

## 26.9 Structured procedures

### 26.9.1 Structured procedures / general

The purpose of these tests is to verify that the MS performs certain elementary procedures of the RR, MM, and CC protocol correctly within a structured procedure. The term "structured procedure" is defined in GSM 04.08, section 7, where also examples of structured procedures are given.

The reason for this test purposes is twofold:

- The behaviour of the MS in an elementary procedure may depend on the preamble which precedes the elementary procedure.
- Structured procedures tested in this section are used in other parts of this Technical Specification as preambles to establish the initial conditions for other tests; correct behaviour of an implementation under test in a preamble is essential for the validity of a test.

Mobile originating and terminating calls are tested in cases of both early and late assignment of the traffic channel; in one of the cases call release initiated by the network is tested, in another one, call release initiated by the MS.

The feature Directed Retry is tested in both Mobile Originated and Mobile Terminated Call. The configuration of the assigned channels is described in table 26.9-1:

**Table 26.9-1**

Directed Retry from	To	Call direction	Start Time	Sync.	Section	Exec. Counter
SDCCH/4	TCH/F, cycl. FH	MOC	None	No	26.9.7	1
SDCCH/8, cycl. FH	TCH/H, rand. FH	MOC	None	No	26.9.7	2
SDCCH/4	TCH/F, no FH	MTC	None	No	26.9.8	1
SDCCH/8, rand. FH	TCH/H, cycl. FH	MTC	1.1 sec.	No	26.9.8	2

The tests in this section only cover the successful outcome of elementary procedures (i.e. they do not deal with abnormal cases).

In this section, the emergency call service is tested for mobile stations that do not support the full rate speech version 2 in the following cases:

- emergency call initiated in the idle, updated state with authentication and ciphering, for speech full rate version 1 and if supported, speech half rate version 1;
- emergency call initiated in the idle, no IMSI state (hence without authentication and without ciphering), the network accepting the call, for either speech full rate version 1 or, provided it is supported, speech half rate version 1;
- emergency call initiated in the idle, no IMSI state (hence without authentication and without ciphering), the network rejecting the call, for either speech full rate version 1 or, provided it is supported, speech half rate version 1.

These tests on emergency calls are only applicable to an MS supporting speech.

For an MS supporting speech the test procedures in 26.9.2, 26.9.3, 26.9.4, 26.9.5, 26.9.7 and 26.9.8 are performed for speech (teleservice 11, telephony), once for speech full rate version 1 and, if supported, once for speech half rate version 1.

For an MS not supporting speech but supporting at least one teleservice, for each of the test procedures in 26.9.2, 26.9.3, 26.9.4, 26.9.5, 26.9.7 and 26.9.8 and each supported rate (full rate/half rate) a teleservice supported by the MS (see PICS/PIXIT statement) is chosen, and the test is performed corresponding to that teleservice (note that this teleservice is never a dual service).

In cases where a mobile originated call for the tested teleservice can be initiated both

- via the MMI and
- via the R or S interface,

procedures 26.9.2 and 26.9.7 (m = 1) shall be performed when initiating the mobile originated call via the MMI and procedures 26.9.3 and 26.9.7 (m = 2) shall be performed when initiating the mobile originated call via an appropriate interface (R or S).

## 26.9.2 Structured procedures / MS originated call / early assignment

### 26.9.2.1 Conformance requirements

- 1) An MS in MM state "idle, updated" and in RR idle mode, when made to initiate a call, if it provides a human interface, shall display the dialled number.
- 2) An MS in MM state "idle, updated" and in RR idle mode, when made to initiate a call for a selected teleservice that is supported by the MS, shall start to initiate the immediate assignment procedure by sending a CHANNEL REQUEST message with correct establishment cause.
- 3) Subsequently after establishment of an MM connection, the MS shall send a SETUP message with correct parameters.
- 4) The call control entity of the Mobile Station in the "call initiated" state, in the "mobile originating call proceeding" state or in the "call delivered" state, shall, upon receipt of a CONNECT message:
  - attach the user connection to the radio path;
  - return a CONNECT ACKNOWLEDGE message.
- 5) Subsequently when the network initiates call clearing by sending a DISCONNECT message, the MS shall proceed to release the call by sending a RELEASE message.
- 6) On receipt of a CHANNEL RELEASE message, the MS shall disconnect the main signalling link.

### References

- Conformance requirement 1: GSM 02.07.
- Conformance requirement 2: GSM 04.08 section 3.3.1.1
- Conformance requirement 3: GSM 04.08 section 5.2.1.1.
- Conformance requirement 4: GSM 04.08 section 5.2.1.6.
- Conformance requirement 5: GSM 04.08 section 5.4.4.
- Conformance requirement 6: GSM 04.08, section 3.4.13.1

### 26.9.2.2 Test purpose

- 1) To verify that the MS in MM state "idle, updated" with a TMSI assigned, when made to initiate a call for a selected teleservice that is supported by the MS as declared in a PICS/PIXIT statement, displays the dialled number in the way described in a PICS/PIXIT statement.
- 2) To verify that the MS in MM state "idle, updated" and in RR idle mode, with a TMSI assigned, when made to initiate a call for a selected teleservice that is supported by the MS as declared in a PICS/PIXIT statement, starts to initiate an immediate assignment procedure by sending the CHANNEL REQUEST message with correct establishment cause.
- 3) To verify that subsequently after receipt of an IMMEDIATE ASSIGNMENT message allocating an SDCCH, after completion of establishment of the main signalling link, after having sent a CM SERVICE REQUEST message,

after having successfully performed the authentication and cipher mode setting procedures, the MS sends a SETUP message with correct parameters.

- 4) To verify that subsequently, after receipt of a CALL PROCEEDING message and of an ASSIGNMENT COMMAND message allocating an appropriate TCH, after having completed the traffic channel early assignment procedure by replying with the ASSIGNMENT COMPLETE message, after receipt of an ALERTING message and a CONNECT message, the MS returns a CONNECT ACKNOWLEDGE message.
- 5) To verify that subsequently the MS has attached the user connection to the radio path. (This is checked by verifying that there is a point in time after transmission of the first L2 frame containing the (complete) CONNECT message, where the MS is sending appropriate speech or data frames whenever it does not have to transmit or acknowledge an I frame on layer 2 of the FACCH.)
- 6) To verify that subsequently upon the network initiating call clearing by sending a DISCONNECT message, the MS proceed to release the call with RELEASE.
- 7) To verify that subsequently, on receipt of a RELEASE COMPLETE message followed by a CHANNEL RELEASE message, the MS disconnects the main signalling link.

These test purposes are tested for all rates supported by the MS (full rate/half rate).

### 26.9.2.3 Method of test

#### Related PICS/PIXT Statements

- Supported rates (full rate/half rate).
- Supported speech versions (full rate version 1, full rate version 2, half rate version 1)
- Interface to the human user (p1 = Y/N).
- Way to display the called number (only applicable if the MS has an interface to the human user).
- Way to indicate alerting (only applicable if the MS supports the feature).
- SS version
- Supported teleservices.
- Classmark.

#### 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

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

#### Test procedure

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

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

The MS is made to initiate a call. The call is established with early assignment. Having reached the active state, the call is cleared by the SS.

Maximum Duration of Test

1 minute.

Expected Sequence

Step	Direction	Message	Comments
1	MS		The "called number" is entered.
2	MS		If p1 = Y, the MS must display the called number in the way defined in PICS/PIXIT.
3	MS -> SS	CHANNEL REQUEST	Establishment cause is "originating call and the network does not set the NECI bit to 1".
4	SS -> MS	IMMEDIATE ASSIGNMENT	
5	MS -> SS	CM SERVICE REQUEST	Message is contained in SABM.
6	SS -> MS	AUTHENTICATION REQUEST	
7	MS -> SS	AUTHENTICATION RESPONSE	SRES specifies correct value.
8	SS -> MS	CIPHERING MODE COMMAND	SS starts deciphering after sending the message.
9	MS -> SS	CIPHERING MODE COMPLETE	Shall be sent enciphered. All following messages shall be sent enciphered.
10	SS		SS starts ciphering.
11	MS -> SS	SETUP	
12	SS -> MS	CALL PROCEEDING	
13	SS -> MS	ASSIGNMENT COMMAND	
14	MS -> SS	ASSIGNMENT COMPLETE	
15	SS -> MS	ALERTING	
16	MS		Depending on the PICS, an alerting indication is given.
17	SS -> MS	CONNECT	
18	MS -> SS	CONNECT ACKNOWLEDGE	
19	MS		The appropriate bearer channel is through connected in both directions.
20	SS -> MS	DISCONNECT	
21	MS -> SS	RELEASE	
22	SS -> MS	RELEASE COMPLETE	
23	SS -> MS	CHANNEL RELEASE	The main signalling link is released.

Specific Message Contents:

None.

### 26.9.3 Structured procedures / MS originated call / late assignment

#### 26.9.3.1 Conformance requirement

- 1) An MS in MM state "idle, updated" and in RR idle mode with a TMSI assigned, when made to initiate a call for a selected teleservice that is supported by the MS, shall start to initiate an immediate assignment procedure by sending the CHANNEL REQUEST message with correct establishment cause.
- 2) Upon receipt of the ASSIGNMENT COMMAND message, the Mobile Station initiates a local end release of link layer connections, disconnects the physical channels, commands the switching to the assigned channels and initiates the establishment of lower layer connections (this includes the activation of the channels, their connection and the establishment of the data links). After the main signalling link is successfully established, the MS returns an ASSIGNMENT COMPLETE message, specifying cause "normal event", to the network on the main DCCH.
- 3, 4) The call control entity of the Mobile Station in the "call initiated" state, in the "mobile originating call proceeding" state or in the "call delivered" state, shall, upon receipt of a CONNECT message:

- attach the user connection to the radio path;
- return a CONNECT ACKNOWLEDGE message.

## References

- Conformance requirement 1: GSM 04.08 section 3.3.1.1
- Conformance requirement 2: GSM 04.08 sections 3.4.3.1 and 3.4.3.2.
- Conformance requirement 3: GSM 04.08 section 5.2.1.6.

### 26.9.3.2 Test purpose

- 1) To verify that the MS in MM state "idle, updated" and in RR idle mode with a TMSI assigned, when made to initiate a call for a selected teleservice that is supported by the MS as declared in a PICS/PIXIT statement, starts to initiate an immediate assignment procedure by sending the CHANNEL REQUEST message.
- 2) To verify that subsequently after receipt of an IMMEDIATE ASSIGNMENT message allocating an SDCCH, after completion of establishment of the main signalling link, after having sent a CM SERVICE REQUEST message, after having successfully performed authentication and cipher mode setting procedures, after having sent a SETUP message, after having received a CALL PROCEEDING message followed by an ALERTING message and an ASSIGNMENT COMMAND message allocating an appropriate TCH, the MS sends an ASSIGNMENT COMPLETE message.
- 3) To verify that subsequently, after the suite of actions specified in test purposes 1 and 2, the MS after receiving a CONNECT message returns a CONNECT ACKNOWLEDGE message.
- 4) To verify that after the suite of actions specified in test purposes 1 and 2, the MS after receiving a CONNECT message attaches the user connection to the radio path. (This is checked by verifying that there is a point in time after transmission of the first L2 frame containing the (complete) CONNECT message, where the MS is sending appropriate speech or data frames whenever it does not have to transmit or acknowledge an I frame on layer 2 of the FACCH.)

These test purposes are tested for all rates supported by the MS (full rate/half rate).

### 26.9.3.3 Method of test

#### Related PICS/PIXIT statements

- Supported rates (full rate/half rate).
- Interface to the human user (p1 = Y/N).
- Way to display the called number (only applicable if the MS has an interface to the human user).
- Way to indicate alerting (only applicable if the MS supports the feature).
- Supported teleservices.
- Classmark.

#### 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

The MS has a MO call in state U10, "active".

Test procedure

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

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

The MS is made to initiate a call. The call is established with late assignment.

Maximum Duration of Test

30 seconds.

Expected Sequence

Step	Direction	Message	Comments
1	MS		The "called number" is entered.
2	MS		
3	MS -> SS	CHANNEL REQUEST	Establishment cause is "originating call and the network does not set the NECI bit to 1".
4	SS -> MS	IMMEDIATE ASSIGNMENT	
5	MS -> SS	CM SERVICE REQUEST	Message is contained in SABM.
6	SS -> MS	AUTHENTICATION REQUEST	
7	MS -> SS	AUTHENTICATION RESPONSE	SRES specifies correct value.
8	SS -> MS	CIPHERING MODE COMMAND	SS starts deciphering after sending the message.
9	MS -> SS	CIPHERING MODE COMPLETE	Shall be sent enciphered. All following messages shall be sent enciphered.
10	SS		SS starts ciphering.
11	MS -> SS	SETUP	
12	SS -> MS	CALL PROCEEDING	
13	SS -> MS	ALERTING	
14	MS		Depending on the PICS, an alerting indication is given.
15	SS -> MS	ASSIGNMENT COMMAND	
16	MS -> SS	ASSIGNMENT COMPLETE	
17	SS -> MS	CONNECT	
18	MS -> SS	CONNECT ACKNOWLEDGE	
19	MS		The appropriate bearer channel is through connected in both directions.

Specific Message Contents:

None.

### 26.9.4 Structured procedures / MS terminated call / early assignment

#### 26.9.4.1 Conformance requirements

- 1) The MS shall acknowledge the SETUP message with a CALL CONFIRMED message, if compatibility checking was successful, the MS is not busy, and the user does not refuse the call.
- 2, 3) Upon receipt of the ASSIGNMENT COMMAND message the MS continues a mobile terminating call establishment with early establishment of the traffic channel
  - a) by replying to the ASSIGNMENT COMMAND with an ASSIGNMENT COMPLETE message, and

- b) if the MS supports immediate connect, by continuing the call establishment by through-connecting the traffic channel in both directions, or if the MS does not support immediate connect, by sending an ALERTING message
- 4) An MS indicates acceptance of a MT call by sending CONNECT.
- 5)

For speech calls:

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

For data calls:

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

- 6) The MS initiates call clearing of an active call by sending a DISCONNECT message.
- 7) The MS in this phase of call release, upon receipt of a RELEASE message, shall return a RELEASE COMPLETE message.
- 8) Subsequently the MS, upon receipt of a CHANNEL RELEASE message, shall disconnect the main signalling link.

## References

- Conformance requirement 1: GSM 04.08, section 5.2.2.3.1.
- Conformance requirements 2, 3: GSM 04.08, sections 5.2.2.3.2 and 3.4.3.1.
- Conformance requirement 4: GSM 04.08 section 5.2.2.5.
- Conformance requirement 5: GSM 04.08, sections 5.2.2.6 and 5.2.2.9.
- Conformance requirements 6, 7, 8: GSM 04.08, section 5.4.

### 26.9.4.2 Test purpose

- 1) To verify that the MS in MM state "idle, updated" and in RR idle mode with a TMSI assigned, after being paged by the network on the correct paging subchannel, after initiating the immediate assignment procedure by sending the CHANNEL REQUEST message, after receipt of an IMMEDIATE ASSIGNMENT message allocating an SDCCH, after having sent a PAGING RESPONSE message on the allocated SDCCH, after having performed successful authentication and cipher mode setting procedures, after receipt of a SETUP message not containing a signal information element, returns a CALL CONFIRMED message.
- 2) To verify that subsequently, the SS sending an ASSIGNMENT COMMAND message, the MS successfully continues a mobile terminating call establishment with early assignment of traffic channel:
  - a) by replying to the ASSIGNMENT COMMAND with an ASSIGNMENT COMPLETE message, and
  - b) by continuing the call establishment by either
    - sending a CONNECT messages and through connecting the TCH in both directions, or
    - sending an ALERTING message.
- 3) To verify that if after sending a CALL PROCEEDING message, the MS sends an ALERTING message during MTC establishment with early assignment, it generates an alerting indication.
- 4) To verify that if an ALERTING had been sent, subsequently, when the user accepts the call (possibly internal action as declared in PICS/PIXIT statement), the MS returns a CONNECT message.

- 5) To verify that the MS:
  - if the call is a speech call: after sending the CONNECT message has through connected the TCH in both directions (this is checked by verifying that after transmission of the first L2 frame containing the (complete) CONNECT message, the MS is sending appropriate speech or data frames whenever it does not have to transmit or acknowledge an I frame on layer 2 of the FACCH.)
  - if the call is a data call: after receipt of a subsequent CONNECT ACKNOWLEDGE message through connects the TCH in both directions (this is checked by verifying that there is a point in time after transmission of the first L2 frame containing the (complete) CONNECT ACKNOWLEDGE message, where the MS is sending appropriate speech or data frames whenever it does not have to transmit or acknowledge an I frame on layer 2 of the FACCH.)
- 6) To verify that subsequently, the MS can initiate call clearing by sending a DISCONNECT message.
- 7) To verify that the MS in this phase of call release, upon receipt of a RELEASE message, returns a RELEASE COMPLETE message.
- 8) To verify that subsequently the MS, upon receipt of a CHANNEL RELEASE message, disconnects the main signalling link.

These test purposes are tested for all rates supported by the MS (full rate/half rate).

#### 26.9.4.3 Method of test

##### Related PICS/PIXIT statements

- Supported rates (full rate/half rate).
- Supported speech versions (full rate version 1, full rate version 2, half rate version 1)
- Interface to the human user (p1 = Y/N).
- Way to display the called number (only applicable if the MS has an interface to the human user).
- Way to indicate alerting (only applicable if the MS supports the feature).
- Way to make the MS accept an incoming call after alerting (possibly dependent on teleservice and configuration).
- Supported teleservices.
- Classmark.
- Immediate connect supported (Y/N).

##### 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

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

##### Test procedure

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



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

The MS is paged and the resulting call is established. Having reached the active state, the MS is made to clear the call.

#### Maximum Duration of Test

1 minute.

#### Expected Sequence

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST TYPE 1	Sent on the correct paging subchannel.
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	PAGING RESPONSE	Message is contained in SABM.
5	SS -> MS	AUTHENTICATION REQUEST	
6	MS -> SS	AUTHENTICATION RESPONSE	SRES specifies correct value.
7	SS -> MS	CIPHERING MODE COMMAND	SS starts deciphering after sending the message.
8	MS -> SS	CIPHERING MODE COMPLETE	Shall be sent enciphered. All following messages shall be sent enciphered.
9	SS		SS starts ciphering.
10	SS -> MS	SETUP	Message does not contain the signal IE.
11	MS -> SS	CALL CONFIRMED	
			If the MS supports immediate connect then branch A applies. If the MS does not support immediate connect then branch B applies
A12	MS -> SS	CONNECT	sent on the old channel
A13	SS -> MS	ASSIGNMENT COMMAND	
A14	MS -> SS	ASSIGNMENT COMPLETE	
B12	SS -> MS	ASSIGNMENT COMMAND	
B13	MS -> SS	ASSIGNMENT COMPLETE	sent on the new channel
B14	MS -> SS	ALERTING	
B15	MS		An alerting indication as defined in a PICS/PIXIT statement is given by the MS
B16	MS		The MS is made to accept the call in the way described in a PICS/PIXIT statement
B17	MS -> SS	CONNECT	
18	MS		If the call is a speech call, the TCH shall be through connected in both directions.
19	SS -> MS	CONNECT ACKNOWLEDGE	
20	MS		If the call is a data call, the TCH shall be through connected in both directions.
21	MS		The MS is made to release the call.
22	MS -> SS	DISCONNECT	
23	SS -> MS	RELEASE	
24	MS -> SS	RELEASE COMPLETE	
25	SS -> MS	CHANNEL RELEASE	The main signalling link is released.

#### Specific Message Contents:

None.

## 26.9.5 Structured procedures / MS terminated call / late assignment

### 26.9.5.1 Conformance requirement

TP1,TP2: The MS shall acknowledge the SETUP message with a CALL CONFIRMED message, if compatibility checking was successful, the MS is not busy, and the user does not refuse the call. The MS on acceptance of the call sends a CONNECT, otherwise user alerting is initiated.

TP3: The MS indicates acceptance of a call by sending a CONNECT message.

TP4: ASSIGNMENT COMMAND is answered by ASSIGNMENT COMPLETE.

TP5:

For speech calls:

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

For data calls:

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

Requirement reference:

Conformance requirements 1, 2, 3: GSM 04.08, sections 5.2.2.3.1, 5.2.2.3.2 and 5.2.2.5.

Conformance requirement 4: GSM 04.08, section 3.4.3.1.

Conformance requirement 5: GSM 04.08, section 5.2.2.9.

### 26.9.5.2 Test purpose

- 1) To verify that the MS in "Idle, Updated" state with a TMSI assigned, after being paged by the network on the correct paging subchannel, after initiating the immediate assignment procedure by sending the CHANNEL REQUEST message, after receipt of an IMMEDIATE ASSIGNMENT message allocating an SDCCH, after having established the main signalling link, after having sent a PAGING RESPONSE message, after having performed successful authentication and cipher mode setting procedures, after receipt of a SETUP message containing a signal information element, returns a CALL CONFIRMED message followed by:
  - an ALERTING message;
  - or a CONNECT message.
- 2) To verify that in the situation of test purpose 1, if the MS sends an ALERTING message, the MS generates an alerting indication in the way described in a PICS/PIXIT statement.
- 3) To verify that subsequently the MS, if it had not yet sent a CONNECT message, upon acceptance of the call, sends a CONNECT message.
- 4) To verify that subsequently after receipt of an ASSIGNMENT COMMAND, the MS sends an ASSIGNMENT COMPLETE message.

5) To verify that subsequently the MS:

- if the call is a speech call: after sending the ASSIGNMENT COMPLETE message has through connected the TCH in both directions (this is checked by verifying that after transmission of the first L2 frame containing the (complete) ASSIGNMENT COMPLETE message, the MS is sending appropriate speech or data frames whenever it does not have to transmit or acknowledge an I frame on layer 2 of the FACCH.)
- if the call is a data call: after receipt of a subsequent CONNECT ACKNOWLEDGE message through connects the TCH in both directions (this is checked by verifying that there is a point in time after transmission of the first L2 frame containing the (complete) CONNECT ACKNOWLEDGE message, where the MS is sending appropriate speech or data frames whenever it does not have to transmit or acknowledge an I frame on layer 2 of the FACCH.)

These test purposes are tested for all rates supported by the MS (full rate/half rate).

### 26.9.5.3 Method of test

#### Related PICS/PIXT statements

- Supported rates (full rate/half rate).
- Supported speech versions (full rate version 1, full rate version 2, half rate version 1)
- Interface to the human user (p1 = Y/N).
- Way to display the called number (only applicable if the MS has an interface to the human user).
- Way to indicate alerting (only applicable if the MS supports the feature).
- Way to make the MS accept an incoming call after alerting (possibly dependent on teleservice and configuration).
- Supported teleservices.
- Classmark.
- Immediate connect supported (Y/N).

#### 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

CC state U10-call active.

#### Test procedure

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

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

The MS is paged and a MT call is established with late assignment (after CONNECT).

#### Maximum Duration of Test

40 seconds.

## Expected Sequence

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST TYPE 1	Sent on the correct paging subchannel.
2	MS -> SS	CHANNEL REQUEST	Establishment cause indicates "answer to paging".
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	PAGING RESPONSE	Message is contained in SABM.
5	SS -> MS	AUTHENTICATION REQUEST	
6	MS -> SS	AUTHENTICATION RESPONSE	SRES specifies correct value.
7	SS -> MS	CIPHERING MODE COMMAND	SS starts deciphering after sending the message.
8	MS -> SS	CIPHERING MODE COMPLETE	Shall be sent enciphered. All following messages shall be sent enciphered.
9	SS		SS starts ciphering.
10	SS -> MS	SETUP	Message contains the signal IE.
11	MS -> SS	CALL CONFIRMED	
A12	MS -> SS	CONNECT	
B12	MS -> SS	ALERTING	
B13	MS		An alerting indication as defined in an PICS/PIXIT statement is given by the MS.
B14	MS		The MS is made to accept the call in the way described in a PICS/PIXIT statement.
B15	MS -> SS	CONNECT	
16	SS -> MS	ASSIGNMENT COMMAND	
17	MS -> SS	ASSIGNMENT COMPLETE	
18	MS		If the call is a speech call, the TCH shall be through connected in both directions.
19	SS -> MS	CONNECT ACKNOWLEDGE	
20	MS		If the call is a data call, the MS shall through connect the TCH in both directions.

## Specific Message Contents:

None.

## 26.9.6 Structured procedures / emergency call

Emergency call establishment can be initiated by an MS whether location updating has been successful or not and whether a SIM is inserted into the MS or not; but only if the MS is equipped for speech.

If the procedures tested in this section are not correctly implemented in the MS, establishment, maintenance and clearing of connections might fail in the essential case of emergency calls.

The tests of this section are only applicable to an MS supporting speech.

### 26.9.6.1 Structured procedures / emergency call / idle updated

#### 26.9.6.1.1 Structured procedures / emergency call / idle updated / preferred channel rate

##### 26.9.6.1.1.1 Conformance requirement

- 1) The MS in the "idle, updated" state, as after a successful location update, after the number 112 has been entered by user, shall send a CHANNEL REQUEST message with correct establishment cause ("emergency call").
- 2) After assignment of a dedicated channel the first layer message sent by the MS on the assigned dedicated channel shall be a CM SERVICE REQUEST message specifying the correct CKSN and TMSI, with CM Service Type "emergency call establishment".
- 3) Authentication and cipher mode setting shall be performed successfully.
- 4) After cipher mode setting acceptance by the network, the MS shall send an EMERGENCY SETUP message.

- 5), 6) The emergency call shall be correctly established. The assignment procedure shall be correctly performed.
- 7) After receipt of a CONNECT ACKNOWLEDGE message during correct establishment of the emergency call the TCH shall be through connected in both directions if an appropriate TCH is available.
- 8) The call shall be cleared correctly.

**Requirement Reference:**

For conformance requirement 1 and 2:

GSM 04.08 section 3.3.1.1, GSM 04.08 section 5.2.1, GSM 04.08 section 4.5.1.5., GSM 02.30 section 4.

For conformance requirement 3:

GSM 04.08, section 3.4.7, GSM 04.08 section 4.3.2.

For conformance requirement 4:

GSM 04.08, section 5.2.1.1.

For conformance requirement 5 and 6:

GSM 04.08, sections 5.2.1.1 and 3.4.3.

For conformance requirement 7:

GSM 04.08, sections 5.2.1.6 and 5.1.3.

For conformance requirement 8:

GSM 04.08, section 5.4.

**26.9.6.1.1.2 Test purpose**

- 1) To verify that an MS supporting speech in the MM state "idle, updated", when made to call the number 112, sends a CHANNEL REQUEST message with establishment cause "emergency call".
- 2) To verify that after assignment of a dedicated channel the first layer message sent by the MS on the assigned dedicated channel is a CM SERVICE REQUEST message specifying the correct CKSN and TMSI, with CM Service Type "emergency call establishment".
- 3) To verify that authentication and cipher mode setting are performed successfully.
- 4) To verify that after cipher mode setting acceptance by the SS, the MS sends an EMERGENCY SETUP message.
- 5) To verify that subsequently, the SS having sent a CALL PROCEEDING message and then an ALERT message and having initiated the assignment procedure of an appropriate speech traffic channel, which, if the MS supports both TCH/FS and TCH/HS, is at the preferred rate, the MS performs correctly that assignment procedure.
- 6) To verify subsequent correct performance of a connect procedure.
- 7) To verify that subsequently the MS has through connected the TCH in both directions.
- 8) To verify that the call is cleared correctly.

**26.9.6.1.1.3 Method of test****Related PICS/PIXIT Statements**

- Speech supported (Y/N).
- Supported rate for speech: (p1 = F/H, F).

- Classmark.

#### 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

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

#### Test procedure

The MS is made to initiate an emergency call. The call is established with late assignment. Having reached the active state, the call is cleared by the SS.

#### Maximum Duration of Test

1 minute.

#### Expected Sequence

Step	Direction	Message	Comments
1	MS		The "called number" 112 is entered.
3	MS -> SS	CHANNEL REQUEST	Establishment cause is emergency call establishment.
4	SS -> MS	IMMEDIATE ASSIGNMENT	
5	MS -> SS	CM SERVICE REQUEST	Message is contained in SABM. The CM service type IE indicates "emergency call establishment".
6	SS -> MS	AUTHENTICATION REQUEST	SRES specifies correct value.
7	MS -> SS	AUTHENTICATION RESPONSE	
8	SS -> MS	CIPHERING MODE COMMAND	SS starts deciphering after sending the message.
9	MS -> SS	CIPHERING MODE COMPLETE	Shall be sent enciphered. All following messages shall be sent enciphered.
10	SS		SS starts ciphering.
11	MS -> SS	EMERGENCY SETUP	If p1 = F/H, the message must contain one bearer capability IE indicating in the radio channel requirement field "dual rate/half rate preferred" or "dual rate/full rate preferred". If p1 = F, the message must either contain no bearer capability IE or contain one bearer capability IE indicating in the radio channel requirement field "full rate channel".
12	SS -> MS	CALL PROCEEDING	The rate of the channel is that one indicated by the EMERGENCY SETUP message, if that message did not offer a choice, and the rate is the preferred one else.
13	SS -> MS	ALERTING	
14	SS -> MS	ASSIGNMENT COMMAND	
15	MS -> SS	ASSIGNMENT COMPLETE	The TCH is through connected in both directions.
16	SS -> MS	CONNECT	
17	MS -> SS	CONNECT ACKNOWLEDGE	The TCH is through connected in both directions.
18	MS		
19	SS -> MS	DISCONNECT	The TCH is through connected in both directions.
20	MS -> SS	RELEASE	
21	SS -> MS	RELEASE COMPLETE	The main signalling link is released.
23	SS -> MS	CHANNEL RELEASE	

Specific Message Contents:

None.

#### 26.9.6.1.2 Structured procedures / emergency call / idle updated, non-preferred channel rate

The test is performed if the MS supports both TCH/HS and TCH/FS see PICS/PIXIT statement).

It is identical to the test in 26.9.6.1.1 except that in step 14 the assigned TCH has the non-preferred rate.

#### 26.9.6.2 Structured procedures / emergency call / idle, no IMSI

##### 26.9.6.2.1 Structured procedures / emergency call / idle, no IMSI / accept case

###### 26.9.6.2.1.1 Conformance requirement

- 1) The MS in the "idle, updated" state, as after a successful location update, after the number 112 has been entered by user, shall send a CHANNEL REQUEST message with correct establishment cause ("emergency call").
- 2) After assignment of a dedicated channel the first layer message sent by the MS on the assigned dedicated channel shall be a CM SERVICE REQUEST message specifying the correct IMEI and a non-available CKSN, with CM Service Type "emergency call establishment".
- 3) After cipher mode setting acceptance by the network, the MS shall send an EMERGENCY SETUP message.
- 4),5) The emergency call shall be correctly established. The assignment procedure shall be correctly performed.
- 6) After receipt of a CONNECT ACKNOWLEDGE message during correct establishment of the emergency call the TCH shall be through connected in both directions if an appropriate TCH is available.
- 7) The call shall be cleared correctly.

Requirement Reference:

For conformance requirement 1 and 2:

GSM 04.08 section 3.3.1.1, GSM 04.08 section 5.2.1, GSM 04.08 section 4.5.1.5., GSM 02.30 section 4.

For conformance requirement 3:

GSM 04.08, section 5.2.1.1.

For conformance requirements 4 and 5:

GSM 04.08, sections 5.2.1.1 and 3.4.3.

For conformance requirement 6:

GSM 04.08, sections 5.2.1.6 and 5.1.3.

For conformance requirement 7:

GSM 04.08, section 5.4.

###### 26.9.6.2.1.2 Test purpose

- 1) To verify that the MS in the "idle, no IMSI" state (no SIM inserted) when made to call the number 112, sends a CHANNEL REQUEST message with establishment cause "emergency call".
- 2) To verify that after assignment of a dedicated channel the first layer message sent by the MS on the assigned dedicated channel is a CM SERVICE REQUEST message in which the cipher key sequence number IE indicates "no key is available", the CM service type IE indicates "emergency number establishment", and the mobile identity IE specifies the IMEI of the MS.

- 3) To verify that after receipt of a CM SERVICE ACCEPT message from the SS, the MS sends an EMERGENCY SETUP message.
- 4) To verify that subsequently, the SS having sent a CALL PROCEEDING message and then an ALERT message and having initiated the assignment procedure of an appropriate speech traffic channel, which, if the MS supports both TCH/FS and TCH/HS, is at the preferred rate, the MS performs correctly that assignment procedure.
- 5) To verify subsequent correct performance of a connect procedure.
- 6) To verify that subsequently the MS has through connected the TCH in both directions.
- 7) To verify that the call is cleared correctly.

#### 26.9.6.2.1.3 Method of test

##### Related PICS/PIXIT Statements

- Speech supported (Y/N).
- Classmark.

##### Initial Conditions

###### System Simulator:

1 cell, default parameters.

###### Mobile Station:

The MS is in MM-state "idle, no IMSI", no SIM inserted.

##### Foreseen Final State of the MS

The MS is in MM-state "idle, no IMSI", no SIM inserted.

##### Test procedure

The MS is made to initiate an emergency call. The call is established without authentication, without ciphering, with late assignment. Having reached the active state, the call is cleared by the SS.

##### Maximum Duration of Test

1 minute.



Expected Sequence

Step	Direction	Message	Comments
1	MS		The "called number" 112 is entered.
3	MS -> SS	CHANNEL REQUEST	Establishment cause is "emergency call".
4	SS -> MS	IMMEDIATE ASSIGNMENT	
5	MS -> SS	CM SERVICE REQUEST	Message is contained in SABM. The CM service type IE indicates "emergency call establishment". The mobile identity IE specifies the IMEI of the MS. The cipher key sequence number IE indicates "no key is available". The mobile station classmark IE is as specified by the manufacturer in a PICS/PIXIT statement.
4	SS -> MS	CM SERVICE ACCEPT	
11	MS -> SS	EMERGENCY SETUP	
12	SS -> MS	CALL PROCEEDING	
13	SS -> MS	ALERTING	
14	SS -> MS	ASSIGNMENT COMMAND	The rate of the channel is one indicated by the EMERGENCY SETUP message.
15	MS -> SS	ASSIGNMENT COMPLETE	
16	SS -> MS	CONNECT	
17	MS -> SS	CONNECT ACKNOWLEDGE	
18	MS		The TCH is through connected in both directions.
19	SS -> MS	DISCONNECT	
20	MS -> SS	RELEASE	
21	SS -> MS	RELEASE COMPLETE	
23	SS -> MS	CHANNEL RELEASE	The main signalling link is released.

Specific Message Contents:

None.

26.9.6.2.2 Structured procedures / emergency call / idle, no IMSI / reject case

26.9.6.2.2.1 Conformance requirement

- 1) The MS in the "idle, no IMSI" state (no SIM inserted), after the number 112 has been entered, shall send a CHANNEL REQUEST message with correct establishment cause ("emergency call").
- 2) After assignment of a dedicated channel the first layer message sent by the MS on the assigned dedicated channel shall be a CM SERVICE REQUEST message specifying the correct IMEI and a non-available CKSN, with CM Service Type "emergency call establishment".
- 3) In the situation at the end of test purpose 2, when the MS receives a CM SERVICE REJECT message, it shall abandon the emergency call.

Requirement Reference:

For conformance requirement 1 and 2:

GSM 04.08 section 3.3.1.1, GSM 04.08 section 5.2.1, GSM 04.08 section 4.5.1.5., GSM 02.30 section 4.

For conformance requirement 3:

GSM 04.08 section 3.4.7, GSM 04.08 section 4.5.1.1.

#### 26.9.6.2.2.2 Test purpose

- 1) To verify that the MS in the "idle, no IMSI" state (no SIM inserted) when made to call the number 112, sends a CHANNEL REQUEST message with establishment cause "emergency call".
- 2) To verify that after assignment of a dedicated channel the first layer message sent by the MS on the assigned dedicated channel is a CM SERVICE REQUEST message in which the cipher key sequence number IE indicates "no key is available", the CM service type IE indicates "emergency call establishment", and the mobile identity IE specifies the IMEI of the MS.
- 3) To verify that after receipt of a CM SERVICE REJECT message from the SS, the MS abandons the emergency call establishment.

#### 26.9.6.2.2.3 Method of test

##### Related PICS/PIXT statements

- Speech supported (Y/N).
- Classmark.

##### Initial Conditions

###### System Simulator:

1 cell, default parameters.

###### Mobile Station:

The MS is in MM-state "idle, no IMSI", no SIM inserted.

##### Foreseen Final State of the MS

The MS is in MM-state "idle, no IMSI", no SIM inserted.

##### Test procedure

The MS is made to initiate an emergency call. The call is established without authentication, without ciphering, with early assignment. The SS responds to the CM SERVICE REQUEST from the MS with a CM SERVICE REJECT message specifying in the reject cause IE the reject cause value "IMEI not accepted". The SS then verifies for during 5 seconds that the MS does not send a layer 3 message. Then the call is cleared by the SS. The SS verifies during 20 seconds after disconnection of the main signalling link that the MS does not initiate an RR connection establishment.

##### Maximum Duration of Test

1 minute.

Expected Sequence

Step	Direction	Message	Comments
1	MS		The "called number" 112 is entered.
3	MS -> SS	CHANNEL REQUEST	Establishment cause is "emergency call".
4	SS -> MS	IMMEDIATE ASSIGNMENT	
5	MS -> SS	CM SERVICE REQUEST	Message is contained in SABM. The CM service type IE indicates "emergency call establishment". The mobile identity IE specifies the IMEI of the MS. The cipher key sequence number IE indicates "no key is available". The mobile station classmark IE is as specified by the manufacturer in a PICS/PIXIT statement.
4	SS -> MS	CM SERVICE REJECT	the reject cause IE specifies reject cause value #5, "IMEI not accepted".
5	SS		During 5 seconds, the SS verifies that the MS does not send L3 messages.
6	SS -> MS	CHANNEL RELEASE	The main signalling link is released.
7	SS		During 20 seconds, the SS verifies that the MS does not initiate an RR connection establishment.

Specific Message Contents:

-

### 26.9.7 Directed Retry / Mobile Originated Call

This test is applicable to all MS which support at least one MO circuit switched basic service.

#### 26.9.7.1 Conformance requirements

The MS shall correctly apply the Directed Retry procedure from SDCCH/8 (with frequency hopping) or SDCCH/4 to TCH/F or TCH/H with or without frequency hopping in the non-synchronized case during call establishment. The call control entity of the Mobile Station in the "mobile originating call proceeding" state shall, upon receipt of a CONNECT message, attach the appropriate user connection to the radio path and return a CONNECT ACKNOWLEDGE message to the SS.

#### References

GSM 04.08, sections 3.4.4, 5.2.1.6, and 9.1.15.

GSM 04.13, section 5.2.6.2.

#### 26.9.7.2 Test purpose

To test that, when the MS is ordered to perform a non-synchronized handover after the CALL PROCEED message, it continuously sends access bursts on the main DCCH until it receives a PHYSICAL INFORMATION message from the SS. To test that the MS correctly takes the values of the Timing Advance information element in the PHYSICAL INFORMATION message into account. To test that the MS activates the new channel correctly and transmits the HANDOVER COMPLETE message without undue delay. To test that the call control entity of the Mobile Station in the "mobile originating call proceeding" state, upon receipt of a CONNECT message, attaches the appropriate user connection to the radio path and returns a CONNECT ACKNOWLEDGE message to the SS.

## 26.9.7.3 Method of test

## Initial Conditions

## System Simulator:

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

## GSM 450:

## Cell A has:

BCCH ARFCN = 263.

Cell Allocation = (259, 261, 263, 265, 267, 269, 271, 273, 275, 277, 279, 281, 283, 285, 287, 289, 291).

PLMN colour code, NCC = as defaults.

BS colour code, BCC = as defaults.

PLMN\_PERM = 00001010.

## Cell B has:

BCCH ARFCN = 274

Cell Allocation = (260, 262, 264, 266, 268, 270, 272, 274, 276, 279, 281, 283, 285, 287, 289, 291).

PLMN colour code, NCC = 3.

BS colour code, BCC = 0.

Both cells send SYSTEM INFORMATION TYPE 1 messages containing the complete Cell Allocation of the cell, using range 128 format.

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

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

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

## GSM 480:

## Cell A has:

BCCH ARFCN = 310.

Cell Allocation = (306, 308, 310, 312, 314, 316, 318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338).

PLMN colour code, NCC = as defaults.

BS colour code, BCC = as defaults.

PLMN\_PERM = 00001010.

## Cell B has:

BCCH ARFCN = 321.

Cell Allocation = (307, 309, 311, 313, 315, 317, 319, 321, 323, 326, 328, 330, 332, 334, 336, 338).

PLMN colour code, NCC = 3.

BS colour code, BCC = 0.

Both cells send SYSTEM INFORMATION TYPE 1 messages containing the complete Cell Allocation of the cell, using range 128 format.

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

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

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

GSM 900:

Cell A has:

BCCH ARFCN = 20.

Cell Allocation = (10, 17, 20, 26, 34, 42, 45, 46, 52, 59, 66, 73, 74, 75, 76, 108, 114).

PLMN colour code, NCC = as defaults.

BS colour code, BCC = as defaults.

PLMN\_PERM = 00001010.

Cell B has:

BCCH ARFCN = 40.

Cell Allocation = (14, 18, 22, 24, 30, 31, 38, 40, 60, 66, 73, 74, 75, 76, 108, 114).

PLMN colour code, NCC = 3.

BS colour code, BCC = 0.

Both cells send SYSTEM INFORMATION TYPE 1 messages containing the complete Cell Allocation of the cell, using bit map 0 format.

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

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

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

DCS 1 800:

Cell A has:

BCCH ARFCN = 747.

Cell Allocation = (734, 741, 747, 754, 759, 762, 766, 767, 773, 775, 779, 782, 791, 798, 829, 832, 844).

PLMN colour code, NCC = as defaults.

BS colour code, BCC = as defaults.

PLMN\_PERM = 00001010.

Cell B has:

BCCH ARFCN = 764.

Cell Allocation = (739, 743, 746, 749, 756, 758, 761, 764, 771, 779, 782, 791, 798, 829, 832, 844).

PLMN colour code, NCC = 3.

BS colour code, BCC = 0.

Both cells send SYSTEM INFORMATION TYPE 1 messages containing the complete Cell Allocation of the cell, using Range 512 format.

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

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

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

Mobile Station:

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

#### Related PICS/PIXT Statements

Supported rate(s) of TCH: TCH/F and/or TCH/H.

Support for MO calls.

Supported teleservices.

Way to indicate alerting (only applicable if the MS supports the feature).

Type of MS (GSM 450 or GSM 480 or P-GSM 900 or EGSM or DCS 1 800).

#### Foreseen Final State of the MS

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

#### Test Procedure

This procedure is repeated for execution counter M = 1..2.

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

The MS is made to initiate a call on Cell A. After the SS has sent the CALL PROCEEDING message the SS sends a HANDOVER COMMAND message, ordering the MS to switch to cell B. The MS shall then begin to send access bursts on the new DCCH to cell B. The SS observes the access bursts and after receiving n (n being arbitrarily chosen between values according to table 26.6-2 of section 26.6.5) access bursts, the SS sends one PHYSICAL INFORMATION message with an arbitrarily chosen Timing Advance. The MS shall activate the channel in sending and receiving mode. The MS shall establish a signalling link. The MS shall be ready to transmit a HANDOVER COMPLETE message before x ms after the end of the PHYSICAL INFORMATION message, but not before a UA frame has been sent by the SS. After the successful handover procedure the SS sends the ALERTING message. The correct alerting indication shall be given to the user (only applicable if the MS supports this feature). The SS sends the CONNECT message indicating that the call has been answered. The appropriate bearer channel shall be through connected in both directions. The MS shall send then the CONNECT ACKNOWLEDGE message as the response on the CONNECT message. Having reached the active state, the call is cleared by the SS.

The term "ready to transmit" is defined in GSM 04.13. The value of "x" depends upon the target channel and is specified in the specific message contents section.

#### Maximum Duration of Test

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

Expected Sequence

The sequence is performed for execution counter M = 1..2 (unless a particular TCH is not supported).

Step	Direction	Message	Comments
1	-----	-----	A MO call is initiated on cell A.
2	MS -> SS	CHANNEL REQUEST	Establishment cause is "originating call and the network does not set the NECl bit to 1".
3	SS -> MS	IMMEDIATE ASSIGNMENT	See specific message contents.
4	MS -> SS	CM SERVICE REQUEST	CM Service Type = Mobile Originating Call Establishment.
5	SS -> MS	AUTHENTICATION REQUEST	
6	MS -> SS	AUTHENTICATION RESPONSE	SRES specifies correct value.
7	SS -> MS	CIPHERING MODE COMMAND	SS starts deciphering after sending the message.
8	MS -> SS	CIPHERING MODE COMPLETE	Shall be sent enciphered. All following messages shall be sent enciphered.
9	SS		SS starts ciphering.
10	MS -> SS	SETUP	
11	SS -> MS	CALL PROCEEDING	
12	SS -> MS	HANDOVER COMMAND	See specific message contents.
13	MS -> SS	HANDOVER ACCESS	Repeated on every burst of the uplink main DCCH until reception of PHYSICAL INFORMATION. Handover Reference as included in the HANDOVER COMMAND.
14	SS -> MS	PHYSICAL INFORMATION	Sent after reception of n HANDOVER ACCESS message. Timing Advance is arbitrarily chosen.
15	MS -> SS	SABM	Sent without information field.
16	SS -> MS	UA	
17	MS -> SS	HANDOVER COMPLETE	This message shall be ready to be transmitted before "x" ms after the completion of step 14.
18	SS -> MS	ALERTING	
19	MS		Depending on the PICS, an alerting indication is given.
20	SS -> MS	CONNECT	
21	MS -> SS	CONNECT ACKNOWLEDGE	
22	MS		The appropriate bearer channel is through connected in both directions.
23	SS -> MS	DISCONNECT	
24	MS -> SS	RELEASE	
25	SS -> MS	RELEASE COMPLETE	
26	SS -> MS	CHANNEL RELEASE	The main signalling link is released.

Specific Message Contents For Mobiles Supporting Speech

**M = 1:**

**For GSM450:**

IMMEDIATE ASSIGNMENT

Information Element	value/remark
As default message contents.	

HANDOVER COMMAND

Information Element	value/remarks
As default message contents, except:	
Cell Description	
- Network Colour Code	3
- Base Station Colour Code	0
- BCCH Carrier Number	274
Channel Description	
- Channel Type	TCH/F + ACCHs
- TDMA offset	Chosen arbitrarily.
- Timeslot number	Chosen arbitrarily but not zero.
- Training Sequence Code	Chosen arbitrarily.
- Hopping	RF hopping channel.
- MAIO	Chosen arbitrarily from the set (0, 1 to N-1), where N is the number of frequencies encoded in the Frequency List IE.
- HSN	Zero (this gives cyclic hopping).
Synchronization Indication IE is not included	
Frequency list after time	
- Frequency List	use Range 128 to encode the following 15 frequencies (260, 262, 264, 266, 268, 270, 272, 276, 279, 281, 283, 285, 287, 289, 291).
Channel Mode IE	Speech (full rate version 1 or half rate version 1).

Step 17: "x" = 500.

**For GSM480:**

IMMEDIATE ASSIGNMENT

Information Element	value/remark
As default message contents.	

HANDOVER COMMAND

Information Element	value/remarks
As default message contents, except:	
Cell Description	
- Network Colour Code	3
- Base Station Colour Code	0
- BCCH Carrier Number	321
Channel Description	
- Channel Type	TCH/F + ACCHs
- TDMA offset	Chosen arbitrarily.
- Timeslot number	Chosen arbitrarily but not zero.
- Training Sequence Code	Chosen arbitrarily.
- Hopping	RF hopping channel.
- MAIO	Chosen arbitrarily from the set (0, 1 to N-1), where N is the number of frequencies encoded in the Frequency List IE.
- HSN	Zero (this gives cyclic hopping).
Synchronization Indication IE is not included	
Frequency list after time	
- Frequency List	use Range 128 to encode the following 15 frequencies (307, 309, 311, 313, 315, 317, 319, 323, 326, 328, 330, 332, 334, 336, 338).
Channel Mode IE	Speech (full rate version 1 or half rate version 1).



Step 17: "x" = 500.

**For GSM 900:**

IMMEDIATE ASSIGNMENT

Information Element	value/remark
As default message contents.	

HANDOVER COMMAND

Information Element	value/remarks
As default message contents, except:	
Cell Description	
- Network Colour Code	3
- Base Station Colour Code	0
- BCCH Carrier Number	40
Channel Description	
- Channel Type	TCH/F + ACCHs
- TDMA offset	Chosen arbitrarily.
- Timeslot number	Chosen arbitrarily but not zero.
- Training Sequence Code	Chosen arbitrarily.
- Hopping	RF hopping channel.
- MAIO	Chosen arbitrarily from the set (0, 1 to N-1), where N is the number of frequencies encoded in the Frequency List IE.
- HSN	Zero (this gives cyclic hopping).
Synchronization Indication IE is not included	
Frequency list after time	
- Frequency List	uses bit map 0 to allocate the following 15 frequencies (14, 18, 22, 24, 30, 31, 38, 60, 66, 73, 74, 75, 76, 108, 114).
Channel Mode IE	Speech (full rate version 1 or half rate version 1).

Step 17: "x" = 500.

**DCS 1 800:**

IMMEDIATE ASSIGNMENT

Information Element	value/remark
As default message contents.	

HANDOVER COMMAND

Information Element	value/remarks
As default message contents, except:	
Cell Description	
- Network Colour Code	3
- Base Station Colour Code	0
- BCCH Carrier Number	764
Channel Description	
- Channel Type	TCH/F + ACCHs
- TDMA offset	Chosen arbitrarily.
- Timeslot number	Chosen arbitrarily but not zero.
- Training Sequence Code	Chosen arbitrarily.
- Hopping	RF hopping channel.
- MAIO	Chosen arbitrarily from the set (0, 1 to N-1), where N is the number of frequencies encoded in the Frequency Short List IE.
- HSN	Zero (this gives cyclic hopping).
Synchronization Indication IE not included.	
Frequency Short List after time	
- Frequency Short List	Use Range 128 to encode the following 2 frequencies (746, 779).
Mode of First Channel	Speech (full rate version 1 or half rate version 1).

Step 17: "x" = 500.

M= 2:

GSM450:

IMMEDIATE ASSIGNMENT

Information Element	value/remark
As default message contents except:	
L2 pseudo length	14 octets (11 + contents of the MA).
Channel Description	
- Channel Type	SDCCH/8
- TDMA offset	As default message contents.
- Timeslot number	Arbitrary value, but not zero.
- Training Sequence Code	Chosen arbitrarily.
- Hopping	RF hopping channel.
- MAIO	Chosen arbitrarily from the set (0, 1 to N-1), where N is the number of frequencies encoded in the Mobile Allocation.
- HSN	Zero (this gives cyclic hopping).
Mobile Allocation	
- Length	3 octets.
- Contents	Indicates only three frequencies: (281, 283, 285).

HANDOVER COMMAND

As default message contents, except:	
Cell Description	
- Network Colour Code	3
- Base Station Colour Code	0
- BCCH Carrier Number	274
Channel Description	
- Channel Type	TCH/H + ACCHs
- TDMA offset	Chosen arbitrarily.
- Timeslot number	Chosen arbitrarily but not zero.
- Training Sequence Code	Chosen arbitrarily.
- Hopping	RF hopping channel.
- MAIO	Chosen arbitrarily from the set (0, 1 to N-1), where N is the number of frequencies encoded in the Mobile Allocation.
- HSN	Chosen arbitrarily from the set (1, 2.. 63).
Synchronization Indication	
- Report Observed Time Difference	Shall not be included.
- Synchronization Indication	"Non synchronized".
- Normal Cell Indication	Ignore out of range timing advance.
Cell Channel Description	use Range 128 to encode: (274, 279, 281, 283, 285, 287, 289, 291) only.
Mobile Allocation after time	indicates channel (281, 283, 285) only.
Channel Mode IE	speech (full rate version 1 or half rate version 1).

Step 17: "x" = 750.

**GSM480:**

IMMEDIATE ASSIGNMENT

Information Element	value/remark
As default message contents except:	
L2 pseudo length	14 octets (11 + contents of the MA).
Channel Description	
- Channel Type	SDCCH/8
- TDMA offset	As default message contents.
- Timeslot number	Arbitrary value, but not zero.
- Training Sequence Code	Chosen arbitrarily.
- Hopping	RF hopping channel.
- MAIO	Chosen arbitrarily from the set (0, 1 to N-1), where N is the number of frequencies encoded in the Mobile Allocation.
- HSN	Zero (this gives cyclic hopping).
Mobile Allocation	
- Length	3 octets.
- Contents	Indicates only three frequencies: (328, 330, 332).

HANDOVER COMMAND

As default message contents, except:	
Cell Description	
- Network Colour Code	3
- Base Station Colour Code	0
- BCCH Carrier Number	321
Channel Description	
- Channel Type	TCH/H + ACCHs
- TDMA offset	Chosen arbitrarily.
- Timeslot number	Chosen arbitrarily but not zero.
- Training Sequence Code	Chosen arbitrarily.
- Hopping	RF hopping channel.
- MAIO	Chosen arbitrarily from the set (0, 1 to N-1), where N is the number of frequencies encoded in the Mobile Allocation.
- HSN	Chosen arbitrarily from the set (1, 2.. 63).
Synchronization Indication	
- Report Observed Time Difference	Shall not be included.
- Synchronization Indication	"Non synchronized".
- Normal Cell Indication	Ignore out of range timing advance.
Cell Channel Description	use Range 128 to encode: (321, 326, 328, 330, 332, 334, 336, 338) only.
Mobile Allocation after time	indicates channel (328, 330, 332) only.
Channel Mode IE	speech (full rate version 1 or half rate version 1).

Step 17: "x" = 750.

**GSM900:**

IMMEDIATE ASSIGNMENT

Information Element	value/remark
As default message contents except:	
L2 pseudo length	14 octets (11 + contents of the MA).
Channel Description	
- Channel Type	SDCCH/8
- TDMA offset	As default message contents.
- Timeslot number	Arbitrary value, but not zero.
- Training Sequence Code	Chosen arbitrarily.
- Hopping	RF hopping channel.
- MAIO	Chosen arbitrarily from the set (0, 1 to N-1), where N is the number of frequencies encoded in the Mobile Allocation.
- HSN	Zero (this gives cyclic hopping).
Mobile Allocation	
- Length	3 octets.
- Contents	Indicates only three frequencies: (73, 74, 75).

HANDOVER COMMAND

As default message contents, except:	
Cell Description	
- Network Colour Code	3
- Base Station Colour Code	0
- BCCH Carrier Number	40
Channel Description	
- Channel Type	TCH/H + ACCHs
- TDMA offset	Chosen arbitrarily.
- Timeslot number	Chosen arbitrarily but not zero.
- Training Sequence Code	Chosen arbitrarily.
- Hopping	RF hopping channel.
- MAIO	Chosen arbitrarily from the set (0, 1 to N-1), where N is the number of frequencies encoded in the Mobile Allocation.
- HSN	Chosen arbitrarily from the set (1, 2.. 63).
Synchronization Indication	
- Report Observed Time Difference	Shall not be included.
- Synchronization Indication	"Non synchronized".
- Normal Cell Indication	Ignore out of range timing advance.
Cell Channel Description	uses bit map 0 to encode: (40, 66, 73, 74, 75, 76, 108, 114) only.
Mobile Allocation after time	indicates channel (73, 74, 75) only.
Channel Mode IE	speech (full rate version 1 or half rate version 1).

Step 17: "x" = 750.

**DCS 1 800:**

IMMEDIATE ASSIGNMENT

Information Element	value/remark
As default message contents except:	
Channel Description	Channel Description.
- Channel Type	SDCCH/8
- TDMA offset	As default message contents.
- Timeslot number	zero.
- Training Sequence Code	Chosen arbitrarily.
- Hopping	RF hopping channel.
- MAIO	Chosen arbitrarily from the set (0, 1 to N-1), where N is the number of frequencies encoded in the Mobile Allocation.
- HSN	Zero (this gives cyclic hopping).
Mobile Allocation	Indicates all of the CA of cell A except for the following 2 frequencies: (747 and 767).

HANDOVER COMMAND

Information Element	value/remarks
As default message contents, except:	
Cell Description	
- Network Colour Code	3
- Base Station Colour Code	0
- BCCH Carrier Number	764
Channel Description	
- Channel Type	TCH/H + ACCHs
- TDMA offset	Chosen arbitrarily.
- Timeslot number	Chosen arbitrarily but not zero.
- Training Sequence Code	Chosen arbitrarily.
- Hopping	RF hopping channel.
- MAIO	Chosen arbitrarily from the set (0, 1 to N-1), where N is the number of frequencies encoded in the Mobile Allocation.
- HSN	Chosen arbitrarily from the set (1, 2.. 63).
Synchronization Indication	
- Report Observed Time Difference	Shall not be included.
- Synchronization Indication	"Non synchronized".
- Normal Cell Indication	Ignore out of range timing advance.
Cell Channel Description	Use Range 512 to encode the following frequencies: (761, 764, 771, 779, 782, 791, 798, 829, 832).
Mobile Allocation after time	Indicates channel (791, 798, 829) only.
Mode of First Channel	Speech (full rate version 1 or half rate version 1).

Step 17: "x" = 750.

Specific Message Contents For Mobiles not Supporting Speech

The message contents shall be the same for the declared type of Mobile Station (GSM 450 or GSM 480 or P-GSM 900 or DCS 1 800 supporting speech, except for:

For M = 1 (TCH/F):

HANDOVER COMMAND

Information Element	value/remarks
Mode of first channel	Arbitrary from those supported (12, 6, 3.6 kbps).

For M = 2 (TCH/H):

HANDOVER COMMAND

Information Element	value/remarks
Mode of first channel	Arbitrary from those supported (6, 3.6 kbps).

## 26.9.8 Directed Retry / Mobile Terminated Call

This test is applicable to all MS which support at least one MT circuit switched basic service.

### 26.9.8.1 Conformance requirements

The MS shall correctly apply the Directed Retry procedure from SDCCH/8 (with frequency hopping) or SDCCH/4 to TCH/F or TCH/H with or without frequency hopping in the non-synchronized case during call establishment. The call control entity of the Mobile Station in the "call delivered" state shall, if the MS supports immediate connect, continue

the call establishment by through-connecting the traffic channel in both directions, or if the MS does not support immediate connect, send an ALERTING message. The MS indicates acceptance of a MT call by sending CONNECT.

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

For Data Calls the mobile station shall attach the user connection when receiving the CONNECT ACKNOWLEDGE message from the network.

## References

GSM 04.08, sections 3.4.4, 5.2.2.5, 5.2.2.6, 5.2.2.9 and 9.1.15.

GSM 04.13, section 5.2.6.2.

### 26.9.8.2 Test purpose

To test that when the MS is ordered to perform a non-synchronized handover after the CALL CONFIRM message, it continuously sends access bursts on the main DCCH until it receives a PHYSICAL INFORMATION message from the SS. To test that the MS correctly takes the values of the Timing Advance information element in the PHYSICAL INFORMATION message into account. To test that the MS activates the new channel correctly and transmits the HANDOVER COMPLETE message without undue delay. To test that the call control entity of the Mobile Station in the "call delivered" state, if the MS supports immediate connect, continues the call establishment by through-connecting the traffic channel in both directions, or if the MS does not support immediate connect, sends an ALERTING message. To test that the MS indicates acceptance of a MT call by sending CONNECT.

To test that for speech calls the mobile station attaches the user connection at latest when sending the CONNECT message, except if there is no compatible radio resource available at this time. To test that in this case the attachment is delayed until such a resource becomes available.

To test that for Data Calls the mobile station attaches the user connection when receiving the CONNECT ACKNOWLEDGE message from the network.

### 26.9.8.3 Method of test

#### Initial Conditions

System Simulator:

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

GSM 450:

Cell A has:

BCCH ARFCN = 263.

Cell Allocation = (259, 261, 263, 265, 267, 269, 271, 273, 275, 277, 279, 281, 283, 285, 287, 289, 291).

PLMN colour code, NCC = as defaults.

BS colour code, BCC = as defaults.

PLMN\_PERM = 00001010.

Cell B has:

BCCH ARFCN = 274

Cell Allocation = (260, 262, 264, 266, 268, 270, 272, 274, 276, 279, 281, 283, 285, 287, 289, 291).

PLMN colour code, NCC = 3.

BS colour code, BCC = 0.

Both cells send SYSTEM INFORMATION TYPE 1 messages containing the complete Cell Allocation of the cell, using range 128 format.

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

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

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

GSM 480:

Cell A has:

BCCH ARFCN = 310.

Cell Allocation = (306, 308, 310, 312, 314, 316, 318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338).

PLMN colour code, NCC = as defaults.

BS colour code, BCC = as defaults.

PLMN\_PERM = 00001010.

Cell B has:

BCCH ARFCN = 321.

Cell Allocation = (307, 309, 311, 313, 315, 317, 319, 321, 323, 326, 328, 330, 332, 334, 336, 338).

PLMN colour code, NCC = 3.

BS colour code, BCC = 0.

Both cells send SYSTEM INFORMATION TYPE 1 messages containing the complete Cell Allocation of the cell, using range 128 format.

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

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

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

GSM 900:

Cell A has:

BCCH ARFCN = 20.

Cell Allocation = (10, 17, 20, 26, 34, 42, 45, 46, 52, 59, 66, 73, 74, 75, 76, 108, 114).

PLMN colour code, NCC = as defaults.

BS colour code, BCC = as defaults.

PLMN\_PERM = 00001010.



Cell B has:

BCCH ARFCN = 40.

Cell Allocation = (14, 18, 22, 24, 30, 31, 38, 40, 60, 66, 73, 74, 75, 76, 108, 114).

PLMN colour code, NCC = 3.

BS colour code, BCC = 0.

Both cells send SYSTEM INFORMATION TYPE 1 messages containing the complete Cell Allocation of the cell, using bit map 0 format.

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

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

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

DCS 1 800:

Cell A has:

BCCH ARFCN = 747.

Cell Allocation = (734, 741, 747, 754, 759, 762, 766, 767, 773, 775, 779, 782, 791, 798, 829, 832, 844).

PLMN colour code, NCC = as defaults.

BS colour code, BCC = as defaults.

PLMN\_PERM = 00001010.

Cell B has:

BCCH ARFCN = 764.

Cell Allocation = (739, 743, 746, 749, 756, 758, 761, 764, 771, 779, 782, 791, 798, 829, 832, 844).

PLMN colour code, NCC = 3.

BS colour code, BCC = 0.

Both cells send SYSTEM INFORMATION TYPE 1 messages containing the complete Cell Allocation of the cell, using Range 512 format.

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

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

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

Mobile Station:

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

## Related PICS/PIXIT Statements

Supported rate(s) of TCH: TCH/F and/or TCH/H

Support for MT calls.

Supported teleservices.

Way to indicate alerting (only applicable if the MS supports the feature).

Way to make the MS accept an incoming call after alerting (possibly dependent on teleservice and configuration).

Immediate connect supported (Y/N).

Type of MS (GSM 450 or GSM 480 or P-GSM 900 or EGSM or DCS 1 800).

## Foreseen Final State of the MS

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

## Test Procedure

This procedure is repeated for execution counter M = 1..2.

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

The MS is paged on Cell A. The MS responds to the PAGING REQUEST message and establishes a mobile terminated call on Cell A. If the MS supports immediate connect, it continues the call establishment by through-connecting the traffic channel in both directions, or if the MS does not support immediate connect, it sends an ALERTING message. The MS indicates acceptance of a MT call by sending CONNECT.

After the MS has sent the CALL CONFIRMED message (if the MS supports immediate connect then the MS sends the CONNECT message after the CALL CONFIRMED message on the old channel) the SS sends a HANDOVER COMMAND message, ordering the MS to switch to cell B. The MS shall then begin to send access bursts on the new DCCH to cell B. The SS observes the access bursts and after receiving n (n being arbitrarily chosen between values according to table 26.6-2 of section 26.6.5) access bursts, the SS sends one PHYSICAL INFORMATION message with an arbitrarily chosen Timing Advance. The MS shall activate the channel in sending and receiving mode. The MS shall establish a signalling link. The MS shall be ready to transmit a HANDOVER COMPLETE message before x ms after the end of the PHYSICAL INFORMATION message, but not before a UA frame has been sent by the SS. After the successful handover procedure the MS sends the ALERTING message (if the MS runs the immediate connect procedure then the MS does not send an ALERTING message). The correct alerting indication shall be given to the user (only applicable if the MS supports the feature or if the MS is not using the immediate connect procedure). After the MS sent the CONNECT message the appropriate bearer channel shall be through connected in both directions. The SS sends then the CONNECT ACKNOWLEDGE message as the response on the CONNECT message. Having reached the active state, the call is cleared by the SS.

The term "ready to transmit" is defined in GSM 04.13. The value of "x" depends upon the target channel and is specified in the specific message contents section.

## Maximum Duration of Test

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

## Expected Sequence

The sequence is performed for execution counter  $M = 1..2$  (unless a particular TCH is not supported).

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST TYPE 1	Sent on the correct paging subchannel on cell A.
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	See specific message contents.
4	MS -> SS	PAGING RESPONSE	Message is contained in SABM.
5	SS -> MS	AUTHENTICATION REQUEST	
6	MS -> SS	AUTHENTICATION RESPONSE	SRES specifies correct value.
7	SS -> MS	CIPHERING MODE COMMAND	SS starts deciphering after sending the message.
8	MS -> SS	CIPHERING MODE COMPLETE	Shall be sent enciphered. All following messages shall be sent enciphered.
9	SS		SS starts ciphering.
10	SS -> MS	SETUP	
11	MS -> SS	CALL CONFIRMED	
			If the MS supports immediate connect then branch A applies. If the MS does not support immediate connect then branch B applies
A12	MS -> SS	CONNECT	sent on the old channel
A13	SS -> MS	HANDOVER COMMAND	See specific message contents.
A14	MS -> SS	HANDOVER ACCESS	Repeated on every burst of the uplink main DCCH until reception of PHYSICAL INFORMATION. Handover Reference as included in the HANDOVER COMMAND. If the HANDOVER COMMAND includes a starting time IE then the first HANDOVER ACCESS message shall be transmitted in the indicated frame (unless the indicated frame is not used by that channel, in which case the next frame used by that channel shall be used).
A15	SS -> MS	PHYSICAL INFORMATION	Sent after reception of n HANDOVER ACCESS message. Timing Advance is arbitrarily chosen.
A16	MS -> SS	SABM	Sent without information field.
A17	SS -> MS	UA	
A18	MS -> SS	HANDOVER COMPLETE	This message shall be ready to be transmitted before "x" ms after the completion of step A15.
B12	SS -> MS	HANDOVER COMMAND	See specific message contents.
B13	MS -> SS	HANDOVER ACCESS	Repeated on every burst of the uplink main DCCH until reception of PHYSICAL INFORMATION. Handover Reference as included in the HANDOVER COMMAND. If the HANDOVER COMMAND includes a starting time IE then the first HANDOVER ACCESS message shall be transmitted in the indicated frame (unless the indicated frame is not used by that channel, in which case the next frame used by that channel shall be used).
B14	SS -> MS	PHYSICAL INFORMATION	Sent after reception of n HANDOVER ACCESS message. Timing Advance is arbitrarily chosen.
B15	MS -> SS	SABM	Sent without information field.
B16	SS -> MS	UA	
B17	MS -> SS	HANDOVER COMPLETE	This message shall be ready to be transmitted before "x" ms after the completion of step B14.
B18	MS -> SS	ALERTING	
B19	MS		Gives an alerting indication as defined in a PICS/PIXIT statement is given by the MS
B20	MS		The MS is made to accept the call in the way described in a PICS/PIXIT statement
B21	MS -> SS	CONNECT	
22	MS		If the call is a speech call, the TCH shall be through connected in both directions.
23	SS -> MS	CONNECT ACKNOWLEDGE	
24	MS		If the call is a data call, the TCH shall be through connected in both directions.
25	SS -> MS	DISCONNECT	

26	MS -> SS	RELEASE	The main signalling link is released.
27	SS -> MS	RELEASE COMPLETE	
28	SS -> MS	CHANNEL RELEASE	

Specific Message Contents For Mobiles Supporting Speech

M= 1:

For GSM450:

IMMEDIATE ASSIGNMENT

Information Element	value/remark
As default message contents.	

HANDOVER COMMAND

Information Element	value/remarks
As default message contents, except:	
Cell Description	
- Network Colour Code	3
- Base Station Colour Code	0
- BCCH Carrier Number	274
Channel Description	
- Channel Type	TCH/F + ACCHs
- Timeslot number	Zero.
- Training Sequence Code	Chosen arbitrarily.
- Hopping	Single RF Channel.
- ARFCN	Chosen arbitrarily from the Cell Allocation of Cell B, but not the BCCH carrier of Cell B.
Synchronization Indication IE not included.	
Mode of First Channel	Speech (full rate version 1 or half rate version 1).

Step A18 / B17: "x" = 500.

For GSM480:

IMMEDIATE ASSIGNMENT

Information Element	value/remark
As default message contents.	

HANDOVER COMMAND

Information Element	value/remarks
As default message contents, except:	
Cell Description	
- Network Colour Code	3
- Base Station Colour Code	0
- BCCH Carrier Number	321
Channel Description	
- Channel Type	TCH/F + ACCHs
- Timeslot number	Zero.
- Training Sequence Code	Chosen arbitrarily.
- Hopping	Single RF Channel.
- ARFCN	Chosen arbitrarily from the Cell Allocation of Cell B, but not the BCCH carrier of Cell B.
Synchronization Indication IE not included.	
Mode of First Channel	Speech (full rate version 1 or half rate version 1).

Step A18 / B17: "x" = 500.

**For GSM 900:**

IMMEDIATE ASSIGNMENT

Information Element	value/remark
As default message contents.	

HANDOVER COMMAND

Information Element	value/remarks
As default message contents, except:	
Cell Description	
- Network Colour Code	3
- Base Station Colour Code	0
- BCCH Carrier Number	40
Channel Description	
- Channel Type	TCH/F + ACCHs
- Timeslot number	Zero.
- Training Sequence Code	Chosen arbitrarily.
- Hopping	Single RF Channel.
- ARFCN	Chosen arbitrarily from the Cell Allocation of Cell B, but not the BCCH carrier of Cell B.
Synchronization Indication IE not included.	
Mode of First Channel	Speech (full rate version 1 or half rate version 1).

Step A18 / B17: "x" = 500.

**DCS 1 800:**

IMMEDIATE ASSIGNMENT

Information Element	value/remark
As default message contents.	

HANDOVER COMMAND

Information Element	value/remarks
As default message contents, except: Cell Description <ul style="list-style-type: none"> <li>- Network Colour Code</li> <li>- Base Station Colour Code</li> <li>- BCCH Carrier Number</li> </ul> Channel Description <ul style="list-style-type: none"> <li>- Channel Type</li> <li>- Timeslot number</li> <li>- Training Sequence Code</li> <li>- Hopping</li> <li>- ARFCN</li> </ul> Synchronization Indication IE not included. Mode of First Channel	3 0 764 TCH/F + ACCHs Zero. Chosen arbitrarily. Single RF Channel. Chosen arbitrarily from the Cell Allocation of Cell B, but not the BCCH carrier of Cell B. Speech (full rate version 1 or half rate version 1).

Step A18 / B17: "x" = 500.

**M = 2:**

**GSM450:**

IMMEDIATE ASSIGNMENT

Information Element	value/remark
As default message contents except: L2 pseudo length Channel Description <ul style="list-style-type: none"> <li>- Channel Type</li> <li>- TDMA offset</li> <li>- Timeslot number</li> <li>- Training Sequence Code</li> <li>- Hopping</li> <li>- MAIO</li> </ul> <ul style="list-style-type: none"> <li>- HSN</li> </ul> Mobile Allocation <ul style="list-style-type: none"> <li>- Length</li> <li>- Contents</li> </ul>	14 octets (11 + contents of the MA). SDCCH/8 As default message contents. Arbitrary value, but not zero. Chosen arbitrarily. RF hopping channel. Chosen arbitrarily from the set (0, 1 to N-1), where N is the number of frequencies encoded in the Mobile Allocation. Chosen arbitrarily from the set (1,2,..63). 3 octets. Indicates only three frequencies: (281, 283, 285).

HANDOVER COMMAND

Information Element	value/remarks
As default message contents, except:	
Cell Description	
- Network Colour Code	3
- Base Station Colour Code	0
- BCCH Carrier Number	274
Channel Description	
- Channel Type	TCH/H + ACCHs
- TDMA offset	Chosen arbitrarily.
- Timeslot number	Chosen arbitrarily, but not Zero.
- Training Sequence Code	Chosen arbitrarily.
- Hopping	RF hopping channel.
- MAIO	Chosen arbitrarily from the set (0, 1 to N-1), where N is the number of frequencies encoded in the Frequency List IE.
- HSN	Zero (this gives cyclic hopping).
Frequency List after time	
- Frequency List	use Range 128 to encode the following 12 frequencies: (260, 262, 264, 266, 276, 279, 281, 283, 285, 287, 289, 291).
Synchronization Indication	
- Report Observed Time Difference	Shall not be included.
- Synchronization Indication	"Non synchronized".
- Normal Cell Indication	Ignore out of range timing advance.
Mode of First Channel	Speech (full rate version 1 or half rate version 1).
Starting Time	Indicates the frame number of cell B. that will occur approximately 1,1 seconds (238 frames have elapsed) after the HANDOVER COMMAND is sent by cell A.

Step A18 / B17: "x" = 750.

**GSM 480:**

IMMEDIATE ASSIGNMENT

Information Element	value/remark
As default message contents except:	
L2 pseudo length	14 octets (11 + contents of the MA).
Channel Description	
- Channel Type	SDCCH/8
- TDMA offset	As default message contents.
- Timeslot number	Arbitrary value, but not zero.
- Training Sequence Code	Chosen arbitrarily.
- Hopping	RF hopping channel.
- MAIO	Chosen arbitrarily from the set (0, 1 to N-1), where N is the number of frequencies encoded in the Mobile Allocation.
- HSN	Chosen arbitrarily from the set (1,2,..63).
Mobile Allocation	
- Length	3 octets.
- Contents	Indicates only three frequencies: (328, 330, 332).

HANDOVER COMMAND

Information Element	value/remarks
As default message contents, except:	
Cell Description	
- Network Colour Code	3
- Base Station Colour Code	0
- BCCH Carrier Number	321
Channel Description	
- Channel Type	TCH/H + ACCHs
- TDMA offset	Chosen arbitrarily.
- Timeslot number	Chosen arbitrarily, but not Zero.
- Training Sequence Code	Chosen arbitrarily.
- Hopping	RF hopping channel.
- MAIO	Chosen arbitrarily from the set (0, 1 to N-1), where N is the number of frequencies encoded in the Frequency List IE.
- HSN	Zero (this gives cyclic hopping).
Frequency List after time	
- Frequency List	use Range 128 to encode the following 12 frequencies: (307, 309, 311, 313, 323, 326, 328, 330, 332, 334, 336, 338).
Synchronization Indication	
- Report Observed Time Difference	Shall not be included.
- Synchronization Indication	"Non synchronized".
- Normal Cell Indication	Ignore out of range timing advance.
Mode of First Channel	Speech (full rate version 1 or half rate version 1).
Starting Time	Indicates the frame number of cell B. that will occur approximately 1,1 seconds (238 frames have elapsed) after the HANDOVER COMMAND is sent by cell A.

Step A18 / B17: "x" = 750.

**GSM900:**

IMMEDIATE ASSIGNMENT

Information Element	value/remark
As default message contents except:	
L2 pseudo length	14 octets (11 + contents of the MA).
Channel Description	
- Channel Type	SDCCH/8
- TDMA offset	As default message contents.
- Timeslot number	Arbitrary value, but not zero.
- Training Sequence Code	Chosen arbitrarily.
- Hopping	RF hopping channel.
- MAIO	Chosen arbitrarily from the set (0, 1 to N-1), where N is the number of frequencies encoded in the Mobile Allocation.
- HSN	Chosen arbitrarily from the set (1,2,..63).
Mobile Allocation	
- Length	3 octets.
- Contents	Indicates only three frequencies: (73, 74, 75).



HANDOVER COMMAND

Information Element	value/remarks
As default message contents, except:	
Cell Description	
- Network Colour Code	3
- Base Station Colour Code	0
- BCCH Carrier Number	40
Channel Description	
- Channel Type	TCH/H + ACCHs
- TDMA offset	Chosen arbitrarily.
- Timeslot number	Chosen arbitrarily, but not Zero.
- Training Sequence Code	Chosen arbitrarily.
- Hopping	RF hopping channel.
- MAIO	Chosen arbitrarily from the set (0, 1 to N-1), where N is the number of frequencies encoded in the Frequency List IE.
- HSN	Zero (this gives cyclic hopping).
Frequency List after time	
- Frequency List	use bit map 0 to allocates the following 12 frequencies: (14, 18, 22, 24, 60, 66, 73, 74, 75, 76,108, 114).
Synchronization Indication	
- Report Observed Time Difference	Shall not be included.
- Synchronization Indication	"Non synchronized".
- Normal Cell Indication	Ignore out of range timing advance.
Mode of First Channel	Speech (full rate version 1 or half rate version 1).
Starting Time	Indicates the frame number of cell B. that will occur approximately 1,1 seconds (238 frames have elapsed) after the HANDOVER COMMAND is sent by cell A.

Step A18 / B17: "x" = 750.

**DCS 1 800:**

IMMEDIATE ASSIGNMENT

Information Element	value/remark
As default message contents except:	
L2 pseudo length	14 octets (11 + contents of the MA).
Channel Description	Channel Description.
- Channel Type	SDCCH/8
- TDMA offset	As default message contents.
- Timeslot number	Arbitrary value but not zero.
- Training Sequence Code	Chosen arbitrarily.
- Hopping	RF hopping channel.
- MAIO	Chosen arbitrarily from the set (0, 1 to N-1), where N is the number of frequencies encoded in the Mobile Allocation.
- HSN	Chosen arbitrarily from the set (1,2,..63).
Mobile Allocation	
- Length	3octets.
- Contents	Indicates only three frequencies: (773, 775, 779).

HANDOVER COMMAND

Information Element	value/remarks
As default message contents, except:	
Cell Description	
- Network Colour Code	3
- Base Station Colour Code	0
- BCCH Carrier Number	764
Channel Description	
- Channel Type	TCH/H + ACCHs
- TDMA offset	Chosen arbitrarily.
- Timeslot number	Chosen arbitrarily but not Zero.
- Training Sequence Code	Chosen arbitrarily.
- Hopping	RF hopping channel.
- MAIO	Chosen arbitrarily from the set (0, 1 to N-1), where N is the number of frequencies encoded in the Frequency List IE.
- HSN	Zero (this gives cyclic hopping).
Frequency List after time	
- Frequency List	Use Range 1024 to allocate the following 12 frequencies: (749, 758, 761, 764, 771, 779, 782, 791, 798, 829, 832, 844).
Synchronization Indication	
- Report Observed Time Difference	Shall not be included.
- Synchronization Indication	"Non synchronized".
- Normal Cell Indication	Ignore out of range timing advance.
Mode of First Channel	Speech (full rate version 1 or half rate version 1).
Starting Time	Indicates the frame number of cell B that will occur approximately 1.1 seconds (238 frames have elapsed) after the HANDOVER COMMAND is sent by cell A.

Step A18 / B17: "x" = 750.

Specific Message Contents For Mobiles not Supporting Speech

The message contents shall be the same for the declared type of Mobile Station (GSM 450 or GSM 480 or P-GSM 900 or DCS 1 800 supporting speech, except for:

For M = 1 (TCH/F):

HANDOVER COMMAND

Information Element	value/remarks
Mode of first channel	Arbitrary from those supported (12, 6, 3.6 kbps).

For M = 2 (TCH/H):

HANDOVER COMMAND

Information Element	value/remarks
Mode of first channel	Arbitrary from those supported (6, 3.6 kbps).

## 26.9.9 Default contents of messages

ALERTING (mobile station to network direction)

Information element	Value/remark
Facility	Not checked
User-user	Not checked
SS version	Not checked

ALERTING (network to mobile station direction)

Information element	Value/remark
Facility	Omitted
Progress indicator	Omitted
User-user	Omitted

ASSIGNMENT COMMAND

Information element	Value/remark
Description of the first channel	describes non-hopping Bm+ACCHs or Lm+ACCHs as appropriate for the test
Power Command	As in section 26.1.1
Frequency list	Omitted
Cell channel description	Omitted
Mode of the first channel	appropriate for one bearer capability chosen for the test
Description of the second channel	Omitted
Mode of the second channel	Omitted
Mobile allocation	Omitted
Starting time	Omitted
Cipher mode setting	Omitted

ASSIGNMENT COMPLETE

Information element	Value/remark
RR cause	normal event

AUTHENTICATION REQUEST

Information element	Value/remark
Ciphering key sequence number	Arbitrary
Spare half octet	(spare bits)
Authentication parameter RAND	Arbitrary

AUTHENTICATION RESPONSE

Information element	Value/remark
Authentication parameter SRES	Correct for given SRES

CALL CONFIRMED

Information element	Value/remark
Repeat indicator Bearer capability 1	Omitted The <i>bearer capability 1</i> information element shall be included if and only if at least one of the following cases holds: <ul style="list-style-type: none"> <li>- the mobile station wishes another bearer capability than that given by the <i>bearer capability 1</i> information element of the incoming SETUP message;</li> <li>- the <i>bearer capability 1</i> information element received in the SETUP message is accepted and the "radio channel requirement" of the Mobile Station is other than "full rate support only mobile station".</li> <li>- the <i>bearer capability 1</i> information element received in the SETUP message indicates speech and is accepted and the Mobile Station supports other speech versions than GSM full rate version 1/ half rate version 1.</li> </ul>
Bearer capability 2 Cause CC Capabilities	Omitted Omitted may be present

CALL PROCEEDING

Information element	Value/remark
Repeat Indicator Bearer Capability 1	Omitted Omitted if the SETUP message did not specify in the bearer capability 1 IE a connection element value "both, transparent preferred" or "both, non-transparent preferred". Otherwise included; in that case the connection element specifies the value that is appropriate for the selected teleservice (either value "transparent" or value "non transparent (RLP)"), all other parameters are same as in the bearer capability 1 IE of the received SETUP message.
Bearer Capability 2 Facility Progress indicator	Omitted Omitted Omitted

CHANNEL RELEASE

Information element	Value/remark
RR cause	Normal event

CHANNEL REQUEST

Information element	Value/remark
Establishment cause Random reference	Answer to paging (100) Arbitrary value of 5 bits length

CIPHERING MODE COMMAND

Information element	Value/remark
Cipher mode setting	indicates a supported algorithm
algorithm identifier	
SC	Start ciphering
Cipher response	IMEI must not be included
CR	

CIPHERING MODE COMPLETE

Information element	Value/remark
Mobile equipment identity	Omitted

CM SERVICE ACCEPT

Information element	Value/remark
none but message head	

CM SERVICE REQUEST

Information element	Value/remark
CM service type	Mobile originating call establishment or packet mode connection establishment
Ciphering key sequence number	CKSN of the MS
Mobile station classmark 2	as given by PICS.
Mobile identity	TMSI of MS

CONNECT (network to mobile station direction)

Information element	Value/remark
Facility	Omitted
Progress indicator	Omitted
Connected number	Omitted
Connected subaddress	Omitted
User-user	Omitted

CONNECT (mobile station to network direction)

Information element	Value/remark
Facility	Not checked
Connected subaddress	Not checked
User-user	Not checked
SS version	Not checked

CONNECT ACKNOWLEDGE

Information element	Value/remark
none but message head	

## DISCONNECT (network to mobile station direction)

Information element	Value/remark
Cause	
Coding standard	GSM
Location	User
Cause value	Normal clearing
Facility	Omitted
Progress indicator	Omitted
User-user	Omitted

## DISCONNECT (mobile station to network direction)

Information element	Value/remark
Cause	
Coding standard	GSM
Location	User
Cause value	Normal clearing
Facility	Not checked
User-user	Not checked
SS version	Not checked

## EMERGENCY SETUP

Information element	Value/remark
Bearer Capability	May be present or omitted. If present, it shall indicate speech, the appropriate speech version(s) and have the appropriate value of radio channel requirement field

## IMMEDIATE ASSIGNMENT

Information element	Value/remark
Page mode	Normal paging
Channel description	describes a valid SDCCH+SACCH in non-hopping mode
Request reference	
Random access information	As received from MS
N51, N32, N26	Corresponding to frame number of the CHANNEL REQUEST
Timing advance	Arbitrary
Mobile allocation	Empty (L=0)
Starting time	Omitted

## PAGING REQUEST TYPE 1

Information element	Value/remark
L2 pseudo length	L2 pseudo length of the message
Page Mode	Normal Paging
Channels needed for Mobiles 1 and 2	
channel (first)	any channel
channel (second)	any channel
Mobile identity 1	TMSI of MS under test
Mobile identity 2	Omitted
P1 rest octets	(spare octets)

PAGING RESPONSE

Information element	Value/remark
Ciphering key sequence number	Value assigned to MS in the initial conditions (spare bits) as given by PICS specifies TMSI of MS
Spare half octet	
Mobile station classmark 2	
Mobile identity	

RELEASE (network to mobile station direction)

Information element	Value/remark
Cause	Omitted
Second cause	Omitted
Facility	Omitted
User-user	Omitted

RELEASE (mobile station to network direction)

Information element	Value/remark
Cause	Not checked
Second cause	Not checked
Facility	Not checked
User-user	Not checked
SS version	Not checked

RELEASE COMPLETE (network to mobile station direction)

Information element	Value/remark
Cause	Omitted
Facility	Omitted
User-user	Omitted

RELEASE COMPLETE (mobile station to network direction)

Information element	Value/remark
Cause	Not checked
Facility	Not checked
User-user	Not checked
SS version	Not checked

SETUP (MS to SS)

Information element	Value/remark
BC Repeat indicator	Omitted
Bearer capability 1	Appropriate for the teleservice selected for the test
Bearer capability 2	Omitted
Facility	Not checked
Calling party subaddress	Not checked
Called party BCD number	As entered
Called party subaddress	Omitted
LLC repeat indicator	Omitted
Low layer compatibility I	Appropriate for teleservice selected for the test
Low layer compatibility II	Omitted
HLC repeat indicator	Omitted
High layer compatibility i	Appropriate for teleservice selected for the test
High layer compatibility ii	Omitted
User-user	Not checked
SS version	Not checked
CLIR suppression	Not checked
CC Capabilities	may be present

SETUP (SS to MS)

Information element	Value/remark
BC repeat indicator	Omitted
Bearer capability 1	Appropriate for teleservice selected for the test
Bearer capability 2	Omitted
Facility	Omitted
Progress indicator	Omitted
Signal	Omitted
Calling party BCD number	Omitted
Calling party subaddress	Omitted
Called party BCD number	Omitted
Called party subaddress	Omitted
LLC repeat indicator	Omitted
Low layer compatibility I	Appropriate for teleservice selected for the test
Low layer compatibility II	Omitted
HLC repeat indicator	Omitted
High layer compatibility i	Appropriate for the teleservice selected for the test
High layer compatibility ii	Omitted
User-user	Omitted