26.15 SoLSA signalling

26.15.1 General considerations

This section applies only to mobile stations supporting SoLSA, as defined in GSM 02.43 and GSM 03.73.

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

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

26.15.2 SoLSA signalling / MM

26.15.2.1 SoLSA signalling / MM / Location updating

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

26.15.2.1.1 Location updating / accepted

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

26.15.2.1.1.1 Conformance requirement

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

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

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

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

Reference(s)

TS 24.008 section 4.4.4.6

GSM 04.18 sections 3.3.1.1.4.1, 9.1.11 and 10.5.2.34

TS 24.008 sections 9.2.15, 10.5.1.5 and 10.5.1.6

26.15.2.1.1.2 Test purpose

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

26.15.2.1.1.3 Method of test

26.15.2.1.1.3.1 Location Updating/accepted/test1

Initial conditions:

System Simulator:

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

IMSI attach/detach is allowed in both cells.

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

Mobile Station:

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

Related PICS/PIXIT statement(s)

- Support of SoLSA

Foreseen final state of the MS

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

Test Procedure

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

Maximum duration of test

4 minutes.

Expected sequence

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

22	MS -> SS	CLASSMARK CHANGE	Shall be ready to transmit (see GSM 05.10 section 06.10) within 40 ms after the completion of step 20. Shall indicate the MS frequency and power capabilities Note: In this case 'ready to transmit' shall result in the actual transmission of the Classmark Change 51 frames later (51 * 4.62ms = 235.62 ms). Therefore receipt of the Classmark Change within 250ms of step 20 is required. "mobile station classmark 2" includes settings for ES IND and SoLSA
23	SS -> MS	LOCATION UPDATING ACCEPT	"Mobile identity" IE not included.
24	SS -> MS	CHANNEL RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link. The SS waits an amount of time which is enough to guarantee that the MS is in service.
25	SS -> MS	PAGING REQUEST TYPE 1	"Mobile identity" IE contains the TMSI (= TMSI2).
26	MS -> SS	CHANNEL REQUEST	
27	SS -> MS	IMMEDIATE ASSIGNMENT	
28	MS -> SS	SABM (PAGING RESPONSE)	"Mobile identity" IE contains the TMSI (= TMSI2). "mobile station classmark 2" including settings for ES IND and SoLSA
29	SS -> MS	UA (PAGING RESPONSE)	
30	MS -> SS	CLASSMARK CHANGE	Shall be ready to transmit (see GSM 05.10 section 06.10) within 40 ms after the completion of step 28. Shall indicate the MS frequency and power capabilities Note: In this case 'ready to transmit' shall result in the actual transmission of the Classmark Change 51 frames later (51 * 4.62ms = 235.62 ms). Therefore receipt of the Classmark Change within 250ms of step 28 is required. "mobile station classmark 2" includes settings for ES IND and SoLSA
31	SS -> MS	CHANNEL RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link.
32	SS		The RF level of cell A is lowered until the MS selects cell B.
33	MS -> SS	CHANNEL REQUEST	"Establishment cause": Location updating.
34	SS -> MS	IMMEDIATE ASSIGNMENT	
35	MS -> SS	LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = CKSN1, "location area identification" = a, "mobile station classmark 1" and "mobile station classmark 2" including settings for ES IND and SoLSA and "mobile identity" = TMSI2.
36	SS -> MS	UA(LOCATION UPDATING REQUEST)	"Mobile identity" IE contains IMSI.
37	MS -> SS	CLASSMARK CHANGE	Shall be ready to transmit (see GSM 05.10 section 06.10) within 40 ms after the completion of step 35. Shall indicate the MS frequency and power capabilities Note: In this case 'ready to transmit' shall result in the actual transmission of the Classmark Change 51 frames later (51 * 4.62ms = 235.62 ms). Therefore receipt of the Classmark Change within 250ms of step 35 is required. "mobile station classmark 2" includes settings for ES IND and SoLSA
38	SS -> MS	LOCATION UPDATING ACCEPT	"Mobile identity" IE contains IMSI.
39	SS -> MS	CHANNEL RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link. The SS waits an amount of time which is enough to guarantee that the MS is in service.
40	SS -> MS	PAGING REQUEST TYPE 1	"Mobile identity" IE contains the old TMSI (= TMSI2).
41	MS		The MS shall ignore this message. This is checked during 5 seconds.

42	SS -> MS	PAGING REQUEST TYPE 1	"Mobile identity" IE contains the IMSI.
43	MS -> SS	CHANNEL REQUEST	
44	SS -> MS	IMMEDIATE ASSIGNMENT	
45	MS -> SS	SABM (PAGING RESPONSE)	"Mobile identity" IE contains the IMSI. “mobile station classmark 2” including settings for ES IND and SoLSA
46	SS -> MS	UA (PAGING RESPONSE)	
47	MS -> SS	CLASSMARK CHANGE	Shall be ready to transmit (see GSM 05.10 section 06.10) within 40 ms after the completion of step 45. Shall indicate the MS frequency and power capabilities Note: In this case ‘ready to transmit’ shall result in the actual transmission of the Classmark Change 51 frames later (51 * 4.62ms = 235.62 ms). Therefore receipt of the Classmark Change within 250ms of step 45 is required. “mobile station classmark 2” includes settings for ES IND and SoLSA
48	SS -> MS	CHANNEL RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link.

Specific message contents:

LOCATION UPDATING REQUEST

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

CLASSMARK CHANGE

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

PAGING RESPONSE

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

26.15.3 SoLSA signalling / Structured procedures

These tests applies only to SoLSA mobile stations.

26.15.3.1 SoLSA signalling / Structured procedures / MS originated call / early assignment

26.15.3.1.1 Conformance requirements

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

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

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

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

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

   - attach the user connection to the radio path;

   - return a CONNECT ACKNOWLEDGE message.

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

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

References

Conformance requirement 1:	GSM 02.07
Conformance requirement 2:	GSM 04.18 section 3.3.1.1
Conformance requirement 3:	GSM 04.18 section 3.3.1.1.4.1
	GSM 03.73 section 11.4.1
	GSM 04.18 section 9.1.11
	TS 24.008 sections 9.2.9, 9.2.15, 10.5.1.5 and 10.5.1.6
Conformance requirement 4:	TS 24.008 section 5.2.1.1
Conformance requirement 5:	TS 24.008 section 5.2.1.6
Conformance requirement 6:	TS 24.008 section 5.4.4
Conformance requirement 7:	GSM 04.18 section 3.4.13.1

26.15.3.1.2 Test purpose

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

26.15.3.1.3 Method of test

Related PICS/PIXIT Statements

- Support of SoLSA
- 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 on any frequency band supported by the MS. The call is established with early assignment. Having reached the active state, the call is cleared by the SS.

Maximum Duration of Test

1 minute.

Expected Sequence

Step	Direction	Message	Comments
1	MS		The "called number" is entered
2	MS		If 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. Indicating early sending of CLASSMARK CHANGE and SoLSA support
6	SS -> MS	UA (CM SERVICE REQUEST)	
7	MS -> SS	CLASSMARK CHANGE	Shall be ready to transmit (see GSM 05.10 section 06.10) within 40 ms after the completion of step 5. “mobile station classmark 2” includes settings for ES IND and SoLSA Note: In this case ‘ready to transmit’ shall result in the actual transmission of the Classmark Change 51 frames later (51 * 4.62ms = 235.62 ms). Therefore receipt of the Classmark Change within 250ms of step 5 is required.
8	SS -> MS	AUTHENTICATION REQUEST	
9	MS -> SS	AUTHENTICATION RESP	SRES specifies correct value.
10	SS -> MS	CIPHERING MODE COMMAND	SS starts deciphering after sending the message.
11	MS -> SS	CIPHERING MODE COMPLETE	Shall be sent enciphered. All following messages shall be sent enciphered.
12	SS		SS starts ciphering.
13	MS -> SS	SETUP	
14	SS -> MS	CALL PROCEEDING	
15	SS -> MS	ASSIGNMENT COMMAND	
16	MS -> SS	ASSIGNMENT COMPLETE	
17	SS -> MS	ALERTING	
18	MS		Depending on the PICS, an alerting indication is given
19	SS -> MS	CONNECT	
20	MS -> SS	CONNECT ACKNOWLEDGE	
21	MS		The appropriate bearer channel is through connected in both directions.
22	SS -> MS	DISCONNECT	
23	MS -> SS	RELEASE	
24	SS -> MS	RELEASE COMPLETE	
25	SS -> MS	CHANNEL RELEASE	The main signalling link is released.

Specific Message Contents:

CM SERVICE REQUEST

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

CLASSMARK CHANGE

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

26.15.3.2 SoLSA signalling / Structured procedures / MS originated call / late assignment

26.15.3.2.1 Conformance requirements

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

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

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

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

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

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

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

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

References

Conformance requirement 1: GSM 02.07.

Conformance requirement 2: GSM 04.18 section 3.3.1.1

Conformance requirement 3: GSM 04.18 section 3.3.1.1.4.1

GSM 03.73 section 11.4.1

GSM 04.18 section 9.1.11

TS 24.008 sections 9.2.9, 9.2.15, 10.5.1.5 and 10.5.1.6

Conformance requirement 4: GSM 04.18 sections 3.4.3.1 and 3.4.3.2

Conformance requirement 5: TS 24.008 sections section 5.2.1.6

Conformance requirement 6: TS 24.008 sections section 5.2.1.6

Conformance requirement 7: TS 24.008 sections section 5.4.4

Conformance requirement 8: GSM04.18 section 3.4.13.1

26.15.3.2.2 Test purpose

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

26.15.3.2.3 Method of test

Related PICS/PIXIT Statements

- Support of SoLSA
- 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 on any frequency band supported by the MS. The call is established with late assignment. Having reached the active state, the call is cleared by the SS.

Maximum Duration of Test

1 minute.

Expected Sequence

Step	Direction	Message	Comments
1	MS		The "called number" is entered
2	MS		If 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. Indicating early sending of CLASSMARK CHANGE and SoLSA support
6	SS -> MS	UA (CM SERVICE REQUEST)	
7	MS -> SS	CLASSMARK CHANGE	Shall be ready to transmit (see GSM 05.10 section 06.10) within 40 ms after the completion of step 5. “mobile station classmark 2” includes settings for ES IND and SoLSA Note: In this case ‘ready to transmit’ shall result in the actual transmission of the Classmark Change 51 frames later (51 * 4.62ms = 235.62 ms). Therefore receipt of the Classmark Change within 250ms of step 5 is required.
8	SS -> MS	AUTHENTICATION REQUEST	
9	MS -> SS	AUTHENTICATION RESP	SRES specifies correct value.
10	SS -> MS	CIPHERING MODE COMMAND	SS starts deciphering after sending the message.
11	MS -> SS	CIPHERING MODE COMPLETE	Shall be sent enciphered. All following messages shall be sent enciphered.
12	SS		SS starts ciphering.
13	MS -> SS	SETUP	
14	SS -> MS	CALL PROCEEDING	
15	SS -> MS	ALERTING	
16	MS		Depending on the PICS, an alerting indication is given
17	SS -> MS	ASSIGNMENT COMMAND	
18	MS -> SS	ASSIGNMENT COMPLETE	
19	SS -> MS	CONNECT	
20	MS -> SS	CONNECT ACKNOWLEDGE	
21	MS		The appropriate bearer channel is through connected in both directions.
22	SS -> MS	DISCONNECT	
23	MS -> SS	RELEASE	
24	SS -> MS	RELEASE COMPLETE	
25	SS -> MS	CHANNEL RELEASE	The main signalling link is released.

Specific Message Contents:

CM SERVICE REQUEST

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

CLASSMARK CHANGE

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

26.15.3.3 SoLSA signalling / Structured procedures / MS terminated call / early assignment

26.15.3.3.1 Conformance requirement

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

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

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

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

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

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

6)

   For speech calls:

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

   For data calls:

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

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

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

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

Requirement reference:

Conformance requirement 1:	GSM 04.18 section 3.3.1.1.4.1
	GSM 03.73 section 11.4.1
	GSM 04.18 section 9.1.11
	TS 24.008 sections 9.2.9, 9.2.15, 10.5.1.5 and 10.5.1.6
Conformance requirements 2, 3, 4:	TS 24.008 sections 5.2.2.3.1, 5.2.2.3.2 and 5.2.2.5

Conformance requirement 5: GSM 04.18 section 3.4.3.1

Conformance requirement 6: TS 24.008 section 5.2.2.9

26.15.3.3.2 Test Purpose

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

26.15.3.3.3 Method of test

Related PICS/PIXIT statements

- Support of SoLSA
- 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)
- 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.

Test procedure

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

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

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

Maximum Duration of Test

1 minute.

Expected Sequence

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST TYPE 1	Sent on the correct paging subchannel
2	MS -> SS	CHANNEL REQUEST	Establishment cause indicates "answer to paging".
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	PAGING RESPONSE	Message is contained in SABM "Mobile identity" IE contains the IMSI. “mobile station classmark 2” including settings for ES IND and SoLSA.
5	SS -> MS	UA (PAGING RESPONSE)	
6	MS -> SS	CLASSMARK CHANGE	Shall be ready to transmit (see GSM 05.10 section 06.10) within 40 ms after the completion of step 4. “mobile station classmark 2” includes settings for ES IND and SoLSA Note: In this case ‘ready to transmit’ shall result in the actual transmission of the Classmark Change 51 frames later (51 * 4.62ms = 235.62 ms). Therefore receipt of the Classmark Change within 250ms of step 4 is required.
7	SS -> MS	AUTHENTICATION REQUEST	
8	MS -> SS	AUTHENTICATION RESP	SRES specifies correct value.
9	SS -> MS	CIPHERING MODE COMMAND	SS starts deciphering after sending the message.
10	MS -> SS	CIPHERING MODE COMPLETE	Shall be sent enciphered. All following messages shall be sent enciphered.
11	SS		SS starts ciphering.
12	SS -> MS	SETUP	Message contains the signal IE.
13	MS -> SS	CALL CONFIRMED	If the MS supports immediate connect then branch A applies. If the MS does not support immediate connect then branch B applies
A12	MS -> SS	CONNECT	sent on the old channel
A13	SS -> MS	ASSIGNMENT COMMAND	
A14	MS -> SS	ASSIGNMENT COMPLETE	
B12	SS -> MS	ASSIGNMENT COMMAND	
B13	MS -> SS	ASSIGNMENT COMPLETE	sent on the new channel
B14	MS -> SS	ALERTING	
B15	MS		An alerting indication as defined in a 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:

CLASSMARK CHANGE

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

PAGING RESPONSE

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

26.15.3.4 SoLSA signalling / Structured procedures / MS terminated call / late assignment

26.15.3.4.1 Conformance requirement

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

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

3) An MS indicates acceptance of a MT call by sending CONNECT. If the MS does not support immediate connect, it sends an ALERTING message

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

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

6)

For speech calls:

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

For data calls:

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

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

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

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

Requirement reference:

Conformance requirement 1:	GSM 04.18 section 3.3.1.1.4.1
	GSM 03.73 section 11.4.1
	GSM 04.18 section 9.1.11
	TS 24.008 sections 9.2.9, 9.2.15, 10.5.1.5 and 10.5.1.6
Conformance requirements 2, 3, 4:	TS 24.008 sections 5.2.2.3.1, 5.2.2.3.2 and 5.2.2.5
Conformance requirement 5:	GSM 04.18 section 3.4.3.1
Conformance requirement 6:	TS 24.008 section 5.2.2.9

26.15.3.4.2 Test Purpose

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

26.15.3.4.3 Method of test

Related PICS/PIXIT statements

- Support of SoLSA
- 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)
- 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.

Test procedure

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

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

The MS is paged and a MT call is established with late assignment (after CONNECT). Having reached the active state, the MS is made to clear the call.

Maximum Duration of Test

1 minute.

Expected Sequence

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST TYPE 1	Sent on the correct paging subchannel
2	MS -> SS	CHANNEL REQUEST	Establishment cause indicates "answer to paging".
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	PAGING RESPONSE	Message is contained in SABM "Mobile identity" IE contains the IMSI. “mobile station classmark 2” including settings for ES IND and SoLSA.
5	SS -> MS	UA (PAGING RESPONSE)	
6	MS -> SS	CLASSMARK CHANGE	Shall be ready to transmit (see GSM 05.10 section 06.10) within 40 ms after the completion of step 4. “mobile station classmark 2” includes settings for ES IND and SoLSA Note: In this case ‘ready to transmit’ shall result in the actual transmission of the Classmark Change 51 frames later (51 * 4.62ms = 235.62 ms). Therefore receipt of the Classmark Change within 250ms of step 4 is required.
7	SS -> MS	AUTHENTICATION REQUEST	
8	MS -> SS	AUTHENTICATION RESP	SRES specifies correct value.
9	SS -> MS	CIPHERING MODE COMMAND	SS starts deciphering after sending the message.
10	MS -> SS	CIPHERING MODE COMPLETE	Shall be sent enciphered. All following messages shall be sent enciphered.
11	SS		SS starts ciphering.
12	SS -> MS	SETUP	Message contains the signal IE.
13	MS -> SS	CALL CONFIRMED	
A14	MS -> SS	CONNECT	
B14	MS -> SS	ALERTING	
B15	MS		An alerting indication as defined in a 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	SS -> MS	ASSIGNMENT COMMAND	
19	MS -> SS	ASSIGNMENT COMPLETE	
20	MS		If the call is a speech call, the TCH shall be through connected in both directions.
21	SS -> MS	CONNECT ACKNOWLEDGE	
22	MS		If the call is a data call, the TCH shall be through connected in both directions.
23	MS		The MS is made to release the call.
24	MS -> SS	DISCONNECT	
25	SS -> MS	RELEASE	
26	MS -> SS	RELEASE COMPLETE	
27	SS -> MS	CHANNEL RELEASE	The main signalling link is released.

Specific Message Contents:

CLASSMARK CHANGE

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

PAGING RESPONSE

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

26.15.4 SoLSA signalling / Default messages contents

Default contents SYSTEM INFORMATION messages and default settings

For cell A and B For GSM use 26.6.14.

For DCS use 26.6.15, for GSM 450 use 26.6.16 and for GSM 480 use 26.6.17.

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

SYSTEM INFORMATION TYPE 2bis, SYSTEM INFORMATION TYPE 5bis, SYSTEM INFORMATION TYPE 7 and SYSTEM INFORMATION TYPE 8 messages are not used.

SYSTEM INFORMATION TYPE 3

Default except:

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

Default message contents for other messages

For section 26.15.2	same as in 26.7.6
For section 26.15.3	same as in 26.9.9