCN	Channels numbers 447, 457, 477, 480, 499, 504, 507 and 510.
- EXT-IND	This IE carries the complete BA.
NCC Permitted	0000 0010
RACH Control Parameters	
- Max Retrans	Max 1 retrans.
- Tx-integer	5 slots used.
- Cell Barred for Access	Cell is not barred.
- Call Reestablishment Allowed	Not allowed.
- Access Control Class	Access is not barred.
- Emergency Call allowed	Yes.
SI 1 rest octets	Not used (all bits are set to spare).
SI 2 rest octets	Not used (all bits are set to spare).
SI 3 rest octets	Not used (all bits are set to spare).
SI 4 rest octets	Not used (all bits are set to spare).

Default settings for cell A:

Downlink input level	63 dBm
Uplink output power	microVolt emf.
Propagation profile	Minimum supported by the MS's power class.
BCCH/CCCH carrier number	static.
	457

Cell B

The contents of SYSTEM INFORMATION TYPE 1 to 6 messages for cell B are identical to those of cell A with the following exceptions:

Cell Channel Description	
- Format Identifier	128 range.
- Cell Allocation ARFCN	Channel Number 447.

NOTE 2: This IE needs modification when used in handover tests which command the MS to go to a frequency hopping channel in cell B.

Cell Identity

- Cell Identity Value 0002H

Default settings for cell B:

Downlink input level	53 dBm
Uplink output power	microVolt emf.
Propagation profile	minimum supported by the MS's power class.
BCCH/CCCH carrier number	static.
	447

Contents of ALERTING message (SS to MS):

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	1 (destination side).
Message Type	00000001
All other information elements	Not present.

Contents of ASSIGNMENT COMMAND message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101110
Channel Description	
- Channel Type and TDMA offset	Bm + ACCHs
- Timeslot Number	Chosen arbitrarily by the test house.
- Training Sequence Code	Chosen arbitrarily by the test house.
- Hopping	Single RF channel.
- ARFCN	Channel number 467.
Power Command	
- EPC mode (for R5 and after MS only)	0 (Channel not in EPC mode)
- FPC (for R99 and R4 MS only)	0 (FPC not in use)
- FPC_EPC mode (for R5 and after MS only)	0 (FPC or EPC not in use)
- Power level	Chosen arbitrarily by the test house.
All other information elements	Not present.

Contents of ASSIGNMENT COMPLETE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101001
RR Cause	
- RR Cause Value	Normal event.

Contents of ASSIGNMENT FAILURE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101111
RR Cause	
- RR Cause Value	Depending on test.

Contents of AUTHENTICATION REQUEST message:

Protocol Discriminator	MM message.
Skip Indicator	0000
Message Type	00010010
Ciphering Key Sequence Number	
- Key Sequence	Chosen arbitrarily by the test house from the range 0 to 6.
Authentication Parameter RAND	
- RAND value	Chosen arbitrarily by the test house.

Contents of AUTHENTICATION RESPONSE message:

Protocol Discriminator	MM message.
Skip Indicator	0000
Message Type	0X010100
Other information element(s)	Not checked.

Contents of CALL PROCEEDING message:

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	1 (destination side).
Message Type	00000010
All other information elements	Not present.

Contents of CHANNEL MODE MODIFY message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00010000
Channel Description	
- Channel Type and TDMA offset	Depending on test.
- Timeslot Number	Chosen arbitrarily by the test house.
- Training Sequence Code	Chosen arbitrarily by the test house.
- Hopping	Single RF channel.
- ARFCN	Channel number 467.
Channel Mode	
- Mode	Depending on test.

Contents of CHANNEL MODE MODIFY ACKNOWLEDGE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00010111
Channel Description	
- Channel Type and TDMA offset	Depending on test.
- Timeslot Number	Same as in the CHANNEL MODE MODIFY message.
- Training Sequence Code	Same as in the CHANNEL MODE MODIFY message.
- Hopping	Single RF channel.
- Frequency Band	Band number 0.
- ARFCN	Channel number 467.
Channel Mode	
- Mode	Same as in the CHANNEL MODE MODIFY message.

Contents of CHANNEL RELEASE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00001101
RR Cause	
- RR Cause Value	Normal event.

Contents of CHANNEL REQUEST message

Establishment Cause	Not checked.
Random Reference	Not checked.

Contents of CIPHERING MODE COMMAND message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00110101
Cipher Mode Setting	
- algorithm identifier	cipher with A5/1.
- SC	Start ciphering.
Cipher Response	IMEI shall not be included.

Contents of CIPHERING MODE COMPLETE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00110010
Mobile Identity	Not present.

Contents of the CLASSMARK CHANGE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	000100110
Mobile Station Classmark 2	See PIXIT.
Mobile Station Classmark 3	For presence and contents see PIXIT.

Contents of CM SERVICE ACCEPT message:

Protocol Discriminator	Mobility Management.
Skip Indicator	0000
Message Type	00100001

Contents of CM SERVICE REQUEST message

Protocol Discriminator	Mobility Management.
Skip Indicator	0000
Message Type	0X100100
Other information elements	Not checked.

Contents of CONNECT message (SS to MS)

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	1
Message Type	00000111
All other information elements	Not present.

Contents of CONNECT ACKNOWLEDGE message (MS to SS)

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	0
Message Type	0X001111

Contents of HANDOVER ACCESS message:

Handover Reference	Equal to the value included in the Handover Command message.
--------------------	--

Contents of HANDOVER COMMAND message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101011
Cell Description	
- Network Colour Code	1
- Base station Colour Code	Corresponding to target cell
- BCCH Carrier Number	Set to the BCCH carrier number of cell B. (one of 447, 457, 480, 499, 504, 507 or 510).
Channel Description	
- Channel Type and TDMA offset	Bm + ACCHs.
- Timeslot Number	Chosen arbitrarily by the test house.
- Training Sequence Code	Chosen arbitrarily by the test house.
- Hopping	Single RF channel.
- ARFCN	Chosen arbitrarily by the test house from those supported on the target cell.
Handover Reference	
- Handover Reference Value	Chosen arbitrarily by the test house.
Power Command	
- ATC	0 (Sending of Handover Access is mandatory)
- EPC mode (for R5 and after MS only)	0 (Channel not in EPC mode)
- FPC (for R99 and R4 MS only)	0 (FPC not in use)
- FPC_EPC mode (for R5 and after MS only)	0 (FPC or EPC not in use)
- Power level	Chosen arbitrarily by the test house.
All other information elements	Not present.

Contents of HANDOVER COMPLETE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101100
RR cause	Normal event.
Time difference	Not present.

Contents of HANDOVER FAILURE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101000
RR cause	Dependent on the test.

IDENTITY REQUEST

Information element	Value/remark
Identity type	IMEI
Spare half octet	0000

IDENTITY RESPONSE

Information element	Value/remark
Mobile identity	not checked

Contents of IMMEDIATE ASSIGNMENT message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the IA rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 11.
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00111111
Page Mode	
- Page Mode	Normal Paging.
Channel Description	
- Channel Type and TDMA offset	For non-combined CCCH/SDCCH (see initial conditions), SDCCH/8, with subchannel chosen arbitrarily by the test house For combined CCCH/SDCCH (default SS conditions), SDCCH/4, with subchannel chosen arbitrarily by the test house.
- Timeslot Number	For non-combined CCCH/SDCCH (see initial conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, timeslot zero.
- Training Sequence Code	For non-combined CCCH/SDCCH (see initial conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, TSC=5 (same as the BCC).
- Hopping	Single RF channel.
- ARFCN	For non-combined CCCH/SDCCH (see initial conditions), Channel number 467; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, Channel number 457.
Request Reference	Pertaining to last Channel Request sent by the MS.
Timing Advance	
- Timing advance value	30 bit periods.
Mobile Allocation	
- Length	0
Starting Time	Not present.
IA rest octets	Not used (all bits set to spare).

Contents of IMMEDIATE ASSIGNMENT EXTENDED message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the IAX rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 18.
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00111001
Page Mode	
- Page Mode	Normal Paging.
Channel Description 1	
- Channel Type and TDMA offset	For non-combined CCCH/SDCCH (see test conditions), SDCCH/8, with subchannel chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, with subchannel chosen arbitrarily by the test house.
- Timeslot Number	For non-combined CCCH/SDCCH (see test conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, timeslot zero.
- Training Sequence Code	For non-combined CCCH/SDCCH (see initial conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, TSC=5 (same as the BCC).
- Hopping	Single RF channel.
- ARFCN	For non-combined CCCH/SDCCH (see initial conditions), Channel number 467; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, Channel number 457.
Request Reference 1	Pertaining to last Channel Request sent by the MS.
Timing Advance 1	
- Timing advance value	Chosen arbitrarily by the test house.
Channel Description 2	
- Channel Type and TDMA offset	Same channel type as in Channel Description 1, but different TDMA offset to that in Channel Description 1.
- Timeslot Number	equal to the value in Channel Description 1.
- Training Sequence Code	equal to the value in Channel Description 1.
- Hopping	Single RF channel.
- ARFCN	equal to the value in Channel Description 1.
Request Reference 2	Not pertaining to any Channel Requests sent by the MS.
Timing Advance 2	
- Timing advance value	Chosen arbitrarily by the test house.
Mobile Allocation	
- Length	0
Starting Time	Not present.
IAX rest octets	Not used (all bits set to spare).

Contents of IMMEDIATE ASSIGNMENT REJECT message:

L2 pseudo length	19
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00111010
Page Mode	
- Page Mode	Normal Paging.
Request Reference	Pertaining to last Channel Request sent by the MS.
Wait Indication	0 s.
Request Reference	Not pertaining to the MS under test.
Wait Indication	0 s.
Request Reference	Not pertaining to the MS under test.
Wait Indication	0 s.
Request Reference	Not pertaining to the MS under test.
Wait Indication	0 s.
IAR rest octets	Not used (all bits set to spare).

Contents of LOCATION UPDATING REQUEST message:

Protocol Discriminator	MM message.
Skip Indicator	0000
Message Type	0X001000
Other information elements	Not checked.

Contents of PAGING REQUEST TYPE 1 message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the P1 rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 9.
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00100001
Page Mode	
- Page Mode	Normal Paging.
Channels needed	
- first channel	any channel.
- second channel	any channel.
Mobile Identity 1	
- odd/even indication	Even.
- Type of Identity	TMSI.
- Identity Digits	TMSI previously allocated to MS.
Mobile Identity 2	Not present.
P1 rest octets	Not used (all bits set to spare).

Contents of PAGING REQUEST TYPE 2 message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the P2 rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 11.
Protocol Discriminator	RR Management..
Skip Indicator	0000
Message Type	00100010
Page Mode	
- Page Mode	Normal Paging.
Channels needed	
- first channel	any channel.
- second channel	any channel.
Mobile Identity 1	
- TMSI value	TMSI previously allocated to MS.
Mobile Identity 2	
- TMSI value	TMSI not allocated to MS.
Mobile Identity	Not present.
P2 rest octets	Not used (all bits set to spare).

Contents of PAGING REQUEST TYPE 3 message:

L2 pseudo length	19
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00100100
Page Mode	
- Page Mode	Normal Paging.
Channels needed	
- first channel	any channel.
- second channel	any channel.
Mobile identity 1	
- TMSI value	TMSI previously allocated to MS.
Mobile identity 2	
- TMSI value	TMSI not allocated to MS.
Mobile identity 3	
- TMSI value	TMSI not allocated to MS.
Mobile identity 4	
- TMSI value	TMSI not allocated to MS.
P3 rest octets	Not used (all bits set to spare).

Contents of PAGING RESPONSE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00100111
Ciphering Key Sequence Number	
- Key Sequence	Key sequence number previously allocated to MS, or "111" if no key is available.
Mobile Station Classmark 2	
Mobile Identity	
- odd/even indication	Even
- Type of identity	TMSI
- Identity Digits	TMSI previously allocated to MS.

Contents of PHYSICAL INFORMATION message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101101
Timing advance	20 bit periods.

Contents of SETUP message; (MS to SS):

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	any value from the set {0, ..., 6}.
TI flag	0
Message Type	0X000101
Other information elements	Not checked.

26.6.22 Default contents of T-GSM 810 layer 3 messages for RR tests

This subclause contains the default values of T-GSM 810 L3 messages, which unless indicated otherwise in subclause 26.6 shall be transmitted by the system simulator and which are required to be received from the T-GSM 810 MS under test. These values are used in order to be consistent with the phase 2 version of 26.6.

The necessary L3 messages are listed in alphabetic order, with the exception of the SYSTEM INFORMATION messages, where it is the information elements which are listed in alphabetic order (this is because some information elements occur in several SYSTEM INFORMATION types).

In this subclause, decimal values are normally used. However, sometimes a hexadecimal value, indicated by an "H", or a binary value, indicated by a "B" is used.

Default SYSTEM INFORMATION:

NOTE 1: SYSTEM INFORMATION 2 bis, SYSTEM INFORMATION 5 bis, SYSTEM INFORMATION 7, and SYSTEM INFORMATION 8 messages are not used.

Cell A

Contents of information elements in SYSTEM INFORMATION TYPE 1 to 6 messages for cell A.

(CBCH) Channel Description	Not present.
(CBCH) Mobile Allocation	Not present.
Cell Channel Description	
- Format identifier	128 range.
- Cell Allocation ARFCN	Channel Numbers 457, 467, 470 and 475.
Cell Identity	
- Cell Identity Value	0001H
Cell Options	
- Power Control Indicator	Power Control Indicator is not set.
- DTX Indicator	MS shall not use DTX.
- Radio_Link_Timeout	8 SACCH blocks.
Cell Selection Parameters	
- Cell_Reselect_Hysteresis	12 dB.
- MX_TXPWR_MAX_CCH	Minimum level.
- ACS	No addition cell parameters are present in SYSTEM INFORMATION messages 7 and 8.
- NECI	New establishment causes not supported.
- RXLEV_ACCESS_MIN	Minimum level.
Control Channel Description	
- Attach-Detach allowed	No Attach/Detach.
- BS_AG_BLKES_RES	0 blocks reserved for access grant.
- CCCH_CONF	1 basic physical channel used for CCCH, combined with SDCCCHs.
- BS_PA_MFRMS	5 multiframe periods for transmission of paging messages.
- T3212 Time-out value	Infinite.
L2 pseudo length	
- System information 1	21
- System information 2	22
- System information 3	18
- System information 4	12
Location Area Identification	
- Mobile Country Code	001 decimal
- Mobile Network Code	01 decimal
- Location Area Code	0001H
Message Type	
- System information 1	00011001
- System information 2	00011010
- System information 3	00011011
- System information 4	00011100
- System information 5	00011101
- System information 6	00011110
Neighbour Cells Description	
- Format identifier	Range 128.
- BCCH Allocation Sequence	0
- BCCH Allocation ARFCN	Channels numbers 447, 457, 477, 480, 499, 504, 507 and 510.
- EXT-IND	This IE carries the complete BA.
NCC Permitted	0000 0010
RACH Control Parameters	
- Max Retrans	Max 1 retrans.
- Tx-integer	5 slots used.
- Cell Barred for Access	Cell is not barred.
- Call Reestablishment Allowed	Not allowed.
- Access Control Class	Access is not barred.
- Emergency Call allowed	Yes.
SI 1 rest octets	Not used (all bits are set to spare).
SI 2 rest octets	Not used (all bits are set to spare).
SI 3 rest octets	Not used (all bits are set to spare).
SI 4 rest octets	Not used (all bits are set to spare).

Default settings for cell A:

Downlink input level	63 dBmicroVolt emf.
Uplink output power	Minimum supported by the MS's power class.
Propagation profile	static.
BCCH/CCCH carrier number	457

Cell B

The contents of SYSTEM INFORMATION TYPE 1 to 6 messages for cell B are identical to those of cell A with the following exceptions:

Cell Channel Description - Format Identifier - Cell Allocation ARFCN	128 range. Channel Number 447.
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NOTE 2: This IE needs modification when used in handover tests which command the MS to go to a frequency hopping channel in cell B.

Cell Identity

- Cell Identity Value 0002H

Default settings for cell B:

Downlink input level	53 dBmicroVolt emf.
Uplink output power	minimum supported by the MS's power class.
Propagation profile	static.
BCCH/CCCH carrier number	447

Contents of ALERTING message (SS to MS):

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	1 (destination side).
Message Type	00000001
All other information elements	Not present.

Contents of ASSIGNMENT COMMAND message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101110
Channel Description	
- Channel Type and TDMA offset	Bm + ACCHs
- Timeslot Number	Chosen arbitrarily by the test house.
- Training Sequence Code	Chosen arbitrarily by the test house.
- Hopping	Single RF channel.
- ARFCN	Channel number 467.
Power Command	
- EPC mode (for R5 and after MS only)	0 (Channel not in EPC mode)
- FPC (for R99 and R4 MS only)	0 (FPC not in use)
- FPC_EPC mode (for R5 and after MS only)	0 (FPC or EPC not in use)
- Power level	Chosen arbitrarily by the test house.
All other information elements	Not present.

Contents of ASSIGNMENT COMPLETE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101001
RR Cause	
- RR Cause Value	Normal event.

Contents of ASSIGNMENT FAILURE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101111
RR Cause	
- RR Cause Value	Depending on test.

Contents of AUTHENTICATION REQUEST message:

Protocol Discriminator	MM message.
Skip Indicator	0000
Message Type	00010010
Ciphering Key Sequence Number	
- Key Sequence	Chosen arbitrarily by the test house from the range 0 to 6.
Authentication Parameter RAND	
- RAND value	Chosen arbitrarily by the test house.

Contents of AUTHENTICATION RESPONSE message:

Protocol Discriminator	MM message.
Skip Indicator	0000
Message Type	0X010100
Other information element(s)	Not checked.

Contents of CALL PROCEEDING message:

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	1 (destination side).
Message Type	00000010
All other information elements	Not present.

Contents of CHANNEL MODE MODIFY message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00010000
Channel Description	
- Channel Type and TDMA offset	Depending on test.
- Timeslot Number	Chosen arbitrarily by the test house.
- Training Sequence Code	Chosen arbitrarily by the test house.
- Hopping	Single RF channel.
- ARFCN	Channel number 467.
Channel Mode	
- Mode	Depending on test.

Contents of CHANNEL MODE MODIFY ACKNOWLEDGE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00010111
Channel Description	
- Channel Type and TDMA offset	Depending on test.
- Timeslot Number	Same as in the CHANNEL MODE MODIFY message.
- Training Sequence Code	Same as in the CHANNEL MODE MODIFY message.
- Hopping	Single RF channel.
- Frequency Band	Band number 0.
- ARFCN	Channel number 467.
Channel Mode	
- Mode	Same as in the CHANNEL MODE MODIFY message.

Contents of CHANNEL RELEASE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00001101
RR Cause	
- RR Cause Value	Normal event.

Contents of CHANNEL REQUEST message

Establishment Cause	Not checked.
Random Reference	Not checked.

Contents of CIPHERING MODE COMMAND message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00110101
Cipher Mode Setting	
- algorithm identifier	cipher with A5/1.
- SC	Start ciphering.
Cipher Response	IMEI shall not be included.

Contents of CIPHERING MODE COMPLETE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00110010
Mobile Identity	Not present.

Contents of the CLASSMARK CHANGE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	000100110
Mobile Station Classmark 2	See PIXIT.
Mobile Station Classmark 3	For presence and contents see PIXIT.

Contents of CM SERVICE ACCEPT message:

Protocol Discriminator	Mobility Management.
Skip Indicator	0000
Message Type	00100001

Contents of CM SERVICE REQUEST message

Protocol Discriminator	Mobility Management.
Skip Indicator	0000
Message Type	0X100100
Other information elements	Not checked.

Contents of CONNECT message (SS to MS)

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	1
Message Type	00000111
All other information elements	Not present.

Contents of CONNECT ACKNOWLEDGE message (MS to SS)

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	As used in the SETUP message.
TI flag	0
Message Type	0X001111

Contents of HANDOVER ACCESS message:

Handover Reference	Equal to the value included in the Handover Command message.
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Contents of HANDOVER COMMAND message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101011
Cell Description	
- Network Colour Code	1
- Base station Colour Code	Corresponding to target cell
- BCCH Carrier Number	Set to the BCCH carrier number of cell B. (one of 447, 457, 480, 499, 504, 507 or 510).
Channel Description	
- Channel Type and TDMA offset	Bm + ACCHs.
- Timeslot Number	Chosen arbitrarily by the test house.
- Training Sequence Code	Chosen arbitrarily by the test house.
- Hopping	Single RF channel.
- ARFCN	Chosen arbitrarily by the test house from those supported on the target cell.
Handover Reference	
- Handover Reference Value	Chosen arbitrarily by the test house.
Power Command	
- ATC	0 (Sending of Handover Access is mandatory)
- EPC mode (for R5 and after MS only)	0 (Channel not in EPC mode)
- FPC (for R99 and R4 MS only)	0 (FPC not in use)
- FPC_EPC mode (for R5 and after MS only)	0 (FPC or EPC not in use)
- Power level	Chosen arbitrarily by the test house.
All other information elements	Not present.

Contents of HANDOVER COMPLETE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101100
RR cause	Normal event.
Time difference	Not present.

Contents of HANDOVER FAILURE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101000
RR cause	Dependent on the test.

IDENTITY REQUEST

Information element	Value/remark
Identity type	IMEI
Spare half octet	0000

IDENTITY RESPONSE

Information element	Value/remark
Mobile identity	not checked

Contents of IMMEDIATE ASSIGNMENT message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the IA rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 11.
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00111111
Page Mode	
- Page Mode	Normal Paging.
Channel Description	
- Channel Type and TDMA offset	For non-combined CCCH/SDCCH (see initial conditions), SDCCH/8, with subchannel chosen arbitrarily by the test house For combined CCCH/SDCCH (default SS conditions), SDCCH/4, with subchannel chosen arbitrarily by the test house.
- Timeslot Number	For non-combined CCCH/SDCCH (see initial conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, timeslot zero.
- Training Sequence Code	For non-combined CCCH/SDCCH (see initial conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, TSC=5 (same as the BCC).
- Hopping	Single RF channel.
- ARFCN	For non-combined CCCH/SDCCH (see initial conditions), Channel number 467; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, Channel number 457.
Request Reference	Pertaining to last Channel Request sent by the MS.
Timing Advance	
- Timing advance value	30 bit periods.
Mobile Allocation	
- Length	0
Starting Time	Not present.
IA rest octets	Not used (all bits set to spare).

Contents of IMMEDIATE ASSIGNMENT EXTENDED message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the IAX rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 18.
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00111001
Page Mode	
- Page Mode	Normal Paging.
Channel Description 1	
- Channel Type and TDMA offset	For non-combined CCCH/SDCCH (see test conditions), SDCCH/8, with subchannel chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, with subchannel chosen arbitrarily by the test house.
- Timeslot Number	For non-combined CCCH/SDCCH (see test conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, timeslot zero.
- Training Sequence Code	For non-combined CCCH/SDCCH (see initial conditions), chosen arbitrarily by the test house; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, TSC=5 (same as the BCC).
- Hopping	Single RF channel.
- ARFCN	For non-combined CCCH/SDCCH (see initial conditions), Channel number 467; For combined CCCH/SDCCH (default SS conditions), SDCCH/4, Channel number 457.
Request Reference 1	Pertaining to last Channel Request sent by the MS.
Timing Advance 1	
- Timing advance value	Chosen arbitrarily by the test house.
Channel Description 2	
- Channel Type and TDMA offset	Same channel type as in Channel Description 1, but different TDMA offset to that in Channel Description 1.
- Timeslot Number	equal to the value in Channel Description 1.
- Training Sequence Code	equal to the value in Channel Description 1.
- Hopping	Single RF channel.
- ARFCN	equal to the value in Channel Description 1.
Request Reference 2	Not pertaining to any Channel Requests sent by the MS.
Timing Advance 2	
- Timing advance value	Chosen arbitrarily by the test house.
Mobile Allocation	
- Length	0
Starting Time	Not present.
IAX rest octets	Not used (all bits set to spare).

Contents of IMMEDIATE ASSIGNMENT REJECT message:

L2 pseudo length	19
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00111010
Page Mode	
- Page Mode	Normal Paging.
Request Reference	Pertaining to last Channel Request sent by the MS.
Wait Indication	0 s.
Request Reference	Not pertaining to the MS under test.
Wait Indication	0 s.
Request Reference	Not pertaining to the MS under test.
Wait Indication	0 s.
Request Reference	Not pertaining to the MS under test.
Wait Indication	0 s.
IAR rest octets	Not used (all bits set to spare).

Contents of LOCATION UPDATING REQUEST message:

Protocol Discriminator	MM message.
Skip Indicator	0000
Message Type	0X001000
Other information elements	Not checked.

Contents of PAGING REQUEST TYPE 1 message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the P1 rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 9.
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00100001
Page Mode	
- Page Mode	Normal Paging.
Channels needed	
- first channel	any channel.
- second channel	any channel.
Mobile Identity 1	
- odd/even indication	Even.
- Type of Identity	TMSI.
- Identity Digits	TMSI previously allocated to MS.
Mobile Identity 2	Not present.
P1 rest octets	Not used (all bits set to spare).

Contents of PAGING REQUEST TYPE 2 message:

L2 pseudo length	This is the sum of the lengths of all the information elements present in the message except for the P2 rest octets and L2 pseudo length IEs. For the default message the L2 pseudo length is 11.
Protocol Discriminator	RR Management..
Skip Indicator	0000
Message Type	00100010
Page Mode	
- Page Mode	Normal Paging.
Channels needed	
- first channel	any channel.
- second channel	any channel.
Mobile Identity 1	
- TMSI value	TMSI previously allocated to MS.
Mobile Identity 2	
- TMSI value	TMSI not allocated to MS.
Mobile Identity	Not present.
P2 rest octets	Not used (all bits set to spare).

Contents of PAGING REQUEST TYPE 3 message:

L2 pseudo length	19
Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00100100
Page Mode	
- Page Mode	Normal Paging.
Channels needed	
- first channel	any channel.
- second channel	any channel.
Mobile identity 1	
- TMSI value	TMSI previously allocated to MS.
Mobile identity 2	
- TMSI value	TMSI not allocated to MS.
Mobile identity 3	
- TMSI value	TMSI not allocated to MS.
Mobile identity 4	
- TMSI value	TMSI not allocated to MS.
P3 rest octets	Not used (all bits set to spare).

Contents of PAGING RESPONSE message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00100111
Ciphering Key Sequence Number	
- Key Sequence	Key sequence number previously allocated to MS, or "111" if no key is available.
Mobile Station Classmark 2	
Mobile Identity	
- odd/even indication	Even
- Type of identity	TMSI
- Identity Digits	TMSI previously allocated to MS.

Contents of PHYSICAL INFORMATION message:

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00101101
Timing advance	20 bit periods.

Contents of SETUP message; (MS to SS):

Protocol Discriminator	Call Control.
Transaction Identifier	
TI value	any value from the set {0, ..., 6}.
TI flag	0
Message Type	0X000101
Other information elements	Not checked.

26.6.23 Test of Repeated SACCH

26.6.23.1 Repeated SACCH / Downlink Repeated SACCH

26.6.23.1.1 Conformance requirement

If a downlink SACCH block is incorrectly decoded (prior to combining with any previously received SACCH block), and the next uplink SACCH block is not a repetition as per the Repeated SACCH procedure (see sub-clause 11.3), then the MS shall set the SACCH Repetition Request in the next uplink SACCH block to "Repeated SACCH required" (see 3GPP TS 44.004).

If a downlink SACCH block is correctly decoded (prior to combining with any previously received SACCH block), and the next uplink SACCH block is not a repetition as per the Repeated SACCH procedure (see sub-clause 11.3), the MS shall set the SACCH Repetition Request in the next uplink SACCH block to "Repeated SACCH not required".

References

3GPP TS 44.006 clause 11.2.

26.6.23.1.2 Test purpose

To verify that when the downlink SACCH block is wrongly decoded, the MS sends an uplink SACCH block containing SACCH Repetition Request set to "Repeated SACCH required" and when the downlink SACCH block is decoded correctly, the MS sends an uplink SACCH block containing SACCH Repetition Request set to "Repeated SACCH not required"

26.6.23.1.3 Method of test

Specific PICS statements:

-

PIXIT statements:

-

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

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

Foreseen final state of the MS

U0, null.

26.6.23.1.4 Test procedure

- a) A MS terminated call is set up according to the generic call set up procedure.
- b) For 10 secs, the SS sends error free SACCH messages.
- c) SS Sends one SACCH messages with unrecoverable errors.
- d) For 10 secs the SS shall continuously send error free SACCH messages.

26.6.23.1.5 Test requirement

- 1) In step b, check that all the uplink SACCH messages have SACCH Repetition Request set to "Repeated SACCH not required"
- 2) After step c, check that the MS sends a SACCH message having SACCH Repetition Request set to "Repeated SACCH required".
- 3) In step d, check that all the uplink SACCH messages have SACCH Repetition Request set to "Repeated SACCH not required"

Specific Message Contents

None.

26.6.23.2 Repeated SACCH / Uplink Repeated SACCH

26.6.23.2.1 Conformance requirement

At the MS side, if an uplink SACCH block contains a SAPI 0 frame and is not already a repetition, and if the last correctly received SACCH Repetition Order was set to "Repeated SACCH required", then the MS shall repeat this SACCH block at the next SACCH block period.

References

3GPP TS 44.006 clause 11.3.

26.6.23.2.2 Test purpose

To verify that the MS repeats an uplink SACCH block when the downlink SACCH blocks contains SACCH Repetition Order set to "Repeated SACCH required".

26.6.23.2.3 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:

-

PIXIT statements:

-

Foreseen final state of the MS

U0, null.

26.6.23.2.4 Test procedure

- a) A MS terminated call is set up according to the generic call set up on cell A.
- b) For the duration of test case, power levels of serving cell is changed in a steps from -50dBm to -65dBm to -80dBm and back to -50dBm, by doing one change at every 480 ms. This is made to make sure that every report is different from the previous one.
- c) For 10 sec, the SS sends SACCH messages, setting SACCH Repetition Order to "Repeated SACCH Not Required".
- d) SS Sends one SACCH messages setting SACCH Repetition Order to "Repeated SACCH Required".
- e) For 10 more secs, the SS shall continuously send SACCH messages with SACCH Repetition Order set to "Repeated SACCH Not Required".

26.6.23.2.5 Test requirement

- 1) In step c, check that MS is not retransmitting the SACCH messages on uplink.
- 2) After step d, Check that the MS repeats the last message.
- 3) In step e, check that MS is not retransmitting the SACCH messages on uplink.

Specific Message Contents

None.

26.6.23.3 Repeated SACCH / Uplink Repeated SACCH with SAPI 3 frames

26.6.23.3.1 Conformance requirements

At the MS side, if an uplink SACCH block contains a SAPI 0 frame and is not already a repetition, and if the last correctly received SACCH Repetition Order was set to "Repeated SACCH required", then the MS shall repeat this SACCH block at the next SACCH block period. If a SAPI 3 frame was also scheduled to be sent at this next SACCH period, the MS shall delay the sending of the SAPI 3 frame by one SACCH period in order to make room for the repetition.

Reference

3GPP TS 44.006 clause 11.3.

26.6.23.3.2 Test purpose

To verify that the MS delays sending of a SAPI 3 frame by one SACCH period if a repeated SAPI 0 SACCH frame is to be repeated according to the SACCH Repetition Parameter in the downlink SACCH block.

26.6.23.3.3 Method of test

Initial Conditions

System simulator:

1 cell, default parameters.

Mobile Station:

The MS shall be in "Idle, updated" state.

Specific PICS Statements

-

PIXIT Statements

- Description of the basic procedures to display a mobile originated short message.
- Maximum length (characters) of a mobile originated short message.

Foreseen Final State of MS

U0, null.

Test Procedure

A data or speech call is established on a TCH with the SS and the state U10 of call control is entered. SACCH Repetition Order is set to "Repeated SACCH required" in all the downlink SACCH blocks. The MS is setup to send an SM. During an SMS transfer it is checked that every SAPI0 SACCH block is repeated once and no SAPI3 SACCH block is repeated.

For the duration of test case, power levels of serving cell is changed in a steps from -50dBm to -65dBm to -80dBm and back to -50dBm, by doing one change at every 480 ms. This is made to make sure that every report is different from the previous one.

Expected sequence

Step	Direction	Message	Comments/actions/next state
1	MS<->SS		MS is brought to U10 state. All the downlink SACCH message has SACCH Repetition Order set to "Repeated SACCH required".
2	MS		The MS is set up to send an SM.
3	MS->SS	CM SERVICE REQUEST	Sent in a layer 2 frames on the FACCH. CM service type set to "short message transfer"
4	SS->MS	CM SERVICE ACCEPT	
5	MS->SS	SABM (SAPI=3)	Receive SAPI=3 uplink SACCH block

6	SS -> MS	UA (SAPI=3)	
7	MS -> SS	CP-DATA	Contains RP-DATA RPDU (SMS SUBMIT TPDU)
8	SS -> MS	CP-ACK	
9	SS -> MS	CP-DATA	
10	MS -> SS	CP-ACK	MO SMS procedure is completed.
11			During steps 7-10, check that the MS is retransmitting every SAPI0 SACCH message once, before sending the new one and no SAPI3 SACCH messages are retransmitted.
12			CS call is released and the MS is brought in idle state.

Specific Message Contents

None.