

31 Test of supplementary services

The general aspects of the specification of supplementary services at the layer 3 radio interface are given in GSM 04.10.

The formats and coding are given in GSM 04.80. If the value of a parameter of an uplink message (MS to network) is specified in a test, the implicit meaning is that it has to be checked; if the value is not specified, it is not to be checked unless otherwise stated.

Unless otherwise stated, the MS shall be in the idle updated state at the beginning of each test (including repetition of a test).

In each test, before the MS sends the first REGISTER message, a MM connection is established.

GSM 04.81 to GSM 04.88 give the procedures used at the radio interface for normal operation, registration, erasure, activation, deactivation, invocation and interrogation of supplementary services.

The supplementary services are described in GSM 02.04 and GSM 02.81 to GSM 02.88.

Whenever activation via the standard MMI is mentioned, if the MS does not support it but supports a different procedure, this different procedure is used. In the supplementary services tests, only the applicable (see GSM 02.8x series) MMI service code groups (GSM 02.30 annex 4), of the basic service code in GSM 09.02, which are supported by the MAP, will be used.

31.1 Number identification supplementary services

31.1.1 CLIP

31.1.1.1 Normal operation

Conformance requirement:

GSM 04.81 subclause 1.1

Purpose:

To test that the MS presents to the user the calling number presented to it in an incoming SETUP message

Related PICS/PIXIT statements

- supported MT circuit switched basic services.
- description of display for CLIP

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

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

The SIM in the MS under test has CLIP enabled.

Foreseen final state of the MS

State U7

Maximum duration of test

30 s.

Procedure:

Set up an MT call to the MS under test. The SETUP message shall include a calling party BCD number information element and a calling party subaddress information element.

Expected sequence

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST	SS sends paging (SDCCH)
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	PAGING RESPONSE	
5	SS -> MS	AUTHENTICATION REQUEST	
6	MS -> SS	AUTHENTICATION RESPONSE	
7	SS -> MS	CIPHERING MODE COMMAND	Shall include a valid calling party BCD number and calling party subaddress
8	MS -> SS	CIPHERING MODE COMPLETE	
9	SS -> MS	SETUP	
10	MS -> SS	ALERTING	The MS shall display the calling party BCD number and calling party subaddress
11	MS		

31.1.1.2 Interrogation**31.1.1.2.1 Interrogation accepted****Conformance requirement:**

GSM 04.81 subclause 1.2

Applicability

MS supporting the CLIP supplementary service.

Test purpose

To test the correct operation of the interrogation procedure, and correct display of the response from the SS in the case of successful interrogation

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:
The MS is "idle updated".

Related PICS/PIXIT statement(s)

Description of the user's commands and of display of the answers from the network for interrogation of CLIP.

Foreseen final state of the MS

The MS is "idle updated".

Test procedure

By means of appropriate MMI functions (using either GSM 02.30 or manufacturer defined MMI), the user requests interrogation of CLIP for all basic service groups.

Upon receipt of the operation (in a REGISTER message), the system simulator answers with a RELEASE COMPLETE message with the Facility information element containing the return result of the InterrogateSS operation.

The SS transaction is released and the dedicated channel is released.

Maximum duration of test

3 min.

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is made to initiate an interrogation of CLIP (all) with establishment cause "Other procedures which can be completed with an SDCCH" cause: "supplementary service activation"
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	CM SERVICE REQUEST	
5	SS -> MS	CM SERVICE ACCEPT	
6	MS -> SS	REGISTER	
7	SS -> MS	RELEASE COMPLETE	InterrogateSS operation Return_result provide user MMI indication
8	MS		
9	SS -> MS	CHANNEL RELEASE	

Specific message content

step 6 - CLIP

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = Interrogation

Supplementary service code = CLIP

Basic service code: no Bearer Service present, no teleservice present.

31.1.1.2.2 Interrogation rejected**Conformance requirement**

GSM 04.81 subclause 1.2

Applicability

MS supporting the CLIP supplementary service.

Test purpose

To test the correct operation of the interrogation procedure, and correct display of the response from the SS in the case of an error response and an invoke problem

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS is in CC state U10.

Related PICS/PIXIT statement(s)

Description of the user's commands and of display of the answers from the network for interrogation of CLIP.

Foreseen final state of the MS

The MS is in CC state U10.

Test procedure

By means of appropriate MMI functions (using either GSM 02.30 or manufacturer defined MMI), the user requests interrogation of CLIP for all basic service groups.

Upon receipt of the operation (in a REGISTER message), the system simulator answers with a RELEASE COMPLETE message with the Facility information element containing a Return_error(error: SS not available) of the InterrogateSS operation.

The system simulator sends STATUS ENQUIRY, the MS responds with STATUS message indicating CC state U10.

Then again, by means of appropriate MMI functions as defined by the basic public MMI described in GSM 02.30, the user requests interrogation of CLIP for all basic service groups.

Upon receipt of the REGISTER message, the system simulator answers with the RELEASE COMPLETE message (same PD and TI that in the REGISTER message) with the Facility information element containing a reject(invoke_problem: resource limitation) of the InterrogateSS operation.

The system simulator sends STATUS ENQUIRY, the MS responds with STATUS message indicating CC state U10.

Maximum duration of test

3 min.

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is made to initiate an interrogation for CLIP (all)
2	MS -> SS	CM SERVICE REQUEST	cause: "supplementary service activation"
3	SS -> MS	CM SERVICE ACCEPT	
4	MS -> SS	REGISTER	
5	SS -> MS	RELEASE COMPLETE	InterrogateSS operation Return_error
6	SS -> MS	STATUS ENQUIRY	CC state U10 The MS is made to initiate an interrogation of CLIP (all) cause: "supplementary service activation"
7	MS -> SS	STATUS	
8	MS		
9	MS -> SS	CM SERVICE REQUEST	
10	SS -> MS	CM SERVICE ACCEPT	
11	MS -> SS	REGISTER	
12	SS -> MS	RELEASE COMPLETE	InterrogateSS operation Reject
13	MS		provide correct MMI user indication
14	SS -> MS	STATUS ENQUIRY	CC state U10
15	MS -> SS	STATUS	

Specific message content

step 4, 11 - CLIP

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = Interrogation

Supplementary service code = CLIP

Basic service code: no Bearer Service present, no teleservice present

step 5 - CLIP

- protocol discriminator: non call related SS message
- transaction identifier: same TI as previous REGISTER message
- message type: RELEASE COMPLETE
- facility:
 - return error code: SS not available

For the return error the invoke ID must be the same as in the invoke of the InterrogateSS operation.

step 12 -

- protocol discriminator: non call related SS message
- transaction identifier: same TI as previous REGISTER message
- message type: RELEASE COMPLETE
- facility:
 - reject code: resource limitation

For the reject the invoke ID must be the same as in the invoke of the InterrogateSS operation.

31.1.2 CLIR**31.1.2.1 Normal operation - requesting presentation of CLI****Conformance requirement:**

GSM 04.81 subclause 2.2

Test Purpose

To test that when the CLIR presentation mode is temporary (presentation restricted), it is possible for the subscriber to present his CLI on a per call basis

Method of test**Related PICS/PIXIT statements**

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The SIM in the MS under test has CLIR enabled with CLIR presentation mode "temporary (presentation restricted)".

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

The MS is brought into the state U0.1 by using table 26.8.1.2/1.

Foreseen final state of the MS

U1, call initiated.

Maximum duration of test

30 s.

Test procedure

An MO circuit switched basic service is selected that is supported by the MS; if the MS supports MO telephony, the selected basic service is telephony. If necessary, the MS is configured for that basic service. Using MMI commands, the MS is made to initiate an outgoing call with CLI presented. When the MS is requesting a MM-connection, the SS will indicate acceptance by sending a CM SERVICE ACCEPT message. The MS shall respond with SETUP. The SETUP message shall contain the calling line BCD number and calling line subaddress information elements

Expected sequence

Step	Direction	Message	Comments
1	SS -> MS	CM SERVICE ACCEPT	with calling party BCD number and calling party subaddress
2	MS -> SS	SETUP	

31.1.2.2 Normal operation - requesting restriction of CLI presentation

Conformance requirement:

GSM 04.81 subclause 2.3

Test Purpose

To test that when the CLIR presentation mode is temporary (presentation allowed), it is possible for the subscriber to present his CLI on a per call basis

Procedure

Using MMI commands, the MS is made to initiate an outgoing call with CLI restricted.

Requirements:

The SETUP message sent by the MS shall include the CLIR invocation information element.

Method of test

Related PICS/PIXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The SIM in the MS under test has CLIR enabled with CLIR presentation mode "temporary (presentation allowed)".

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

The MS is brought into the state U0.1 by using table 26.8.1.2/1.

Foreseen final state of the MS

U1, call initiated.

Maximum duration of test

30 s.

Test procedure

An MO circuit switched basic service is selected that is supported by the MS; if the MS supports MO telephony, the selected basic service is telephony. If necessary, the MS is configured for that basic service. Using MMI commands, the MS is made to initiate an outgoing call with CLI restricted. When the MS is requesting a MM-connection, the SS will indicate acceptance by sending a CM SERVICE ACCEPT message. The MS shall respond with SETUP. The SETUP message sent by the MS shall include the CLIR invocation information element.

Expected sequence

Step	Direction	Message	Comments
1	SS -> MS	CM SERVICE ACCEPT	
2	MS -> SS	SETUP	with CLIR invocation information element

31.1.2.3 Interrogation**31.1.2.3.1 Interrogation accepted****Conformance requirement:**

GSM 04.81 subclause 2.4

Applicability

MS supporting the CLIR supplementary service.

Test purpose

To test the correct operation of the interrogation procedure, and correct display of the response from the SS in the case of successful interrogation

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS is "idle updated".

Related PICS/PIXIT statement(s)

Description of the user's commands and of display of the answers from the network for interrogation of CLIR.

Foreseen final state of the MS

The MS is "idle updated".

Test procedure

By means of appropriate MMI functions (using either GSM 02.30 or manufacturer defined MMI), the user requests interrogation of CLIR for all basic service groups.

Upon receipt of the operation (in a REGISTER message), the system simulator answers with a RELEASE COMPLETE message with the Facility information element containing the return result of the InterrogateSS operation.

The SS transaction is released and the dedicated channel is released.

Maximum duration of test

3 min.

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is made to initiate an interrogation of CLIR (all) with establishment cause "Other procedures which can be completed with an SDCCH" cause: "supplementary service activation"
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	CM SERVICE REQUEST	
5	SS -> MS	CM SERVICE ACCEPT	
6	MS -> SS	REGISTER	
7	SS -> MS	RELEASE COMPLETE	InterrogateSS operation Return_result provide user MMI indication
8	MS		
9	SS -> MS	CHANNEL RELEASE	

Specific message content

step 6 - CLIR

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = Interrogation

Supplementary service code = CLIR

Basic service code: no Bearer Service present, no teleservice present.

31.1.2.3.2 Interrogation rejected**Conformance requirement**

GSM 04.81 subclause 2.4

Applicability

MS supporting the CLIR supplementary service.

Test purpose

To test the correct operation of the interrogation procedure, and correct display of the response from the SS in the case of an error response and an invoke problem

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS is in CC state U10.

Related PICS/PIXIT statement(s)

Description of the user's commands and of display of the answers from the network for interrogation of CLIR.

Foreseen final state of the MS

The MS is in CC state U10.

Test procedure

By means of appropriate MMI functions (using either GSM 02.30 or manufacturer defined MMI), the user requests interrogation of CLIR for all basic service groups.

Upon receipt of the operation (in a REGISTER message), the system simulator answers with a RELEASE COMPLETE message with the Facility information element containing a Return_error(error: SS not available) of the InterrogateSS operation.

The system simulator sends STATUS ENQUIRY, the MS responds with STATUS message indicating CC state U10.

Then again, by means of appropriate MMI functions as defined by the basic public MMI described in GSM 02.30, the user requests interrogation of CLIR for all basic service groups.

Upon receipt of the REGISTER message, the system simulator answers with the RELEASE COMPLETE message (same PD and TI that in the REGISTER message) with the Facility information element containing a reject(invoked_problem: resource limitation) of the InterrogateSS operation.

The system simulator sends STATUS ENQUIRY, the MS responds with STATUS message indicating CC state U10.

Maximum duration of test

3 min.

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is made to initiate an interrogation for CLIR (all)
2	MS -> SS	CM SERVICE REQUEST	cause: "supplementary service activation"
3	SS -> MS	CM SERVICE ACCEPT	
4	MS -> SS	REGISTER	
5	SS -> MS	RELEASE COMPLETE	InterrogateSS operation Return_error
6	SS -> MS	STATUS ENQUIRY	CC state U10 The MS is made to initiate an interrogation of CLIR (all)
7	MS -> SS	STATUS	
8	MS		
9	MS -> SS	CM SERVICE REQUEST	cause: "supplementary service activation"
10	SS -> MS	CM SERVICE ACCEPT	
11	MS -> SS	REGISTER	
12	SS -> MS	RELEASE COMPLETE	InterrogateSS operation Reject
13	MS		provide correct MMI user indication
14	SS -> MS	STATUS ENQUIRY	CC state U10
15	MS -> SS	STATUS	

Specific message content

step 4, 11 - CLIR

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = Interrogation

Supplementary service code = CLIR

Basic service code: no Bearer Service present, no teleservice present

step 5 - CLIR

- protocol discriminator: non call related SS message
- transaction identifier: same TI as previous REGISTER message
- message type: RELEASE COMPLETE
- facility:
 - return error code: SS not available

For the return error the invoke ID must be the same as in the invoke of the InterrogateSS operation.

step 12 -

- protocol discriminator: non call related SS message
- transaction identifier: same TI as previous REGISTER message
- message type: RELEASE COMPLETE
- facility:
 - reject code: resource limitation

For the reject the invoke ID must be the same as in the invoke of the InterrogateSS operation.

31.1.3 COLP

31.1.3.1 Normal operation

Conformance requirement:

GSM 04.81 subclause 3.1

Applicability

MS supporting the COLP supplementary service.

Purpose:

To test that the MS displays the connected number presented to it in an incoming CONNECT message

Method of test

Related PICS/PIXIT statements

- supported MO circuit switched basic services.
- description of display for COLP

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The SIM in the MS under test has COLP enabled.

The MS is in MM-state "idle, updated" with valid TMSI and CKSN.
The MS is brought into the state U1 by using table 26.8.1.2/4.

Foreseen final state of the MS

U10, call active.

Maximum duration of test

30 s.

Test procedure

1. An MO circuit switched basic service is selected that is supported by the MS; if the MS supports MO telephony, the selected basic service is telephony. If necessary, the MS is configured for that basic service. Then, the MS is made to initiate a call. The CC entity of the MS is brought to the state U1. The SS sends a CONNECT message to the MS containing a connected number information element and a connected party subaddress information element. The MS shall respond by sending a CONNECT ACKNOWLEDGE message. The MS shall correctly display the connected line information.
2. Repeat procedure 1, except that the CONNECT message includes a connected number information element indicating "presentation restricted".
3. Repeat procedure 1, except that the CONNECT message includes a connected number information element indicating "Number not available due to interworking".

Expected sequence, procedure 1

Step	Direction	Message	Comments
1	SS -> MS	CONNECT	See specific message contents
2	MS -> SS	CONNECT ACKNOWLEDGE	
3	MS		The MS shall correctly display the connected line information

Specific message contents

CONNECT

Connected number information element	
Presentation indicator	Presentation allowed
Screening indicator	User provided, not screened
Connected subaddress	Any valid subaddress

Expected sequence, procedure 2

Step	Direction	Message	Comments
1	SS -> MS	CONNECT	See specific message contents
2	MS -> SS	CONNECT ACKNOWLEDGE	
3	MS		The MS shall correctly display the connected line information

Specific message contents**CONNECT**

Connected number information element	Presentation restricted
Presentation indicator	User provided, not screened
Screening indicator	Not present
Connected subaddress	

Expected sequence, procedure 3

Step	Direction	Message	Comments
1	SS -> MS	CONNECT	See specific message contents
2	MS -> SS	CONNECT ACKNOWLEDGE	
3	MS		The MS shall correctly display the connected line information

Specific message contents**CONNECT**

Connected number information element	Number not available due to interworking
Presentation indicator	User provided, not screened
Screening indicator	Not present
Connected subaddress	

31.1.3.2 Interrogation**31.1.3.2.1 Interrogation accepted****Conformance requirement:**

GSM 04.81 subclause 3.2

Applicability

MS supporting the COLP supplementary service.

Test purpose

To test the correct operation of the interrogation procedure, and correct display of the response from the SS in the case of successful interrogation

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:
The MS is "idle updated".

Related PICS/PIXIT statement(s)

Description of the user's commands and of display of the answers from the network for interrogation of COLP.

Foreseen final state of the MS

The MS is "idle updated".

Test procedure

By means of appropriate MMI functions (using either GSM 02.30 or manufacturer defined MMI), the user requests interrogation of COLP for all basic service groups.

Upon receipt of the operation (in a REGISTER message), the system simulator answers with a RELEASE COMPLETE message with the Facility information element containing the return result of the InterrogateSS operation.

The SS transaction is released and the dedicated channel is released.

Maximum duration of test

3 min.

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is made to initiate an interrogation of COLP (all) with establishment cause "Other procedures which can be completed with an SDCCH" cause: "supplementary service activation"
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	CM SERVICE REQUEST	
5	SS -> MS	CM SERVICE ACCEPT	
6	MS -> SS	REGISTER	
7	SS -> MS	RELEASE COMPLETE	InterrogateSS operation Return_result provide user MMI indication
8	MS		
9	SS -> MS	CHANNEL RELEASE	

Specific message content

step 6 - COLP

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = Interrogation

Supplementary service code = COLP

Basic service code: no Bearer Service present, no teleservice present.

31.1.3.2.2 Interrogation rejected**Conformance requirement**

GSM 04.81 subclause 3.2

Applicability

MS supporting the COLP supplementary service.

Test purpose

To test the correct operation of the interrogation procedure, and correct display of the response from the SS in the case of an error response and an invoke problem

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS is in CC state U10.

Related PICS/PIXIT statement(s)

Description of the user's commands and of display of the answers from the network for interrogation of COLP.

Foreseen final state of the MS

The MS is in CC state U10.

Test procedure

By means of appropriate MMI functions (using either GSM 02.30 or manufacturer defined MMI), the user requests interrogation of COLP for all basic service groups.

Upon receipt of the operation (in a REGISTER message), the system simulator answers with a RELEASE COMPLETE message with the Facility information element containing a Return_error(error: SS not available) of the InterrogateSS operation.

The system simulator sends STATUS ENQUIRY, the MS responds with STATUS message indicating CC state U10.

Then again, by means of appropriate MMI functions as defined by the basic public MMI described in GSM 02.30, the user requests interrogation of COLP for all basic service groups.

Upon receipt of the REGISTER message, the system simulator answers with the RELEASE COMPLETE message (same PD and TI that in the REGISTER message) with the Facility information element containing a reject(invoke_problem: resource limitation) of the InterrogateSS operation.

The system simulator sends STATUS ENQUIRY, the MS responds with STATUS message indicating CC state U10.

Maximum duration of test

3 min.

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is made to initiate an interrogation for COLP (all)
2	MS -> SS	CM SERVICE REQUEST	cause: "supplementary service activation"
3	SS -> MS	CM SERVICE ACCEPT	
4	MS -> SS	REGISTER	
5	SS -> MS	RELEASE COMPLETE	InterrogateSS operation Return_error
6	SS -> MS	STATUS ENQUIRY	
7	MS -> SS	STATUS	CC state U10
8	MS		The MS is made to initiate an interrogation of COLP (all)
9	MS -> SS	CM SERVICE REQUEST	cause: "supplementary service activation"
10	SS -> MS	CM SERVICE ACCEPT	
11	MS -> SS	REGISTER	
12	SS -> MS	RELEASE COMPLETE	InterrogateSS operation Reject
13	MS		provide correct MMI user indication
14	SS -> MS	STATUS ENQUIRY	
15	MS -> SS	STATUS	CC state U10

Specific message content

step 4, 11 - COLP

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = Interrogation

Supplementary service code = COLP

Basic service code: no Bearer Service present, no teleservice present

step 5 - COLP

- protocol discriminator: non call related SS message
- transaction identifier: same TI as previous REGISTER message
- message type: RELEASE COMPLETE
- facility:
 - return error code: SS not available

For the return error the invoke ID must be the same as in the invoke of the InterrogateSS operation.

step 12 -

- protocol discriminator: non call related SS message
- transaction identifier: same TI as previous REGISTER message
- message type: RELEASE COMPLETE
- facility:
 - reject code: resource limitation

For the reject the invoke ID must be the same as in the invoke of the InterrogateSS operation.

31.1.4 COLR**31.1.4.1 Interrogation****31.1.4.1.1 Interrogation accepted****Conformance requirement:**

GSM 04.81 subclause 4.2

Applicability

MS supporting the COLR supplementary service.

Test purpose

To test the correct operation of the interrogation procedure, and correct display of the response from the SS in the case of successful interrogation

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS is "idle updated".

Related PICS/PIXIT statement(s)

Description of the user's commands and of display of the answers from the network for interrogation of COLR.

Foreseen final state of the MS

The MS is "idle updated".

Test procedure

By means of appropriate MMI functions (using either GSM 02.30 or manufacturer defined MMI), the user requests interrogation of COLR for all basic service groups.

Upon receipt of the operation (in a REGISTER message), the system simulator answers with a RELEASE COMPLETE message with the Facility information element containing the return result of the InterrogateSS operation.

The SS transaction is released and the dedicated channel is released.

Maximum duration of test

3 min.

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is made to initiate an interrogation of COLR (all) with establishment cause "Other procedures which can be completed with an SDCCH" cause: "supplementary service activation"
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	CM SERVICE REQUEST	
5	SS -> MS	CM SERVICE ACCEPT	
6	MS -> SS	REGISTER	
7	SS -> MS	RELEASE COMPLETE	InterrogateSS operation Return_result provide user MMI indication
8	MS		
9	SS -> MS	CHANNEL RELEASE	

Specific message content

step 6 - COLR

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = Interrogation

Supplementary service code = COLR

Basic service code: no Bearer Service present, no teleservice present.

31.1.4.1.2 Interrogation rejected**Conformance requirement**

GSM 04.81 subclause 4.2

Applicability

MS supporting the COLR supplementary service.

Test purpose

To test the correct operation of the interrogation procedure, and correct display of the response from the SS in the case of an error response and an invoke problem

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS is in CC state U10.

Related PICS/PIXIT statement(s)

Description of the user's commands and of display of the answers from the network for interrogation of COLR.

Foreseen final state of the MS

The MS is in CC state U10.

Test procedure

By means of appropriate MMI functions (using either GSM 02.30 or manufacturer defined MMI), the user requests interrogation of COLR for all basic service groups.

Upon receipt of the operation (in a REGISTER message), the system simulator answers with a RELEASE COMPLETE message with the Facility information element containing a Return_error(error: SS not available) of the InterrogateSS operation.

The system simulator sends STATUS ENQUIRY, the MS responds with STATUS message indicating CC state U10.

Then again, by means of appropriate MMI functions as defined by the basic public MMI described in GSM 02.30, the user requests interrogation of COLR for all basic service groups.

Upon receipt of the REGISTER message, the system simulator answers with the RELEASE COMPLETE message (same PD and TI that in the REGISTER message) with the Facility information element containing a reject(invoke_problem: resource limitation) of the InterrogateSS operation.

The system simulator sends STATUS ENQUIRY, the MS responds with STATUS message indicating CC state U10.

Maximum duration of test

3 min.

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is made to initiate an interrogation for COLR (all) cause: "supplementary service activation"
2	MS -> SS	CM SERVICE REQUEST	
3	SS -> MS	CM SERVICE ACCEPT	
4	MS -> SS	REGISTER	
5	SS -> MS	RELEASE COMPLETE	InterrogateSS operation Return_error CC state U10 The MS is made to initiate a interrogation of COLR (all) cause: "supplementary service activation"
6	SS -> MS	STATUS ENQUIRY	
7	MS -> SS	STATUS	
8	MS		
9	MS -> SS	CM SERVICE REQUEST	
10	SS -> MS	CM SERVICE ACCEPT	
11	MS -> SS	REGISTER	
12	SS -> MS	RELEASE COMPLETE	InterrogateSS operation Reject provide correct MMI user indication CC state U10
13	MS		
14	SS -> MS	STATUS ENQUIRY	
15	MS -> SS	STATUS	

Specific message content

step 4, 11 - COLR

- protocol discriminator: non call related SS message
 - message type: REGISTER
 - facility
- invoke = Interrogation
 Supplementary service code = COLR
 Basic service code: no Bearer Service present, no teleservice present

step 5 - COLR

- protocol discriminator: non call related SS message
- transaction identifier: same TI as previous REGISTER message
- message type: RELEASE COMPLETE
- facility:
 - return error code: SS not available

For the return error the invoke ID must be the same as in the invoke of the InterrogateSS operation.

step 12 -

- protocol discriminator: non call related SS message
- transaction identifier: same TI as previous REGISTER message
- message type: RELEASE COMPLETE
- facility:
 - reject code: resource limitation

For the reject the invoke ID must be the same as in the invoke of the InterrogateSS operation.

31.2 Call offering supplementary services

The following abbreviations are used:

CFU:	Call Forwarding Unconditional
CFB:	Call Forwarding on mobile subscriber Busy
CFNRy:	Call Forwarding on No Reply
CFNRc:	Call Forwarding on mobile subscriber Not Reachable
CFC:	Call Forwarding Conditional (common name for CFB, CFNRy and CFNRc)
CF:	Call Forwarding (common name for CFU, CFB, CFNRy and CFNRc).

NOTE: These abbreviations are also used to represent the corresponding SS-Code; e.g. CFC is the SS-Code for all conditional forwarding services.

31.2.1 Call forwarding supplementary services

31.2.1.1 Registration

31.2.1.1.1 Registration accepted

31.2.1.1.1.1 Conformance requirements

For registration of any type of call forwarding with any parameters, the MS shall transmit successively

- 1) a CHANNEL REQUEST with establishment cause set to "other services requested by the mobile user";
- 2) a CM SERVICE REQUEST with CM service type indicating "supplementary service activation";
- 3) and then the REGISTER message containing a facility IE that includes an invoke of the RegisterSS operation with parameter values according to the user's request (MMI action);
- 4) Upon receipt of the RELEASE COMPLETE message, the MS shall provide the appropriate user indication (which is to be described by the manufacturer).

References

- 1) GSM 04.08 sections 3.3.1.2 and 9.1.9.
- 2) GSM 04.08 sections 4.5.1.1, 9.2.9 and 10.5.33.
- 3) GSM 04.82, GSM 04.80 sections 2.3 and 3.6.
- 4) GSM 02.30 section 4.5.

31.2.1.1.1.2 Test purpose

- 1) To check that the MS correctly requests a supplementary service transaction for registration of call forwarding in CHANNEL REQUEST message.
- 2) To check that the MS correctly requests a supplementary service transaction for registration of call forwarding in the subsequent CM SERVICE REQUEST.
- 3) To check that the MS sends a REGISTER message containing the invoke of the RegisterSS operation with the expected parameter values for registration of call forwarding.
- 4) To check that upon receipt of the result of the operation (in a RELEASE COMPLETE message), the MS provides the appropriate user indication (as described by the manufacturer).

These checks are done for:

- a) CFNRy, for basic service group speech.
- b) CFU, for basic service group all facsimile.

31.2.1.1.1.3 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS is "idle updated".

Related PICS/PIXIT statement(s)

Description of the user's commands and of display of the answers from the network for call forwarding.

Foreseen final state of the MS

The MS is "idle updated".

Test procedure

By means of appropriate MMI functions (using either GSM 02.30 or manufacturer defined MMI), the user requests registration of CFNRy for Speech, to a number arbitrarily selected and with a no reply time value arbitrarily selected.

Upon receipt of the operation (in a REGISTER message), the system simulator answers with a RELEASE COMPLETE message with the Facility information element containing the return result of the RegisterSS operation.

The SS transaction is released and the dedicated channel is released.

Then again, by means of appropriate MMI functions as defined by the basic public MMI described in GSM 02.30, the user requests registration of CFU for all facsimile, to a number arbitrarily selected.

Upon receipt of the REGISTER message, the system simulator answers with the RELEASE COMPLETE message with the Facility information element containing the return result of the RegisterSS operation.

Maximum duration of test

3 min.

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is made to initiate a registration of call forwarding service for CFNRy (Speech) with establishment cause "Other procedures which can be completed with an SDCCH" cause: "supplementary service activation"
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	CM SERVICE REQUEST	
5	SS -> MS	CM SERVICE ACCEPT	
6	MS -> SS	REGISTER	
7	SS -> MS	RELEASE COMPLETE	CNFRySS operation Return_result provide correct MMI user indication
8	MS		
9	SS -> MS	CHANNEL RELEASE	
10	MS		The MS is made to initiate a registration of call forwarding service for CFU (all facsimile) with establishment cause "Other procedures which can be completed with an SDCCH" cause: "supplementary service activation"
11	MS -> SS	CHANNEL REQUEST	
12	SS -> MS	IMMEDIATE ASSIGNMENT	
13	MS -> SS	CM SERVICE REQUEST	
14	SS -> MS	CM SERVICE ACCEPT	
15	MS -> SS	REGISTER	
16	SS -> MS	RELEASE COMPLETE	RegisterSS operation Return result provide correct MMI user indication
17	MS		
18	SS -> MS	CHANNEL RELEASE	

Specific message content

step 6 - CFNRy

- protocol discriminator: non call related SS message
 - message type: REGISTER
 - facility
- invoke = Registration
 Supplementary service code = CFNRy
 Forwarded to number: as selected,
 No reply condition time: as selected,
 Basic service code: TeleService (AllSpeechTransmissionServices), no Bearerservice present.

step 7 - CFU

- protocol discriminator: non call related SS message
 - transaction identifier: same as at step 6
 - message type: RELEASE COMPLETE
 - facility
- Return Result = Registration
 Supplementary service code = CFNRy
 Forwarded to number
 No Reply condition time
 Basic service code: TeleService (AllSpeechTransmissionServices), no Bearerservice present.

step 15 - CFU

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = Registration

Supplementary service code = CFU

Forwarded to number: as selected,

Basic service code: no bearer service present, teleservice (all facsimile).

step 16 - CFU

- protocol discriminator: non call related SS message
- transaction identifier: same as at step 15
- message type: RELEASE COMPLETE
- facility

Return Result = Registration

Supplementary service code = CFU

Forwarded to number

Basic service code: TeleService (all facsimile), no Bearerservice present.

31.2.1.1.2 Registration rejected

31.2.1.1.2.1 Conformance requirements

- 1) A transaction of any kind being already established, for registration of any type of call forwarding with any parameters, the MS shall establish a parallel MM transaction, sending a CM SERVICE REQUEST with CM service type indicating "supplementary service activation".
- 2) Then the MS shall send a REGISTER message related to the present SS transaction containing a facility IE that includes an invoke of the RegisterSS operation with parameter values according to the user's request (MMI action).
- 3) Upon receipt of the RELEASE COMPLETE message related to the present SS transaction, the SS transaction shall be released but the first transaction shall remain unaffected.
- 4) Upon receipt of the RELEASE COMPLETE message, the MS shall provide the appropriate user indication (which is to be described by the Manufacturer).

References

- 1) GSM 04.08 sections 3.3.1.2 and 9.1.9.
- 2) GSM 04.08 sections 4.5.1.1, 9.2.9 and 10.5.33.
- 3) GSM 04.82, GSM 04.80 sections 2.3 and 3.6.
- 4) GSM 02.30 section 4.5.

31.2.1.1.2.2 Test purpose

- 1) To check that the MS correctly requests the establishment of a parallel MM transaction for supplementary service transaction of registration of call forwarding, sending a CM SERVICE REQUEST.
- 2) To check that the MS sends a REGISTER message containing the invoke of the RegisterSS operation with the expected parameter values for registration of call forwarding.
- 3) To check that upon receipt of the RELEASE COMPLETE message related to the present SS transaction, the first transaction remains unaffected.
- 4) To check that upon receipt of the RELEASE COMPLETE message, the MS provides the appropriate user indication (as described by the Manufacturer).

These checks are performed with a call transaction already established for:

- a) CFB, for all asynchronous services, the RELEASE COMPLETE message being sent with a facility IE containing a return_error(error) where error is "Bearer Service not provisioned".
- b) CF, for all facsimile, the RELEASE COMPLETE message being sent with a facility IE containing a reject(invoked_problem) where invoked_problem is "resource limitation".

31.2.1.1.2.3 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS is in CC state U10.

Related PICS/PIXIT statement(s)

Description of the user's commands and of display of the answers from the network for call forwarding.

Foreseen final state of the MS

The MS is in CC state U10.

Test procedure

By means of appropriate MMI functions (using either GSM 02.30 or manufacturer defined MMI), the user requests registration of CFB for all asynchronous services, to a number arbitrarily selected.

Upon receipt of the operation (in a REGISTER message), the system simulator answers with a RELEASE COMPLETE message with the Facility information element containing a Return_error(error: BearerService not provisioned) of the RegisterSS operation.

The system simulator sends STATUS ENQUIRY, the MS responds with STATUS message indicating CC state U10.

Then again, by means of appropriate MMI functions as defined by the basic public MMI described in GSM 02.30, the user requests registration of CF for all facsimile, to a number arbitrarily selected.

Upon receipt of the REGISTER message, the system simulator answers with the RELEASE COMPLETE message with the Facility information element containing a reject(invoked_problem: resource limitation) of the RegisterSS operation.

The system simulator sends STATUS ENQUIRY, the MS responds with STATUS message indicating CC state U10.

Maximum duration of test

3 min.

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is made to initiate a registration of call forwarding service for CFB (all asynchronous services) cause: "supplementary service activation"
2	MS -> SS	CM SERVICE REQUEST	
3	SS -> MS	CM SERVICE ACCEPT	
4	MS -> SS	REGISTER	
5	SS -> MS	RELEASE COMPLETE	RegisterSS operation Return_error CC state U10
6	SS -> MS	STATUS ENQUIRY	
7	MS -> SS	STATUS	
8	MS		The MS is made to initiate a registration of call forwarding service for CF (all facsimile) cause: "supplementary service activation"
9	MS -> SS	CM SERVICE REQUEST	
10	SS -> MS	CM SERVICE ACCEPT	
11	MS -> SS	REGISTER	
12	SS -> MS	RELEASE COMPLETE	RegisterSS operation Reject provide correct MMI user indication CC state U10
13	MS		
14	SS -> MS	STATUS ENQUIRY	
15	MS -> SS	STATUS	

Specific message content

step 4 - CFB

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = Registration

Supplementary service code = CFB

Forwarded to number: as selected,

Basic service code: Bearer Service (all asynchronous services), no teleservice present

step 5 -

- protocol discriminator: non call related SS message
- transaction identifier: same TI as previous REGISTER message
- message type: RELEASE COMPLETE
- facility:
 - return error code: BearerService not provisioned

For the return error the invoke ID must be the same as in the invoke of the RegisterSS operation.

step 11 - CF

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = Registration

Supplementary service code = CF

Forwarded to number: as selected,

Basic service code: no bearer service present, teleservice (all facsimile)).

step 12 -

- protocol discriminator: non call related SS message
- transaction identifier: same TI as previous REGISTER message
- message type: RELEASE COMPLETE
- facility:
 - reject code: resource limitation

For the reject the invoke ID must be the same as in the invoke of the Register SS operation.

31.2.1.2 Erasure by the subscriber

31.2.1.2.1 Erasure accepted

31.2.1.2.1.1 Conformance requirements

For erasure of any type of call forwarding, the MS shall transmit successively

- 1) a CHANNEL REQUEST with establishment cause set to "other services requested by the mobile user";
- 2) a CM SERVICE REQUEST with CM service type indicating "supplementary service activation";
- 3) and then the REGISTER message containing a facility that includes an invoke of the EraseSS operation with the expected parameter values according to the user request (MMI action).
- 4) Upon receipt of the RELEASE COMPLETE message, the MS shall provide the appropriate user indication (which is to be described by the manufacturer).

References

- 1) GSM 04.08 sections 3.3.1.2 and 9.1.9.
- 2) GSM 04.08 sections 4.5.1.1, 9.2.9 and 10.5.33.
- 3) GSM 04.82, GSM 04.80 sections 2.3 and 3.6.
- 4) GSM 02.30 section 4.5.

31.2.1.2.1.2 Test purpose

- 1) To check that the MS correctly requests supplementary service transaction for erasure of call forwarding in CHANNEL REQUEST message.
- 2) To check that the MS correctly requests supplementary service transaction for erasure of call forwarding in the subsequent CM SERVICE REQUEST.
- 3) To check that the MS sends a REGISTER message containing the invoke of the EraseSS operation with the expected parameter values for erasure of call forwarding.
- 4) To check that upon receipt of the result of the operation (in a RELEASE COMPLETE message), the MS provides the appropriate user indication (as described by the manufacturer).

These checks are done for:

- a) CFC, for basic service group all facsimile.
- b) CFNRc, for all basic service groups.

31.2.1.2.1.3 Method of test

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:

The MS is "idle updated".

Related PICS/PIXIT statement(s)

Description of the user's commands and of display of the answers from the network for call forwarding.

Foreseen final state of the MS

The MS is "idle updated".

Test procedure

By means of appropriate MMI functions (using either GSM 02.30 or manufacturer defined MMI), the user requests erasure of CFC for all facsimile.

Upon receipt of the operation (in a REGISTER message), the system simulator answers with a RELEASE COMPLETE message with the facility information element containing a return result of the EraseSS operation.

The SS transaction is released and the dedicated channel is released.

Then again, by means of appropriate MMI functions as defined by the basic public MMI described in GSM 02.30, the user requests erasure of CFNRc for all basic service groups.

Upon receipt of the REGISTER message, the system simulator answers with the RELEASE COMPLETE message with the Facility information element containing the return result of the EraseSS operation.

The dedicated channel is released.

Maximum duration of test

3 min.

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is made to initiate erasure of call forwarding for CFC (all facsimile) with establishment cause "Other procedures which can be completed with an SDCCH" cause: "supplementary service activation"
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	CM SERVICE REQUEST	
5	SS -> MS	CM SERVICE ACCEPT	
6	MS -> SS	REGISTER	
7	SS -> MS	RELEASE COMPLETE	EraseSS operation Return_result provide user MMI indication
8	MS		
9	SS -> MS	CHANNEL RELEASE	
10	MS		The MS is made to initiate a erasure of call forwarding service for CFNRc (all basic services) with establishment cause "Other procedures which can be completed with an SDCCH" cause: "supplementary service activation"
11	MS -> SS	CHANNEL REQUEST	
12	SS -> MS	IMMEDIATE ASSIGNMENT	
13	MS -> SS	CM SERVICE REQUEST	
14	SS -> MS	CM SERVICE ACCEPT	
15	MS -> SS	REGISTER	
16	SS -> MS	RELEASE COMPLETE	EraseSS operation Return result provide correct MMI user indication
17	MS		
18	SS -> MS	CHANNEL RELEASE	

Specific message content

step 6 - CFC

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = Erasure

Supplementary service code = CFC

Basic service code: no Bearer Service, teleservice (all facsimile).

step 15 - CFNRc

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = Erasure

Supplementary service code = CFNRc

Basic service code: no bearer service present, no teleservice present.

31.2.1.2.2 Erasure rejected**31.2.1.2.2.1 Conformance requirements**

- 1) A transaction of any kind being already established, for erasure of any type of call forwarding with any parameters, the MS shall establish a parallel MM transaction, sending a CM SERVICE REQUEST with CM service type indicating "supplementary service activation",
- 2) Then the MS shall send a REGISTER message related to the present SS transaction containing a facility IE that includes an invoke of the EraseSS operation with parameter values according to the user's request (MMI action).
- 3) Upon receipt of the RELEASE COMPLETE message related to the present SS transaction, the SS transaction shall be released but the first transaction shall remain unaffected.
- 4) Upon receipt of the RELEASE COMPLETE message, the MS shall provide the appropriate user indication (which is to be described by the Manufacturer).

References

- 1) GSM 04.08 sections 3.3.1.2, 9.1.9
- 2) GSM 04.08 sections 4.5.1.1, 9.2.9, 10.5.33
- 3) GSM 04.82, GSM 04.80 sections 2.3, 3.6
- 4) GSM 02.30 section 4.5

31.2.1.2.2.2 Test purpose

- 1) To check that the MS correctly requests the establishment of a parallel MM transaction for supplementary service transaction of erasure of call forwarding, sending a CM SERVICE REQUEST.
- 2) To check that the MS sends a REGISTER message containing the invoke of the EraseSS operation with the expected parameter values for erasure of call forwarding.
- 3) To check that upon receipt of the RELEASE COMPLETE message related to the present SS transaction, the first transaction remains unaffected.
- 4) To check that upon receipt of the RELEASE COMPLETE message, the MS provides the appropriate user indication (as described by the Manufacturer).

These checks are performed with a call transaction already established for:

- a) CFU, for Speech, the RELEASE COMPLETE message being sent with a facility IE containing a return_error(error) where error is "Teleservice not provisioned".
- b) CFNRy, for all facsimile, the RELEASE COMPLETE message being sent with a facility IE containing a reject(invoked_problem) where invoked_problem is "resource limitation".

31.2.1.2.2.3 Method of test

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:
The MS is in CC state U10.

Related PICS/PIXIT statement(s)

Description of the user's commands and of display of the answers from the network for call forwarding.

Foreseen final state of the MS

The MS is in CC state U10.

Test procedure

By means of appropriate MMI functions (using either GSM 02.30 or manufacturer defined MMI), the user requests erasure of CFU for Speech.

Upon receipt of the operation (in a REGISTER message), the system simulator answers with a RELEASE COMPLETE message with the Facility information element containing a Return_error(error: TeleService not provisioned) of the EraseSS operation.

The system simulator sends STATUS ENQUIRY, the MS responds with STATUS message indicating CC state U10.

Then again, by means of appropriate MMI functions as defined by the basic public MMI described in GSM 02.30, the user requests erasure of CFNRy for all facsimile.

Upon receipt of the REGISTER message, the system simulator answers with the RELEASE COMPLETE message with the Facility information element containing a reject(invoked_problem: resource limitation) of the EraseSS operation.

The system simulator sends STATUS ENQUIRY, the MS responds with STATUS message indicating CC state U10.

Maximum duration of test

3 min.

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is made to initiate a erasure of call forwarding service for CFU (speech) cause: "supplementary service activation"
2	MS -> SS	CM SERVICE REQUEST	
3	SS -> MS	CM SERVICE ACCEPT	
4	MS -> SS	REGISTER	
5	SS -> MS	RELEASE COMPLETE	EraseSS operation Return_error
6	SS -> MS	STATUS ENQUIRY	CC state U10
7	MS -> SS	STATUS	
8	MS		The MS is made to initiate a erasure of call forwarding service for CFNRy (all facsimile) cause: "supplementary service activation"
9	MS -> SS	CM SERVICE REQUEST	
10	SS -> MS	CM SERVICE ACCEPT	
11	MS -> SS	REGISTER	
12	SS -> MS	RELEASE COMPLETE	EraseSS operation Reject
13	MS		provide correct MMI user indication
14	SS -> MS	STATUS ENQUIRY	CC state U10
15	MS -> SS	STATUS	

Specific message content

step 4 - CFU

- protocol discriminator: non call related SS message
 - message type: REGISTER
 - facility
- invoke = Erasure
Supplementary service code = CFU
Basic service code: Tele Service (AllSpeechTransmissionServices), no Bearerservice present

step 5 -

- protocol discriminator: non call related SS message
- transaction identifier: same TI as previous REGISTER message
- message type: RELEASE COMPLETE
- facility:
 - return error code: TeleService not provisioned

For the return error the invoke ID must be the same as in the invoke of the EraseSS operation.

step 11 - CFNRy

- protocol discriminator: non call related SS message
 - message type: REGISTER
 - facility
- invoke = Erasure
Supplementary service code = CFNRy
Basic service code: no bearer service present, teleservice (all facsimile)).

step 12 -

- protocol discriminator: non call related SS message
- transaction identifier: same TI as previous REGISTER message
- message type: RELEASE COMPLETE
- facility:
 - reject code: resource limitation

For the reject the invoke ID must be the same as in the invoke of the EraseSS operation.

31.2.1.3 Activation

31.2.1.3.1 Conformance requirements

For activation of any type of call forwarding with any parameters, the MS shall transmit successively

- 1) a CHANNEL REQUEST with establishment cause set to "other services requested by the mobile user";
- 2) a CM SERVICE REQUEST with CM service type indicating "supplementary service activation";
- 3) and then the REGISTER message containing a facility IE that includes an invoke of the ActivateSS operation with parameter values according to the user's request (MMI action).
- 4) Upon receipt of the RELEASE COMPLETE message, the MS shall provide the appropriate user indication (which is to be described by the manufacturer).

References

- 1) GSM 04.08 sections 3.3.1.2 and 9.1.9.
- 2) GSM 04.08 sections 4.5.1.1, 9.2.9 and 10.5.33.
- 3) GSM 04.82, GSM 04.80 sections 2.3 and 3.6.
- 4) GSM 02.30 section 4.5.

31.2.1.3.2 Test purpose

- 1) To check that the MS correctly requests a supplementary service transaction for activation of call forwarding in CHANNEL REQUEST message.
- 2) To check that the MS correctly requests a supplementary service transaction for activation of call forwarding in the subsequent CM SERVICE REQUEST.
- 3) To check that the MS sends a REGISTER message containing the invoke of the ActivateSS operation with the expected parameter values for activation of call forwarding.
- 4) To check that upon receipt of the result of the operation (in a RELEASE COMPLETE message), the MS provides the appropriate user indication (as described by the manufacturer).

These checks are done for:

- a) CF, for basic service group "all synchronous services".
- b) CFU, for all basic service groups.

31.2.1.3.3 Method of test

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:
The MS is "idle updated".

Related PICS/PIXIT statement(s)

Description of the user's commands and of display of the answers from the network for call forwarding.

Foreseen final state of the MS

The MS is "idle updated".

Test procedure

By means of appropriate MMI functions (using either GSM 02.30 or manufacturer defined MMI), the user requests activation of CF for all synchronous services.

Upon receipt of the operation (in a REGISTER message), the system simulator answers with the FACILITY message with the Facility information element containing the return result of the ActivateSS operation.

The SS transaction is released and the dedicated channel is released.

Then again, by means of appropriate MMI functions as defined by the basic public MMI described in GSM 02.30, the user requests activation of CFU for all basic service groups.

Upon receipt of the REGISTER message, the system simulator answers with the RELEASE COMPLETE message with the Facility information element containing the return result of the ActivateSS operation.

Maximum duration of test

3 min.

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is made to initiate a activation of call forwarding service for CF (all synchronous services) with establishment cause "Other procedures which can be completed with an SDCCH"
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	CM SERVICE REQUEST	
5	SS -> MS	CM SERVICE ACCEPT	
6	MS -> SS	REGISTER	
7	SS -> MS	RELEASE COMPLETE	ActivateSS operation Return_result provide user MMI indication
8	MS		
9	SS -> MS	CHANNEL RELEASE	
10	MS		The MS is made to initiate a activation of call forwarding service for CFU (all basic service groups) with establishment cause "Other procedures which can be completed with an SDCCH"
11	MS -> SS	CHANNEL REQUEST	
12	SS -> MS	IMMEDIATE ASSIGNMENT	
13	MS -> SS	CM SERVICE REQUEST	
14	SS -> MS	CM SERVICE ACCEPT	
15	MS -> SS	REGISTER	
16	SS -> MS	RELEASE COMPLETE	ActivateSS operation Return result provide correct MMI user indication
17	MS		
18	SS -> MS	CHANNEL RELEASE	

Specific message contents:

step 6 - CF

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = Activation

Supplementary service code = CF

Basic service code: Bearer Service (all synchronous services), no teleservice present.

step 15 - CFU

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = Activation

Supplementary service code = CFU

Basic service code: no bearer service present, no teleservice present.

31.2.1.4 Deactivation

31.2.1.4.1 Conformance requirements

For deactivation of any type of call forwarding with any parameters, the MS shall transmit successively.

- 1) a CHANNEL REQUEST with establishment cause set to "other services requested by the mobile user";
- 2) a CM SERVICE REQUEST with CM service type indicating "supplementary service activation";
- 3) and then the REGISTER message containing a facility IE that includes an invoke of the DeactivateSS operation with parameter values according to the user's request (MMI action).
- 4) Upon receipt of the RELEASE COMPLETE message, the MS shall provide the appropriate user indication (which is to be described by the manufacturer).

References

- 1) GSM 04.08 sections 3.3.1.2 and 9.1.9.
- 2) GSM 04.08 sections 4.5.1.1, 9.2.9 and 10.5.33.
- 3) GSM 04.82, GSM 04.80 sections 2.3 and 3.6.
- 4) GSM 02.30 section 4.5.

31.2.1.4.2 Test purpose

- 1) To check that the MS correctly requests a supplementary service transaction for deactivation of call forwarding in CHANNEL REQUEST message.
- 2) To check that the MS correctly requests a supplementary service transaction for deactivation of call forwarding in the subsequent CM SERVICE REQUEST.
- 3) To check that the MS sends a REGISTER message containing the invoke of the DeactivateSS operation with the expected parameter values for deactivation of call forwarding.
- 4) To check that upon receipt of the result of the operation (in a RELEASE COMPLETE message), the MS provides the appropriate user indication (as described by the manufacturer).

These checks are done for:

- a) CFC, for basic service group speech.
- b) CFNRc, for basic service group all facsimile.

31.2.1.4.3 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS is "idle updated".

Related PICS/PIXIT statement(s)

Description of the user's commands and of display of the answers from the network for call forwarding.

Foreseen final state of the MS

The MS is "idle updated".

Test procedure

By means of appropriate MMI functions (using either GSM 02.30 or manufacturer defined MMI), the user requests deactivation of CFC for speech.

Upon receipt of the operation (in a REGISTER message), the system simulator answers with a RELEASE COMPLETE message with the Facility information element containing the return result of the DeactivateSS operation.

The SS transaction is released and the dedicated channel is released.

Then again, by means of appropriate MMI functions as defined by the basic public MMI described in GSM 02.30, the user requests deactivation of CFNRc for all facsimile.

Upon receipt of the REGISTER message, the system simulator answers with the RELEASE COMPLETE message with the Facility information element containing the return result of the DeactivateSS operation.

The dedicated channel is released.

Maximum duration of test

3 min.

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is made to initiate a deactivation of call forwarding service for CFC (speech) with establishment cause "Other procedures which can be completed with an SDCCH" cause: "supplementary service activation"
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	CM SERVICE REQUEST	
5	SS -> MS	CM SERVICE ACCEPT	
6	MS -> SS	REGISTER	
7	SS -> MS	RELEASE COMPLETE	DeactivateSS operation Return_result provide user MMI indication
8	MS		
9	SS -> MS	CHANNEL RELEASE	
10	MS		The MS is made to initiate a deactivation of call forwarding service for CFNRc (all facsimile) with establishment cause "Other procedures which can be completed with an SDCCH" cause: "supplementary service activation"
11	MS -> SS	CHANNEL REQUEST	
12	SS -> MS	IMMEDIATE ASSIGNMENT	
13	MS -> SS	CM SERVICE REQUEST	
14	SS -> MS	CM SERVICE ACCEPT	
15	MS -> SS	REGISTER	
16	SS -> MS	RELEASE COMPLETE	DeactivateSS operation Return result provide correct MMI user indication
17	MS		
18	SS -> MS	CHANNEL RELEASE	

Specific message content

step 6 - CFC

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = Deactivation

Supplementary service code = CFC

Basic service code: Bearer Service (speech), no teleservice present.

step 15 - CFNRc

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = Deactivation

Supplementary service code = CFNRc

Basic service code: no bearer service present, teleservice (all facsimile).

31.2.1.5 Invocation

Invocation is not applicable to the MS and causes no signalling on the radio path.

31.2.1.6 Interrogation

31.2.1.6.1 Interrogation accepted

31.2.1.6.1.1 Conformance requirements

For interrogation of any specific call forwarding service (not applicable to a group of services) with any parameters, the MS shall transmit successively:

- 1) a CHANNEL REQUEST with establishment cause set to "other services requested by the mobile user";
- 2) a CM SERVICE REQUEST with CM service type indicating "supplementary service activation";
- 3) and then the REGISTER message containing a facility IE that includes an invoke of the InterrogateSS operation with parameter values according to the user's request (MMI action).
- 4) Upon receipt of the RELEASE COMPLETE message, the MS shall provide the appropriate user indication (which is to be described by the manufacturer).

References

- 1) GSM 04.08 sections 3.3.1.2 and 9.1.9.
- 2) GSM 04.08 sections 4.5.1.1, 9.2.9 and 10.5.33.
- 3) GSM 04.82, GSM 04.80 sections 2.3 and 3.6.
- 4) GSM 02.30 section 4.5.

31.2.1.6.1.2 Test purpose

- 1) To check that the MS correctly requests a supplementary service transaction for interrogation of a specific call forwarding in CHANNEL REQUEST message.
- 2) To check that the MS correctly requests a supplementary service transaction for interrogation of call forwarding in the subsequent CM SERVICE REQUEST.
- 3) To check that the MS sends a REGISTER message containing the invoke of the InterrogateSS operation with the expected parameter values for interrogation of call forwarding.

- 4) To check that upon receipt of the result of the operation (in a RELEASE COMPLETE message), the MS provides the appropriate user indication (as described by the manufacturer).

These checks are done for:

- a) CFB, for all basic service groups.
- b) CFNRy, for basic service group speech.

31.2.1.6.1.3 Method of test

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:
The MS is "idle updated".

Related PICS/PIXIT statement(s)

Description of the user's commands and of display of the answers from the network for call forwarding.

Foreseen final state of the MS

The MS is "idle updated".

Test procedure

By means of appropriate MMI functions (using either GSM 02.30 or manufacturer defined MMI), the user requests interrogation of CFB for all basic service groups.

Upon receipt of the operation (in a REGISTER message), the system simulator answers with a RELEASE COMPLETE message with the Facility information element containing the return result of the InterrogateSS operation.

The SS transaction is released and the dedicated channel is released.

Then again, by means of appropriate MMI functions as defined by the basic public MMI described in GSM 02.30, the user requests interrogation of CFNRy for speech.

Upon receipt of the REGISTER message, the system simulator answers with the RELEASE COMPLETE message with the Facility information element containing the return result of the InterrogateSS operation.

The dedicated channel is released.

Maximum duration of test

3 min.

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is made to initiate a registration of call forwarding service for CFB (all) with establishment cause "Other procedures which can be completed with an SDCCH" cause: "supplementary service activation"
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	CM SERVICE REQUEST	
5	SS -> MS	CM SERVICE ACCEPT	
6	MS -> SS	REGISTER	
7	SS -> MS	RELEASE COMPLETE	InterrogateSS operation Return_result provide user MMI indication
8	MS		
9	SS -> MS	CHANNEL RELEASE	
10	MS		The MS is made to initiate a registration of call forwarding service for CFNRy(speech) with establishment cause "Other procedures which can be completed with an SDCCH" cause: "supplementary service activation"
11	MS -> SS	CHANNEL REQUEST	
12	SS -> MS	IMMEDIATE ASSIGNMENT	
13	MS -> SS	CM SERVICE REQUEST	
14	SS -> MS	CM SERVICE ACCEPT	
16	MS -> SS	REGISTER	
17	SS -> MS	RELEASE COMPLETE	InterrogateSS operation Return result provide correct MMI user indication
18	MS		
19	SS -> MS	CHANNEL RELEASE	

Specific message content

step 6 - CFB

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = Interrogation

Supplementary service code = CFB

Basic service code: no Bearer Service present, no teleservice present.

step 15 - CFNRy

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = Interrogation

Supplementary service code = CFNRy

Basic service code: no bearer service present, teleservice (speech).

31.2.1.6.2 Interrogation rejected**31.2.1.6.2.1 Conformance requirements**

- 1) A transaction of any kind being already established, for interrogation of any specific call forwarding service with any parameters, the MS shall establish a parallel MM transaction, sending a CM SERVICE REQUEST with CM service type indicating "supplementary service activation".
- 2) Then the MS shall send a REGISTER message related to the present SS transaction containing a facility IE that includes an invoke of the InterrogateSS operation with parameter values according to the user's request (MMI action).
- 3) Upon receipt of the RELEASE COMPLETE message related to the present SS transaction, the SS transaction shall be released but the first transaction shall remain unaffected.

- 4) Upon receipt of the RELEASE COMPLETE message, the MS shall provide the appropriate user indication (which is to be described by the Manufacturer).

References

- 1) GSM 04.08 sections 3.3.1.2 and 9.1.9.
- 2) GSM 04.08 sections 4.5.1.1, 9.2.9 and 10.5.33.
- 3) GSM 04.82, GSM 04.80 sections 2.3 and 3.6.
- 4) GSM 02.30 section 4.5.

31.2.1.6.2.2 Test purpose

- 1) To check that the MS correctly requests the establishment of a parallel MM transaction for supplementary service transaction of interrogation of a specific call forwarding service, sending a CM SERVICE REQUEST.
- 2) To check that the MS sends a REGISTER message containing the invoke of the InterrogateSS operation with the expected parameter values for interrogation of call forwarding.
- 3) To check that upon receipt of the RELEASE COMPLETE message related to the present SS transaction, the first transaction remains unaffected.
- 4) To check that upon receipt of the RELEASE COMPLETE message, the MS provides the appropriate user indication (as described by the Manufacturer).

These checks are performed with a call transaction already established for:

- a) CFNRc, for all basic service group, the RELEASE COMPLETE message being sent with a facility IE containing a return_error(error) where error is "SS not available".
- b) CFB, for all facsimile, the RELEASE COMPLETE message being sent with a facility IE containing a reject(invoked_problem) where invoked_problem is "resource limitation".

31.2.1.6.2.3 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS is in CC state U10.

Related PICS/PIXIT statement(s)

Description of the user's commands and of display of the answers from the network for call forwarding.

Foreseen final state of the MS

The MS is in CC state U10.

Test procedure

By means of appropriate MMI functions (using either GSM 02.30 or manufacturer defined MMI), the user requests interrogation of CFNRc for all basic service groups.

Upon receipt of the operation (in a REGISTER message), the system simulator answers with a RELEASE COMPLETE message with the Facility information element containing a Return_error(error: SS not available) of the InterrogateSS operation.

The system simulator sends STATUS ENQUIRY, the MS responds with STATUS message indicating CC state U10.

Then again, by means of appropriate MMI functions as defined by the basic public MMI described in GSM 02.30, the user requests interrogation of CFB for all facsimile.

Upon receipt of the REGISTER message, the system simulator answers with the RELEASE COMPLETE message (same PD and TI that in the REGISTER message) with the Facility information element containing a reject(invoke_problem: resource limitation) of the InterrogateSS operation.

The system simulator sends STATUS ENQUIRY, the MS responds with STATUS message indicating CC state U10.

Maximum duration of test

3 min.

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is made to initiate a registration of call forwarding service for CFNRc (all) cause: "supplementary service activation"
2	MS -> SS	CM SERVICE REQUEST	
3	SS -> MS	CM SERVICE ACCEPT	
4	MS -> SS	REGISTER	
5	SS -> MS	RELEASE COMPLETE	InterrogateSS operation Return_error CC state U10 The MS is made to initiate a interrogation of call forwarding service for CFB (all facsimile) cause: "supplementary service activation"
6	SS -> MS	STATUS ENQUIRY	
7	MS -> SS	STATUS	
8	MS		
9	MS -> SS	CM SERVICE REQUEST	
10	SS -> MS	CM SERVICE ACCEPT	
11	MS -> SS	REGISTER	
12	SS -> MS	RELEASE COMPLETE	InterrogateSS operation Reject provide correct MMI user indication CC state U10
13	MS		
14	SS -> MS	STATUS ENQUIRY	
15	MS -> SS	STATUS	

Specific message content

step 4 - CFNRc

- protocol discriminator: non call related SS message
 - message type: REGISTER
 - facility
- invoke = Interrogation
 Supplementary service code = CFNRc
 Basic service code: no Bearer Service present, no teleservice present

step 5 -

- protocol discriminator: non call related SS message
- transaction identifier: same TI as previous REGISTER message
- message type: RELEASE COMPLETE
- facility:
 - return error code: SS not available

For the return error the invoke ID must be the same as in the invoke of the InterrogateSS operation.

step 11 - CFB

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = Interrogation

Supplementary service code = CFB

Basic service code: no bearer service present, teleservice (all facsimile)).

step 12 -

- protocol discriminator: non call related SS message
- transaction identifier: same TI as previous REGISTER message
- message type: RELEASE COMPLETE
- facility:
 - reject code: resource limitation

For the reject the invoke ID must be the same as in the invoke of the InterrogateSS operation.

31.2.1.7 Normal operation**31.2.1.7.1 Served mobile subscriber side****31.2.1.7.1.1 Notification during an incoming call**

This subscription option is only applicable to CFB and CFNRy.

31.2.1.7.1.1.1 Conformance requirements

- 1) During a call transaction, call establishment or not, upon receipt of a FACILITY message notifying an incoming call, the MS shall provide the appropriate user indication (which is to be described by the manufacturer).
- 2) If a call transaction is being established or is already established when the notification of incoming call is received, the receipt of the notification has no effect on its state.

References

- 1) GSM 02.30 section 4.5.
- 2) GSM 04.82 section 1.

31.2.1.7.1.1.2 Test purpose

- 1) To check that, in state U7 or U10, upon receipt of a FACILITY message notifying an incoming call, the MS shall provide the appropriate user indication (which is to be described by the manufacturer).
- 2) To check that when the notification of incoming call is received while the MS is in CC state U7 and U10 of another incoming call, it has no effect on its state.

These checks are performed in the case of CFB.

31.2.1.7.1.1.3 Method of test**Initial conditions**

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS is "idle updated".

Related PICS/PIXIT statement(s)

Description of the user's commands and of display of the answers from the network for call forwarding.

Foreseen final state of the MS

The MS is "idle updated".

Test procedure

The MS is brought to the call state U7 of an incoming call.

The system simulator transmits a FACILITY message with the facility information element containing an invoke of the NotifySS operation for CFB.

The system simulator sends STATUS ENQUIRY, the MS responds with STATUS message indicating CC state U7.

The MS is brought into the call state U10 of an incoming call.

The system simulator transmits a FACILITY message with the facility information element containing an invoke of the NotifySS operation for CFB.

The system simulator sends STATUS ENQUIRY, the MS responds with STATUS message indicating CC state U10.

The transaction and the channel are released by the SS.

Maximum duration of test

1 min.

Expected sequence

Step	Direction	Message	Comments
1	SS -> MS	PAGING	with establishment cause "answer to paging"
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	PAGING RESPONSE	
5	SS -> MS	SETUP	
6	MS -> SS	CALL CONFIRMED	
7	SS -> MS	ASSIGNMENT COMMAND	
8	MS -> SS	ASSIGNMENT COMPLETE	
9	MS -> SS	ALERTING	
10	SS -> MS	FACILITY	(invoke NotifySS)
11	SS -> MS	STATUS ENQUIRY	(U7) MS off hook
12	MS -> SS	STATUS	
13	MS -> SS	CONNECT	
14	SS -> MS	CONNECT ACKNOWLEDGE	(invoke NotifySS)
15	SS -> MS	FACILITY	
16	SS -> MS	STATUS ENQUIRY	
17	MS -> SS	STATUS	(U10)
18	SS -> MS	RELEASE COMPLETE	
19	SS -> MS	CHANNEL RELEASE	

Specific message contents

Steps 10 and 15

- protocol discriminator: CC
- transaction identifier: same as for the call transaction already established
- message type: FACILITY
- facility

invoke = notification

Supplementary service code = CFB

SS notification = incoming call is forwarded

(call is forwarded indication to B subscriber).

31.2.1.7.1.2 Notification during an outgoing call

31.2.1.7.1.2.1 Conformance requirements

- 1) As an outgoing call is being established, if the ALERTING message is received with the facility information element containing an SS notification (for CFU or CFC), the MS shall correctly reach CC state U4.
- 2) As an outgoing call is being established, if the ALERTING message is received with the facility information element containing an SS notification (for CFU or CFC), the MS shall provide the appropriate user indication (which is to be described by the manufacturer).
- 3) As an outgoing call is being established, if the CONNECT message is received with the facility information element containing an SS notification (for CFU or CFC), the MS shall normally send a CONNECT ACKNOWLEDGE message and enter CC state U10.
- 4) As an outgoing call is being established, if the CONNECT message is received with the facility information element containing an SS notification (for CFU or CFC), the MS shall provide the appropriate user indication (which is to be described by the manufacturer).

References

- 1) GSM 04.82, GSM 04.80 section 3.6.
- 2) GSM 04.82, TBS. GSM 04.80 section 3.6.

31.2.1.7.1.2.2 Test purpose

- 1) To check that when an outgoing call is being established, if the ALERTING message is received with the facility information element containing an SS notification, the MS correctly reaches CC state U4. This is tested for CFU.
- 2) As an outgoing call is being established, if the ALERTING message is received with the facility information element containing an SS notification, the MS provides the appropriate user indication (which is to be described by the manufacturer). This is tested for CFU.
- 3) As an outgoing call is being established, if the CONNECT message is received with the facility information element containing an SS notification, the MS normally sends a CONNECT ACKNOWLEDGE message and enter CC state U10. This is tested for CFC.
- 4) As an outgoing call is being established, if the CONNECT message is received with the facility information element containing an SS notification (for CFU or CFC), the MS provides the appropriate user indication (which is to be described by the manufacturer). This is tested for CFC.

31.2.1.7.1.2.3 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS is "idle updated".

Related PICS/PIXIT statement(s)

Description of the user's commands and of display of the answers from the network for call forwarding.

Foreseen final state of the MS

The MS is "idle updated".

Test procedure

The MS is made to place an outgoing call.

After having received a SETUP message and sent a CALL PROCEEDING message and after a TCH has been allocated the system simulator transmits an ALERTING message with the facility information element containing a notification.

The system simulator send then a STATUS ENQUIRY message. On receipt of the STATUS ENQUIRY message the MS shall send a STATUS message with CC-state U4.

After that, the system simulator transmits a CONNECT with the facility information element containing a notification.

After reception of a CONNECT ACKNOWLEDGE message the system simulator sends a STATUS ENQUIRY message.

The MS shall respond with a STATUS message indicating CC-state U10.

The transaction and the channel are released by the SS.

Maximum duration of test

1 min.

Expected sequence

Step	Direction	Message	Comments
1	MS -> SS	CHANNEL REQUEST	"mobile originating call establishment"
2	SS -> MS	IMMEDIATE ASSIGNMENT	
3	MS -> SS	CM SERVICE REQUEST	
4	SS -> MS	CM SERVICE ACCEPT	
5	MS -> SS	SETUP	
6	SS -> MS	CALL PROCEEDING	containing facility IE
7	SS -> MS	ASSIGNMENT COMMAND	
8	MS -> SS	ASSIGNMENT COMPLETE	
9	SS -> MS	ALERTING	
10	SS -> MS	STATUS ENQUIRY	(U4)
11	MS -> SS	STATUS	
12	SS -> MS	CONNECT	containing facility IE
13	MS -> SS	CONNECT ACKNOWLEDGE	
14	SS -> MS	STATUS ENQUIRY	(U10)
15	MS -> SS	STATUS	
16	SS -> MS	RELEASE COMPLETE	
17	SS -> MS	CHANNEL RELEASE	

Specific message contents

At step 9 -

Facility invoke = notification

- SS-Code (CFU)
- SS-Status (indicating:
Provisioned, registered and active).

At step 12 -

Facility invoke = notification

- SS-Code (CFC)
- SS-Status (indicating:
Provisioned, registered and active).

31.2.1.7.2 Forwarded-to mobile subscriber side**31.2.1.7.2.1 Conformance requirements**

- 1) Upon receipt of the SETUP message containing a notification indication that the call is a forwarded one (with any SS code except CFC), the MS shall correctly continue call establishment and enter CC state U6.
- 2) Upon receipt of the SETUP message containing a notification indication that the call is a forwarded one, the MS shall provide the appropriate user indication (which is to be described by the manufacturer).

References

- 1) GSM 04.82.
- 2) GSM 02.30 section 4.5.

31.2.1.7.2.2 Test purpose

- 1) To check that, upon receipt of the SETUP message containing a notification indication that the call is a forwarded one, the MS correctly continues call establishment and enters CC state U6.
- 2) Upon receipt of the SETUP message containing a notification indication that the call is a forwarded one, the MS provides the appropriate user indication (which is to be described by the manufacturer).

31.2.1.7.2.3 Method of test**Initial conditions**

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS is "idle updated".

Related PICS/PIXIT statement(s)

Description of the user's commands and of display of the answers from the network for call forwarding.

Foreseen final state of the MS

The MS is "idle updated".

Test procedure

An incoming call is given to the MS with the SETUP message with the facility information element containing an invoke of the NotifySS operation with the indication that the call is forwarded.

Then the network sends a STATUS ENQUIRY message: the MS responds indicating CC state U6.

The transaction and the channel are released by the SS.

Maximum duration of test

1 min.

Expected sequence

Step	Direction	Message	Comments
1	SS -> MS	PAGING	with establishment cause "answer to paging"
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	PAGING RESPONSE	containing the notification that the call is a forwarded one
5	SS -> MS	SETUP	
6	SS -> MS	STATUS ENQUIRY	
7	MS -> SS	STATUS	(U6)
8	SS -> MS	RELEASE COMPLETE	
9	SS -> MS	CHANNEL RELEASE	

Specific message contents

at step 6 -

- protocol discriminator: CC
- transaction identifier:
- message type: SETUP
- facility

invoke = notification

- SS-Code (CFU, CFB, CFNRy, CFNRc or CF)
- SS-Notification (indicating: call is forwarded i.e. Call is forwarded indication to C-subscriber).

31.2.2 Call transfer and mobile access hunting supplementary services

(Reserved).

31.3 Call completion supplementary services

NOTE: In this section, Subscriber B is the MS under test, and subscribers A, C and D are distant parties to the calls made during the tests.

31.3.1 Call Waiting**31.3.1.1 Waiting call indication and confirmation****Conformance requirement**

GSM 04.83 subclause 1.1

Applicability

MS supporting the Call Waiting supplementary service.

Test purpose

With an active call, an MS receiving an MT call shall include Cause #17 "user busy" in the CALL CONFIRMED message sent to the SS, and indicate the waiting call to the subscriber.

Method of test**Related PICS/PIXIT statements**

- supported MT circuit switched basic services.
- method of indicating a waiting call to the user

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:

The MS has a call ("Call A-B") of a basic service supported by the MS and applicable to Call Waiting as described in GSM 02.04 Table A.1 in the active state. The SIM in the MS under test has Call Waiting enabled.

Foreseen final state of the MS

Call A-B, state U10. Call C-B, state U7.

Maximum duration of test

30 s.

Procedure

The SS shall initiate Call C-B by sending a SETUP message to the MS. The MS shall respond with a CALL CONFIRMED message including cause #17 "user busy", followed by an ALERTING message.

The MS shall remain in state U10 in respect of the Call A-B, and enter state U7 "Call received" in respect of Call C-B. The MS shall indicate the existence of the waiting call to the user by a method defined by the manufacturer. The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	SS -> MS	SETUP	Transaction identifier different from that of Call A-B cause #17 "user busy".
2	MS -> SS	CALL CONFIRMED	
3	MS -> SS	ALERTING	
4	MS		
			A waiting call indication as defined in a PICS/PIXIT statement is given by the MS.
5	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
6	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10
7	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call C-B
8	MS -> SS	STATUS	Transaction identifier of Call C-B, state U7

31.3.1.2 Normal operation with successful outcome

31.3.1.2.1 Waiting call accepted; existing call released

Conformance requirement

GSM 04.83 subclause 1.2.1

Applicability

MS supporting the Call Waiting supplementary service.

Test purpose

The MS shall release the active call using the call clearing procedures of GSM 04.08, and then accept the waiting call.

Method of test

Related PICS/PIXIT statements

- supported MT circuit switched basic services.
- method of clearing an active call and answering a waiting call

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:

The MS has Call A-B of a basic service supported by the MS and applicable to Call Waiting as described in GSM 02.04 Table A.1 in the state U10 "Active" and Call C-B in the state U7 "Call Received".

Foreseen final state of the MS

Call A-B, state U0. Call C-B, state U10.

Maximum duration of test

30 s.

Procedure

Using suitable MMI commands, the MS shall clear Call A-B, and then answer Call C-B.

The MS shall send a DISCONNECT message with the transaction identifier Call A-B, and then respond to a RELEASE message from the SS with a RELEASE COMPLETE message, and then enter state U0 "Null" in respect of this call.

The MS shall then send a CONNECT in respect of Call C-B, and enter state U10 "Active" on receipt of a CONNECT ACKNOWLEDGE message. The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Call A-B is cleared using MMI commands
2	MS -> SS	DISCONNECT	Transaction identifier of Call A-B
3	SS -> MS	RELEASE	Transaction identifier of Call A-B
4	MS -> SS	RELEASE COMPLETE	Transaction identifier of Call A-B
5	MS		Call C-B is answered using MMI commands
6	MS -> SS	CONNECT	Transaction identifier of Call C-B
7	SS -> MS	CONNECT ACKNOWLEDGE	Transaction identifier of Call C-B
8	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
9	MS -> SS	STATUS	Transaction identifier of Call A-B, state U0
10	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call C-B
11	MS -> SS	STATUS	Transaction identifier of Call C-B, state U10

31.3.1.2.2 Waiting call accepted; existing call on hold**31.3.1.2.2.1 Waiting call accepted; existing call on hold, no additional calls****Conformance requirement**

GSM 04.83 subclause 1.2.2

Applicability

MS supporting the Call Waiting supplementary service.

Test purpose

With one active call and one waiting call, the MS shall place the active call on hold, and then accept the waiting call.

Method of test**Related PICS/PIXIT statements**

- supported MT circuit switched basic services.
- method of placing an active call on hold and answering a waiting call

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:
The MS has Call A-B of a basic service supported by the MS and applicable to Call Waiting as described in GSM 02.04 Table A.1 in the state U10 "Active" and Call C-B in the state U7 "Call Received".

Foreseen final state of the MS

Call A-B, state U10, auxiliary state "Call held". Call C-B, state U10.

Maximum duration of test

30 s.

Procedure

Using suitable MMI commands, the MS shall place Call A-B on hold, and then answer Call C-B.

The MS shall send a HOLD message to the SS using the transaction identifier of Call A-B and enter state U10 "Active" with auxiliary state "Call held". On receipt of a HOLD ACKNOWLEDGE from the SS the MS shall enter state U10 "Active" with auxiliary state "Call held".

The MS shall then send a CONNECT message to the SS, using the transaction identifier of Call C-B, and on receipt of a CONNECT ACKNOWLEDGE message, shall enter state U10 "Active". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Call A-B is placed on hold using MMI commands
2	MS -> SS	HOLD	Transaction identifier of Call A-B
3	SS -> MS	HOLD ACKNOWLEDGE	Transaction identifier of Call A-B
4	MS		Call C-B is answered using MMI commands
5	MS -> SS	CONNECT	Transaction identifier of Call C-B
6	SS -> MS	CONNECT ACKNOWLEDGE	Transaction identifier of Call C-B
7	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
8	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "Call Held"
9	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call C-B
10	MS -> SS	STATUS	Transaction identifier of Call C-B, state U10

31.3.1.2.2.2 Waiting call accepted; existing call on hold, held call cleared

Conformance requirement

GSM 04.83 subclause 1.2.2

Applicability

MS supporting the Call Waiting supplementary service.

Test purpose

With one active call, one held call and one waiting call, the MS shall clear the held call, place the active call on hold, and accept the waiting call.

Method of test

Related PICS/PIXIT statements

- supported MT circuit switched basic services.
- method of placing an active call on hold and answering a waiting call

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:

The MS shall have call A-B of a basic service supported by the MS and applicable to Call Waiting as described in GSM 02.04 Table A.1 in state U10 "Active", call D-B in State U10 "Active" with auxiliary state "held", and Call C-B in state U7 "Call Received".

Foreseen final state of the MS

Call A-B, state U10, auxiliary state "Call held". Call C-B, state U10.

Maximum duration of test

30 s.

Procedure

Using suitable MMI commands, the MS shall clear Call D-B, place call A-B on hold, and answer Call C-B.

The MS shall send a DISCONNECT message on the transaction identifier of Call D-B, and on receipt of a RELEASE message from the SS shall send a RELEASE COMPLETE message and enter state U0 "Null". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

The MS shall then send a HOLD message to the SS using the transaction identifier of Call A-B, and shall enter state U10 "Active" with auxiliary state "Call held" following receipt of a HOLD ACKNOWLEDGE from the SS. The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

The MS shall then send a CONNECT message to the SS, using the transaction identifier of Call C-B, and on receipt of a CONNECT ACKNOWLEDGE message, shall enter state U10 "Active". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Call D-B is cleared using MMI commands
2	MS -> SS	DISCONNECT	Transaction identifier of Call D-B
3	SS -> MS	RELEASE	Transaction identifier of Call D-B
4	MS -> SS	RELEASE COMPLETE	Transaction identifier of Call D-B
5	MS		Call A-B is placed on hold using MMI commands
6	MS -> SS	HOLD	Transaction identifier of Call A-B
7	SS -> MS	HOLD ACKNOWLEDGE	Transaction identifier of Call A-B
8	MS		Call C-B is answered using MMI commands
9	MS -> SS	CONNECT	Transaction identifier of Call C-B
10	SS -> MS	CONNECT ACKNOWLEDGE	Transaction identifier of Call C-B
11	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
18	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "Call Held"
19	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call C-B
20	MS -> SS	STATUS	Transaction identifier of Call C-B, state U10
21	SS		Check that the TCH is through-connected
22	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call D-B
23	MS -> SS	STATUS	Transaction identifier of Call D-B, state U0

31.3.1.2.3 Existing call released by user A; waiting call accepted**Conformance requirement**

GSM 04.83 subclause 1.2.3

Applicability

MS supporting the Call Waiting supplementary service.

Test purpose

The MS, on receipt of a DISCONNECT message from the active call, shall complete the clearance of the active call, and accept the waiting call.

Method of test**Related PICS/PIXIT statements**

- supported MT circuit switched basic services.
- method of clearing an active call and answering a waiting call

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS has Call A-B of a basic service supported by the MS and applicable to Call Waiting as described in GSM 02.04 Table A.1 in the state U10 "Active" and Call C-B in the state U7 "Call Received".

Foreseen final state of the MS

Call A-B, state U0. Call C-B, state U10.

Maximum duration of test

30 s.

Procedure

On receipt of a DISCONNECT message using the transaction identifier of Call A-B, the MS shall respond with a RELEASE message. On receipt of a RELEASE COMPLETE message, the MS shall enter state U0 "Null". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

If necessary, MMI commands shall be entered to accept call C-B. The MS shall then send a CONNECT message using the transaction identifier of Call C-B, and on receipt of a CONNECT ACKNOWLEDGE message, shall enter state U10 "Active". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	SS -> MS	DISCONNECT	Transaction identifier of Call A-B
2	MS -> SS	RELEASE	Transaction identifier of Call A-B
3	SS -> MS	RELEASE COMPLETE	Transaction identifier of Call A-B
4	MS		If necessary, call C-B is answered using MMI commands
5	MS -> SS	CONNECT	Transaction identifier of Call C-B
6	SS -> MS	CONNECT ACKNOWLEDGE	Transaction identifier of Call C-B
7	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
8	MS -> SS	STATUS	Transaction identifier of Call A-B, state U0
9	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call C-B
10	MS -> SS	STATUS	Transaction identifier of Call C-B, state U10

31.3.1.3 Normal operation with unsuccessful outcome**31.3.1.3.1 Waiting call released by subscriber B****Conformance requirement**

GSM 04.83 subclause 1.3.1

Applicability

MS supporting the Call Waiting supplementary service.

Test purpose

To test that, using MMI commands, the MS shall clear the waiting call.

Method of test**Related PICS/PIXIT statements**

- supported MT circuit switched basic services.
- method of clearing a waiting call

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:

The MS has Call A-B of a basic service supported by the MS and applicable to Call Waiting as described in GSM 02.04 Table A.1 in the state U10 "Active" and Call C-B in the state U7 "Call Received".

Foreseen final state of the MS

Call A-B, state U10. Call C-B, state U0.

Maximum duration of test

30 s.

Procedure

Using appropriate MMI commands, the MS shall clear Call C-B.

The MS shall send a DISCONNECT message with the transaction identifier of Call B, and on receipt of a RELEASE message from the network, shall send a RELEASE COMPLETE and enter state U0 "Null". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Call C-B is cleared using MMI commands
2	MS -> SS	DISCONNECT	Transaction identifier of Call C-B
3	SS -> MS	RELEASE	Transaction identifier of Call C-B
4	MS -> SS	RELEASE COMPLETE	Transaction identifier of Call C-B
5	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
6	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10
7	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call C-B
8	MS -> SS	STATUS	Transaction identifier of Call C-B, state U0

31.3.1.3.2 Waiting call released by calling user C**Conformance requirement**

GSM 04.83 subclause 1.3.2

Applicability

MS supporting the Call Waiting supplementary service.

Test purpose

To test that the MS responds correctly to the receipt of a clearing message from the waiting call.

Method of test**Related PICS/PIXIT statements**

- supported MT circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS has Call A-B of a basic service supported by the MS and applicable to Call Waiting as described in GSM 02.04 Table A.1 in the state U10 "Active" and Call C-B in the state U7 "Call Received".

Foreseen final state of the MS

Call A-B, state U10. Call C-B, state U0.

Maximum duration of test

30 s.

Procedure

On receipt of a DISCONNECT message using the transaction identifier of Call C-B, the MS shall respond with a RELEASE message. On receipt of a RELEASE COMPLETE message, the MS shall enter state U0 "Null". Call A-B shall remain in state U10. The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Call C-B is cleared using MMI commands
2	SS -> MS	DISCONNECT	Transaction identifier of Call C-B
3	MS -> SS	RELEASE	Transaction identifier of Call C-B
4	SS -> MS	RELEASE COMPLETE	Transaction identifier of Call C-B
5	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
6	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10
7	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call C-B
8	MS -> SS	STATUS	Transaction identifier of Call C-B, state U0

31.3.1.4 Activation**Conformance requirement**

GSM 04.83 subclause 1.4

Applicability

MS supporting the Call Waiting supplementary service.

Test purpose

To test the correct operation of the activation procedure, and correctly display of the response from the SS in the following cases.

- 1) Successful activation
- 2) Error response (reject)
- 3) Activation reject (Invoke problem)

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:
The MS is "idle updated".

Related PICS/PIXIT statement(s)

Description of the user's commands and of display of the answers from the network for activation of Call Waiting.

Foreseen final state of the MS

The MS is "idle updated".

Test procedure

By means of appropriate MMI functions (using either GSM 02.30 or manufacturer defined MMI), the user requests activation of CW for a basic service group supported by the MS.

Upon receipt of the operation (in a REGISTER message), the system simulator answers with the FACILITY message with the Facility information element containing the return result of the ActivateSS operation.

The SS transaction is released and the dedicated channel is released.

Then again, by means of appropriate MMI functions as defined by the basic public MMI described in GSM 02.30, the user requests activation of CW for all basic service groups.

Upon receipt of the REGISTER message, the system simulator answers with the RELEASE COMPLETE message with the Facility information element containing the return result of the ActivateSS operation.

Maximum duration of test

3 min.

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is made to initiate a activation of call forwarding service for CW for the selected basic service group with establishment cause "Other procedures which can be completed with an SDCCH" cause: "supplementary service activation"
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	CM SERVICE REQUEST	
5	SS -> MS	CM SERVICE ACCEPT	
6	MS -> SS	REGISTER	
7	SS -> MS	RELEASE COMPLETE	ActivateSS operation Return_result provide user MMI indication
8	MS		
9	SS -> MS	CHANNEL RELEASE	
10	MS		The MS is made to initiate a activation of CW (all basic service groups) with establishment cause "Other procedures which can be completed with an SDCCH" cause: "supplementary service activation"
11	MS -> SS	CHANNEL REQUEST	
12	SS -> MS	IMMEDIATE ASSIGNMENT	
13	MS -> SS	CM SERVICE REQUEST	
14	SS -> MS	CM SERVICE ACCEPT	
15	MS -> SS	REGISTER	
16	SS -> MS	RELEASE COMPLETE	ActivateSS operation Return result provide correct MMI user indication
17	MS		
18	SS -> MS	CHANNEL RELEASE	

Specific message contents:

step 6 - CW

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = Activation

Supplementary service code = CW

Basic service code: the selected basic service group

step 15 - CW

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = Activation

Supplementary service code = CW

Basic service code: no bearer service present, no teleservice present.

31.3.1.5 Deactivation**Conformance requirement**

GSM 04.83 subclause 1.5

Applicability

MS supporting the Call Waiting supplementary service.

Test purpose

To test the correct operation of the deactivation procedure, and correct display of the response from the SS in the following cases

- 1) Successful deactivation
- 2) Error response (reject)
- 3) Activation reject (Invoke problem)

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:
The MS is "idle updated".

Related PICS/PIXIT statement(s)

Description of the user's commands and of display of the answers from the network for deactivation of call waiting.

Foreseen final state of the MS

The MS is "idle updated".

Test procedure

By means of appropriate MMI functions (using either GSM 02.30 or manufacturer defined MMI), the user requests deactivation of CW for a basic service group supported by the MS.

Upon receipt of the operation (in a REGISTER message), the system simulator answers with a RELEASE COMPLETE message with the Facility information element containing the return result of the DeactivateSS operation.

The SS transaction is released and the dedicated channel is released.

Then again, by means of appropriate MMI functions as defined by the basic public MMI described in GSM 02.30, the user requests deactivation of CW for all basic service groups.

Upon receipt of the REGISTER message, the system simulator answers with the RELEASE COMPLETE message with the Facility information element containing the return result of the DeactivateSS operation.

The dedicated channel is released.

Maximum duration of test

3 min.

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is made to initiate a deactivation of CW for a basic service group supported by the MS with establishment cause "Other procedures which can be completed with an SDCCH" cause: "supplementary service activation"
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	CM SERVICE REQUEST	
5	SS -> MS	CM SERVICE ACCEPT	
6	MS -> SS	REGISTER	
7	SS -> MS	RELEASE COMPLETE	DeactivateSS operation Return_result provide user MMI indication
8	MS		
9	SS -> MS	CHANNEL RELEASE	
10	MS		The MS is made to initiate a deactivation of CW (all basic services) with establishment cause "Other procedures which can be completed with an SDCCH" cause: "supplementary service activation"
11	MS -> SS	CHANNEL REQUEST	
12	SS -> MS	IMMEDIATE ASSIGNMENT	
13	MS -> SS	CM SERVICE REQUEST	
14	SS -> MS	CM SERVICE ACCEPT	
15	MS -> SS	REGISTER	
16	SS -> MS	RELEASE COMPLETE	DeactivateSS operation Return result provide correct MMI user indication
17	MS		
18	SS -> MS	CHANNEL RELEASE	

Specific message content

step 6 - CW

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = Deactivation

Supplementary service code = CW

Basic service code: the selected basic service group.

step 15 - CW

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = Deactivation

Supplementary service code = CW

Basic service code: no bearer service present

31.3.1.6 Interrogation**31.3.1.6.1 Interrogation accepted****Conformance requirement**

GSM 04.83 subclause 1.6

Applicability

MS supporting the Call Waiting supplementary service.

Test purpose

To test the correct operation of the interrogation procedure, and correct display of the response from the SS in the case of successful interrogation

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS is "idle updated".

Related PICS/PIXIT statement(s)

Description of the user's commands and of display of the answers from the network for interrogation of call waiting.

Foreseen final state of the MS

The MS is "idle updated".

Test procedure

By means of appropriate MMI functions (using either GSM 02.30 or manufacturer defined MMI), the user requests interrogation of CW for all basic service groups.

Upon receipt of the operation (in a REGISTER message), the system simulator answers with a RELEASE COMPLETE message with the Facility information element containing the return result of the InterrogateSS operation.

The SS transaction is released and the dedicated channel is released.

Then again, by means of appropriate MMI functions as defined by the basic public MMI described in GSM 02.30, the user requests interrogation of CW for a single supported basic service group.

Upon receipt of the REGISTER message, the system simulator answers with the RELEASE COMPLETE message with the Facility information element containing the return result of the InterrogateSS operation.

The dedicated channel is released.

Maximum duration of test

3 min.

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is made to initiate an interrogation of CW (all) with establishment cause "Other procedures which can be completed with an SDCCH" cause: "supplementary service activation"
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	CM SERVICE REQUEST	
5	SS -> MS	CM SERVICE ACCEPT	
6	MS -> SS	REGISTER	
7	SS -> MS	RELEASE COMPLETE	InterrogateSS operation Return_result provide user MMI indication
8	MS		
9	SS -> MS	CHANNEL RELEASE	
10	MS		The MS is made to initiate an interrogation of CW using the selected basic service group with establishment cause "Other procedures which can be completed with an SDCCH" cause: "supplementary service activation"
11	MS -> SS	CHANNEL REQUEST	
12	SS -> MS	IMMEDIATE ASSIGNMENT	
13	MS -> SS	CM SERVICE REQUEST	
14	SS -> MS	CM SERVICE ACCEPT	
16	MS -> SS	REGISTER	
17	SS -> MS	RELEASE COMPLETE	InterrogateSS operation Return result provide correct MMI user indication
18	MS		
19	SS -> MS	CHANNEL RELEASE	

Specific message content

step 6 - CW

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = Interrogation

Supplementary service code = CW

Basic service code: no Bearer Service present, no teleservice present.

step 15 - CW

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = Interrogation

Supplementary service code = CW

Basic service code: selected basic service group

31.3.1.6.2 Interrogation rejected**Conformance requirement**

GSM 04.83 subclause 1.6

Applicability

MS supporting the Call Waiting supplementary service.

Test purpose

To test the correct operation of the interrogation procedure, and correct display of the response from the SS in the case of an error response and an invoke problem

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:
The MS is in CC state U10.

Related PICS/PIXIT statement(s)

Description of the user's commands and of display of the answers from the network for call waiting.

Foreseen final state of the MS

The MS is in CC state U10.

Test procedure

By means of appropriate MMI functions (using either GSM 02.30 or manufacturer defined MMI), the user requests interrogation of CW for all basic service groups.

Upon receipt of the operation (in a REGISTER message), the system simulator answers with a RELEASE COMPLETE message with the Facility information element containing a Return_error(error: SS not available) of the InterrogateSS operation.

The system simulator sends STATUS ENQUIRY, the MS responds with STATUS message indicating CC state U10.

Then again, by means of appropriate MMI functions as defined by the basic public MMI described in GSM 02.30, the user requests interrogation of CW for a supported basic service group.

Upon receipt of the REGISTER message, the system simulator answers with the RELEASE COMPLETE message (same PD and TI that in the REGISTER message) with the Facility information element containing a reject(invoked_problem: resource limitation) of the InterrogateSS operation.

The system simulator sends STATUS ENQUIRY, the MS responds with STATUS message indicating CC state U10.

Maximum duration of test

3 min.

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is made to initiate an interrogation of CW (all) cause: "supplementary service activation"
2	MS -> SS	CM SERVICE REQUEST	
3	SS -> MS	CM SERVICE ACCEPT	
4	MS -> SS	REGISTER	
5	SS -> MS	RELEASE COMPLETE	InterrogateSS operation Return_error CC state U10 The MS is made to initiate an interrogation of CW for a supported basic service group cause: "supplementary service activation"
6	SS -> MS	STATUS ENQUIRY	
7	MS -> SS	STATUS	
8	MS		
9	MS -> SS	CM SERVICE REQUEST	
10	SS -> MS	CM SERVICE ACCEPT	
11	MS -> SS	REGISTER	
12	SS -> MS	RELEASE COMPLETE	InterrogateSS operation Reject provide correct MMI user indication CC state U10
13	MS		
14	SS -> MS	STATUS ENQUIRY	
15	MS -> SS	STATUS	

Specific message content

step 4 - CW

- protocol discriminator: non call related SS message
 - message type: REGISTER
 - facility
- invoke = Interrogation
Supplementary service code = CW
Basic service code: no Bearer Service present, no teleservice present

step 5 -

- protocol discriminator: non call related SS message
- transaction identifier: same TI as previous REGISTER message
- message type: RELEASE COMPLETE
- facility:
 - return error code: SS not available

For the return error the invoke ID must be the same as in the invoke of the InterrogateSS operation.

step 11 - CW

- protocol discriminator: non call related SS message
 - message type: REGISTER
 - facility
- invoke = Interrogation
Supplementary service code = CW
Basic service code: selected basic service group.

step 12 -

- protocol discriminator: non call related SS message
- transaction identifier: same TI as previous REGISTER message
- message type: RELEASE COMPLETE
- facility:
 - reject code: resource limitation

For the reject the invoke ID must be the same as in the invoke of the InterrogateSS operation.

31.3.2 Call Hold

31.3.2.1 Hold invocation

Conformance requirement

GSM 04.83 subclause 2.1.2

Applicability

MS supporting the Call Hold supplementary service.

Test purpose

To test the correct operation of the Hold procedure, and the MS reaction to the following messages sent in response to the HOLD message

1. HOLD REJECT
2. HOLD ACKNOWLEDGE

Method of test

Related PICS/PIXIT statements

- method of placing a call on hold

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:

The MS shall have a call of a basic service supported by the MS and applicable to Call Hold as described in GSM 02.04 Table A.1 in state U10 "Active"

Foreseen final state of the MS

State U10, Auxiliary state "Call Held"

Maximum duration of test

30 s.

Procedure

Using suitable MMI commands, the MS shall request that the call is placed on hold. The MS shall send a HOLD message and enter auxiliary state "hold request". On receipt of a HOLD REJECT message from the SS shall return to state U10 "Active". The call state shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of the call, and receiving a STATUS message indicating the appropriate call state and auxiliary state.

Using suitable MMI commands, the MS shall again request that the call is placed on hold. The MS shall send a HOLD message and enter auxiliary state "hold request". On receipt of a HOLD ACKNOWLEDGE message from the SS shall enter to state U10 "Active " with auxiliary state "Call held". The call state shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of call, and receiving a STATUS message indicating the appropriate call state and auxiliary state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Using MMI commands, the MS places the call on hold
2	MS -> SS	HOLD	State U10, auxiliary state "Hold request"
3	SS -> MS	STATUS ENQUIRY	
4	MS -> SS	STATUS	
5	SS -> MS	HOLD REJECT	
6	SS -> MS	STATUS ENQUIRY	State U10, no auxiliary state
7	MS -> SS	STATUS	
8	SS		Check that the TCH is through-connected
9	MS		Using MMI commands, the MS places the call on hold
10	MS -> SS	HOLD	State U10, auxiliary state "Hold request"
11	SS -> MS	STATUS ENQUIRY	
12	MS -> SS	STATUS	
13	SS -> MS	HOLD ACKNOWLEDGE	
14	SS -> MS	STATUS ENQUIRY	State U10, auxiliary state "Call held"
15	MS -> SS	STATUS	

31.3.2.2 Retrieve procedure**Conformance requirement**

GSM 04.83 subclause 2.1.3

Applicability

MS supporting the Call Hold supplementary service.

Test purpose

To test the correct operation of the retrieve procedure, and the MS reaction to the following messages sent in response to the RETRIEVE message

- 1) RETRIEVE REJECT
- 2) RETRIEVE ACKNOWLEDGE

Initial conditions

The MS shall have a call of a basic service supported by the MS and applicable to Call Hold as described in GSM 02.04 Table A.1 in state U10 "Active" with auxiliary state "Call held".

Method of test**Related PICS/PIXIT statements**

- method of retrieving a held call

Initial conditions

System Simulator:

- 1 cell, default parameters.

Mobile Station:

The MS shall have a call of a basic service supported by the MS and applicable to Call Hold as described in GSM 02.04 Table A.1 in state U10 "Active" with auxiliary state "Call held".

Foreseen final state of the MS

State U10, no auxiliary state.

Maximum duration of test

30 s.

Procedure

Using suitable MMI commands, the MS shall request that the call is placed on RETRIEVE. The MS shall send a RETRIEVE message and enter auxiliary state "retrieve request". On receipt of a RETRIEVE REJECT message from the SS, the MS shall return to state U10 "Active" with auxiliary state "Call held". The call state shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of call, and receiving a STATUS message indicating the appropriate call state and auxiliary state.

Using suitable MMI commands, the MS shall again request that the call is placed on RETRIEVE. The MS shall send a RETRIEVE message and enter auxiliary state "retrieve request". On receipt of a RETRIEVE ACKNOWLEDGE message from the SS, the MS shall enter state U10 "Active". The call state shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of call, and receiving a STATUS message indicating the appropriate call state and auxiliary state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Using MMI commands, the MS retrieves the held call
2	MS -> SS	RETRIEVE	State U10, auxiliary state "Retrieve request"
3	SS -> MS	STATUS ENQUIRY	
4	MS -> SS	STATUS	
5	SS -> MS	RETRIEVE REJECT	
6	SS -> MS	STATUS ENQUIRY	
7	MS -> SS	STATUS	State U10, auxiliary state "Call held"
8	MS		Using MMI commands, the MS retrieves the held call
9	MS -> SS	RETRIEVE	State U10, auxiliary state "Retrieve request"
10	SS -> MS	STATUS ENQUIRY	
11	MS -> SS	STATUS	
12	SS -> MS	RETRIEVE ACKNOWLEDGE	
13	SS -> MS	STATUS ENQUIRY	State U10, no auxiliary state
14	MS -> SS	STATUS	
15	SS		Check that the TCH is through-connected

31.3.2.3 Alternate from one call to the other**Conformance requirement**

GSM 04.83 subclause 2.1.4

Applicability

MS supporting the Call Hold supplementary service.

Test purpose

To test that the MS correctly alternates between one call and the other, by placing the active call on hold, and retrieving the previously held call.

To test that the MS correctly returns to the original call states in the event of receipt of a HOLD REJECT or RETRIEVE REJECT.

Method of test

Related PICS/PIXIT statements

- method of alternating between an active call and a held call

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS shall have Call A-B in state U10 "Active", and Call C-B in state U10 "Active" with auxiliary state "Call held". Both calls shall be of a basic service supported by the MS and applicable to Call Hold as described in GSM 02.04 Table A.1.

Foreseen final state of the MS

State U10, no auxiliary state.

Maximum duration of test

30 s.

Procedure

Using suitable MMI commands, the MS shall alternate between Call A-B and Call C-B. The MS shall send a HOLD message with the transaction identifier for Call A-B and enter auxiliary state "hold request", and send a RETRIEVE message with the transaction identifier for Call C-B and enter auxiliary state "retrieve request". On receipt of a HOLD ACKNOWLEDGE and RETRIEVE ACKNOWLEDGE message, the MS shall have Call A-B in state U10 "Active" with auxiliary state "Call held", and Call C-B in state U10 "Active". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state and auxiliary state.

Using suitable MMI commands, the MS shall alternate between Call A-B and Call C-B. The MS shall send a HOLD message with the transaction identifier for Call C-B and enter auxiliary state "hold request", and send a RETRIEVE message with the transaction identifier for Call A-B and enter auxiliary state "retrieve request". On receipt of a HOLD REJECT and RETRIEVE REJECT message, the MS shall have Call A-B remain in state U10 "Active" with auxiliary state "Call held", and Call C-B in state U10 "Active". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state and auxiliary state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Using MMI commands, the MS changes from call A-B to call C-B
2	MS -> SS	HOLD	Transaction identifier for call A-B
3	MS -> SS	RETRIEVE	Transaction identifier for call C-B
4	SS -> MS	STATUS ENQUIRY	Transaction identifier for call A-B
5	MS -> SS	STATUS	Transaction identifier for call A-B, State U10, auxiliary state "Hold request"
6	SS -> MS	STATUS ENQUIRY	Transaction identifier for call C-B
7	MS -> SS	STATUS	Transaction identifier for call C-B, State U10, auxiliary state "Hold request"
8	SS -> MS	HOLD ACKNOWLEDGE	Transaction identifier for call A-B
9	SS -> MS	RETRIEVE ACKNOWLEDGE	Transaction identifier for call C-B
10	SS -> MS	STATUS ENQUIRY	Transaction identifier for call A-B
11	MS -> SS	STATUS	Transaction identifier for call A-B, state U10, auxiliary state "Call Held"
12	SS -> MS	STATUS ENQUIRY	Transaction identifier for call C-B
13	MS -> SS	STATUS	Transaction identifier for call C-B, state U10, no auxiliary state
14	SS		Check that the TCH is through-connected
15	MS		Using MMI commands, the MS changes from call C-B to call A-B
16	MS -> SS	HOLD	Transaction identifier for call C-B
17	MS -> SS	RETRIEVE	Transaction identifier for call A-B
18	SS -> MS	STATUS ENQUIRY	Transaction identifier for call C-B
19	MS -> SS	STATUS	Transaction identifier for call C-B, State U10, auxiliary state "Hold request"
20	SS -> MS	STATUS ENQUIRY	Transaction identifier for call A-B
21	MS -> SS	STATUS	Transaction identifier for call A-B, State U10, auxiliary state "Retrieve request"
22	SS -> MS	HOLD REJECT	Transaction identifier for call C-B
23	SS -> MS	RETRIEVE REJECT	Transaction identifier for call A-B
24	SS -> MS	STATUS ENQUIRY	Transaction identifier for call C-B
25	MS -> SS	STATUS	Transaction identifier for call C-B, state U10, no auxiliary state
26	SS -> MS	STATUS ENQUIRY	Transaction identifier for call A-B
27	MS -> SS	STATUS	Transaction identifier for call A-B, state U10, auxiliary state "Call Held"
28	SS		Check that the TCH is through-connected

31.4 Multi-party supplementary services

NOTE: In this section, subscriber A is the MS under test, and subscribers B to G are distant parties in the calls used in the tests.

31.4.1 Beginning the MultiParty service**31.4.1.1 Beginning the MultiParty service, successful case****Conformance requirement**

GSM 04.84 subclause 1.1

Applicability

MS supporting the MultiParty supplementary service.

Test purpose

To test that the MS correctly starts the MultiParty service when it has an active call and a held call, and reacts correctly to a response from the SS indicating success.

Method of test

Related PICS/PIXIT statements

Method of joining two calls into a MultiParty call

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:

The MS shall have Call A-B in state U10 "Active" and Call A-C in state U10 "Active" with Auxiliary state "Call held". Both calls shall be of a basic service supported by the MS and relevant to the MultiParty supplementary service as stated in GSM 02.04 Table A.1,

Foreseen final state of the MS

Call A-B, state U10, auxiliary state "Call in MPTY". Call A-C, state U10, auxiliary state "Call in MPTY".

Maximum duration of test

30 s.

Procedure

Using suitable MMI commands, the MS shall join the two calls in a MultiParty call. The MS shall send a FACILITY message containing an invoke component set to BuildMPTY, and with the transaction identifier for either Call A-B or Call A-C. Both calls shall enter auxiliary state "MPTY request". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

On receipt of a FACILITY message including a Return Result component, the MS shall enter the state U10 "Active" with auxiliary state "Call in MPTY". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Using MMI commands, join the two calls
2	MS -> SS	FACILITY	TI for Call A-B or Call A-C, BuildMPTY Invoke component
3	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
4	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "MPTY request"
5	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
6	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "MPTY request, call held"
7	SS -> MS	FACILITY	Same TI as step 2, Return Result component
8	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
9	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "Call in MPTY"
10	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
11	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Call in MPTY"
12	SS		Check that the TCH is through-connected

31.4.1.2 Beginning the MultiParty service, unsuccessful case**Conformance requirement**

GSM 04.84 subclause 1.1

Applicability

MS supporting the MultiParty supplementary service.

Test purpose

To test that the MS correctly starts the MultiParty service when it has an active call and a held call, and reacts correctly to the following responses from the SS.

- 1) Return error
- 2) Reject

Method of test**Related PICS/PIXIT statements**

- method of joining two calls into a MultiParty call

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:

The MS shall have Call A-B in state U10 "Active" and Call A-C in state U10 "Active" with Auxiliary state "Call held". Both calls shall be of a basic service supported by the MS and relevant to the MultiParty supplementary service as stated in GSM 02.04 Table A.1,

Foreseen final state of the MS

Call A-B, state U10, no auxiliary state. Call A-C, state U10, auxiliary state "Call Held".

Maximum duration of test

45 s.

Procedure

Using suitable MMI commands, the MS shall initiate a MultiParty call. The MS shall send a FACILITY message containing an invoke component set to BuildMPTY, and with the transaction identifier for either Call A-B or Call A-C. Both calls shall enter auxiliary state "MPTY request". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

On receipt of a FACILITY message including a Return Error component, the MS shall return both calls to their original call states. The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Using suitable MMI commands, the MS shall initiate a MultiParty call. The MS shall send a FACILITY message containing an invoke component set to BuildMPTY, and with the transaction identifier for boeithier Call A-B or Call A-C. Both calls shall enter auxiliary state "MPTY request". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

On receipt of a FACILITY message including a Reject component, the MS shall return both calls to their original call states. The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Using MMI commands, set up a MultiParty call
2	MS -> SS	FACILITY	TI for Call A-B or Call A-C, BuildMPTY Invoke component
3	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
4	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "MPTY request"
5	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
6	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "MPTY request, call held"
7	SS -> MS	FACILITY	Same TI as step 2, Return Error component
8	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
9	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, no auxiliary state
10	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
11	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Call Held"
12	MS		Using MMI commands, set up a MultiParty call
13	MS -> SS	FACILITY	TI for Call A-B or Call A-C, BuildMPTY Invoke component
14	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
15	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "MPTY request"
16	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
17	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "MPTY request, call held"
18	SS -> MS	FACILITY	Same TI as step 13, Reject component
19	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
20	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, no auxiliary state
21	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
22	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Call Held"

31.4.1.3 Beginning the MultiParty service, expiry of timer T(BuildMPTY)**Conformance requirement**

GSM 04.84 subclause 1.1

Applicability

MS supporting the MultiParty supplementary service.

Test purpose

To test that the MS correctly starts the MultiParty service when it has an active call and a held call, and on expiry of timer T(BuildMPTY) returns both calls to their original states.

Method of test**Related PICS/PIXIT statements**

- method of joining two calls into a MultiParty call

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:

The MS shall have Call A-B in state U10 "Active" and Call A-C in state U10 "Active" with Auxiliary state "Call held". Both calls shall be of a basic service supported by the MS and relevant to the MultiParty supplementary service as stated in GSM 02.04 Table A.1,

Foreseen final state of the MS

Branch A - Call A-B, state U10, no auxiliary state. Call A-C, state U10, auxiliary state "Call Held".

Branch B - Call A-B, state U10, auxiliary state "MPTY Request". Call A-C, state U10, auxiliary state "MPTY Request".

Maximum duration of test

45 s.

Procedure

Using suitable MMI commands, the MS shall initiate a MultiParty call. The MS shall send a FACILITY message containing an invoke component set to BuildMPTY, and with the transaction identifier for either Call A-B or Call A-C. Both calls shall enter auxiliary state "MPTY request". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Not less than 5s and not more than 30s after sending the FACILITY message, one of the following shall have occurred.

- both calls shall be in their original call states and the MS shall have indicated the failure to the user, or
- the MS shall have sent another FACILITY message with the same contents.

The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Using MMI commands, set up a MultiParty call
2	MS -> SS	FACILITY	TI for Call A-B or Call A-C, BuildMPTY Invoke component
3	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
4	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "MPTY request"
5	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
6	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "MPTY request, call held"
7	SS		Wait 30 s from receiving FACILITY message
A8	SS -> MS	STATUS ENQUIRY	Take this branch if no message is received within 30 s
A9	MS -> SS	STATUS	Transaction identifier of Call A-B
A10	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B, state U10, no auxiliary state
A11	MS -> SS	STATUS	Transaction identifier of Call A-C
			Transaction identifier of Call A-C, state U10, auxiliary state "Call Held"
B8	MS -> SS	FACILITY	Take this branch if a message is received within 30 s
B9	SS -> MS	STATUS ENQUIRY	Same as Step 2. Message shall not be received less than 5 s after the first FACILITY message
B10	MS -> SS	STATUS	Transaction identifier of Call A-B
B11	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B, state U10, auxiliary state "MPTY request"
B12	MS -> SS	STATUS	Transaction identifier of Call A-C
			Transaction identifier of Call A-C, state U10, auxiliary state "MPTY request, call held"

31.4.2 Managing an active MultiParty call**31.4.2.1 Served mobile subscriber****31.4.2.1.1 Put the MultiParty call on hold****31.4.2.1.1.1 Put the MultiParty call on hold, successful case****Conformance requirement**

GSM 04.84 subclause 1.2.1.1

Applicability

MS supporting the MultiParty supplementary service.

Test purpose

To test that the MS correctly places an active MultiParty call on hold, and reacts correctly to a response from the SS indicating success.

Method of test**Related PICS/PIXIT statements**

- method of placing a MultiParty call on hold

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS shall have a MultiParty call to two destinations (Call A-B and Call A-C) active. Both call states shall be U10 "Active" with auxiliary state "Call in MPTY". The call shall be of a basic service supported by the MS and relevant to the MultiParty supplementary service as stated in GSM 02.04 Table A.1,

NOTE: The MultiParty call may be set up using the procedures of section 31.4.1.1.

Foreseen final state of the MS

Call A-B, state U10, auxiliary state "Call in MPTY, call held". Call A-C, state U10, auxiliary state "Call in MPTY, call held".

Maximum duration of test

30 s.

Procedure

Using suitable MMI commands, the MS shall place the MultiParty call on hold. The MS shall send a FACILITY message containing one of the transaction identifiers of the call, and containing an invoke component HoldMPTY. Both calls shall enter the auxiliary state "Call in MPTY, hold request". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

On receipt of a FACILITY message with the same transaction identifier and containing a return result component, the MS shall enter the state U10 "Active" with auxiliary state "Call in MPTY, call held" for both transaction identifiers. The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Using MMI commands, put the MultiParty call on hold
2	MS -> SS	FACILITY	TI for Call A-B or Call A-C, HoldMPTY Invoke component
3	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
4	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "Call in MPTY, hold request"
5	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
6	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Call in MPTY, hold request"
7	SS -> MS	FACILITY	Same TI as step 2, Return Result component
8	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
9	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "Call in MPTY, call held"
10	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
11	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Call in MPTY, call held"

31.4.2.1.1.2 Put the MultiParty call on hold, unsuccessful case**Conformance requirement**

GSM 04.84 subclause 1.2.1.1

Applicability

MS supporting the MultiParty supplementary service.

Test purpose

To test that the MS correctly places an active MultiParty call on hold, and reacts correctly to a response from the SS indicating an error or a reject condition.

Method of test**Related PICS/PIXIT statements**

- method of placing a MultiParty call on hold

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:

The MS shall have a MultiParty call to two destinations (Call A-B and Call A-C) active. Both call states shall be U10 "Active" with auxiliary state "Call in MPTY". The call shall be of a basic service supported by the MS and relevant to the MultiParty supplementary service as stated in GSM 02.04 Table A.1,

NOTE: The MultiParty call may be set up using the procedures of section 31.4.1.1.

Foreseen final state of the MS

Call A-B, state U10, auxiliary state "Call in MPTY". Call A-C, state U10, auxiliary state "Call in MPTY".

Maximum duration of test

45 s.

Procedure

Using suitable MMI commands, the MS shall place the MultiParty call on hold. The MS shall send a FACILITY message containing one of the transaction identifiers of the call, and containing an invoke component HoldMPTY. Both calls shall enter the auxiliary state "Call in MPTY, hold request". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

On receipt of a FACILITY message with the same transaction identifier and containing a return error component, the MS shall return to the original states for both transaction identifiers. The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Using suitable MMI commands, the MS shall place the MultiParty call on hold. The MS shall send a FACILITY message containing one of the transaction identifiers of the call, and containing an invoke component HoldMPTY. Both calls shall enter the auxiliary state "Call in MPTY, hold request". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

On receipt of a FACILITY message with the same transaction identifier and containing a Reject component, the MS shall return to the original states for both transaction identifiers. The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Using MMI commands, put the MultiParty call on hold
2	MS -> SS	FACILITY	TI for Call A-B or Call A-C, HoldMPTY Invoke component
3	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
4	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "Call in MPTY, hold request"
5	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
6	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Call in MPTY, hold request"
7	SS -> MS	FACILITY	Same TI as step 2, Return Error component
8	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
9	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "Call in MPTY"
10	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
11	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Call in MPTY"
12	MS		Using MMI commands, place the MultiParty call on hold
13	MS -> SS	FACILITY	TI for Call A-B or Call A-C, HoldMPTY Invoke component
14	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
15	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "Call in MPTY, hold request"
16	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
17	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Call in MPTY, hold request"
18	SS -> MS	FACILITY	Same TI as step 13, Reject component
19	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
20	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "Call in MPTY"
21	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
22	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Call in MPTY"

31.4.2.1.1.3 Put the MultiParty call on hold, expiry of timer T(HoldMPTY)**Conformance requirement**

GSM 04.84 subclause 1.2.1.1

Applicability

MS supporting the MultiParty supplementary service.

Test purpose

To test that the MS correctly places an active MultiParty call on hold, and on expiry of T(HoldMPTY) returns the MultiParty call to the auxiliary state "Call in MPTY".

Method of test**Related PICS/PIXIT statements**

- method of placing a MultiParty call on hold

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:

The MS shall have a MultiParty call to two destinations (Call A-B and Call A-C) active. Both call states shall be U10 "Active" with auxiliary state "Call in MPTY". The call shall be of a basic service supported by the MS and relevant to the MultiParty supplementary service as stated in GSM 02.04 Table A.1,

NOTE: The MultiParty call may be set up using the procedures of section 31.4.1.1.

Foreseen final state of the MS

Branch A, Call A-B, state U10, auxiliary state "Call in MPTY". Call A-C, state U10, auxiliary state "Call in MPTY".

Branch B, Call A-B, state U10, auxiliary state "Call in MPTY, hold request". Call A-C, state U10, auxiliary state "Call in MPTY, hold request".

Maximum duration of test

45 s.

Procedure

Using suitable MMI commands, the MS shall place the MultiParty call on hold. The MS shall send a FACILITY message containing one of the transaction identifiers of the call, and containing an invoke component HoldMPTY. Both calls shall enter the auxiliary state "Call in MPTY, hold request". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Not less than 5s and not more than 30s after sending the FACILITY message, one of the following shall have occurred

- both calls shall be in their original call states and the MS shall have indicated the failure to the user, or
- the MS shall have sent another FACILITY message with the same contents.

The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Using MMI commands, put the MultiParty call on hold
2	MS -> SS	FACILITY	TI for Call A-B or Call A-C, HoldMPTY Invoke component
3	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
4	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "Call in MPTY, hold request"
5	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
6	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Call in MPTY, hold request"
7	SS		Wait 30 s from receiving FACILITY message
A8	SS -> MS	STATUS ENQUIRY	Take this branch if no message is received within 30 s
A9	MS -> SS	STATUS	Transaction identifier of Call A-B
A10	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B, state U10, no auxiliary state
A11	MS -> SS	STATUS	Transaction identifier of Call A-C
			Transaction identifier of Call A-C, state U10, auxiliary state "Call Held"
B8	MS -> SS	FACILITY	Take this branch if a message is received within 30 s
B9	SS -> MS	STATUS ENQUIRY	Same as Step 2. Message shall not be received less than 5 s after the first FACILITY message
B10	MS -> SS	STATUS	Transaction identifier of Call A-B
B11	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B, state U10, auxiliary state "Call in MPTY, hold request"
B12	MS -> SS	STATUS	Transaction identifier of Call A-C
			Transaction identifier of Call A-C, state U10, auxiliary state "Call in MPTY, hold request"

31.4.2.1.2 Create a private communication with one of the remote parties**31.4.2.1.2.1 Create a private communication with one of the remote parties, successful case****Conformance requirement**

GSM 04.84 subclause 1.2.1.2

Applicability

MS supporting the MultiParty supplementary service.

Test purpose

To test that the MS correctly splits an active MultiParty call, and reacts correctly to a response from the SS indicating success.

Method of test**Related PICS/PIXIT statements**

- method of creating a private communication with one party of a MultiParty call.

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:

The MS shall have a MultiParty call to two destinations (Call A-B and Call A-C) active. Both call states shall be U10 "Active" with auxiliary state "Call in MPTY". The call shall be of a basic service supported by the MS and relevant to the MultiParty supplementary service as stated in GSM 02.04 Table A.1,

NOTE: The MultiParty call may be set up using the procedures of section 31.4.1.1.

Foreseen final state of the MS

Call A-B, state U10, no auxiliary state. Call A-C, state U10, auxiliary state "Call Held".

Maximum duration of test

30 s.

Procedure

Using suitable MMI commands, the MS shall request a private communication with Call A-B. The MS shall send a FACILITY message containing the transaction identifier for Call A-B and an invoke component SplitMPTY. Both calls shall enter auxiliary state "Split request". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

On receipt of a FACILITY message containing the same transaction identifier and a return result component, Call A-B shall enter the state U10 "Active", and Call A-C shall enter the state U10 "Active" with auxiliary state "Call held". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Using MMI commands, request a private communication with Call A-B
2	MS -> SS	FACILITY	TI for Call A-B, SplitMPTY Invoke component
3	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
4	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "Split request"
5	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
6	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Split request"
7	SS -> MS	FACILITY	Return Result component
8	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
9	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, no auxiliary state
10	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
11	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Call held"
12	SS		Check that the TCH is through-connected

31.4.2.1.2.2 Create a private communication with one of the remote parties, unsuccessful case

Conformance requirement

GSM 04.84 subclause 1.2.1.2

Applicability

MS supporting the MultiParty supplementary service.

Test purpose

To test that the MS correctly splits an active MultiParty call, and reacts correctly to a response from the SS indicating an error or reject condition.

Method of test

Related PICS/PIXIT statements

- method of creating a private communication with one party of a MultiParty call.

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:

The MS shall have a MultiParty call to two destinations (Call A-B and Call A-C) active. Both call states shall be U10 "Active" with auxiliary state "Call in MPTY". The call shall be of a basic service supported by the MS and relevant to the MultiParty supplementary service as stated in GSM 02.04 Table A.1,

NOTE: The MultiParty call may be set up using the procedures of section 31.4.1.1.

Foreseen final state of the MS

Call A-B, state U10, auxiliary state "Call in MPTY". Call A-C, state U10, auxiliary state "Call in MPTY".

Maximum duration of test

30 s.

Procedure

Using suitable MMI commands, the MS shall request a private communication with Call A-B. The MS shall send a FACILITY message containing the transaction identifier for Call A-B and an invoke component SplitMPTY. Both calls shall enter auxiliary state "split request". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

On receipt of a FACILITY message containing the same transaction identifier and a return error component, both calls shall return to their initial states. The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Using suitable MMI commands, the MS shall request a private communication with Call A-B. The MS shall send a FACILITY message containing the transaction identifier for Call A-B and an invoke component SplitMPTY. Both calls shall enter auxiliary state "split request". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

On receipt of a FACILITY message containing the same transaction identifier and a Reject component, both calls shall return to their initial states. The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Using MMI commands, create a private communication for Call A-B
2	MS -> SS	FACILITY	TI for Call A-B, SplitMPTY Invoke component
3	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
4	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "Split request"
5	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
6	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Split request"
7	SS -> MS	FACILITY	Return Error component
8	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
9	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "Call in MPTY"
10	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
11	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Call in MPTY"
12	MS		Using MMI commands, create a private communication for Call A-B
13	MS -> SS	FACILITY	TI for Call A-B, SplitMPTY Invoke component
14	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
15	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "Split request"
16	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
17	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Split request"
18	SS -> MS	FACILITY	Reject component
19	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
20	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "Call in MPTY"
21	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
22	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Call in MPTY"

31.4.2.1.2.3 Create a private communication with one of the remote parties, expiry of timer T(SplitMPTY)

Conformance requirement

GSM 04.84 subclause 1.2.1.2

Applicability

MS supporting the MultiParty supplementary service.

Test purpose

To test that the MS correctly splits an active MultiParty call, and on expiry of T(SplitMPTY) returns the call to the auxiliary state "Call in MPTY".

Method of test**Related PICS/PIXIT statements**

- method of creating a private communication with one party of a MultiParty call.

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS shall have a MultiParty call to two destinations (Call A-B and Call A-C) active. Both call states shall be U10 "Active" with auxiliary state "Call in MPTY". The call shall be of a basic service supported by the MS and relevant to the MultiParty supplementary service as stated in GSM 02.04 Table A.1,

NOTE: The MultiParty call may be set up using the procedures of section 31.4.1.1.

Foreseen final state of the MS

Branch A, Call A-B, state U10, auxiliary state "Call in MPTY". Call A-C, state U10, auxiliary state "Call in MPTY".

Branch B, Call A-B, state U10, auxiliary state "Call in MPTY". Call A-C, state U10, auxiliary state "Call in MPTY".

Maximum duration of test

30 s.

Procedure

Using suitable MMI commands, the MS shall request a private communication with Call A-B. The MS shall send a FACILITY message containing the transaction identifier for Call A-B and an invoke component SplitMPTY. Both calls shall enter auxiliary state "Split request". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

After not less than 5s and not more than 30s, the MS shall either:

- return both calls to their original states, or
- send another FACILITY message with the same contents

The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Using MMI commands, request a private communication with Call A-B
2	MS -> SS	FACILITY	TI for Call A-B, SplitMPTY Invoke component
3	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
4	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "Split request"
5	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
6	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Split request"
7	SS		Wait 30 s from receiving FACILITY message
A8 A9 A10 A11	SS -> MS MS -> SS SS -> MS MS -> SS	STATUS ENQUIRY STATUS STATUS ENQUIRY STATUS	Take this branch if no message is received within 30 s Transaction identifier of Call A-B Transaction identifier of Call A-B, state U10, auxiliary state "Call in MPTY" Transaction identifier of Call A-C Transaction identifier of Call A-C, state U10, auxiliary state "Call in MPTY"
B8 B9 B10 B11 B12	MS -> SS SS -> MS MS -> SS SS -> MS MS -> SS	FACILITY STATUS ENQUIRY STATUS STATUS ENQUIRY STATUS	Take this branch if a message is received within 30 s Same as Step 2. Message shall not be received less than 5 s after the first FACILITY message Transaction identifier of Call A-B Transaction identifier of Call A-B, state U10, auxiliary state "Split request" Transaction identifier of Call A-C Transaction identifier of Call A-C, state U10, auxiliary state "Split request"

31.4.2.1.3 Terminate the entire MultiParty call**Conformance requirement**

GSM 04.84 subclause 1.2.1.3

Applicability

MS supporting the MultiParty supplementary service.

Test purpose

To test that the MS correctly terminates an entire MultiParty call by implementing the call clearance procedure for each call in turn.

Method of test**Related PICS/PIXIT statements**

- method of terminating a MultiParty call.

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS shall have a MultiParty call to two destinations (Call A-B and Call A-C) active. Both call states shall be U10 "Active" with auxiliary state "Call in MPTY". The call shall be of a basic service supported by the MS and relevant to the MultiParty supplementary service as stated in GSM 02.04 Table A.1,

NOTE: The MultiParty call may be set up using the procedures of section 31.4.1.1.

Foreseen final state of the MS

Call A-B, state U0. Call A-C, state U0.

Maximum duration of test

30 s.

Procedure

Using suitable MMI commands, the MS shall initiate a clearance of the entire MultiParty call. The MS shall send a DISCONNECT message in respect of each of the transaction identifiers of the call. On receipt of a RELEASE message in respect of each transaction identifier, the MS shall respond with a RELEASE COMPLETE message, and enter state U0 "Null". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Using MMI commands, terminate the entire MultiParty call
2	MS -> SS	DISCONNECT	Steps 2 and 3 may occur in any order
3	MS -> SS	DISCONNECT	Transaction identifier of Call A-C
4	SS -> MS	RELEASE	Transaction identifier of Call A-B
5	MS -> SS	RELEASE COMPLETE	Transaction identifier of Call A-B
6	SS -> MS	RELEASE	Transaction identifier of Call A-C
7	MS -> SS	RELEASE COMPLETE	Transaction identifier of Call A-C
8	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
9	MS -> SS	STATUS	Transaction identifier of Call A-B, state U0
10	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
11	MS -> SS	STATUS	Transaction identifier of Call A-C, state U0

31.4.2.1.4 Explicitly disconnect a remote party

Conformance requirement

GSM 04.84 subclause 1.2.1.4

Applicability

MS supporting the MultiParty supplementary service.

Test purpose

To test that the MS correctly disconnects a single remote party by implementing the call clearance procedure for that party.

Method of test

Related PICS/PIXIT statements

- method of disconnecting one party of a MultiParty call.

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS shall have a MultiParty call to two destinations (Call A-B and Call A-C) active. Both call states shall be U10 "Active" with auxiliary state "Call in MPTY". The call shall be of a basic service supported by the MS and relevant to the MultiParty supplementary service as stated in GSM 02.04 Table A.1,

NOTE: The MultiParty call may be set up using the procedures of section 31.4.1.1.

Foreseen final state of the MS

Call A-B, state U0. Call A-C, state U10.

Maximum duration of test

30 s.

Procedure

Using suitable MMI commands, the MS shall initiate a clearance of the Call A-B. The MS shall send a DISCONNECT message containing the transaction identifier of Call A-B. On receipt of a RELEASE message the MS shall respond with a RELEASE COMPLETE message, and enter state U0 "Null" for Call A-B. Call A-C shall enter state U10 "Active" with no auxiliary state. The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Using MMI commands, clear call A-B
2	MS -> SS	DISCONNECT	Transaction identifier of Call A-B
3	SS -> MS	RELEASE	Transaction identifier of Call A-B
4	MS -> SS	RELEASE COMPLETE	Transaction identifier of Call A-B
5	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
6	MS -> SS	STATUS	Transaction identifier of Call A-B, state U0
7	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
8	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, no auxiliary state

31.4.2.2 Remote parties**31.4.2.2.1 Release from the MultiParty call****Conformance requirement**

GSM 04.84 subclause 1.2.1.4

Applicability

MS supporting the MultiParty supplementary service.

Test purpose

To test that the MS responds correctly to a call clearance from one of the remote parties.

Method of test**Related PICS/PIXIT statements**

None

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS shall have a MultiParty call to two destinations (Call A-B and Call A-C) active. Both call states shall be U10 "Active" with auxiliary state "Call in MPTY". The call shall be of a basic service supported by the MS and relevant to the MultiParty supplementary service as stated in GSM 02.04 Table A.1,

NOTE: The MultiParty call may be set up using the procedures of section 31.4.1.1.

Foreseen final state of the MS

Call A-B, state U0. Call A-C, state U10.

Maximum duration of test

30 s.

Procedure

On receipt of a DISCONNECT message containing the transaction identifier of Call A-B, the MS shall send a RELEASE message. On receipt of a RELEASE COMPLETE message the MS shall enter state U0 "Null" for Call A-B. Call A-C shall enter state U10 "Active" with no auxiliary state. The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	SS -> MS	DISCONNECT	Transaction identifier of Call A-B
2	MS -> SS	RELEASE	Transaction identifier of Call A-B
3	SS -> MS	RELEASE COMPLETE	Transaction identifier of Call A-B
4	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
5	MS -> SS	STATUS	Transaction identifier of Call A-B, state U0
6	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
7	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, no auxiliary state

31.4.3 Managing a held MultiParty call**31.4.3.1 Retrieve the held MultiParty call****31.4.3.1.1 Retrieve the held MultiParty call, successful case****Conformance requirement**

GSM 04.84 subclause 1.3.1.1

Applicability

MS supporting the MultiParty supplementary service.

Test purpose

To test that the MS correctly retrieves a held MultiParty call, and reacts correctly to a response from the SS indicating success.

Method of test**Related PICS/PIXIT statements**

- method of retrieving a held MultiParty call.

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:

The MS shall have a held MultiParty call to two destinations (Call A-B and Call A-C). Both call states shall be U10 "Active" with auxiliary state "Call in MPTY, call held". The call shall be of a basic service supported by the MS and relevant to the MultiParty supplementary service as stated in GSM 02.04 Table A.1,

NOTE: The MultiParty call may be set up using the procedures of section 31.4.2.1.1.2.

Foreseen final state of the MS

Call A-B, state U10, auxiliary state "Call in MPTY". Call A-C, state U10, auxiliary state "Call in MPTY".

Maximum duration of test

30 s.

Procedure

Using suitable MMI commands, the MS shall retrieve the MultiParty call. The MS shall send a FACILITY message containing one of the transaction identifiers of the call, and containing an invoke component RetrieveMPTY. Both calls shall enter the auxiliary state "Call in MPTY, retrieve request". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

On receipt of a FACILITY message with the same transaction identifier and containing a return result component, the MS shall enter the state U10 "Active" with auxiliary state "Call in MPTY" for both transaction identifiers. The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Using MMI commands, retrieve the MultiParty call
2	MS -> SS	FACILITY	TI for Call A-B or Call A-C, RetrieveMPTY Invoke component
3	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
4	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "Call in MPTY, Retrieve request"
5	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
6	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Call in MPTY, Retrieve request"
7	SS -> MS	FACILITY	Same TI as step 2, Return Result component
8	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
9	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "Call in MPTY"
10	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
11	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Call in MPTY"
12	SS		Check that the TCH is through-connected

31.4.3.1.2 Retrieve the held MultiParty call, unsuccessful case**Conformance requirement**

GSM 04.84 subclause 1.2.1.1

Applicability

MS supporting the MultiParty supplementary service.

Test purpose

To test that the MS correctly retrieves a held MultiParty call, and reacts correctly to a response from the SS indicating an error or a reject condition.

Method of test**Related PICS/PIXIT statements**

- method of retrieving a held MultiParty call.

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:

The MS shall have a held MultiParty call to two destinations (Call A-B and Call A-C). Both call states shall be U10 "Active" with auxiliary state "Call in MPTY, call held". The call shall be of a basic service supported by the MS and relevant to the MultiParty supplementary service as stated in GSM 02.04 Table A.1,

NOTE: The MultiParty call may be set up using the procedures of section 31.4.2.1.1.2.

Foreseen final state of the MS

Call A-B, state U10, auxiliary state "Call in MPTY, call held". Call A-C, state U10, auxiliary state "Call in MPTY, call held".

Maximum duration of test

30 s.

Procedure

Using suitable MMI commands, the MS shall retrieve the MultiParty call. The MS shall send a FACILITY message containing one of the transaction identifiers of the call, and containing an invoke component RetrieveMPTY. Both calls shall enter the auxiliary state "Call in MPTY, retrieve request". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

On receipt of a FACILITY message with the same transaction identifier and containing a return error component, the MS shall return to the original states for both transaction identifiers. The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Using suitable MMI commands, the MS shall retrieve the MultiParty call. The MS shall send a FACILITY message containing one of the transaction identifiers of the call, and containing an invoke component RetrieveMPTY. Both calls shall enter the auxiliary state "Call in MPTY, retrieve request". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

On receipt of a FACILITY message with the same transaction identifier and containing a reject component, the MS shall return to the original states for both transaction identifiers. The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Using MMI commands, retrieve the held MultiParty call
2	MS -> SS	FACILITY	TI for Call A-B or Call A-C, RetrieveMPTY Invoke component
3	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
4	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "Call in MPTY, retrieve request"
5	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
6	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Call in MPTY, retrieve request"
7	SS -> MS	FACILITY	Same TI as step 2, Return Error component
8	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
9	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "Call in MPTY, call held"
10	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
11	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Call in MPTY, call held"
12	MS		Using MMI commands, retrieve the held MultiParty call
13	MS -> SS	FACILITY	TI for Call A-B, RetrieveMPTY Invoke component
14	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
15	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "Call in MPTY, retrieve request"
16	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
17	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Call in MPTY, retrieve request"
18	SS -> MS	FACILITY	Same TI as step 13, Reject component
19	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
20	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "Call in MPTY, call held"
21	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
22	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Call in MPTY, call held"

31.4.3.1.3 Retrieve the held MultiParty call, expiry of timer T(RetrieveMPTY)**Conformance requirement**

GSM 04.84 subclause 1.2.1.1

Applicability

MS supporting the MultiParty supplementary service.

Test purpose

To test that the MS correctly retrieves a MultiParty call on hold, and on expiry of T(HoldMPTY) returns the MultiParty call to the auxiliary state "Call in MPTY, call held".

Method of test**Related PICS/PIXIT statements**

- method of retrieving a held MultiParty call.

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS shall have a held MultiParty call to two destinations (Call A-B and Call A-C). Both call states shall be U10 "Active" with auxiliary state "Call in MPTY, call held". The call shall be of a basic service supported by the MS and relevant to the MultiParty supplementary service as stated in GSM 02.04 Table A.1,

NOTE: The MultiParty call may be set up using the procedures of section 31.4.2.1.1.2.

Foreseen final state of the MS

Branch A, Call A-B, state U10, auxiliary state "Call in MPTY, call held". Call A-C, state U10, auxiliary state "Call in MPTY, call held".

Branch B, Call A-B, state U10, auxiliary state "Call in MPTY, retrieve request". Call A-C, state U10, auxiliary state "Call in MPTY, retrieve request".

Maximum duration of test

45 s.

Procedure

Using suitable MMI commands, the MS shall retrieve the MultiParty call. The MS shall send a FACILITY message containing one of the transaction identifiers of the call, and containing an invoke component RetrieveMPTY. Both calls shall enter the auxiliary state "Call in MPTY, retrieve request". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Not less than 5s and not more than 30s after sending the FACILITY message, one of the following shall have occurred

- both calls shall be in their original call states and the MS shall have indicated the failure to the user, or
- the MS shall have sent another FACILITY message with the same contents.

The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Using MMI commands, retrieve the held MultiParty call
2	MS -> SS	FACILITY	TI for Call A-B or Call A-C, RetrieveMPTY Invoke component
3	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
4	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "Call in MPTY, retrieve request"
5	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
6	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Call in MPTY, retrieve request"
7	SS		Wait 30 s from receiving FACILITY message
A8 A9	SS -> MS MS -> SS	STATUS ENQUIRY STATUS	Take this branch if no message is received within 30 s Transaction identifier of Call A-B Transaction identifier of Call A-B, state U10, auxiliary state "Call in MPTY, call held"
A10 A11	SS -> MS MS -> SS	STATUS ENQUIRY STATUS	Transaction identifier of Call A-C Transaction identifier of Call A-C, state U10, auxiliary state "Call in MPTY, call held"
B8 B9 B10	MS -> SS SS -> MS MS -> SS	FACILITY STATUS ENQUIRY STATUS	Take this branch if a message is received within 30 s Same as Step 2. Message shall not be received less than 5 s after the first FACILITY message Transaction identifier of Call A-B Transaction identifier of Call A-B, state U10, auxiliary state "Call in MPTY, retrieve request"
B11 B12	SS -> MS MS -> SS	STATUS ENQUIRY STATUS	Transaction identifier of Call A-C Transaction identifier of Call A-C, state U10, auxiliary state "Call in MPTY, retrieve request"

31.4.3.2 Initiate a new call**Conformance requirement**

GSM 04.84 subclause 1.3.1.2

Applicability

MS supporting the MultiParty supplementary service.

Test purpose

To test that the MS can set up a new outgoing call with a held MultiParty call.

Method of test**Related PICS/PIXIT statements**

- method of making a new outgoing call

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS shall have a held MultiParty call to two destinations (Call A-B and Call A-C). Both call states shall be U10 "Active" with auxiliary state "Call in MPTY, call held". The call shall be of a basic service supported by the MS and relevant to the MultiParty supplementary service as stated in GSM 02.04 Table A.1,

NOTE: The MultiParty call may be set up using the procedures of section 31.4.2.1.1.2.

Foreseen final state of the MS

Call A-B, state U10, auxiliary state "Call in MPTY, call held". Call A-C, state U10, auxiliary state "Call in MPTY, call held". Call A-D State U10.

Maximum duration of test

30 s.

Procedure

Using suitable MMI commands, the MS shall initiate a new outgoing call A-D. The MS shall send a SETUP message with a new transaction identifier and enter state U1 "Call initiated". On receipt of an ALERTING message followed by a CONNECT message, the MS shall send a CONNECT ACKNOWLEDGE message and enter state U10 "Active". The call state of the MultiParty call shall not be affected. The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Using MMI commands, make a new call
2	MS -> SS	SETUP	TI different from Call A-B or Call A-C (new Call A-D)
3	SS -> MS	ALERTING	Transaction identifier of Call A-D
4	SS -> MS	CONNECT	Transaction identifier of Call A-D
5	MS -> SS	CONNECT ACKNOWLEDGE	Transaction identifier of Call A-D
6	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
7	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "Call in MPTY, call held"
8	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
9	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Call in MPTY, call held"
10	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-D
11	MS -> SS	STATUS	Transaction identifier of Call A-D, state U10, no auxiliary state.

31.4.3.3 Process a call waiting request

Conformance requirement

GSM 04.84 subclause 1.3.1.3

Applicability

MS supporting the MultiParty supplementary service.

Test purpose

To test that the MS can correctly process a Call Waiting request with a held MultiParty call.

Method of test

Related PICS/PIXIT statements

- method of answering a waiting call

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS shall have a MultiParty call to two destinations (Call A-B and Call A-C) active. Both calls states shall be U10 "Active" with auxiliary state "Call in MPTY". The MS shall also have a Call A-D in state U7 "Call received". The MultiParty call shall be of a basic service supported by the MS and relevant to the MultiParty supplementary service as stated in GSM 02.04 Table A.1,

NOTE: The MultiParty call may be set up using the procedures of section 31.4.1.1.

Foreseen final state of the MS

Call A-B, state U10, auxiliary state "Call in MPTY, call held". Call A-C, state U10, auxiliary state "Call in MPTY, call held". Call A-D State U10.

Maximum duration of test

30 s.

Procedure

Using suitable MMI commands, the MS shall place the MultiParty on hold, and answer Call A-D.

The MS shall send a FACILITY message to the SS using any one of the transaction identifiers of the MultiParty call and containing an invoke component HoldMPTY, and shall enter state U10 "Active", with auxiliary state "call in MPTY, hold request" in respect of each of the transaction identifiers. The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

On receipt of a FACILITY message using the same transaction identifier and containing a return result component, the MS shall enter state U10 "Active" with auxiliary state "Call in MPTY, call held" for each of the transaction identifiers. The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

The MS shall then send a CONNECT message to the SS, using the transaction identifier of Call A-D, and on receipt of a CONNECT ACKNOWLEDGE message, shall enter state U10 "Active". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Using MMI commands, answer the waiting call
2	MS -> SS	CONNECT	Transaction identifier of Call A-D
3	SS -> MS	CONNECT ACKNOWLEDGE	Transaction identifier of Call A-D
4	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
5	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "Call in MPTY, call held"
6	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
7	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Call in MPTY, call held"
8	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-D
9	MS -> SS	STATUS	Transaction identifier of Call A-D, state U10, no auxiliary state.

31.4.3.4 Terminate the held MultiParty call

Conformance requirement

GSM 04.84 subclause 1.3.1.4

Applicability

MS supporting the MultiParty supplementary service.

Test purpose

To test that the MS correctly terminates a held MultiParty call by initiating call clearance for each party in turn.

Method of test

Related PICS/PIXIT statements

- method of terminating a held MultiParty call

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:

The MS shall have a held MultiParty call to two destinations (Call A-B and Call A-C). Both call states shall be U10 "Active" with auxiliary state "Call in MPTY, call held". The call shall be of a basic service supported by the MS and relevant to the MultiParty supplementary service as stated in GSM 02.04 Table A.1,

NOTE: The MultiParty call may be set up using the procedures of section 31.4.2.1.1.2.

Foreseen final state of the MS

Call A-B, state U0. Call A-C, state U0. Call A-D State U10.

Maximum duration of test

30 s.

Procedure

Using suitable MMI commands, the MS shall initiate a clearance of the entire held MultiParty call. The MS shall send a DISCONNECT message in respect of each of the transaction identifiers of the call. On receipt of a RELEASE message in respect of each transaction identifier, the MS shall respond with a RELEASE COMPLETE message, and enter state U0 "Null". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Using MMI commands, terminate the entire MultiParty call
2	MS -> SS	DISCONNECT	Steps 2 and 3 may occur in any order Transaction identifier of Call A-B
3	MS -> SS	DISCONNECT	Transaction identifier of Call A-C
4	SS -> MS	RELEASE	Transaction identifier of Call A-B
5	MS -> SS	RELEASE COMPLETE	Transaction identifier of Call A-B
6	SS -> MS	RELEASE	Transaction identifier of Call A-C
7	MS -> SS	RELEASE COMPLETE	Transaction identifier of Call A-C
8	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
9	MS -> SS	STATUS	Transaction identifier of Call A-B, state U0
10	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
11	MS -> SS	STATUS	Transaction identifier of Call A-C, state U0

31.4.3.5 Explicitly disconnect a remote party**Conformance requirement**

GSM 04.84 subclause 1.3.1.5

Applicability

MS supporting the MultiParty supplementary service.

Test purpose

To test that the MS correctly disconnects a single remote party in a held MultiParty call by implementing the call clearance procedure for that party.

Initial conditions

The MS shall have a held MultiParty call to two destinations (Call A-B and Call A-C). Both call states shall be U10 "Active" with auxiliary state "Call in MPTY, call held". The call shall be of a basic service supported by the MS and relevant to the MultiParty supplementary service as stated in GSM 02.04 Table A.1,

NOTE: The MultiParty call may be set up using the procedures of section 31.4.2.1.1.2.

Method of test**Related PICS/PIXIT statements**

- method of disconnecting one party from a held MultiParty call.

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS shall have a held MultiParty call to two destinations (Call A-B and Call A-C). Both call states shall be U10 "Active" with auxiliary state "Call in MPTY, call held". The call shall be of a basic service supported by the MS and relevant to the MultiParty supplementary service as stated in GSM 02.04 Table A.1,

NOTE: The MultiParty call may be set up using the procedures of section 31.4.2.1.1.2.

Foreseen final state of the MS

Call A-B, state U0. Call A-C, state U10, auxiliary state "Call held". Call A-D State U10.

Maximum duration of test

30 s.

Procedure

Using suitable MMI commands, the MS shall initiate a clearance of the Call A-B. The MS shall send a DISCONNECT message containing the transaction identifier of Call A-B. On receipt of a RELEASE message the MS shall respond with a RELEASE COMPLETE message, and enter state U0 "Null" for Call A-B. Call A-C shall enter state U10 "Active" no auxiliary state "Call held". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Using MMI commands, clear call A-B
2	MS -> SS	DISCONNECT	Transaction identifier of Call A-B
3	SS -> MS	RELEASE	Transaction identifier of Call A-B
4	MS -> SS	RELEASE COMPLETE	Transaction identifier of Call A-B
5	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
6	MS -> SS	STATUS	Transaction identifier of Call A-B, state U0
7	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
8	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, no auxiliary state

31.4.4 Managing a single call and a MultiParty call**31.4.4.1 Served mobile subscriber****31.4.4.1.1 Disconnect the single call****31.4.4.1.1.1 Disconnect active single call****Conformance requirement**

GSM 04.84 subclause 1.4.1.1

Applicability

MS supporting the MultiParty supplementary service.

Test purpose

To test that the MS correctly clears the single call when the single call is active and the MultiParty call is held.

Initial conditions

The MS shall have a MultiParty call to two destinations (A-B and A-C) both in state U10 "Active" with auxiliary state "Call in MPTY, call held". The MS shall have in addition a single call (A-D) in state U10 "Active" with no auxiliary state. Both calls shall be of a basic service supported by the MS and relevant to the MultiParty supplementary service as stated in GSM 02.04 Table A.1,

NOTE: The MultiParty call may be set up using the procedures of section 31.4.2.1.1.2.

Method of test**Related PICS/PIXIT statements**

- method of clearing the single call.

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS shall have a MultiParty call to two destinations (A-B and A-C) both in state U10 "Active" with auxiliary state "Call in MPTY, call held". The MS shall have in addition a single call (A-D) in state U10 "Active" with no auxiliary state. Both calls shall be of a basic service supported by the MS and relevant to the MultiParty supplementary service as stated in GSM 02.04 Table A.1,

NOTE: The MultiParty call may be set up using the procedures of section 31.4.2.1.1.2.

Foreseen final state of the MS

Call A-B, state U10, auxiliary state "Call in MPTY, call held". Call A-C, state U10, auxiliary state "Call in MPTY, call held". Call A-D State U0.

Maximum duration of test

30 s.

Procedure

Using suitable MMI commands, the MS shall clear Call A-D. The MS shall send a DISCONNECT message with the transaction identifier for Call A-D. On receipt of a RELEASE message the SM shall send a RELEASE COMPLETE message and enter state U0 "Null" for Call A-D. The call state and auxiliary state for Call A-B and Call A-C shall not change. The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Using MMI commands, clear call A-D
2	MS -> SS	DISCONNECT	Transaction identifier of Call A-D
3	SS -> MS	RELEASE	Transaction identifier of Call A-D
4	MS -> SS	RELEASE COMPLETE	Transaction identifier of Call A-D
5	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
6	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "Call in MPTY, call held"
7	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
8	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Call in MPTY, call held"
7	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-D
8	MS -> SS	STATUS	Transaction identifier of Call A-D, state U0

31.4.4.1.1.2 Disconnect held single call**Conformance requirement**

GSM 04.84 subclause 1.4.1.1

Applicability

MS supporting the MultiParty supplementary service.

Test purpose

To test that the MS correctly clears the single call when the single call is held and the MultiParty call is active.

Method of test**Related PICS/PIXIT statements**

- method of clearing the held single call.

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:

The MS shall have a MultiParty call to two destinations (A-B and A-C) both in state U10 "Active" with auxiliary state "Call in MPTY". The MS shall have in addition a single call (A-D) in state U10 "Active" with auxiliary state "Call held". Both calls shall be of a basic service supported by the MS and relevant to the MultiParty supplementary service as stated in GSM 02.04 Table A.1,

NOTE: The MultiParty call may be set up using the procedures of section 31.4.1.1.

Foreseen final state of the MS

Call A-B, state U10, auxiliary state "Call in MPTY". Call A-C, state U10, auxiliary state "Call in MPTY". Call A-D State U0.

Maximum duration of test

30 s.

Procedure

Using suitable MMI commands, the MS shall clear Call A-D. The MS shall send a DISCONNECT message with the transaction identifier for Call A-D. On receipt of a RELEASE message the MS shall send a RELEASE COMPLETE message and enter state U0 "Null" for Call A-D. The call state and auxiliary state for Call A-B and Call A-C shall not change. The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Using MMI commands, clear call A-D
2	MS -> SS	DISCONNECT	Transaction identifier of Call A-D
3	SS -> MS	RELEASE	Transaction identifier of Call A-D
4	MS -> SS	RELEASE COMPLETE	Transaction identifier of Call A-D
5	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
6	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "Call in MPTY"
7	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
8	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Call in MPTY"
9	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-D
10	MS -> SS	STATUS	Transaction identifier of Call A-D, state U0

31.4.4.1.2 Disconnect the MultiParty call

31.4.4.1.2.1 Clear single party of held MultiParty call

Conformance requirement

GSM 04.84 subclause 1.4.1.2

Applicability

MS supporting the MultiParty supplementary service.

Test purpose

To test that the MS correctly clears the MultiParty call by clearing a remote party to a held MultiParty call.

Method of test

Related PICS/PIXIT statements

- method of disconnecting one party from a held MultiParty call..

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:

The MS shall have a MultiParty call to two destinations (A-B and A-C) both in state U10 "Active" with auxiliary state "Call in MPTY, Call held". The MS shall have in addition a single call (A-D) in state U10 "Active" with no auxiliary state. Both calls shall be of a basic service supported by the MS and relevant to the MultiParty supplementary service as stated in GSM 02.04 Table A.1,

NOTE: The MultiParty call may be set up using the procedures of section 31.4.2.1.1.2.

Foreseen final state of the MS

Call A-B, state U0. Call A-C, state U10, auxiliary state "Call held". Call A-D State U10, no auxiliary state.

Maximum duration of test

30 s.

Procedure

Using suitable MMI commands, the MS shall clear Call A-B. The MS shall send a DISCONNECT message with the transaction identifier for Call A-B. On receipt of a RELEASE message the MS shall send a RELEASE COMPLETE message and enter state U0 "Null" for Call A-B. The call state and auxiliary state for Call A-D shall not change. Call A-C shall enter state U10 "Active" with auxiliary state "Call held". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Using MMI commands, clear call A-B
2	MS -> SS	DISCONNECT	Transaction identifier of Call A-B
3	SS -> MS	RELEASE	Transaction identifier of Call A-B
4	MS -> SS	RELEASE COMPLETE	Transaction identifier of Call A-B
5	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
6	MS -> SS	STATUS	Transaction identifier of Call A-B, state U0
7	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
8	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Call held"
9	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-D
10	MS -> SS	STATUS	Transaction identifier of Call A-D, state U10, no auxiliary state

31.4.4.1.2.2 Clear single party of active MultiParty call**Conformance requirement**

GSM 04.84 subclause 1.4.1.2

Applicability

MS supporting the MultiParty supplementary service.

Test purpose

To test that the MS correctly clears the MultiParty call by clearing a remote party to an active MultiParty call.

Method of test**Related PICS/PIXIT statements**

- method of clearing a single party from a MultiParty call..

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:

The MS shall have a MultiParty call to two destinations (A-B and A-C) both in state U10 "Active" with auxiliary state "Call in MPTY". The MS shall have in addition a single call (A-D) in state U10 "Active" with auxiliary state "Call held". Both calls shall be of a basic service supported by the MS and relevant to the MultiParty supplementary service as stated in GSM 02.04 Table A.1,

NOTE: The MultiParty call may be set up using the procedures of section 31.4.1.1.

Foreseen final state of the MS

Call A-B, state U0. Call A-C, state U10, no auxiliary state. Call A-D State U10, auxiliary state "Call held",.

Maximum duration of test

30 s.

Procedure

Using suitable MMI commands, the MS shall clear Call A-B. The MS shall send a DISCONNECT message with the transaction identifier for Call A-B. On receipt of a RELEASE message the SM shall send a RELEASE COMPLETE message and enter state U0 "Null" for Call A-B. The call state and auxiliary state for Call A-D shall not change. Call A-C shall enter state U10 "Active" with no auxiliary state. The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Using MMI commands, clear call A-B
2	MS -> SS	DISCONNECT	Transaction identifier of Call A-B
3	SS -> MS	RELEASE	Transaction identifier of Call A-B
4	MS -> SS	RELEASE COMPLETE	Transaction identifier of Call A-B
5	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
6	MS -> SS	STATUS	Transaction identifier of Call A-B, state U0
7	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
8	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, no auxiliary state
9	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-D
10	MS -> SS	STATUS	Transaction identifier of Call A-D, state U10, auxiliary state "Call held"

31.4.4.1.2.3 Clear all parties of held MultiParty call

Conformance requirement

GSM 04.84 subclause 1.4.1.2

Applicability

MS supporting the MultiParty supplementary service.

Test purpose

To test that the MS correctly clears the MultiParty call by clearing all remote parties to a held MultiParty call.

Initial conditions

The MS shall have a MultiParty call to two destinations (A-B and A-C) both in state U10 "Active" with auxiliary state "Call in MPTY, Call held". The MS shall have in addition a single call (A-D) in state U10 "Active" with no auxiliary state. Both calls shall be of a basic service supported by the MS and relevant to the MultiParty supplementary service as stated in GSM 02.04 Table A.1,

NOTE: The MultiParty call may be set up using the procedures of section 31.4.2.1.1.2.

Method of test

Related PICS/PIXIT statements

- method of clearing a held MultiParty call..

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS shall have a MultiParty call to two destinations (A-B and A-C) both in state U10 "Active" with auxiliary state "Call in MPTY, Call held". The MS shall have in addition a single call (A-D) in state U10 "Active" with no auxiliary state. Both calls shall be of a basic service supported by the MS and relevant to the MultiParty supplementary service as stated in GSM 02.04 Table A.1,

Foreseen final state of the MS

Call A-B, state U0. Call A-C, state U0. Call A-D State U10, no auxiliary state.

Maximum duration of test

30 s.

Procedure

Using suitable MMI commands, the MS shall clear the MultiParty call. The MS shall send DISCONNECT messages with the transaction identifier for Call A-B and A-C. On receipt of a RELEASE message to each DISCONNECT the MS shall send a RELEASE COMPLETE message and enter state U0 "Null". Call A-B and Call A-C shall enter state U0 "Null". The call state and auxiliary state for Call A-D shall not change. The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Using MMI commands, terminate the entire MultiParty call
2	MS -> SS	DISCONNECT	Steps 2 and 3 may occur in any order Transaction identifier of Call A-B
3	MS -> SS	DISCONNECT	Transaction identifier of Call A-C
4	SS -> MS	RELEASE	Transaction identifier of Call A-B
5	MS -> SS	RELEASE COMPLETE	Transaction identifier of Call A-B
6	SS -> MS	RELEASE	Transaction identifier of Call A-C
7	MS -> SS	RELEASE COMPLETE	Transaction identifier of Call A-C
8	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
9	MS -> SS	STATUS	Transaction identifier of Call A-B, state U0
10	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
11	MS -> SS	STATUS	Transaction identifier of Call A-C, state U0
12	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-D
13	MS -> SS	STATUS	Transaction identifier of Call A-D, state U10

31.4.4.1.2.4 Clear all parties of active MultiParty call

Conformance requirement

GSM 04.84 subclause 1.4.1.2

Applicability

MS supporting the MultiParty supplementary service.

Test purpose

To test that the MS correctly clears the MultiParty call by clearing all remote parties to an active MultiParty call.

Method of test

Related PICS/PIXIT statements

- method of clearing an active MultiParty call..

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS shall have a MultiParty call to two destinations (A-B and A-C) both in state U10 "Active" with auxiliary state "Call in MPTY". The MS shall have in addition a single call (A-D) in state U10 "Active" with auxiliary state "Call held". Both calls shall be of a basic service supported by the MS and relevant to the MultiParty supplementary service as stated in GSM 02.04 Table A.1,

Foreseen final state of the MS

Call A-B, state U0. Call A-C, state U0. Call A-D State U10, state U10, auxiliary state "Call Held".

Maximum duration of test

30 s.

Procedure

Using suitable MMI commands, the MS shall clear the MultiParty call. The MS shall send DISCONNECT messages with the transaction identifier for Call A-B and A-C. On receipt of a RELEASE message to each DISCONNECT the MS shall send a RELEASE COMPLETE message and enter state U0 "Null". Call A-B and Call A-C shall enter state U0 "Null". The call state and auxiliary state for Call A-D shall not change. The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Using MMI commands, terminate the entire MultiParty call
2	MS -> SS	DISCONNECT	Steps 2 and 3 may occur in any order Transaction identifier of Call A-B
3	MS -> SS	DISCONNECT	Transaction identifier of Call A-C
4	SS -> MS	RELEASE	Transaction identifier of Call A-B
5	MS -> SS	RELEASE COMPLETE	Transaction identifier of Call A-B
6	SS -> MS	RELEASE	Transaction identifier of Call A-C
7	MS -> SS	RELEASE COMPLETE	Transaction identifier of Call A-C
8	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
9	MS -> SS	STATUS	Transaction identifier of Call A-B, state U0
10	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
11	MS -> SS	STATUS	Transaction identifier of Call A-C, state U0
12	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-D
13	MS -> SS	STATUS	Transaction identifier of Call A-D, state U10, auxiliary state "Call Held"

31.4.4.2 Disconnect all calls**Conformance requirement**

GSM 04.84 subclause 1.4.1.3

Applicability

MS supporting the MultiParty supplementary service.

Test purpose

To test the MS correctly clears all active calls, by clearing in turn each connected party.

Method of test**Related PICS/PIXIT statements**

- method of clearing all active calls.

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS shall have a MultiParty call to two destinations (A-B and A-C) both in state U10 "Active" with auxiliary state "Call in MPTY". The MS shall have in addition a single call (A-D) in state U10 "Active" with auxiliary state "Call held". Both calls shall be of a basic service supported by the MS and relevant to the MultiParty supplementary service as stated in GSM 02.04 Table A.1,

Foreseen final state of the MS

Call A-B, state U0. Call A-C, state U0. Call A-D state U0.

Maximum duration of test

30 s.

Procedure

Using suitable MMI commands, the MS shall clear all calls. The MS shall send DISCONNECT messages with the transaction identifier for Call A-B, Call A-C and Call A-D. On receipt of a RELEASE message to each DISCONNECT the MS shall send a RELEASE COMPLETE message and enter state U0 "Null". Call A-B, Call A-C Call A-D shall enter state U0 "Null". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Using MMI commands, terminate the entire MultiParty call
2	MS -> SS	DISCONNECT	Steps 2, 3 and 4 may occur in any order. Transaction identifier of Call A-B Transaction identifier of Call A-C Transaction identifier of Call A-D
3	MS -> SS	DISCONNECT	
4	MS -> SS	DISCONNECT	
5	SS -> MS	RELEASE	Transaction identifier of Call A-B
6	MS -> SS	RELEASE COMPLETE	Transaction identifier of Call A-B
7	SS -> MS	RELEASE	Transaction identifier of Call A-C
8	MS -> SS	RELEASE COMPLETE	Transaction identifier of Call A-C
9	SS -> MS	RELEASE	Transaction identifier of Call A-D
10	MS -> SS	RELEASE COMPLETE	Transaction identifier of Call A-D
11	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
12	MS -> SS	STATUS	Transaction identifier of Call A-B, state U0
13	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
14	MS -> SS	STATUS	Transaction identifier of Call A-C, state U0
15	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-D
16	MS -> SS	STATUS	Transaction identifier of Call A-D, state U0

31.4.4.3 Add the single call to the MPTY

31.4.4.3.1 Add the single call to the MPTY, successful case

Conformance requirement

GSM 04.84 subclause 1.4.1.4

Applicability

MS supporting the MultiParty supplementary service.

Test purpose

To test that the MS correctly adds a single held call to an active MultiParty call, and reacts correctly to a response from the SS indicating success.

Initial conditions

The MS shall have a MultiParty call to two destinations (A-B and A-C) both in state U10 "Active" with auxiliary state "Call in MPTY". The MS shall have in addition a single call (A-D) in state U10 "Active" with auxiliary state "Call held". Both calls shall be of a basic service supported by the MS and relevant to the MultiParty supplementary service as stated in GSM 02.04 Table A.1,

NOTE: The MultiParty call may be set up using the procedures of section 31.4.1.1.

Method of test

Related PICS/PIXIT statements

- method of adding the single call to the MultiParty call.

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS shall have a MultiParty call to two destinations (A-B and A-C) both in state U10 "Active" with auxiliary state "Call in MPTY". The MS shall have in addition a single call (A-D) in state U10 "Active" with auxiliary state "Call held". Both calls shall be of a basic service supported by the MS and relevant to the MultiParty supplementary service as stated in GSM 02.04 Table A.1,

Foreseen final state of the MS

Call A-B, state U10, auxiliary state "Call in MPTY". Call A-C, state U10, auxiliary state "Call in MPTY". Call A-D state U10, auxiliary state "Call in MPTY".

Maximum duration of test

30 s.

Procedure

Using suitable MMI commands, the MS shall add the single call to the MultiParty call. The MS shall send a FACILITY message containing one of the transaction identifiers A-B, A-C or A-D and containing a BuildMPTY invoke component. Calls A-B and A-C shall enter state U10 "Active" with auxiliary state "MPTY request". Call A-D shall enter state U10 "Active" with auxiliary state "MPTY request, call held". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

On receipt of a FACILITY message containing a return result component, all calls shall enter state U10 "Active" with auxiliary state "Call in MPTY". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Using MMI commands, join the single call to the MultiParty call
2	MS -> SS	FACILITY	TI for Call A-B, Call A-C or call A-D, BuildMPTY Invoke component
3	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
4	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "MPTY request"
5	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
6	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "MPTY request"
7	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-D
8	MS -> SS	STATUS	Transaction identifier of Call A-D, state U10, auxiliary state "MPTY request, Call held"
9	SS -> MS	FACILITY	TI same as step 2, Return Result component
10	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
11	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "Call in MPTY"
12	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
13	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Call in MPTY"
14	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-D
15	MS -> SS	STATUS	Transaction identifier of Call A-D, state U10, auxiliary state "Call in MPTY"
16	SS		Check that the TCH is through-connected

31.4.4.3.2 Add the single call to the MPTY, maximum number of participants exceeded

Conformance requirement

GSM 04.84 subclause 1.4.1.4

Applicability

MS supporting the MultiParty supplementary service.

Test purpose

To test that the MS correctly adds a single held call to an active MultiParty call, and reacts correctly to a response from the SS indicating maximum number of participants exceeded.

Method of test

Related PICS/PIXIT statements

- method of adding the single call to the MultiParty call.

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS shall have a MultiParty call to five destinations (A-B, A-C, A-D, A-E and A-F) all in state U10 "Active" with auxiliary state "Call in MPTY". The MS shall have in addition a single call (A-G) in state U10 "Active" with auxiliary state "Call held". Both calls shall be of a basic service supported by the MS and relevant to the MultiParty supplementary service as stated in GSM 02.04 Table A.1,

Foreseen final state of the MS

Call A-B, state U10, auxiliary state "Call in MPTY". Call A-C, state U10, auxiliary state "Call in MPTY". Call A-D state U10, auxiliary state "Call in MPTY", A-E state U10, auxiliary state "Call in MPTY", A-F state U10, auxiliary state "Call in MPTY", A-G state U10, auxiliary state "Call Held",

Maximum duration of test

30 s.

Procedure

Using suitable MMI commands, the MS shall add the single call to the MultiParty call. The MS shall send a FACILITY message containing any one of the transaction identifiers and containing a BuildMPTY invoke component. Calls A-B to A-F shall enter state U10 "Active" with auxiliary state "MPTY request". Call A-G shall enter state U10 "Active" with auxiliary state "MPTY request, call held". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

On receipt of a FACILITY message containing a return error component "MaxNumberOfMPTY-ParticipantsExceeded", then all calls shall return to their original states. The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Using MMI commands, join the single call to the MultiParty call
2	MS -> SS	FACILITY	TI for Call A-B, Call A-C, Call A-D, Call A-E, Call A-F or Call A-G, BuildMPTY Invoke component
3	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
4	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "MPTY request"
5	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
6	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "MPTY request"
7	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-D
8	MS -> SS	STATUS	Transaction identifier of Call A-D, state U10, auxiliary state "MPTY request,"
9	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-E
10	MS -> SS	STATUS	Transaction identifier of Call A-E, state U10, auxiliary state "MPTY request,"
11	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-F
12	MS -> SS	STATUS	Transaction identifier of Call A-F, state U10, auxiliary state "MPTY request"
13	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-G
14	MS -> SS	STATUS	Transaction identifier of Call A-G, state U10, auxiliary state "MPTY request, Call held"
15	SS -> MS	FACILITY	Same TI as step 2, Return error component "MaxNumberOfMPTY-ParticipantsExceeded"
16	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
17	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "Call in MPTY"
18	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
19	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Call in MPTY"
20	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
21	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Call in MPTY"
22	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-D
23	MS -> SS	STATUS	Transaction identifier of Call A-D, state U10, auxiliary state "Call in MPTY"
24	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-E
25	MS -> SS	STATUS	Transaction identifier of Call A-E, state U10, auxiliary state "Call in MPTY"
26	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-F
27	MS -> SS	STATUS	Transaction identifier of Call A-F, state U10, auxiliary state "Call in MPTY"
28	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-G
29	MS -> SS	STATUS	Transaction identifier of Call A-G, state U10, auxiliary state "Call Held"

31.4.4.4 Alternate between the MPTY call and the single call**Conformance requirement**

GSM 04.84 subclause 1.4.1.5

Applicability

MS supporting the MultiParty supplementary service.

Test purpose

To test that the MS correctly alternates between the single call and the MultiParty call, by proper use of the hold and retrieve procedures.

Method of test

Related PICS/PIXIT statements

- method of alternating between the single call to the MultiParty call.

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:

The MS shall have a MultiParty call to two destinations (A-B and A-C) both in state U10 "Active" with auxiliary state "Call in MPTY". The MS shall have in addition a single call (A-D) in state U10 "Active" with auxiliary state "Call held". Both calls shall be of a basic service supported by the MS and relevant to the MultiParty supplementary service as stated in GSM 02.04 Table A.1,

Foreseen final state of the MS

Call A-B, state U10, auxiliary state "Call in MPTY". Call A-C, state U10, auxiliary state "Call in MPTY". Call A-D state U10, auxiliary state "Call Held",

Maximum duration of test

30 s.

Procedure

Using suitable MMI commands, the MS shall alternate between the single call and the MultiParty call. The MS shall send a FACILITY message containing one of the transaction identifiers of the MultiParty call, and containing an invoke component HoldMPTY. The MS shall then send a RETRIEVE message with the transaction identifier for Call A-D. Call A-B and Call A-C shall enter the auxiliary state "Call in MPTY, hold request". Call A-D shall enter auxiliary state "retrieve request". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

The SS shall send a FACILITY message with a return result component and then send a RETRIEVE ACKNOWLEDGE message. On receipt of these messages, Calls A-B and A-C shall enter auxiliary state "Call in MPTY, call held", and Call A-D shall enter state U10 "Active" with no auxiliary state. The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Using suitable MMI commands, the MS shall again alternate between the single call and the MultiParty call. The MS shall send a FACILITY message containing one of the transaction identifiers of the MultiParty call, and containing an invoke component RetrieveMPTY. The MS shall also send a HOLD message with the transaction identifier for Call A-D. Call A-B and Call A-C shall enter the auxiliary state "Call in MPTY, retrieve request". Call A-D shall enter auxiliary state "hold request". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

The SS shall send a FACILITY message with a return result component and shall also send a HOLD ACKNOWLEDGE message. On receipt of these messages, Call A-B and A-C shall enter auxiliary state "Call in MPTY", and Call A-D shall enter state U10 "Active" with auxiliary state "Call held". The call states shall be verified by the SS sending a STATUS ENQUIRY message in respect of the transaction identifier of each call, and receiving a STATUS message indicating the appropriate call state.

Expected sequence

Step	Direction	Message	Comments
1	MS		Using MMI commands, alternate between the active and held calls
2	MS -> SS	FACILITY	TI for Call A-B or call A-C, HoldMPTY Invoke component
3	MS -> SS	RETRIEVE	Transaction identifier of Call A-D
4	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
5	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "Call in MPTY, Hold request"
6	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
7	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Call in MPTY, Hold request"
8	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-D
9	MS -> SS	STATUS	Transaction identifier of Call A-D, state U10, auxiliary state "Retrieve request"
10	SS -> MS	FACILITY	Same TI as step 2, Return result component
11	SS -> MS	RETRIEVE ACKNOWLEDGE	Transaction identifier of Call A-D
12	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
13	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "Call in MPTY, Call held"
14	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
15	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Call in MPTY, Call held"
16	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-D
17	MS -> SS	STATUS	Transaction identifier of Call A-D, state U10, no auxiliary state
21	SS		Check that the TCH is through-connected
18	MS		Using MMI commands, alternate between the active and held calls
19	MS -> SS	HOLD	Transaction identifier of Call A-D
20	MS -> SS	FACILITY	TI for Call A-B or call A-C, RetrieveMPTY Invoke component
21	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
22	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "Call in MPTY, Retrieve request"
23	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
24	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Call in MPTY, Retrieve request"
25	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-D
26	MS -> SS	STATUS	Transaction identifier of Call A-D, state U10, auxiliary state "Holdrequest"
27	SS -> MS	HOLD ACKNOWLEDGE	Transaction identifier of Call A-D
28	SS -> MS	FACILITY	Same TI as step 20, Return result component
29	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
30	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "Call in MPTY"
31	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
32	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Call in MPTY"
33	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-D
34	MS -> SS	STATUS	Transaction identifier of Call A-D, state U10, auxiliary state "Call Held"
35	SS		Check that the TCH is through-connected

31.4.5 Adding extra remote parties**Conformance requirement**

GSM 04.84 subclause 1.5

Applicability

MS supporting the MultiParty supplementary service.

Test purpose

To test that the MS adds extra remote parties to the MultiParty call.

Method of test

Related PICS/PIXIT statements

- method of alternating between the single call to the MultiParty call.

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS shall have a MultiParty call to two destinations (Call A-B and Call A-C) active. Both call states shall be U10 "Active" with auxiliary state "Call in MPTY". The call shall be of a basic service supported by the MS and relevant to the MultiParty supplementary service as stated in GSM 02.04 Table A.1,

Foreseen final state of the MS

Call A-B, state U10, auxiliary state "Call in MPTY". Call A-C, state U10, auxiliary state "Call in MPTY". Call A-D state U10, auxiliary state "Call in MPTY".

Maximum duration of test

30 s.

Procedure

The procedure of test 34.4.2.1.1.1 "Put the MultiParty call on hold, successful case" shall be performed followed by the procedure of 34.4.3.2 "Initiate a new call", followed by the procedure of 31.4.4.3.1 "Add the single call to the MPTY, successful case".

Expected sequence

Step	Direction	Message	Comments
1	MS		Using MMI commands, put the MultiParty call on Hold
2	MS -> SS	FACILITY	TI for Call A-B or call A-C, HoldMPTY Invoke component
3	SS -> MS	FACILITY	Same TI as step 2, Return Result component
4	MS -> SS	SETUP	TI different from Call A-B or Call A-C (new Call A-D)
5	SS -> MS	ALERTING	Transaction identifier of Call A-D
6	SS -> MS	CONNECT	Transaction identifier of Call A-D
7	MS -> SS	CONNECT ACKNOWLEDGE	Transaction identifier of Call A-D
8	MS -> SS	FACILITY	TI for Call A-B, Call A-C or call A-D, BuildMPTY Invoke component
9	SS -> MS	FACILITY	TI same as step 2, Return Result component
10	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-B
11	MS -> SS	STATUS	Transaction identifier of Call A-B, state U10, auxiliary state "Call in MPTY"
12	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-C
13	MS -> SS	STATUS	Transaction identifier of Call A-C, state U10, auxiliary state "Call in MPTY"
14	SS -> MS	STATUS ENQUIRY	Transaction identifier of Call A-D
15	MS -> SS	STATUS	Transaction identifier of Call A-D, state U10, auxiliary state "Call in MPTY"
16	SS		Check that the TCH is through-connected

31.5 Community of interest supplementary services

(Reserved).

31.6 Charging supplementary services

The following Advice of Charge abbreviations are used in this section:

AOC	Advice of Charge
AoCC	Advice of Charge Charging
AOCI	Advice of Charge Information
ACM	Accumulated Charge Meter
ACMmax	Accumulated Charge Meter Maximum
CCM	Current Call Meter
CAI	Charge Advice Information
CDUR	Chargeable Duration

The following other abbreviations are used:

IE	Information Element
FIE	Facility Information Element
TCH	Traffic CHannel

General on Advice of Charge.

The purpose of these tests is to verify that the MS under test correctly performs procedures related to the AOC supplementary service.

The reasons for these test purposes are:

- One example of a possible use for AoCC is in applications where the subscriber hires out a GSM ME and SIM to a user and bills the user according to the charge stored on the SIM at the end of the hire period. If a mobile station claims to support AoCC but does so incorrectly or not at all, this may cause the subscriber to mischarge the user of the hire phone. Hence an MS claiming to support AoCC must be shown to be reliable in that context.

- Since AoCC offers the use of telecommunication services according to the charge stored independently in the MS, the AoCC service must not be susceptible to fraud at the MS end.
- To ensure that a mobile station **not** claiming to support AoCC does not respond with a signal to the network indicating that it does. This could cause the network to allow the call to be placed without any charge being inserted on to the SIM.

Mobile originating and terminating speech AOC calls are tested and if supported, Call Hold and Multi-party calls. The type testing of data calls (i.e. those calls with a volume related charging component) will not be specified at the phase 2 stage but will be deferred to phase 2+ since the interaction of AOC with packet services is not yet defined in GSM 09.06 and GSM 09.07.

Tests are made on the ME-SIM interface to ensure that call charges are being correctly stored in the ACM field of the SIM in several situations. The AOC ACMmax function is also tested for incoming and outgoing calls.

Basic service verification tests for the AoCC, Call Hold, and Multi-party supplementary services which have direct relevance to the testing of AOC have been added to GSM 11.10, sections 11.3, 11.4 and 11.5 respectively.

31.6.1 Advice of Charge Charging

31.6.1.1 AOC time related charging / MS originated call

Purpose:

- 1) To verify that when the MS receives the AoCC parameters in a Facility IE which is contained in the CONNECT message and when a TCH has already been assigned, the MS returns a FACILITY message containing the acknowledgement within 1 second.
- 2) To verify that when the MS receives the AoCC parameters in a Facility IE which is contained in a CONNECT message and when a TCH has already been assigned, the MS stores the correct value in the ACM field of the SIM.
- 3) To verify that when the call has no volume related component the MS ignores non-zero AoCC e5, e6 parameters sent to it.

Conformance Requirement(s):

- 1) When the MS receives the AoCC parameters in a Facility IE which is contained in a CONNECT message and when a TCH has already been assigned, the MS shall return a FACILITY message containing the acknowledgement within 1 second.
- 2) When the MS receives the AoCC parameters in a Facility IE which is contained in a CONNECT or FACILITY message and when a TCH has already been assigned, the MS shall store the correct value in the ACM field of the SIM.
- 3) When the call has no volume related component the MS shall ignore non-zero AOC e5 and e6 parameters sent to it.

Reference(s):

Conformance requirement 1: GSM 03.86, GSM 04.13, GSM 04.86.
Conformance requirement 2: GSM 02.24.
Conformance requirement 3: GSM 02.24.

Related PICS/PIXIT Statement(s):

- Support of AoCC.
- Supported rates (full rate/half rate).
- Method of reading ACM from the SIM via the ME.
- Supported teleservices.

- Support for active state of the call control protocol (U10).

Initial Conditions:

System Simulator:

1 cell, default parameters, IMSI attach/detach disabled.

Mobile Station:

The MS is in MM-state "idle, updated".

Foreseen Final State of the MS:

The MS is in MM-state "idle, updated".

Method of Test:

The MS is made to initiate a call. The call is established with certain AoCC e-parameters sent in a Facility IE in the CONNECT message. The MS shall return the AoCC acknowledgement within 1 second of the CONNECT message. It is an implementation option whether the AoCC acknowledge is sent by the MS before or after the CONNECT ACKNOWLEDGE.

The SS sends the DISCONNECT y seconds after sending the CONNECT message containing the CAI. The MS shall have stored the correct amount on the SIM according to the e-parameters sent. The test is repeated for several different sets of e-parameters as defined below.

Maximum Duration of Test:

[z] minutes.

Expected Sequence:

The sequence step 1-20 is executed for execution counter k = 1,...,5.

Step	Direction	Message	Comments
0			At start of test only, read and note value of ACM on SIM
1	MS		The MS is made to initiate a call
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	CM SERVICE REQUEST	
5	SS -> MS	CM SERVICE ACCEPT	
6	MS -> SS	SETUP	
7	SS -> MS	CALL PROCEEDING	
8	SS -> MS	ASSIGNMENT COMMAND	to a supported channel type
9	MS -> SS	ASSIGNMENT COMPLETE	
10	SS -> MS	ALERTING	
11	SS -> MS	CONNECT	As default message except contains Facility IE with contents as indicated in i below
			Either A or B branch is taken
A12	MS -> SS	CONNECT ACKNOWLEDGE	
A13	MS -> SS	FACILITY	As default message except contains Facility IE with contents as indicated in ii below
B12	MS -> SS	FACILITY	As default message except contains Facility IE with contents as indicated in ii below
B13	MS -> SS	CONNECT ACKNOWLEDGE	
14			call duration y seconds after CAI information sent by SS
15	SS -> MS	DISCONNECT	
16	MS -> SS	RELEASE	
17	SS -> MS	RELEASE COMPLETE	
18	SS -> MS	CHANNEL RELEASE	The main signalling link is released.
19	MS		SIM contents checked (either via MMI or by removing the SIM and using SIM reader). ACM shall have been incremented correctly.

NOTE: The value of y is given below.

The correct value of the ACM is found from the general AOC formula given in GSM 02.24 section 4 with CDUR = y seconds and e parameters as defined below.

Specific Message Contents:

i) **FACILITY** Information Element with Invoke = ForwardChargelInformation component type as defined in GSM 04.80 section 3.6.1 table 3.3.

For ASN.1 description see default message contents in section 31.6.4.

y is set to a constant value of 90 seconds.

The values of the e-parameters within the parameter part of the Facility Information Element shall be set as below:

k-value	e-parameter							CCM total at call end	Step 0 ACM value increased by
	1	2	3	4	5	6	7		
1	6	14	1	25	0	0	60	43	43
2	0	0	1	100	0	0	0	100	143
3	250	16	2	500	0	0	60	2000	2143
4	1	1	1	0	10	10	1	89 or 90	2232 or 2233
5	12,5	30	1	25	10	10	30	50 or 62,5	2295, 2296, 2282 or 2283

Values shown in table are in the format and have units as in GSM 02.24 section 3.

The ASN.1 description for each e-parameter allows integers in the range 0 to 8191 to be transmitted but some e-parameters have different actual ranges (e.g. e1 can take any value 0..819,1 with 0,1 resolution). The MS knows how to interpret the received parameter (e.g. received e1 refers to 10 times actual e1, see GSM 04.80 section 4.4.3). Therefore e1=12,5 would be sent to the MS as 125. The MS knows the value sent is 10 times the "real" e1 and hence interprets the value as 12,5.

The non-zero e5 and e6 values for the k=4 and k=5 execution of the test are to check that the MS ignores the volume related parameters when carrying out time only related charging.

ii) FACILITY Information Element with Return Result component type as defined in GSM 04.80 section 3.6.1 table 3.4.

For ASN.1 description see default message contents in section 31.6.4.

31.6.1.2 AOC time related charging / MS terminated call

Purpose:

- 1) To verify that when the MS receives certain AoCC e-parameters in a Facility IE which is contained in a FACILITY message sent after the CONNECT message and when a TCH has already been assigned, the MS returns a FACILITY message containing the acknowledgement within 1 second.
- 2) To verify that when the MS receives the AoCC parameters in a Facility IE which is contained in a FACILITY message and when a TCH has already been assigned, the MS stores the correct value in the ACM field of the SIM.

Conformance Requirement(s):

- 1) When the MS receives the AoCC parameters in a Facility IE which is contained in a FACILITY message sent after the CONNECT message and when a TCH has already been assigned, the MS shall return a Facility message containing the acknowledgement within 1 second.
- 2) When the MS receives the AoCC parameters in a Facility IE which is contained in a FACILITY message and when a TCH has already been assigned, the MS shall store the correct value in the ACM field of the SIM.

Reference(s):

Conformance requirement 1: GSM 03.86, GSM 04.13, GSM 04.86.
Conformance requirement 2: GSM 02.24.

Related PICS/PIXIT Statement(s):

- Support of AoCC.
- Supported rates (full rate/half rate).
- Method of reading ACM from the SIM via the ME.
- Supported teleservices.
- Support for active state of the call control protocol (U10).

Initial Conditions:

System Simulator:

1 cell, default parameters, IMSI attach/detach disabled.

Mobile Station:

The MS is in MM-state "idle, updated".

Foreseen Final State of the MS:

The MS is in MM-state "idle, updated".

Method of Test:

The SS is made to initiate a call. The call is established and certain AoCC e-parameters are sent to the MS in a Facility IE contained within a FACILITY message. The MS shall return the AoCC acknowledgement within 1 second of the FACILITY message. It is an implementation option whether the AoCC e-parameters and the AoCC acknowledge are sent before or after the CONNECT ACKNOWLEDGE.

The SS sends the DISCONNECT y seconds after sending the FACILITY message. The MS shall have stored the correct amount on the SIM according to the e-parameters sent. The test is repeated for several different sets of e-parameters as defined below.

Maximum Duration of Test:

[z] minutes.

Expected Sequence:

The sequence step 1-20 is executed for execution counter k = 1,...,5.

Step	Direction	Message	Comments
0			At start of test only, read and note value of ACM on SIM
1	SS		The SS is made to initiate a call
2	SS -> MS	PAGING REQUEST	
3	MS -> SS	CHANNEL REQUEST	
4	SS -> MS	IMMEDIATE ASSIGNMENT	
5	MS -> SS	PAGING RESPONSE	
6	SS -> MS	SETUP	
7	MS -> SS	CALL CONFIRMED	
8	SS -> MS	ASSIGNMENT COMMAND	to a supported channel type
9	MS -> SS	ASSIGNMENT COMPLETE	
10	MS -> SS	ALERTING	
11	MS -> SS	CONNECT	
12	SS -> MS	FACILITY	As default message except contains Facility IE with contents as indicated in i below
			Either A or B branch is taken
A13	SS -> MS	CONNECT ACKNOWLEDGE	
A14	MS -> SS	FACILITY	As default message except contains Facility IE with contents as indicated in ii below
B13	MS -> SS	FACILITY	As default message except contains Facility IE with contents as indicated in ii below
B14	SS -> MS	CONNECT ACKNOWLEDGE	
15			call duration y seconds after CAI information sent by SS
16	SS -> MS	DISCONNECT	
17	MS -> SS	RELEASE	
18	SS -> MS	RELEASE COMPLETE	
19	SS -> MS	CHANNEL RELEASE	The main signalling link is released.
20	MS		SIM contents checked (either via MMI or by removing the SIM and using SIM reader) ACM shall have been incremented correctly.

NOTE: The value of y is given below.

The correct value of the ACM is found from the general AOC formula given in GSM 02.24 section 4 with CDUR = y seconds and e parameters as defined below.

Specific Message Contents:

- i) FACILITY** **Information Element with Invoke = ForwardChargelInformation component type as defined in GSM 04.80 section 3.6.1 table 3.3.**

For ASN.1 description see default message contents in section 31.6.4.

y is set to a constant value of 90 seconds.

The values of the e-parameters within the parameter part of the Facility Information Element shall be set as below:

k-value	e-parameter							CCM total at call end	Step 0 ACM value increased by
	1	2	3	4	5	6	7		
1	0	0	0	0	0	0	0	0	0
2	0	0	1	100	0	0	0	100	100
3	6	14	1	25	0	0	60	43	143
4	1	1	1	0	0	0	1	89 or 90	233 or 232
5	12,5	30	1	25	0	0	30	50 or 62,5	296, 295, 282 or 283

Values shown in table are in the format and have units as in GSM 02.24 section 3.

- ii) FACILITY** **Information Element with Return Result component type as defined in GSM 04.80 section 3.6.1 table 3.4.**

For ASN.1 description see default message contents in section 31.6.4.

31.6.1.3 AOC volume related charging / MS originated call

Future addition at GSM Phase 2+ stage.

31.6.1.4 AOC volume related charging / MS terminated call

Future addition at GSM Phase 2+ stage.

31.6.1.5 Change in charging information during a call

Purpose:

- 1) To verify that when the MS receives new AoCC parameters mid-way through a call in a Facility IE which is contained within a FACILITY message the MS returns a FACILITY message containing the acknowledgement within 1 second.
- 2) To verify that when the MS receives new charging information mid-way through a call in the form of a Facility IE contained within a FACILITY message the MS correctly indicates the total charge considering both sets of charging information.

Conformance Requirement(s):

- 1) When the MS receives new AoCC parameters mid-way through a call in a Facility IE which is contained within a FACILITY message the MS shall return a FACILITY message containing the acknowledgement within 1 second.
- 2) When the MS receives new charging information mid-way through a call in the form of a Facility IE contained within a FACILITY message the MS correctly indicates the total charge considering both sets of charging information.

Reference(s):

Conformance requirement 1: GSM 03.86, GSM 04.13, GSM 04.86.
Conformance requirement 2: GSM 02.24.

Related PICS/PIXIT Statement(s):

- Support of AoCC.
- Supported rates (full rate/half rate).
- Method of reading ACM from the SIM via the ME.
- Supported teleservices.
- Support for active state of the call control protocol (U10).

Initial Conditions:

System Simulator:
1 cell, default parameters, IMSI attach/detach disabled.

Mobile Station:
The MS is in MM-state "idle, updated".

Foreseen Final State of the MS:

The MS is in MM-state "idle, updated".

Method of Test:

The MS is made to initiate a call. The call is established with certain AoCC e-parameters sent in a Facility IE in a FACILITY message sent after the CONNECT message. The MS shall return the AoCC acknowledgement within 1 second of the FACILITY message. x seconds after sending the original CAI, new (and different) e-parameters are sent to the MS in a Facility IE contained within a FACILITY message. The MS shall return the AoCC acknowledge within 1 second of the FACILITY message.

The SS sends the DISCONNECT y seconds after sending the first CAI in the FACILITY message. The MS shall have stored the correct amount on the SIM according to the two sets of e-parameters sent and the times for the two parts of the call.

Maximum Duration of Test:

[z] minutes.

Expected Sequence:

Step	Direction	Message	Comments
0			At start of test only, read and note value of ACM on SIM
1	MS		The MS is made to initiate a call
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	CM SERVICE REQUEST	
5	SS -> MS	CM SERVICE ACCEPT	
6	MS -> SS	SETUP	
7	SS -> MS	CALL PROCEEDING	
8	SS -> MS	ASSIGNMENT COMMAND	to a supported channel type
9	MS -> SS	ASSIGNMENT COMPLETE	
10	SS -> MS	ALERTING	
11	SS -> MS	CONNECT	
			Either A, B or C branch is taken
A12	SS -> MS	FACILITY	As default message except contains Facility IE with contents as indicated in i below
A13	MS -> SS	CONNECT ACKNOWLEDGE	
A14	MS -> SS	FACILITY	As default message except contains Facility IE with contents as indicated in ii below
B12	MS -> SS	CONNECT ACKNOWLEDGE	
B13	SS -> MS	FACILITY	As default message except contains Facility IE with contents as indicated in i below
B14	MS -> SS	FACILITY	As default message except contains Facility IE with contents as indicated in ii below
C12	SS -> MS	FACILITY	As default message except contains Facility IE with contents as indicated in i below
C13	MS -> SS	FACILITY	As default message except contains Facility IE with contents as indicated in ii below
C14	MS -> SS	CONNECT ACKNOWLEDGE	
15	SS -> MS	FACILITY	Second CAI sent x sec after first CAI
16	MS -> SS	FACILITY	As default message except contains Facility IE with contents as indicated in iii below
17			As default message except contains Facility IE with contents as indicated in ii below New CAI held in abeyance until CDUR has timed out present e2 value
18	SS -> MS	DISCONNECT	Call duration y seconds after first CAI information sent by SS
19	MS -> SS	RELEASE	
20	SS -> MS	RELEASE COMPLETE	
21	SS -> MS	CHANNEL RELEASE	The main signalling link is released.
22	MS		SIM contents checked (either via MMI or by removing the SIM and using SIM reader) ACM shall have been incremented correctly

NOTE The values of x and y are given below.

The correct value of the ACM is found from the general AOC formula given in GSM 02.24 section 4 with CDUR = x, y seconds and e parameters as defined below.

Specific Message Contents:

i) **FACILITY** Information Element with Invoke = ForwardChargelInformation component type as defined in GSM 04.80 section 3.6.1 table 3.3.

For ASN.1 description see default message contents in section 31.6.4.

The values of the e-parameters within the parameter part of the Facility Information Element shall be set as defined below:

	e-parameter							CCM total at call end	Step 0 ACM value increased by
	1	2	3	4	5	6	7		
	10	28	1	10	0	0	60	(30)	(30)

Values shown in table are in the format and have units as in GSM 02.24 section 3.

ii) FACILITY Information Element with Return Result component type as defined in GSM 04.80 section 3.6.1 table 3.4.

For ASN.1 description see default message contents in section 31.6.4.

iii) FACILITY Information Element with Invoke = ForwardChargelInformation component type as defined in GSM 04.80 section 3.6.1 table 3.3.

For ASN.1 description see default message contents in section 31.6.4.

x is set to a constant value of 80 seconds.

y is set to a constant value of 180 seconds.

The values of the e-parameters within the parameter part of the Facility Information Element shall be set to:

	e-parameter							CCM total at call end	Step 0 ACM value increased by
	1	2	3	4	5	6	7		
	10	14	1	5	0	0	60	65	65

Values shown in table are in the format and have units as in GSM 02.24 section 3.

31.6.1.6 Different formats of charging information

Purpose:

- 1) To verify that when the MS receives a Facility IE in which certain e-parameters are set to zero the total charge accumulated is the same as that when the same e-parameters are completely omitted from the Facility IE.
- 2) To verify the operation of a shortened channel release procedure where the SS does not send DISCONNECT but only the RELEASE COMPLETE and CHANNEL RELEASE messages or just the CHANNEL RELEASE message.

Conformance Requirement(s):

- 1) When the MS receives a Facility IE in which certain e-parameters are set to zero the total charge accumulated shall be the same as that when the same e-parameters are completely omitted from the Facility IE.
- 2) The channel shall be correctly released when a shortened channel release procedure is used - the SS does not send DISCONNECT but only the RELEASE COMPLETE and CHANNEL RELEASE messages or just the CHANNEL RELEASE message.

Reference(s):

- Conformance requirement 1: GSM 02.24.
Conformance requirement 2: GSM 04.08.

Related PICS/PIXIT Statement(s):

- Support of AoCC.
- Supported rates (full rate/half rate).
- Method of reading ACM from the SIM via the ME.
- Supported teleservices.
- Support for active state of the call control protocol (U10).

Initial Conditions:

System Simulator:

1 cell, default parameters, IMSI attach/detach disabled.

Mobile Station:

The MS is in MM-state "idle, updated".

Foreseen Final State of the MS:

The MS is in MM-state "idle, updated".

Method of Test:

Part 1:

The MS is made to initiate a call. The call is established with certain AoCC e-parameters sent in a Facility IE in a FACILITY message sent before the CONNECT message.

The SS sends the DISCONNECT y seconds after sending the FACILITY message containing the e-parameters. The MS shall have stored the correct amount on the SIM according to the e-parameters sent.

Part 2:

Part 1 is repeated twice with the e-parameters that were set to zero above now omitted completely from the Facility IE. The shortened release procedures are used. The MS shall have stored the correct amount on the SIM.

The results of parts 1 and 2 are compared. The value for the charge calculated by the MS shall be identical for parts 1 and 2.

Maximum Duration of Test:

[z] minutes.

Expected Sequence:

The sequence step 1-20 is executed for execution counter $k = 1, \dots, 3$.

Step	Direction	Message	Comments
0			At start of test only, read and note value of ACM on SIM
1	MS		The MS is made to initiate a call
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	CM SERVICE REQUEST	
5	SS -> MS	CM SERVICE ACCEPT	
6	MS -> SS	SETUP	
7	SS -> MS	CALL PROCEEDING	
8	SS -> MS	ASSIGNMENT COMMAND	to a supported channel type
9	MS -> SS	ASSIGNMENT COMPLETE	
10	SS -> MS	ALERTING	
11	SS -> MS	FACILITY	As default message except contains Facility IE with contents as indicated in i below
			Either A, B or C branch is taken
A12	SS -> MS	CONNECT	
A13	MS -> SS	CONNECT ACKNOWLEDGE	
A14	MS -> SS	FACILITY	As default message except contains Facility IE with contents as indicated in ii below
B12	SS -> MS	CONNECT	
B13	MS -> SS	FACILITY	As default message except contains Facility IE with contents as indicated in ii below
B14	MS -> SS	CONNECT ACKNOWLEDGE	
C12	MS -> SS	FACILITY	As default message except contains Facility IE with contents as indicated in ii below
C13	SS -> MS	CONNECT	
C14	MS -> SS	CONNECT ACKNOWLEDGE	
15			call duration y seconds after CAI information sent by SS
			Branch D, E and F shall be taken for $k = 1, 2$ and 3 respectively
D16	SS -> MS	DISCONNECT	
D17	MS -> SS	RELEASE	
D18	SS -> MS	RELEASE COMPLETE	
D19	SS -> MS	CHANNEL RELEASE	The main signalling link is released.
E16	SS -> MS	RELEASE COMPLETE	Shortened channel release procedure
E17	SS -> MS	CHANNEL RELEASE	The main signalling link is released.
F16	SS -> MS	CHANNEL RELEASE	
20	MS		SIM contents checked (either via MMI or by removing the SIM and using SIM reader) ACM shall have been incremented correctly.

NOTE The value of y is given below.

The correct value of the ACM is found from the general AOC formula given in GSM 02.24 section 4 with CDUR = y seconds and e parameters as defined below.

Specific Message Contents:

i) FACILITY Information Element with Invoke = ForwardChargelInformation component type as defined in GSM 04.80 section 3.6.1 table 3.3.

For ASN.1 description see default message contents in section 31.6.4.

y is set to a constant value of 90 seconds.

The values of the e-parameters within the parameter part of the Facility Information Element shall be set to:

k-value	e-parameter							CCM total at call end	Step 0 ACM value increased by
	1	2	3	4	5	6	7		
1	10	40	1	0	0	0	0	20	20
2	10	40	1	-----omitted-----				20	40
3	10	40	1	-----omitted-----				20	60

Values shown in table are in the format and have units as in GSM 02.24 section 3.

ii) FACILITY Information Element with Return Result component type as defined in GSM 04.80 section 3.6.1 table 3.4.

For ASN.1 description see default message contents in section 31.6.4.

31.6.1.7 AOC on a Call Hold call

Purpose:

- 1) To verify that when the MS invokes a Call Hold call and hence receives Facility IEs containing AoCC e-parameters for each chargeable call the MS returns a FACILITY message containing the AoCC acknowledgement within 1 second of transmission of each set of e-parameters.
- 2) To verify that when the MS invokes a Call Hold call and hence receives Facility IEs containing CAI elements for each chargeable call the CCM records the sum of all the charges for the services currently being used and hence that the ME inserts the correct charge in the ACM field of the SIM.

Conformance Requirement(s):

- 1) When the MS invokes a Call Hold call and hence receives Facility IEs containing AoCC e-parameters for each chargeable call the MS shall return a FACILITY message containing the AoCC acknowledgement within 1 second of receiving each set of e-parameters.
- 2) When the MS invokes a Call Hold call and hence receives Facility IEs containing CAI elements for each chargeable call the CCM shall record the sum of all the charges for the services currently being used and hence the ME shall insert the correct charge in the ACM field of the SIM.

Reference(s):

Conformance requirement 1: GSM 04.13.

Conformance requirement 2: GSM 02.24, GSM 04.83, GSM 04.84, GSM 04.86.

Related PICS/PIXIT Statement(s):

- Support of AoCC.
- Supported rates (full rate/half rate).
- Method of reading ACM from the SIM via the ME.
- Supported teleservices.
- Support for active state of the call control protocol (U10).

Initial Conditions:

System Simulator:

1 cell, default parameters, IMSI attach/detach disabled.

Mobile Station:

The MS is in MM-state "idle, updated".

Foreseen Final State of the MS:

The MS is in MM-state "idle, updated".

Method of Test:

The MS is made to initiate a call. The call is established with certain AoCC e-parameters sent in a Facility IE in the CONNECT message. The MS shall return the AoCC acknowledgement within 1 second of transmission of the CONNECT message.

The call (call B) is then put on hold by sending a HOLD message from the MS to the SS. The SS shall reply with a HOLD ACKNOWLEDGE. The traffic channel is now available to originate another call.

The MS is made to initiate a second call (call C). The call is established with certain AoCC e-parameters sent in a Facility IE in the CONNECT message. The MS shall return the AoCC acknowledgement in a FACILITY message within 1 second of transmission of the CONNECT message.

The SS sends the DISCONNECT to the MS for call B x seconds after sending the call B CAI in the CONNECT/FACILITY message and the DISCONNECT for call C y seconds after sending the call C CAI in the CONNECT/FACILITY message. The MS shall have stored the correct amount on the SIM according to the two sets of e-parameters sent and call times x and y.

Maximum Duration of Test:

[z] minutes.

Expected Sequence:

Step	Direction	Message	Comments
0			At start of test only, read and note value of ACM on SIM
1	MS		The MS is made to initiate a call
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	CM SERVICE REQUEST	
5	SS -> MS	CM SERVICE ACCEPT	
6	MS -> SS	SETUP	
7	SS -> MS	CALL PROCEEDING	
8	SS -> MS	ASSIGNMENT COMMAND	to a supported channel type
9	MS -> SS	ASSIGNMENT COMPLETE	
10	SS -> MS	ALERTING	
11	SS -> MS	CONNECT	As default message except contains Facility IE with contents as indicated in i below
			Either D or E branch is taken
D12	MS -> SS	CONNECT ACKNOWLEDGE	
D13	MS -> SS	FACILITY	As default message except contains Facility IE with contents as indicated in ii below
E12	MS -> SS	FACILITY	As default message except contains Facility IE with contents as indicated in ii below
E13	MS -> SS	CONNECT ACKNOWLEDGE	
14	MS		The MS is made to initiate a second call, and the first call is placed on hold . DTMF signalling may occur, when MMI keys are depressed
15	MS -> SS	HOLD	
16	SS -> MS	HOLD ACKNOWLEDGE	
17	MS -> SS	CM SERVICE REQUEST	
18	SS -> MS	CM SERVICE ACCEPT	
19	MS -> SS	SETUP	TI arbitrary but different from existing TI
20	SS -> MS	CALL PROCEEDING	
21	SS -> MS	ALERTING	
22	SS -> MS	CONNECT	As default message except contains Facility IE with contents as indicated in i below
			Either F or G branch is taken
F23	MS -> SS	CONNECT ACKNOWLEDGE	
F24	MS -> SS	FACILITY	As default message except contains Facility IE with contents as indicated in ii below
G23	MS -> SS	FACILITY	As default message except contains Facility IE with contents as indicated in ii below
G24	MS -> SS	CONNECT ACKNOWLEDGE	
25			Call durations x and y seconds after respective CAI information sent by SS
			Branch H and I branch are taken, the sequence depending on the durations x and y
H26	SS -> MS	DISCONNECT	For call C
H27	MS -> SS	RELEASE	y seconds after call C CAI sent
H28	SS -> MS	RELEASE COMPLETE	
I26	SS -> MS	DISCONNECT	For call B
I27	MS -> SS	RELEASE	x seconds after call B CAI sent
I28	SS -> MS	RELEASE COMPLETE	
29	SS -> MS	CHANNEL RELEASE	The main signalling link is released
30	MS		SIM contents checked (either via MMI or by removing the SIM and using SIM reader) ACM shall have been incremented correctly.

NOTE The value of x and y are given below.

The correct value of the ACM is found from the general AOC formula given in GSM 02.24 section 4 with CDUR = x,y seconds and e parameters as defined below.

Specific Message Contents:

i) FACILITY Information Element with Invoke = ForwardChargelInformation component type as defined in GSM 04.80 section 3.6.1 table 3.3.

For ASN.1 description see default message contents in section 31.6.4.

x set to 180 s, y is set to 90 s.

The values of the e-parameters within the parameter part of the Facility Information Element shall be set to:

Call	e-parameter							CCM total at call end	Step 0 ACM value increased by
	1	2	3	4	5	6	7		
B(time x)	7	40	1	0	0	0	0		
C(time y)	13	40	1	0	0	0	0	54	54

Values shown in table are in the format and have units as in GSM 02.24 section 3.

ii) FACILITY Information Element with Return Result component type as defined in GSM 04.80 section 3.6.1 table 3.4.

For ASN.1 description see default message contents in section 31.6.4.

31.6.1.8 AOC on a Multi-party call

Purpose:

- 1) To verify that when the MS invokes a Multi-party call and hence receives Facility IEs containing AoCC e-parameters for each chargeable call the MS returns a FACILITY message containing the AoCC acknowledgement within 1 second of transmission of each set of e-parameters.
- 2) To verify that when the MS originates a Multi-party call and hence receives Facility IEs containing CAI elements for each chargeable call the CCM records the sum of all the charges for the services currently being used and hence the ME inserts the correct charge in the ACM field of the SIM.

Conformance Requirement(s):

- 1) When the MS invokes a Multi-party call and hence receives Facility IEs containing AoCC e-parameters for each chargeable call the MS shall return a FACILITY message containing the AoCC acknowledgement within 1 second of receiving each set of e-parameters.
- 2) When the MS originates a Multi-party call and hence receives Facility IEs containing CAI elements for each chargeable call the CCM shall record the sum of all the charges for the services currently being used and hence the ME shall insert the correct charge in the ACM field of the SIM.

Reference(s):

- Conformance requirement 1: GSM 04.13.
 Conformance requirement 2: GSM 02.24, GSM 04.83, GSM 04.84, GSM 04.86.

Related PICS/PIXIT Statement(s):

- Support of AoCC.
- Supported rates (full rate/half rate).

- Method of reading ACM from the SIM via the ME.
- Supported teleservices.
- Support for active state of the call control protocol (U10).

Initial Conditions:

System Simulator:

1 cell, default parameters, IMSI attach/detach disabled.

Mobile Station:

The MS is in MM-state "idle, updated".

Foreseen Final State of the MS:

The MS is in MM-state "idle, updated".

Method of Test:

The MS is made to initiate a call. The call is established with certain AoCC e-parameters sent in a Facility IE in the CONNECT message. The MS shall return the AoCC acknowledgement within 1 second of transmission of the CONNECT message.

The call (call B) is then put on hold by sending a HOLD message from the MS to the SS. The SS shall reply with a HOLD ACKNOWLEDGE. The traffic channel is now available to originate another call.

The MS is made to initiate a second call (call C). The call is established with certain AoCC e-parameters sent in a Facility IE in the CONNECT message. The MS shall return the AoCC acknowledgement within 1 second of transmission of the CONNECT message.

The MS invokes the multi-party service by sending a FACILITY message to the SS containing the BuildMPTY request.

The SS accepts the request and connects the MS with the other existing connections (active call C and held call B) and confirms with a FACILITY message.

The SS sends the DISCONNECT to the MS for call B x seconds after sending the call B CAI in the CONNECT message and the DISCONNECT for call C y seconds after sending the call C CAI in the CONNECT message. The MS shall have stored the correct amount on the SIM according to the two sets of e-parameters sent and call times x and y.

Maximum Duration of Test:

z minutes.

Expected Sequence:

Step	Direction	Message	Comments
0			At start of test only, read and note value of ACM on SIM
1	MS		The MS is made to initiate a call
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	CM SERVICE REQUEST	
5	SS -> MS	CM SERVICE ACCEPT	
6	MS -> SS	SETUP	
7	SS -> MS	CALL PROCEEDING	
8	SS -> MS	ASSIGNMENT COMMAND	to a supported channel type
9	MS -> SS	ASSIGNMENT COMPLETE	
10	SS -> MS	ALERTING	
11	SS -> MS	CONNECT	As default message except contains Facility IE with contents as indicated in i below
			Either D or E branch is taken
D12	MS -> SS	CONNECT ACKNOWLEDGE	
D13	MS -> SS	FACILITY	As default message except contains Facility IE with contents as indicated in ii below
E12	MS -> SS	FACILITY	As default message except contains Facility IE with contents as indicated in ii below
E13	MS -> SS	CONNECT ACKNOWLEDGE	
14			The MS is made to initiate a second call and the first call (call B) is placed on hold . DTMF signalling may occur, when MMI keys are depressed
15	MS -> SS	HOLD	
16	SS -> MS	HOLD ACKNOWLEDGE	
17	MS -> SS	CM SERVICE REQUEST	
18	SS -> MS	CM SERVICE ACCEPT	
19	MS -> SS	SETUP	TI arbitrary but different from existing TI
20	SS -> MS	CALL PROCEEDING	
21	SS -> MS	ALERTING	
22	SS -> MS	CONNECT	As default message except contains Facility IE with contents as indicated in i below
			Either F or G branch is taken
F23	MS -> SS	CONNECT ACKNOWLEDGE	
F24	MS -> SS	FACILITY	As default message except contains Facility IE with contents as indicated in ii below
G23	MS -> SS	FACILITY	As default message except contains Facility IE with contents as indicated in ii below
G24	MS -> SS	CONNECT ACKNOWLEDGE	
25	MS -> SS	FACILITY (TI A-B/A-C)	The MS is made to build a multi-party call . DTMF signalling may occur, when MMI keys are depressed As default message except contains Facility IE with contents as indicated in iii below
26	SS -> MS	FACILITY (TI A-B/A-C)	As default message except contains Facility IE with contents as indicated in iv, below
27			Call durations x and y seconds after respective CAI information sent by SS
			Branch H and branch I are taken, the sequence depending on the durations x and y
H28	SS -> MS	DISCONNECT	For call C
H29	MS -> SS	RELEASE	y seconds after call C CAI sent
H30	SS -> MS	RELEASE COMPLETE	
I28	SS -> MS	DISCONNECT	For call B x seconds after call B CAI sent

129	MS -> SS	RELEASE	
130	SS -> MS	RELEASE COMPLETE	
31 32	SS -> MS MS	CHANNEL RELEASE	The main signalling link is released. SIM contents checked (either via MMI or by removing the SIM and using SIM reader) ACM shall have been incremented correctly.

NOTE: A-B/A-C indicates a choice. the transaction identifier (TI) used must be that of the active call or the held call (ref. GSM 04.84).

The values of x and y are given below.

The correct value of the ACM is found from the general AOC formula given in GSM 02.24 section 4 with CDUR = x,y seconds and e parameters as defined below.

Specific Message Contents:

i) FACILITY Information Element with Invoke = ForwardChargelInformation component type as defined in GSM 04.80 section 3.6.1 table 3.3.

For ASN.1 description see default message contents in section 31.6.4.

x set to 180 s, y set to 90 s.

The values of the e-parameters within the parameter part of the Facility Information Element shall be set to:

Call	e-parameter							CCM total at call end	Step 0 ACM value increased by
	1	2	3	4	5	6	7		
B(time x)	19	40	1	0	0	0	0		
C(time y)	29	40	1	0	0	0	0	134	134

Values shown in table are in the format and have units as in GSM 02.24 section 3.

ii) FACILITY Information Element with Return Result component type as defined in GSM 04.80 section 3.6.1 table 3.4.

For ASN.1 description see default message contents in section 31.6.4.

iii) FACILITY Information Element with Invoke = BuildMPTY component type as defined in GSM 04.80 section 3.6.1 table 3.4.

The following abbreviations are used in the descriptions below:

- U Universal tag class.
- CS Context Specific tag class.
- P Primitive tag form.
- C Constructed tag form.
- FIE Facility Information Element.

Contents	Value/remark	Coding
Facility IE Identifier	As GSM 04.80	00011100
Length of FIE contents	8	00001000
Component type tag	CS/C/tag=1	10100001
Component length	6	00000110
Invoke ID tag	U/P/tag=2	00000010
Invoke ID length	1	00000001
Invoke ID	Arbitrary (1 octet)	(00000000)
Op-Code tag	From GSM 04.80	00000010
Op-Code length	1	00000001
Op-Code	Build Multi-party operation (local value 124)	00000001

ii) FACILITY Information Element with Return Result component type as defined in GSM 04.80 section 3.6.1 table 3.4.

Contents	Value/remark	Coding
Facility IE Identifier	As GSM 04.80	00111100
Length of FIE contents	5	00001001
Component type tag	CS/C/tag=2	10100010
Component length	3	00000011
Invoke ID tag	U/P/Integer	00000010
Invoke ID length	1	00000001
Invoke ID	Same as used as	(00000000)
FIE		Invoke ID in Invoke

31.6.2 Charge Storage

31.6.2.1 Removal of SIM during an active call

Purpose:

- 1) To verify that when the SIM is removed from the ME during an active AoCC call the ME immediately terminates the call.
- 2) To verify that when the SIM is removed during an active AoCC call the ME has written the total charge up to that point in the call to the ACM field of the SIM.

Conformance Requirement(s):

- 1) When the SIM is removed from the ME during an active AoCC call the ME shall immediately terminate the call.
- 2) When the SIM is removed during an active AoCC call midway through an AOC charging time interval (e7 or e2) the ME shall have written the total charge up to the point in the call where the charging time interval last expired to the ACM field of the SIM.

Reference(s):

Conformance requirement 1: GSM 02.17.
Conformance requirement 1: GSM 02.24.

Related PICS/PIXIT Statement(s):

- Support of AoCC.
- Supported rates (full rate/half rate).
- Removal of the SIM is possible without disconnection of power supply.
- Supported teleservices.
- Support for active state of the call control protocol (U10).

Initial Conditions:

System Simulator:

1 cell, default parameters, IMSI attach/detach disabled.

Mobile Station:

The MS is in MM-state "idle, updated".

Foreseen Final State of the MS:

The MS is in MM-state "idle, updated".

Method of Test:

This test is only performed if it is possible to remove SIM without disconnecting the power supply. If the battery pack must be removed to get at the SIM see 31.6.2.2.

The MS is made to initiate a call. The call is established with certain AoCC e-parameters sent in a Facility IE in the CONNECT message. It is an implementation option whether the AoCC acknowledge is sent before or after the CONNECT ACKNOWLEDGE.

If possible, without removing the power supply, the SIM is removed from the ME y seconds after the SS sends the CAI in the CONNECT/FACILITY message. The call shall be terminated immediately by the MS and the MS shall have stored the correct amount on the SIM according to the e-parameters sent.

Maximum Duration of Test:

[z] minutes.

Expected Sequence:

Step	Direction	Message	Comments
0			At start of test only, read and note value of ACM on SIM
1	MS		The MS is made to initiate a call
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	CM SERVICE REQUEST	
5	SS -> MS	CM SERVICE ACCEPT	
6	MS -> SS	SETUP	
7	SS -> MS	CALL PROCEEDING	
8	SS -> MS	ASSIGNMENT COMMAND	to a supported channel type
9	MS -> SS	ASSIGNMENT COMPLETE	
10	SS -> MS	ALERTING	
11	SS -> MS	CONNECT	As default message except contains Facility IE with contents as indicated in i below
			Either A or B branch is taken
A12	MS -> SS	CONNECT ACKNOWLEDGE	
A13	MS -> SS	FACILITY	As default message except contains Facility IE with contents as indicated in ii below
B12	MS -> SS	FACILITY	As default message except contains Facility IE with contents as indicated in ii below
B13	MS -> SS	CONNECT ACKNOWLEDGE	
14			SIM removed y seconds after CAI information sent by SS.
			Either C, D, E or F branch is taken
C15	MS -> SS	DISCONNECT	
C16	SS -> MS	RELEASE	
C17	MS -> SS	RELEASE COMPLETE	
C18	SS -> MS	CHANNEL RELEASE	The main signalling link is released.
D15	MS -> SS	RELEASE COMPLETE	
D16	SS -> MS	CHANNEL RELEASE	The main signalling link is released.
E15	MS -> SS	Layer 2 DISC	
E16	SS -> MS	UA	
F15			No further messages are sent
19			SIM contents checked (by removing the SIM and using SIM reader). ACM shall have been incremented correctly.

NOTE: The value of y is given below.

The correct value of the ACM is found from the general AOC formula given in GSM 02.24 section 4 with CDUR = y seconds and e parameters as defined below.

Specific Message Contents:

i) FACILITY Information Element with Invoke = ForwardChargelInformation component type as defined in GSM 04.80 section 3.6.1 table 3.3.

For ASN.1 description see default message contents in section 31.6.4.

The SIM is removed after approximately y=90 seconds.

The values of the e-parameters within the parameter part of the Facility Information Element shall be set to:

k-valuee-parameter	CCM total							Step 0 ACM at call end	value increased by
	1	2	3	4	5	6	7		
	10	55	1	10	0	0	10	30	30

Values shown in table are in the format and have units as in GSM 02.24 section 3.

ii) FACILITY **Information Element with Return Result component type as defined in GSM 04.80 section 3.6.1 table 3.4.**

For ASN.1 description see default message contents in section 31.6.4.

31.6.2.2 Interruption of power supply during an active call

Purpose:

To verify that when the power supply of the MS is removed during an active AoCC call the ME has written the total charge up to that point in the call to the ACM field of the SIM.

Conformance Requirement(s):

When the power supply of the MS is removed during an active AoCC call midway through an AOC charging time interval (e7 or e2) the ME shall have written the total charge up to the point in the call where the charging time interval last expired to the ACM field of the SIM.

Reference(s):

Conformance requirement 1: GSM 02.24.

Related PICS/PIXIT Statement(s):

- Support of AoCC.
- Supported rates (full rate/half rate).
- Method of removing power supply.
- Supported teleservices.
- Support for active state of the call control protocol (U10).

Initial Conditions:

System Simulator:

1 cell, default parameters, IMSI attach/detach disabled.

Mobile Station:

The MS is in MM-state "idle, updated".

Foreseen Final State of the MS:

The MS is switched off.

Method of Test:

The MS is made to initiate a call. The call is established with certain AoCC e-parameters sent in a Facility IE in the CONNECT message. It is an implementation option whether the AoCC acknowledge is sent before or after the CONNECT ACKNOWLEDGE.

The ME power is switched off by pressing power button on MMI during the active call. The call shall be terminated immediately and the MS shall have stored the correct amount on the SIM according to the e-parameters sent.

The test is repeated for ME power being lost by removal of battery pack. The call shall be terminated immediately and the MS shall have stored the correct amount on the SIM according to the e-parameters sent.

Maximum Duration of Test:

[z] minutes.

Expected Sequence:

The sequence step 1-20 is executed for execution counter k = 1,2.

Step	Direction	Message	Comments
0			At start of test only, read and note value of ACM on SIM
1	MS		The MS is made to initiate a call
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	CM SERVICE REQUEST	
5	SS -> MS	CM SERVICE ACCEPT	
6	MS -> SS	SETUP	
7	SS -> MS	CALL PROCEEDING	
8	SS -> MS	ASSIGNMENT COMMAND	to a supported channel type
9	MS -> SS	ASSIGNMENT COMPLETE	
10	SS -> MS	ALERTING	
11	SS -> MS	CONNECT	As default message except contains Facility IE with contents as indicated in i below
			Either A or B branch is taken
A12	MS -> SS	CONNECT ACKNOWLEDGE	
A13	MS -> SS	FACILITY	As default message except contains Facility IE with contents as indicated in ii below
B12	MS -> SS	FACILITY	As default message except contains Facility IE with contents as indicated in ii below
B13	MS -> SS	CONNECT ACKNOWLEDGE	
14			ME power interrupted y seconds after CAI information sent by SS by: MMI power switch (for k=1) Removing battery pack (for k=2) Depending on the value of k C or D branch is taken
15			SIM contents checked (by removing the SIM and using SIM reader). ACM shall have been incremented correctly.

NOTE: The value of y is given below.

The correct value of the ACM is found from the general AOC formula given in GSM 02.24 section 4 with CDUR = y seconds and e parameters as defined below.

Specific Message Contents:

i) FACILITY Information Element with Invoke = ForwardChargelInformation component type as defined in GSM 04.80 section 3.6.1 table 3.3.

For ASN.1 description see default message contents in section 31.6.4.

The ME power is removed after approximately y=90 seconds.

The values of the e-parameters within the parameter part of the Facility Information Element shall be set to:

k-valuee-parameter	CCM total							Step 0 ACM at call end	value increased by
	1	2	3	4	5	6	7		
	10	55	1	10	0	0	10	30	30

Values shown in table are in the format and have units as in GSM 02.24 section 3.

ii) FACILITY **Information Element with Return Result component type as defined in GSM 04.80 section 3.6.1 table 3.4.**

For ASN.1 description see default message contents in section 31.6.4.

31.6.2.3 MS going out of coverage during an active AoCC call

NOTE: At present the core recommendations for AoCC in the case where the radio link is lost during an active call are vague. Does the mobile go on charging for a fixed period after radio link loss and continue as usual if radio link reestablishment occurs, or does charging stop? Input from people involved in charging for GSM is required.

Hence this test will be enhanced in the future when the requirements become clearer.

Purpose:

To verify that when the MS goes out of radio coverage area and an active call is dropped the ME has written the total charge up to that point in the call to the ACM field of the SIM.

Conformance Requirement(s):

When the MS goes out of radio coverage area during an active AoCC call midway through an AOC charging time interval (e7 or e2) and the call is dropped the ME shall have written the total charge up to the point in the call where the charging time interval last expired to the ACM field of the SIM.

Reference(s):

Conformance requirement 1: GSM 02.24.

Related PICS/PIXIT Statement(s):

- Support of AoCC.
- Supported rates (full rate/half rate).
- Method of reading ACM from the SIM via the ME.
- Supported teleservices.
- Support for active state of the call control protocol (U10).

Initial Conditions:

System Simulator:

1 cell, default parameters, IMSI attach/detach disabled.

Mobile Station:

The MS is in MM-state "idle, updated".

Foreseen Final State of the MS:

The MS is in MM-state "idle, updated".

Method of Test:

The MS is made to initiate a call. The call is established with certain AoCC e-parameters sent in a Facility IE in the CONNECT message. It is an implementation option whether the AoCC acknowledge is sent before or after the CONNECT ACKNOWLEDGE.

The cell simulated by the system simulator is then switched off to model the MS losing radio coverage. The MS shall have stored the correct amount on the SIM according to the e-parameters sent. [What happens on call reestablishment?]

Maximum Duration of Test:

[z] minutes.

Expected Sequence:

Step	Direction	Message	Comments
0			At start of test only, read and note value of ACM on SIM
1	MS		The MS is made to initiate a call
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	CM SERVICE REQUEST	
5	SS -> MS	CM SERVICE ACCEPT	
6	MS -> SS	SETUP	
7	SS -> MS	CALL PROCEEDING	
8	SS -> MS	ASSIGNMENT COMMAND	to a supported channel type
9	MS -> SS	ASSIGNMENT COMPLETE	
10	SS -> MS	ALERTING	
11	SS -> MS	CONNECT	As default message except contains Facility IE with contents as indicated in i below
			Either A or B branch is taken
A12	MS -> SS	CONNECT ACKNOWLEDGE	
A13	MS -> SS	FACILITY	As default message except contains Facility IE with contents as indicated in ii below
B12	MS -> SS	FACILITY	As default message except contains Facility IE with contents as indicated in ii below
B13	MS -> SS	CONNECT ACKNOWLEDGE	
14			SS cell switched off y seconds after CAI information sent by SS Failure of radio path, end of call (CEND) occurs and MS stops charging (ref. GSM 02.24 sec 2)
15			SIM contents checked (either via MMI or by removing the SIM and using SIM reader). ACM shall have been incremented correctly.

NOTE: The value of y is given below.

The correct value of the ACM is found from the general AOC formula given in GSM 02.24 section 4 with CDUR = y seconds and e parameters as defined below.

Specific Message Contents:

i) **FACILITY** Information Element with Invoke = ForwardChargelInformation component type as defined in GSM 04.80 section 3.6.1 table 3.3.

For ASN.1 description see default message contents in section 31.6.4.

The cell being simulated by the SS is switched off after approximately y=90 seconds.

The values of the e-parameters within the parameter part of the Facility Information Element shall be set to:

k-valuee-parameter	CCM total							Step 0 ACM at call end	value increased by
	1	2	3	4	5	6	7		
	10	55	1	10	0	0	10	30	30

Values shown in table are in the format and have units as in GSM 02.24 section 3.

ii) FACILITY Information Element with Return Result component type as defined in GSM 04.80 section 3.6.1 table 3.4.

For ASN.1 description see default message contents in section 31.6.4.

31.6.2.4 ACMmax operation / Mobile Originating

Purpose:

- 1) To verify that when the value stored in the ACM becomes equal to or exceeds its maximum value, the ACMmax, any outgoing calls in progress for which a non-zero CAI exists are terminated by the ME, once the chargeable interval determined by the CAI has elapsed, with an appropriate indication given to the user.
- 2) To verify that when the value stored in the ACM becomes equal to or exceeds its maximum limit, the ACMmax, the making of non-emergency calls is inhibited.
- 3) To verify that when the value stored in the ACM becomes equal to or exceeds its maximum limit, the ACMmax, the making of emergency calls is uninhibited.

Conformance Requirement(s):

- 1) When the value stored in the ACM becomes equal to or exceeds its maximum value, the ACMmax, any outgoing calls in progress for which a non-zero CAI exists shall be terminated by the ME, once the chargeable interval determined by the CAI has elapsed, with an appropriate indication given to the user.
- 2) When the value stored in the ACM becomes equal to or exceeds its maximum limit, the ACMmax, the making of further non-emergency calls shall be inhibited.
- 3) When the value stored in the ACM becomes equal to or exceeds its maximum limit, the ACMmax, the making of emergency calls shall be uninhibited.

Reference(s):

Conformance requirement 1: GSM 02.24.

Conformance requirement 2: GSM 02.24.

Conformance requirement 3: GSM 02.24.

Related PICS/PIXIT Statement(s):

- Support of AoCC.
- Supported rates (full rate/half rate).
- Method of reading ACM from the SIM via the ME.
- Type of user indication when ACMmax exceeded.
- Supported teleservices.
- Support for active state of the call control protocol (U10).

Initial Conditions:

System Simulator:

1 cell, default parameters, IMSI attach/detach disabled.

Mobile Station:

The MS is in MM-state "idle, updated".

PIN 2 is entered into the MS allowing modification of both the ACM and ACMmax fields on the SIM.
The ACM is reset to zero and the ACMmax is set to 2 units.

Foreseen Final State of the MS:

The MS is in MM-state "idle, updated".

Method of Test:

The MS is made to initiate a call. The call is established with certain AoCC non-zero e-parameters sent in a Facility IE in the CONNECT message. It is an implementation option whether the AoCC acknowledge is sent before or after the CONNECT ACKNOWLEDGE.

After the ACM has been incremented to 2 units (60 s) the call shall be terminated by the MS once an additional chargeable interval of 30s has elapsed, and an indication given to the user. The call duration is recorded and the ACM is checked to ensure it has been incremented to 2 units.

The MS is then made to attempt to originate an ordinary call to the MS for which a non-zero CAI exists for the calling party and shall be unsuccessful. The MS shall not send a CHANNEL REQUEST for that call.

The MS is then made to attempt to originate an emergency call and shall be successful.

Maximum Duration of Test:

10 minutes.

Expected Sequence:

Step	Direction	Message	Comments
0			At start of test only, read and note value of ACM on SIM (it shall be zero)
A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11	MS MS -> SS SS -> MS MS -> SS SS -> MS MS -> SS SS -> MS SS -> MS MS -> SS SS -> MS SS -> MS	CHANNEL REQUEST IMMEDIATE ASSIGNMENT CM SERVICE REQUEST CM SERVICE ACCEPT SETUP CALL PROCEEDING ASSIGNMENT COMMAND ASSIGNMENT COMPLETE ALERTING CONNECT	For k= 1 The MS is made to initiate an ordinary call to a supported channel type As default message except contains Facility IE with contents as indicated in I below
B1 B2 B3 B4 B5 B6 B7 B8 B9 B10 B11	MS MS -> SS SS -> MS MS -> SS SS -> MS MS -> SS SS -> MS SS -> MS MS -> SS SS -> MS SS -> MS	CHANNEL REQUEST IMMEDIATE ASSIGNMENT CM SERVICE REQUEST CM SERVICE ACCEPT EMERGENCY SETUP CALL PROCEEDING ASSIGNMENT COMMAND ASSIGNMENT COMPLETE ALERTING CONNECT	For k = 3 The MS is made to initiate an emergency call (112 is entered) Establishment cause is emergency call establishment CM service type IE indicates "emergency call establishment" to a supported channel type As default message except contains Facility IE with contents as indicated in i below For k=1 or 3 either branch C or D is taken
C12 C13	MS -> SS MS -> SS	CONNECT ACKNOWLEDGE FACILITY	As default message except contains Facility IE with contents as indicated in ii below
D12 D13	MS -> SS MS -> SS	FACILITY CONNECT ACKNOWLEDGE	As default message except contains Facility IE with contents as indicated in ii below
L14 L15 L16 L17 L18 L19	 MS -> SS SS -> MS MS -> SS SS -> MS	 DISCONNECT RELEASE RELEASE COMPLETE CHANNEL RELEASE	For k=1 Record call duration, x seconds, after CAI information sent by SS until call is terminated by the ME The main signalling link is released. ACM checked (shall be 2 units)
M14 M15 M16 M17 M18 M19	 MS -> SS SS -> MS MS -> SS SS -> MS	 DISCONNECT RELEASE RELEASE COMPLETE CHANNEL RELEASE	For k=3 Call duration y seconds after CAI information sent by SS The main signalling link is released. ACM checked (shall be 2 units)

k=1 - Non zero CAI call attempted by MS and should succeed.

k=2 - Non zero CAI call attempted by MS and should fail.

k=3 - Emergency call attempted by MS and should succeed.

NOTE: The values of x and y are given below.

The correct value of the ACM is found from the general AOC formula given in GSM 02.24 section 4 with CDUR = x,y seconds and e parameters as defined below.

Specific Message Contents:

i) FACILITY Information Element with Invoke = ForwardChargelInformation component type as defined in GSM 04.80 section 3.6.1 table 3.3.

For ASN.1 description see default message contents in section 31.6.4.

x shall be 90 ± 2 seconds.

y shall be set to 120 seconds.

The values of the e-parameters within the parameter part of the Facility Information Element shall be set to:

k-value	e-parameter							CCM total at call end	Step 0 ACM value increased by
	1	2	3	4	5	6	7		
1	1	30	1	0	0	0	0	2	2
2	1	30	1	0	0	0	0	0	2
3	0	0	0	0	0	0	0	0	2

Values shown in table are in the format and have units as in GSM 02.24 section 3.

ii) FACILITY Information Element with Return Result component type as defined in GSM 04.80 section 3.6.1 table 3.4.

For ASN.1 description see default message contents in section 31.6.4.

31.6.2.5 ACMmax operation / Mobile Terminating

Purpose:

- 1) To verify that when the value stored in the ACM becomes equal to or exceeds its maximum value, the ACMmax, any mobile terminating calls in progress for which a non-zero CAI exists are terminated by the ME, once the chargeable interval determined by the CAI has elapsed, with an appropriate indication given to the user.
- 2) To verify that when the value stored in the ACM becomes equal to or exceeds its maximum value, the ACMmax, and an incoming call is received for which subsequently a non-zero CAI is received, then the call is terminated by the ME with an appropriate indication given to the user.
- 3) To verify that when the value stored in the ACM becomes equal to or exceeds its maximum limit, the ACMmax, the receiving of calls for which the CAI is zero is uninhibited.

Conformance Requirement(s):

- 1) When the value stored in the ACM becomes equal to or exceeds its maximum value, the ACMmax, any mobile terminating calls in progress for which a non-zero CAI exists shall be terminated by the ME, once the chargeable interval determined by the CAI has elapsed, with an appropriate indication given to the user.
- 2) When the value stored in the ACM becomes equal to or exceeds its maximum value, the ACMmax, and an incoming call is received for which subsequently a non-zero CAI is received, the call shall be terminated by the ME with an appropriate indication given to the user.

- 3) When the value stored in the ACM becomes equal to or exceeds its maximum limit, the ACMmax, the receiving of calls for which the CAI is zero shall be uninhibited.

Reference(s):

Conformance requirement 1: GSM 02.24.
Conformance requirement 2: GSM 02.24.
Conformance requirement 2: GSM 02.24.

Related PICS/PIXIT Statement(s):

- Support of AoCC.
- Supported rates (full rate/half rate).
- Method of reading ACM from the SIM via the ME.
- Type of user indication when ACMmax exceeded.
- Supported teleservices.
- Support for active state of the call control protocol (U10).

Initial Conditions:

System Simulator:

1 cell, default parameters, IMSI attach/detach disabled.

Mobile Station:

The MS is in MM-state "idle, updated".

PIN 2 is entered into the MS allowing modification of both the ACM and ACMmax fields on the SIM.
The ACM is reset to zero and the ACMmax is set to 2 units.

Foreseen Final State of the MS:

The MS is in MM-state "idle, updated".

Method of Test:

The SS is made to initiate a call. The call is established with certain non-zero AoCC e-parameters sent in a Facility IE contained in a FACILITY message sent before the CONNECT message. It is an implementation option whether the AoCC e-parameters and AoCC acknowledge are sent before or after the CONNECT ACKNOWLEDGE.

After the ACM has been incremented to 2 units (60s) the call shall be terminated by the MS once an additional chargeable interval of 30s has elapsed and an indication given to the user. The ACM shall be checked to ensure that it has been incremented to 2 units.

The SS is then made to attempt to make an ordinary call to the MS for which a non-zero CAI exists for the called party and shall be unsuccessful. The MS shall terminate the call with a DISCONNECT message.

The SS is then made to attempt to make an ordinary call to the MS for which a zero CAI exists for the called party and shall be successful.

Maximum Duration of Test:

10 minutes.

Expected Sequence:

The sequence step 1-20 is executed for execution counter k = 1,...,3..

Step	Direction	Message	Comments
0			At start of test only, read and note value of ACM on SIM
1	SS		The SS is made to initiate a call
2	SS -> MS	PAGING REQUEST	
3	MS -> SS	CHANNEL REQUEST	
4	SS -> MS	IMMEDIATE ASSIGNMENT	
5	MS -> SS	PAGING RESPONSE	
6	SS -> MS	SETUP	
7	MS -> SS	CALL CONFIRMED	
8	SS -> MS	ASSIGNMENT COMMAND	to a supported channel type
9	MS -> SS	ASSIGNMENT COMPLETE	
10	MS -> SS	ALERTING	
11	MS -> SS	CONNECT	
12	SS -> MS	CONNECT ACKNOWLEDGE	
			For k=1 or 3 branch A is taken
A13	SS -> MS	FACILITY	As default message except contains Facility IE with contents as indicated in i below
A14	MS -> SS	FACILITY	As default message except contains Facility IE with contents as indicated in ii below
			For k=2 branch B, and then either branch C, D or E is taken
B13	SS -> MS	FACILITY	As default message except contains Facility IE with contents as indicated in i below
C13	MS -> SS	FACILITY	As default message except contains Facility IE with contents as indicated in ii below
C14	MS -> SS	DISCONNECT	MS terminates call
D13	MS -> SS	DISCONNECT	MS terminates call
D14	MS -> SS	FACILITY	As default message except contains Facility IE with contents as indicated in ii below
E13	MS -> SS	DISCONNECT	MS terminates call. DISCONNECT may or may not contain Facility IE with contents as indicated in ii below
			For k= 1, 2 and 3, F, G and branch shall be taken respectively
F15			For k=1 Record call duration, x seconds, after CAI information sent by SS until call is terminated by the ME
F16	MS -> SS	DISCONNECT	MS terminates call
F17	SS -> MS	RELEASE	
F18	MS -> SS	RELEASE COMPLETE	
F19	SS -> MS	CHANNEL RELEASE	The main signalling link is released.
			For k=2
G15	SS -> MS	RELEASE	
G16	MS -> SS	RELEASE COMPLETE	RELEASE COMPLETE may or may not contain Facility IE with contents as indicated in ii below
G17	SS -> MS	CHANNEL RELEASE	The main signalling link is released.
			For k=3
H15			Call duration y seconds after CAI information sent by SS
H16	MS -> SS	DISCONNECT	MS terminates call
H17	SS -> MS	RELEASE	
H18	MS -> SS	RELEASE COMPLETE	

H19	SS -> MS	CHANNEL RELEASE	The main signalling link is released.
20			ACM checked (should be 2 units)

k=1 - Non zero CAI call attempted to MS and should succeed.

k=2 - Non zero CAI call attempted to MS and should fail.

k=3 - Zero CAI call attempted to MS and should succeed.

NOTE: The values of x and y are given below.

The correct value of the ACM is found from the general AOC formula given in GSM 02.24 section 4 with CDUR = x,y seconds and e parameters as defined below.

Specific Message Contents:

i) FACILITY Information Element with Invoke = ForwardChargeInformation component type as defined in GSM 04.80 section 3.6.1 table 3.3.

For ASN.1 description see default message contents in section 31.6.4.

x shall be 90 ± 2 seconds.

y shall be set to 120 seconds.

The values of the e-parameters within the parameter part of the Facility Information Element shall be set to:

k-value	e-parameter							CCM total at call end	Step 0 ACM value increased by
	1	2	3	4	5	6	7		
1	1	30	1	0	0	0	0	2	2
2	1	30	1	0	0	0	0	0	2
3	0	0	0	0	0	0	0	0	2

Values shown in table are in the format and have units as in GSM 02.24 section 3.

ii) FACILITY Information Element with Return Result component type as defined in GSM 04.80 section 3.6.1 table 3.4.

For ASN.1 description see default message contents in section 31.6.4.

31.6.3 Advice of Charge Information

31.6.4 Default contents of messages

As default message contents in GSM 11.10 Section 26.8 "Tests related to circuit switched call control". These messages shall not contain SS version IEs.

Where indicated in specific tests CONNECT and FACILITY messages have Facility Information Elements as defined below.

Default contents of ForwardChargeAdvice Facility Information Elements

The following abbreviations are used in the descriptions below:

- U Universal tag class.
- CS Context Specific tag class.
- P Primitive tag form.
- C Constructed tag form.
- FIE Facility Information Element.

i) FACILITY **Information Element with Invoke = ForwardChargeInformation component type as defined in GSM 04.80 section 3.6.1 table 3.3.**

Contents	Value/remark	Coding
Facility IE Identifier	As GSM 04.80	00011100
Length of FIE contents	43	00101011
Component type tag	CS/C/tag=1	10100001
Component length	41	00101001
Invoke ID tag	U/P/tag=2	00000010
Invoke ID length	1	00000001
Invoke ID	Arbitrary (1 octet)	(00000000)
Op-Code tag	From GSM 04.80	00000010
Op-Code length	1	00000001
Op-Code	Forward Charge Advice operation (local value 125)	01111101
Sequence Identifier	U/C/tag=16 from CCITT X.208	00110000
Length Indicator	33	00100001
SS-Code Identifier	CS/P/tag=0	10000000
Length Indicator	1	00000001
SS-Code	AoCC SS-Code	01110010
Charging Info. identifier	CS/C/tag=1	10100001
Length Indicator	28	00011100
e1 Identifier	CS/P/tag=1	10000001
Length Indicator	2	00000010
e1	(2 Octets)	See e-parameter table in relevant test
e2 Identifier	CS/P/tag=2	10000010
Length Indicator	2	00000010
e2	(2 Octets)	See e-parameter table in relevant test
.	.	.
.	.	.
.	.	.
e7 Identifier	CS/P/tag=7	10000111
Length Indicator	2	00000010
e7	(2 Octets)	See e-parameter table in relevant test

ii) FACILITY **Information Element with Return Result component type as defined in GSM 04.80 section 3.6.1 table 3.4.**

Contents	Value/remark	Coding
Facility IE Identifier	As GSM 04.80	00111100
Length of FIE contents	5	00001001
Component type tag	CS/C/tag=2	10100010
Component length	3	00000011
Invoke ID tag	U/P/Integer	00000010
Invoke ID length	1	00000001
Invoke ID	Same as used as Invoke ID in Invoke FIE	(00000000)

31.7 Additional information transfer supplementary services

(Reserved).

31.8 Call restriction supplementary services

The following abbreviations are used:

BO:	Barring of Outgoing calls.
BAOC:	Barring of All Outgoing Calls.
BOIC:	Barring of Outgoing International Calls.
BOICExHC:	Barring of Outgoing International Call EXcept those directed to the Home PLMN country.
BI:	Barring of Incoming calls.
BAIC:	Barring of All Incoming calls.
BICRoam:	Barring of Incoming when Roaming outside the home PLMN country.
B:	Barring (common name for BAOc, BOIC, BOICExHC, BAIC and BICRoam).

These abbreviations are also used to represent the corresponding SS-Code; e.g. B is the SS-Code for all barring services.

NOTE: The password(s) to be used during tests of this section 31.8 may be randomly chosen - unless otherwise stated - in accordance with GSM 02.04 section 5.2.

31.8.1 Registration of a password

31.8.1.1 Registration accepted

31.8.1.1.1 Conformance requirements

- 1) For registration of a password for all barring services, the MS shall transmit successively
 - 1.1) a CHANNEL REQUEST with establishment cause set to "other services requested by the mobile user",
 - 1.2) a CM SERVICE REQUEST with CM service type indicating "supplementary service activation",
 - 1.3) and then the REGISTER message containing a facility IE that includes an invoke of the RegisterPassword operation with parameter values according to the user's request (MMI action).
- 2) When the mobile subscriber wants to register a new password, the old password, the new password and the repeat of the new password shall be entered into the MS. Then the MS sends to the network an invoke component of the operation "register password".
- 3) The MS shall be able to send a password by sending a FACILITY message in accordance to the user request (MMI actions).
- 4) Upon receipt of the result of the procedure, contained in RELEASE COMPLETE or FACILITY message, the MS shall provide the appropriate user indication (which is to be described by the manufacturer).

References

- 1.1) GSM 04.08 sections 3.3.1.2 and 9.1.9.
- 1.2) GSM 04.08 sections 4.5.1.1, 9.2.9 and 10.5.33.
- 1.3) GSM 04.88, GSM 04.80 sections 2.3 and 3.6.
- 2) GSM 04.10 section 4.2.
- 3) GSM 04.80.
- 4) GSM 02.30.

31.8.1.1.2 Test purpose

- 1) To check that the MS correctly requests a supplementary service transaction for registration of a password for all barring services in CHANNEL REQUEST message.
- 2) To check that the MS correctly requests a supplementary service transaction for registration of a password for all barring services in the subsequent CM SERVICE REQUEST.
- 3) To check that the MS sends a REGISTER message containing the invoke of the RegisterPassword operation with the expected parameter values for registration of a password for all barring services.

- 4) To check that when the mobile subscriber wants to register a new password, the old password, the new password and the repeat of the new password shall be entered into the MS before the MS sends to the network a CHANNEL REQUEST.
- 5) To check that the MS is able to send a password by sending a FACILITY message in accordance to the user request (MMI actions).
- 6) To check that upon receipt of the result of the procedure, contained in RELEASE COMPLETE or FACILITY message, the MS provides the appropriate user indication (as described by the manufacturer).

These checks are done for:

all barring services, the result of the operation being sent in a RELEASE COMPLETE message.

31.8.1.1.3 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS is "idle updated".

Related PICS/PIXIT statement(s)

Description of the user's commands and of display of the answers from the network for call barring.

Foreseen final state of the MS

The MS is "idle updated".

Test procedure

By means of appropriate MMI functions (using either GSM 02.30 or manufacturer defined MMI), the user requests registration of a new password for all barring services by entering the old password, new password and a repeat of the old password.

Upon receipt of the operation (in a REGISTER message), the system simulator answers with the FACILITY message with the Facility information element containing an invoke of the GetPassword operation requiring the old password.

Upon receipt of the FACILITY message, the system simulator answers with the FACILITY message with the Facility information element containing an invoke of the GetPassword operation requiring a new password.

Upon receipt of the FACILITY message, the system simulator answers with the FACILITY message with the Facility information element containing an invoke of the GetPassword operation requiring again the new password.

Upon receipt of the FACILITY message, the system simulator answers with the RELEASE COMPLETE message with the Facility information element containing the return result of the RegisterPassword operation.

Maximum duration of test

3 minutes.

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is made to initiate a registration of a password for all call barring services. The old password, the new password and a repeat of the new password are entered. with establishment cause "Other procedures which can be completed with an SDCCH" cause: "supplementary service activation"
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	CM SERVICE REQUEST	
5	SS -> MS	CM SERVICE ACCEPT	
6	MS -> SS	REGISTER	
7	SS -> MS	FACILITY	Invoke = GetPassword (password)
8	MS -> SS	FACILITY	GetPassword operation ReturnResult
9	SS -> MS	FACILITY	Invoke = GetPassword (new password)
10	MS -> SS	FACILITY	GetPassword operation ReturnResult
11	SS -> MS	FACILITY	Invoke = GetPassword (new password again)
12	MS -> SS	FACILITY	GetPassword operation ReturnResult
13	SS -> MS	RELEASE COMPLETE	RegisterPassword operation ReturnResult
14	SS -> MS	CHANNEL RELEASE	

Specific message content

step 6 -

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = RegisterPassword
Supplementary service code = B

steps 7, 9, and 11 -

- protocol discriminator: non call related SS message
- message type: FACILITY
- facility

invoke = GetPassword
Guidance info: Password (step 7), new password (step 9), new password again (step 11)

The linked ID must be the same as the invoke ID in the invoke of the RegisterPassword operation.

31.8.1.2 Registration rejected**31.8.1.2.1 Rejection after invoke of the RegisterPassword operation****31.8.1.2.1.1 Conformance requirements**

- 1) A transaction of any kind being already established, for registration of a password for all call restriction services, the MS shall establish a parallel MM transaction, sending a CM SERVICE REQUEST with CM service type indicating "supplementary service activation",
- 2) Then the MS shall send a REGISTER message related to the present SS transaction containing a facility IE that includes an invoke of the RegisterPassword operation with parameter values according to the user's request (MMI action).
- 3) Upon receipt of the RELEASE COMPLETE message related to the present SS transaction, the SS transaction shall be released but the first transaction shall remain unaffected.

- 4) Upon receipt of the RELEASE COMPLETE message, the MS shall provide the appropriate user indication (which is to be described by the Manufacturer).

References

- 1) GSM 04.08 sections 3.3.1.2 and 9.1.9.
- 2) GSM 04.08 sections 4.5.1.1, 9.2.9 and 10.5.33.
- 3) GSM 04.88, GSM 04.80 sections 2.3 and 3.6.
- 4) GSM 02.30 section 4.5.

31.8.1.2.1.2 Test purpose

- 1) To check that, when a call transaction is already established, the MS correctly requests the establishment of a parallel MM transaction for supplementary service transaction of registration of a password for all call restriction services, sending a CM SERVICE REQUEST.
- 2) To check that the MS sends a REGISTER message containing the invoke of the RegisterPassword operation with the expected parameter values for registration of a password for all call restriction services.
- 3) To check that upon receipt of the RELEASE COMPLETE message related to the present SS transaction, the first transaction remains unaffected.
- 4) To check that upon receipt of the RELEASE COMPLETE message, the MS provides the appropriate user indication (as described by the Manufacturer).

Those checks are performed with a call transaction already established for:

all call restriction services, the RELEASE COMPLETE message being sent at the beginning of the procedure with a facility IE containing a return_error(error) where error is "SS subscription violation".

31.8.1.2.1.3 Method of test

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:
The MS is in CC state U10.

Related PICS/PIXIT statement(s)

Description of the user's commands and of display of the answers from the network for call barring.

Foreseen final state of the MS

The MS is in CC state U10.

Test procedure

By means of appropriate MMI functions (using either GSM 02.30 or manufacturer defined MMI), the user requests registration of a new password for all call restriction services by entering the old password, the new password and a repeat of the new password.

Upon receipt of the operation (in a REGISTER message), the system simulator answers with the RELEASE COMPLETE (PD and TI of the SS transaction) message with the Facility information element containing a Return_error(error: SS subscription violation) of the RegisterPassword operation.

Upon receipt of the FACILITY message, the system simulator sends STATUS ENQUIRY, the MS responds with STATUS message indicating CC state U10.

Maximum duration of test

2 min.

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is made to initiate a registration of a new password for all call restriction services. The old password, the new password and a repeat of the new password are entered. cause: "supplementary service activation"
2	MS -> SS	CM SERVICE REQUEST	
3	SS -> MS	CM SERVICE ACCEPT	
4	MS -> SS	REGISTER	
5	SS -> MS	RELEASE COMPLETE	RegisterPassword operation Return_error provide correct MMI user indication
6	MS		
7	SS -> MS	STATUS ENQUIRY	
8	MS -> SS	STATUS	CC staTE U10

Specific message content

step 4 -

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = RegisterPassword

Supplementary service code = all call restrictions

step 5 -

- protocol discriminator: non call related SS message
- transaction identifier: same TI as previous REGISTER message
- message type: RELEASE COMPLETE
- facility:
 - return error code: SS subscription violation

For the return error the invoke ID must be the same as in the invoke of the RegisterPassword operation.

31.8.1.2.2 Rejection after password check with negative result**31.8.1.2.2.1 Conformance requirements**

- 1) A transaction of any kind being already established, for registration of a password for all call restriction services, the MS shall establish a parallel MM transaction, sending a CM SERVICE REQUEST with CM service type indicating "supplementary service activation",
- 2) Then the MS shall send a REGISTER message related to the present SS transaction containing a facility IE that includes an invoke of the RegisterPassword operation with parameter values according to the user's request (MMI action).
- 3) Upon receipt of the RELEASE COMPLETE message related to the present SS transaction, the SS transaction shall be released but the first transaction shall remain unaffected.
- 4) Upon receipt of the RELEASE COMPLETE message, the MS shall provide the appropriate user indication (which is to be described by the Manufacturer).

References

- 1) GSM 04.08 sections 3.3.1.2 and 9.1.9.
- 2) GSM 04.08 sections 4.5.1.1, 9.2.9 and 10.5.33.
- 3) GSM 04.88, GSM 04.80 sections 2.3 and 3.6, GSM 04.10 section 4.2.2, GSM 03.11 section 3.
- 4) GSM 02.30 section 4.5.

31.8.1.2.2.2 Test purpose

- 1) To check that, when a call transaction is already established, the MS correctly requests the establishment of a parallel MM transaction for supplementary service transaction of registration of a password for all call restriction services, sending a CM SERVICE REQUEST.
- 2) To check that the MS sends a REGISTER message containing the invoke of the RegisterPassword operation with the expected parameter values for registration of a password for all call restriction services.
- 3) To check that upon receipt of the RELEASE COMPLETE message related to the present SS transaction, the first transaction remains unaffected.
- 4) To check that upon receipt of the RELEASE COMPLETE message, the MS provides the appropriate user indication (as described by the Manufacturer).

Those checks are performed with a call transaction already established for:

all call restriction services, the RELEASE COMPLETE message being sent at the end of the procedure with a facility IE containing a return_error(error) where error is "NegativePasswordCheck".

31.8.1.2.2.3 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.
WPA > 3

Mobile Station:

The MS is in CC state U10.

Related PICS/PIXIT statements

Description of the user's commands and of display of the answers from the network for call barring.

Foreseen final state of the MS

The MS is in CC state U10.

Test procedure

By means of appropriate MMI functions (using either GSM 02.30 or manufacturer defined MMI), the user requests registration of a new password for all call restriction services. By means of appropriate MMI functions the user enters the old and new passwords.

Upon receipt of the REGISTER message, the system simulator answers with the FACILITY message with the Facility information element containing an invoke of the GetPassword operation requiring the old password.

Upon receipt of the FACILITY message, the system simulator answers with the RELEASE COMPLETE message (PD and TI of the SS transaction) with the Facility information element containing a Return_error(error: NegativePasswordCheck) of the RegisterPassword operation.

The system simulator sends STATUS ENQUIRY, the MS responds with STATUS message indicating CC state U10.

Maximum duration of test

5 min.

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is made to initiate a registration of a new password for all call restriction services. The old and new passwords are entered. cause: "supplementary service activation"
2	MS -> SS	CM SERVICE REQUEST	
3	SS -> MS	CM SERVICE ACCEPT	
4	MS -> SS	REGISTER	
5	SS -> MS	FACILITY	Invoke = GetPassword (password)
6	SS -> MS	RELEASE COMPLETE	Register Password operation ReturnError
7	MS		provide correct MMI user indication
8	SS -> MS	STATUS ENQUIRY	
9	MS -> SS	STATUS	CC staTE U10

Specific message content

step 4 -

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = RegisterPassword
Supplementary service code = B

step 6 -

- protocol discriminator: non call related SS message
- transaction identifier: same TI as previous REGISTER message
- message type: RELEASE COMPLETE
- facility:
error code: NegativePasswordCheck

For the reject the invoke ID must be the same as in the invoke of the Registerpassword operation.

step 5 -

- protocol discriminator: non call related SS message
- transaction identifier: in FACILITY same as previous REGISTER message
- message type: FACILITY
- facility

invoke = GetPassword
Guidance info: Password (step 1)

31.8.1.2.3 Rejection after new password mismatch

31.8.1.2.3.1 Conformance requirements

- 1) A transaction of any kind being already established, for registration of a password for all call restriction services, the MS shall establish a parallel MM transaction, sending a CM SERVICE REQUEST with CM service type indicating "supplementary service activation",

- 2) Then the MS shall send a REGISTER message related to the present SS transaction containing a facility IE that includes an invoke of the RegisterPassword operation with parameter values according to the user's request (MMI action).
- 3) Upon receipt of the RELEASE COMPLETE message related to the present SS transaction, the SS transaction shall be released but the first transaction shall remain unaffected.
- 4) Upon receipt of the RELEASE COMPLETE message, the MS shall provide the appropriate user indication (which is to be described by the Manufacturer).

References

- 1) GSM 04.08 sections 3.3.1.2 and 9.1.9.
- 2) GSM 04.08 sections 4.5.1.1, 9.2.9 and 10.5.33.
- 3) GSM 04.88, GSM 04.80 sections 2.3 and 3.6.
- 4) GSM 02.30 section 4.5.
- 5) GSM 04.10 section 4.2.

31.8.1.2.3.2 Test purpose

- 1) To check that, when a call transaction is already established, the MS correctly requests the establishment of a parallel MM transaction for supplementary service transaction of registration of a password for all call restriction services, sending a CM SERVICE REQUEST.
- 2) To check that the MS sends a REGISTER message containing the invoke of the RegisterPassword operation with the expected parameter values for registration of a password for all call restriction services.
- 3) To check that upon receipt of the RELEASE COMPLETE message related to the present SS transaction, the first transaction remains unaffected.
- 4) To check that upon receipt of the RELEASE COMPLETE message, the MS provides the appropriate user indication (as described by the Manufacturer).

Those checks are performed with a call transaction already established for:

all call restriction services, the RELEASE COMPLETE message being sent at the end of the procedure with a facility IE containing a return_error(error) where error is "PasswordRegistrationFailure" with diagnostic "new password mismatch".

31.8.1.2.3.3 Method of test

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:
The MS is in CC state U10.

Related PICS/PIXIT statements

Description of the user's commands and of display of the answers from the network for call barring.

Foreseen final state of the MS

The MS is in CC state U10.

Test procedure

By means of appropriate MMI functions (using either GSM 02.30 or manufacturer defined MMI), the user requests registration of a new password for all call restriction services by entering the old password, the new password and a repeat of the new password.

Upon receipt of the REGISTER message, the system simulator answers with the FACILITY message with the Facility information element containing an invoke of the GetPassword operation requiring the old password.

Upon receipt of the FACILITY message, the system simulator answers with the FACILITY message with the Facility information element containing an invoke of the GetPassword operation requiring the new password.

Upon receipt of the FACILITY message, the system simulator answers with the FACILITY message with the Facility information element containing an invoke of the GetPassword operation requiring again the new password.

Upon receipt of the FACILITY message, the system simulator answers with the RELEASE COMPLETE message (PD and TI of the SS transaction) with the Facility information element containing a Return_error(error: PasswordRegistrationFailure, parameter: NewPasswordMismatch) of the RegisterPassword operation.

The system simulator sends STATUS ENQUIRY, the MS responds with STATUS message indicating CC state U10.

Maximum duration of test

3 min.

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is made to initiate a registration of a new password for all call restriction services. The old password, new password and a repeat of the new password are entered. cause: "supplementary service activation"
2	MS -> SS	CM SERVICE REQUEST	
3	SS -> MS	CM SERVICE ACCEPT	
4	MS -> SS	REGISTER	
5	SS -> MS	FACILITY	Invoke = GetPassword (password)
6	MS -> SS	FACILITY	GetPassword operation ReturnResult
7	SS -> MS	FACILITY	Invoke = GetPassword (new password)
8	MS -> SS	FACILITY	GetPassword operation ReturnResult
9	SS -> MS	FACILITY	Invoke = GetPassword (new password again)
10	MS -> SS	FACILITY	GetPassword operation ReturnResult
11	SS -> MS	RELEASE COMPLETE	Register Password operation ReturnError
12	MS		provide correct MMI user indication
13	SS -> MS	STATUS ENQUIRY	
14	MS -> SS	STATUS	CC staTE U10

Specific message content

step 4 -

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = RegisterPassword
Supplementary service code = B

step 11 -

- protocol discriminator: non call related SS message
- transaction identifier: same TI as previous REGISTER message
- message type: RELEASE COMPLETE
- facility:
 - error code: PasswordRegistrationFailure
 - parameter: NewPasswordMismatch

For the reject the invoke ID must be the same as in the invoke of the Registerpassword operation.

steps 5, 7, and 8 -

- protocol discriminator: non call related SS message
 - transaction identifier: in FACILITY same as previous REGISTER message
 - message type: FACILITY
 - facility
- invoke = GetPassword
 Supplementary service code = B
 Guidance info: Password (step 5), new password (step 7), new password again (step 8)

31.8.2 Erasure

Not applicable.

31.8.3 Activation

31.8.3.1 Activation accepted

31.8.3.1.1 Conformance requirements

- 1) For activation of any specific call restriction service with any parameters, the MS shall transmit successively
 - 1.1) a CHANNEL REQUEST with establishment cause set to "other services requested by the mobile user",
 - 1.2) a CM SERVICE REQUEST with CM service type indicating "supplementary service activation",
 - 1.3) and then the REGISTER message containing a facility IE that includes an invoke of the ActivateSS operation with parameter values according to the user's request (MMI action).
- 2) Upon receipt of FACILITY message requiring the password, the MS shall provide the appropriate user indication (which is to be described by the manufacturer).
- 3) The MS shall be able to send a password by sending a FACILITY message in accordance to the user request (MMI actions).
- 4) Upon receipt of the RELEASE COMPLETE message, the MS shall provide the appropriate user indication (which is to be described by the manufacturer).

References

- 1) GSM 04.08 sections 3.3.1.2 and 9.1.9.
- 2) GSM 04.08 sections 4.5.1.1, 9.2.9 and 10.5.33.
- 3) GSM 04.88, GSM 04.80 sections 2.3 and 3.6.
- 4) GSM 02.30 section 4.5.

31.8.3.1.2 Test purpose

- 1) To check that the MS correctly requests a supplementary service transaction for activation of a specific call restriction service in CHANNEL REQUEST message.

- 2) To check that the MS correctly requests a supplementary service transaction for activation of call restriction service in the subsequent CM SERVICE REQUEST.
- 3) To check that the MS sends a REGISTER message containing the invoke of the ActivateSS operation with the expected parameter values for activation of a specific call restriction service.
- 4) To check that upon receipt of FACILITY message requiring the password, the MS provides the appropriate user indication (as described by the manufacturer).
- 5) To check that the MS is able to send a password by sending a FACILITY message in accordance to the user request (MMI actions).
- 6) To check that upon receipt of the RELEASE COMPLETE message, the MS provides the appropriate user indication (which is to be described by the manufacturer).

These checks are done for:

- a) BAOC, for basic service group "all synchronous services".
- b) BICRoam, for all basic service groups.

31.8.3.1.3 Method of test

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:
The MS is "idle updated".

Related PICS/PIXIT statements

Description of the user's commands and of display of the answers from the network for call barring.

Foreseen final state of the MS

The MS is "idle updated".

Test procedure

By means of appropriate MMI functions (using either GSM 02.30 or manufacturer defined MMI), the user requests activation of BAOC, for basic service group "all synchronous services".

Upon receipt of the operation (in a REGISTER message), the system simulator answers with the FACILITY message with the Facility information element containing an invoke of the GetPassword operation requiring the current password.

Then, by means of appropriate MMI functions, the user gives a password.

Upon receipt of the FACILITY message, the system simulator answers with a RELEASE COMPLETE message with the Facility information element containing the Return_result of the ActivateSS operation.

The SS transaction and the dedicated channel are released.

Then again, by means of appropriate MMI functions, the user requests activation of BICRoam, for all basic service groups.

Upon receipt of the operation (in a REGISTER message), the system simulator answers with the FACILITY message with the Facility information element containing an invoke of the GetPassword operation requiring the current password.

Then, by means of appropriate MMI functions, the user gives a password.

Upon receipt of the FACILITY message, the system simulator answers with a RELEASE COMPLETE message with the Facility information element containing the Return_result of the ActivateSS operation.

The dedicated channel is released.

Maximum duration of test

3 min.

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is made to initiate a activation of BAOC(all synchronous services) with establishment cause "Other procedures which can be completed with an SDCCH" cause: "supplementary service activation"
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	CM SERVICE REQUEST	
5	SS -> MS	CM SERVICE ACCEPT	
6	MS -> SS	REGISTER	
7	SS -> MS	FACILITY	GetPassword provide correct MMI user indication A password is entered. Getpassword operation Return Result ActivateSS operation Return_result provide user MMI indication
8	MS		
9	MS -> SS	FACILITY	
10	SS -> MS	RELEASE COMPLETE	
11	MS		
12	SS -> MS	CHANNEL RELEASE	
13	MS		The MS is made to initiate an activation of BICRoam(all basic service groups), with establishment cause "Other procedures which can be completed with an SDCCH" cause: "supplementary service activation"
14	MS -> SS	CHANNEL REQUEST	
15	SS -> MS	IMMEDIATE ASSIGNMENT	
16	MS -> SS	CM SERVICE REQUEST	
17	SS -> MS	CM SERVICE ACCEPT	
18	MS -> SS	REGISTER	
19	SS -> MS	FACILITY	GetPassword provide correct MMI user indication A password is entered. Getpassword operation Return Result ActivateSS operation Return result provide correct MMI user indication
20	MS		
21	MS -> SS	FACILITY	
22	SS -> MS	RELEASE COMPLETE	
23	MS		
24	SS -> MS	CHANNEL RELEASE	

Specific message contents

step 6 - BAOC

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = Activation

Supplementary service code = BAOC

Basic service code: Bearer Service (all synchronous services), no teleservice present.

step 18 -

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = Activation
 Supplementary service code = BICRoam
 Basic service code: no bearer service present, no teleservice present.

steps 7, 19 -

- protocol discriminator: non call related SS message
- transaction identifier: in FACILITY same as previous REGISTER message
- message type: FACILITY
- facility

invoke = GetPassword
 Guidance info: Password

31.8.3.2 Activation rejected

31.8.3.2.1 Rejection after invoke of ActivateSS operation

31.8.3.2.1.1 Conformance requirements

- 1) A transaction of any kind being already established, for activation of one specific barring services, the MS shall establish a parallel MM transaction, sending a CM SERVICE REQUEST with CM service type indicating "supplementary service activation",
- 2) Then the MS shall send a REGISTER message related to the present SS transaction containing a facility IE that includes an invoke of the ActivateSS operation with parameter values according to the user's request (MMI action).
- 3) Upon receipt of the RELEASE COMPLETE message related to the present SS transaction, the SS transaction shall be released but the first transaction shall remain unaffected.
- 4) Upon receipt of the RELEASE COMPLETE message, the MS shall provide the appropriate user indication (which is to be described by the Manufacturer).

References

- 1) GSM 04.08 sections 3.3.1.2 and 9.1.9.
- 2) GSM 04.08 sections 4.5.1.1, 9.2.9 and 10.5.33.
- 3) GSM 04.88, GSM 04.80 sections 2.3 and 3.6.
- 4) GSM 02.30 section 4.5.

31.8.3.2.1.2 Test purpose

- 1) To check that, when a call transaction is already established, the MS correctly requests the establishment of a parallel MM transaction for supplementary service transaction of specific call barring service, sending a CM SERVICE REQUEST.
- 2) To check that the MS sends a REGISTER message containing the invoke of the ActivateSS operation with the expected parameter values for specific call barring service.
- 3) To check that upon receipt of the RELEASE COMPLETE message related to the present SS transaction, the first transaction remains unaffected.
- 4) To check that upon receipt of the RELEASE COMPLETE message, the MS provides the appropriate user indication (as described by the Manufacturer).

Those checks are performed with a call transaction already established for:

BOIC, the RELEASE COMPLETE message being sent at the beginning of the procedure with a facility IE containing a return_error(error) where error is "SS subscription violation".

31.8.3.2.1.3 Method of test**Initial conditions**

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS is in CC state U10.

Related PICS/PIXIT statements

Description of the user's commands and of display of the answers from the network for call barring.

Foreseen final state of the MS

The MS is in CC state U10.

Test procedure

By means of appropriate MMI functions (using either GSM 02.30 or manufacturer defined MMI), the user requests activation of BOIC.

Upon receipt of the operation (in a REGISTER message), the system simulator answers with the RELEASE COMPLETE (PD and TI of the SS transaction) message with the Facility information element containing a Return_error(error: SS subscription violation) of the ActivateSS operation.

The system simulator then sends STATUS ENQUIRY, and the MS responds with STATUS message indicating CC state U10.

Maximum duration of test

2 min.

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is made to initiate a registration of a new password for BOIC cause: "supplementary service activation"
2	MS -> SS	CM SERVICE REQUEST	
3	SS -> MS	CM SERVICE ACCEPT	
4	MS -> SS	REGISTER	
5	SS -> MS	RELEASE COMPLETE	RegisterPassword operation Return_error provide correct MMI user indication CC state U10
6	MS		
7	SS -> MS	STATUS ENQUIRY	
8	MS -> SS	STATUS	

Specific message content

step 4 -

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = ActivateSS

Supplementary service code = BOIC

step 5 -

- protocol discriminator: non call related SS message
- transaction identifier: same TI as previous REGISTER message
- message type: RELEASE COMPLETE
- facility:
 - return error code: SS subscription violation

For the return error the invoke ID must be the same as in the invoke of the ActivateSS operation.

31.8.3.2.2 Rejection after use of password procedure

31.8.3.2.2.1 Conformance requirements

- 1) A transaction of any kind being already established, for activation of any specific call restriction services, the MS shall establish a parallel MM transaction, sending a CM SERVICE REQUEST with CM service type indicating "supplementary service activation",
- 2) Then the MS shall send a REGISTER message related to the present SS transaction containing a facility IE that includes an invoke of the ActivateSS operation with parameter values according to the user's request (MMI action).
- 3) Upon receipt of the RELEASE COMPLETE message related to the present SS transaction, the SS transaction shall be released but the first transaction shall remain unaffected.
- 4) Upon receipt of the RELEASE COMPLETE message, the MS shall provide the appropriate user indication (which is to be described by the Manufacturer).

References

- 1) GSM 04.08 sections 3.3.1.2 and 9.1.9.
- 2) GSM 04.08 sections 4.5.1.1, 9.2.9 and 10.5.33.
- 3) GSM 04.88, GSM 04.80 sections 2.3 and 3.6.
- 4) GSM 02.30 section 4.5.

31.8.3.2.2.2 Test purpose

- 1) To check that, when a call transaction is already established, the MS correctly requests the establishment of a parallel MM transaction for supplementary service transaction of activation of one specific call restriction service, sending a CM SERVICE REQUEST.
- 2) To check that the MS sends a REGISTER message containing the invoke of the ActivateSS operation with the expected parameter values for activation of one specific call restriction service.
- 3) To check that upon receipt of the RELEASE COMPLETE message related to the present SS transaction, the first transaction remains unaffected.
- 4) To check that upon receipt of the RELEASE COMPLETE message, the MS provides the appropriate user indication (as described by the Manufacturer).

Those checks are performed with a call transaction already established for:

BAIC, the RELEASE COMPLETE message being sent at the end of the procedure with a facility IE containing a return_error(error) where error is "NegativePasswordCheck".

31.8.3.2.2.3 Method of test

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:

The MS is in CC state U10.

Related PICS/PIXIT statements

Description of the user's commands and of display of the answers from the network for call barring.

Foreseen final state of the MS

The MS is in CC state U10.

Test procedure

By means of appropriate MMI functions (using either GSM 02.30 or manufacturer defined MMI), the user requests registration of a new password for all call restriction services.

Upon receipt of the REGISTER message, the system simulator answers with the FACILITY message with the Facility information element containing an invoke of the GetPassword operation requiring the current password.

Then, by means of appropriate MMI functions, the user gives a password.

Upon receipt of the FACILITY message, the system simulator sends RELEASE COMPLETE message (PD and TI of the SS transaction) with the Facility information element containing a Return_error(error: NegativePasswordCheck) of the GetPassword operation.

The system simulator sends STATUS ENQUIRY, the MS responds with STATUS message indicating CC state U10.

Maximum duration of test

3 min.

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is made to initiate a registration of BAIC cause: "supplementary service activation"
2	MS -> SS	CM SERVICE REQUEST	
3	SS -> MS	CM SERVICE ACCEPT	
4	MS -> SS	REGISTER	
5	SS -> MS	FACILITY	Invoke = GetPassword (password) provide correct MMI user indication A password is entered. GetPassword operation Return Result Register Password operation ReturnError provide correct MMI user indication
6	MS		
7	MS -> SS	FACILITY	
8	SS -> MS	RELEASE COMPLETE	
9	MS		
10	SS -> MS	STATUS ENQUIRY	CC state U10
11	MS -> SS	STATUS	

Specific message content

step 4 - BAIC

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = Activation
 Supplementary service code = BAIC

step 5 - All Barring services

- protocol discriminator: non call related SS message
- transaction identifier: in FACILITY same as previous REGISTER message
- message type: FACILITY
- facility

invoke = GetPassword

Guidance info: Password (step 5)

step 8 -

- protocol discriminator: non call related SS message
- transaction identifier: same TI as previous REGISTER message
- message type: RELEASE COMPLETE
- facility:
 - reject code: NegativePasswordCheck

For the reject the invoke ID must be the same as in the invoke of the GetPassword operation.

31.8.4 Deactivation**31.8.4.1 Deactivation accepted****31.8.4.1.1 Conformance requirements**

- 1) For deactivation of any group of call restriction services with any parameters, the MS shall transmit successively
 - 1.1) a CHANNEL REQUEST with establishment cause set to "other services requested by the mobile user",
 - 1.2) a CM SERVICE REQUEST with CM service type indicating "supplementary service activation",
 - 1.3) and then the REGISTER message containing a facility IE that includes an invoke of the DeactivateSS operation with parameter values according to the user's request (MMI action).
- 2) Upon receipt of FACILITY message requiring the password, the MS shall provide the appropriate user indication (which is to be described by the manufacturer).
- 3) The MS shall be able to send a password by sending a FACILITY message in accordance to the user request (MMI actions).
- 3) Upon receipt of the RELEASE COMPLETE message, the MS shall provide the appropriate user indication (which is to be described by the manufacturer).

References

- 1) GSM 04.08 sections 3.3.1.2 and 9.1.9.
- 2) GSM 04.08 sections 4.5.1.1, 9.2.9 and 10.5.33.
- 3) GSM 04.88, GSM 04.80 sections 2.3 and 3.6.
- 4) GSM 02.30 section 4.5.

31.8.4.1.2 Test purpose

- 1) To check that the MS correctly requests a supplementary service transaction for deactivation of a group of call barring services in CHANNEL REQUEST message.
- 2) To check that the MS correctly requests a supplementary service transaction for deactivation of a group of call barring services in the subsequent CM SERVICE REQUEST.
- 3) To check that the MS sends a REGISTER message containing the invoke of the DeactivateSS operation with the expected parameter values for deactivation of a group of call restriction services.

- 4) To check that upon receipt of FACILITY message requiring the password, the MS provides the appropriate user indication (as described by the manufacturer).
- 5) To check that the MS is able to send a password by sending a FACILITY message in accordance to the user request (MMI actions).
- 6) To check that upon receipt of the RELEASE COMPLETE message, the MS provides the appropriate user indication (which is to be described by the manufacturer).

These checks are done for:

- a) all restrictions, for basic service group "speech".
- b) barring of outgoing calls, for all facsimile.

31.8.4.1.3 Method of test

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:
The MS is "idle updated".

Related PICS/PIXIT statements

Description of the user's commands and of display of the answers from the network for call barring.

Foreseen final state of the MS

The MS is "idle updated".

Test procedure

By means of appropriate MMI functions (using either GSM 02.30 or manufacturer defined MMI), the user requests deactivation of all restrictions, for speech.

Upon receipt of the operation (in a REGISTER message), the system simulator answers with the FACILITY message with the Facility information element containing an invoke of the GetPassword operation requiring the current password.

Then, by means of appropriate MMI functions, the user gives a password.

Upon receipt of the FACILITY message, the system simulator answers with the FACILITY message with the Facility information element containing the Return_result of the DeactivateSS operation.

The SS transaction and the dedicated channel are released.

Then again, by means of appropriate MMI functions, the user requests activation of barring of outgoing calls, for all facsimile.

Upon receipt of the operation (in a REGISTER message), the system simulator answers with the FACILITY message with the Facility information element containing an invoke of the GetPassword operation requiring the current password.

Then, by means of appropriate MMI functions, the user gives a password.

Upon receipt of the FACILITY message, the system simulator answers with a RELEASE COMPLETE message with the Facility information element containing the Return_result of the DeactivateSS operation.

The dedicated channel is released.

Maximum duration of test

5 min.

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is made to initiate a deactivation of all call restrictions(speech) with establishment cause "Other procedures which can be completed with an SDCCH" cause: "supplementary service activation"
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	CM SERVICE REQUEST	
5	SS -> MS	CM SERVICE ACCEPT	
6	MS -> SS	REGISTER	
7	SS -> MS	FACILITY	GetPassword provide correct MMI user indication A password is entered. Getpassword operation Return Result DeactivateSS operation Return_result
8	MS		
9	MS -> SS	FACILITY	
10	SS -> MS	RELEASE COMPLETE	
11	SS -> MS	CHANNEL RELEASE	
12	MS		The MS is made to initiate a deactivation of barring of outgoing calls(all facsimile), with establishment cause "Other procedures which can be completed with an SDCCH" cause: "supplementary service activation"
13	MS -> SS	CHANNEL REQUEST	
14	SS -> MS	IMMEDIATE ASSIGNMENT	
15	MS -> SS	CM SERVICE REQUEST	
16	SS -> MS	CM SERVICE ACCEPT	
17	MS -> SS	REGISTER	
18	SS -> MS	FACILITY	GetPassword provide correct MMI user indication A password is entered. Getpassword operation Return Result DeactivateSS operation Return result provide correct MMI user indication
19	MS		
20	MS -> SS	FACILITY	
21	SS -> MS	RELEASE COMPLETE	
22	MS		
23	SS -> MS	CHANNEL RELEASE	

Specific message contents

step 6 - all call restrictions:

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = Deactivation

Supplementary service code = B

Basic service code: no Bearer Service present, teleservice: speech.

step 17 - barring of outgoing calls,

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = Deactivation

Basic service code: no bearer service present, teleservice: all facsimile.

steps 7, 18 -

- protocol discriminator: non call related SS message
- transaction identifier: in FACILITY same as previous REGISTER message
- message type: FACILITY
- facility

invoke = GetPassword
Guidance info: Password

31.8.4.2 Deactivation rejected

31.8.4.2.1 Rejection after invoke of DeactivateSS operation

31.8.4.2.1.1 Conformance requirements

- 1) A transaction of any kind being already established, for deactivation of a group of call restriction services, the MS shall establish a parallel MM transaction, sending a CM SERVICE REQUEST with CM service type indicating "supplementary service activation",
- 2) Then the MS shall send a REGISTER message related to the present SS transaction containing a facility IE that includes an invoke of the DeactivateSS operation with parameter values according to the user's request (MMI action).
- 3) Upon receipt of the RELEASE COMPLETE message related to the present SS transaction, the SS transaction shall be released but the first transaction shall remain unaffected.
- 4) Upon receipt of the RELEASE COMPLETE message, the MS shall provide the appropriate user indication (which is to be described by the Manufacturer).

References

- 1) GSM 04.08 sections 3.3.1.2 and 9.1.9.
- 2) GSM 04.08 sections 4.5.1.1, 9.2.9 and 10.5.33.
- 3) GSM 04.88, GSM 04.80 sections 2.3 and 3.6.
- 4) GSM 02.30 section 4.5.

31.8.4.2.1.2 Test purpose

- 1) To check that, when a call transaction is already established, the MS correctly requests the establishment of a parallel MM transaction for supplementary service transaction of a group of call barring services, sending a CM SERVICE REQUEST.
- 2) To check that the MS sends a REGISTER message containing the invoke of the DeactivateSS operation with the expected parameter values for a group of call barring services.
- 3) To check that upon receipt of the RELEASE COMPLETE message related to the present SS transaction, the first transaction remains unaffected.
- 4) To check that upon receipt of the RELEASE COMPLETE message, the MS provides the appropriate user indication (as described by the Manufacturer).

These checks are performed with a call transaction already established for:

BOIC, the RELEASE COMPLETE message being sent at the beginning of the procedure with a facility IE containing a return_error(error) where error is "SS subscription violation".

31.8.4.2.1.3 Method of test

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:

The MS is in CC state U10.

Related PICS/PIXIT statements

Description of the user's commands and of display of the answers from the network for call barring.

Foreseen final state of the MS

The MS is in CC state U10.

Test procedure

By means of appropriate MMI functions (using either GSM 02.30 or manufacturer defined MMI), the user requests deactivation of incoming calls.

Upon receipt of the operation (in a REGISTER message), the system simulator answers with the RELEASE COMPLETE (PD and TI of the SS transaction) message with the Facility information element containing a Return_error(error: SS subscription violation) of the DeactivateSS operation.

The system simulator then sends STATUS ENQUIRY, and the MS responds with STATUS message indicating CC state U10.

Maximum duration of test

30 s.

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is made to initiate a deactivation for bi cause: "supplementary service activation"
2	MS -> SS	CM SERVICE REQUEST	
3	SS -> MS	CM SERVICE ACCEPT	
4	MS -> SS	REGISTER	
5	SS -> MS	RELEASE COMPLETE	DeactivateSS operation Return_error provide correct MMI user indication CC state U10
6	MS		
7	SS -> MS	STATUS ENQUIRY	
8	MS -> SS	STATUS	

Specific message content

step 4 -

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = DeactivateSS
Supplementary service code = bi

step 5 -

- protocol discriminator: non call related SS message
- transaction identifier: same TI as previous REGISTER message
- message type: RELEASE COMPLETE
- facility:
 - return error code: SS subscription violation

For the return error the invoke ID must be the same as in the invoke of the DeactivateSS operation.

31.8.4.2.2 Rejection after use of password procedure

31.8.4.2.2.1 Conformance requirements

- 1) A transaction of any kind being already established, for deactivation of a group of call restriction services, the MS shall establish a parallel MM transaction, sending a CM SERVICE REQUEST with CM service type indicating "supplementary service activation",
- 2) Then the MS shall send a REGISTER message related to the present SS transaction containing a facility IE that includes an invoke of the DeactivateSS operation with parameter values according to the user's request (MMI action).
- 3) Upon receipt of the RELEASE COMPLETE message related to the present SS transaction, the SS transaction shall be released but the first transaction shall remain unaffected.
- 4) Upon receipt of the RELEASE COMPLETE message, the MS shall provide the appropriate user indication (which is to be described by the Manufacturer).

References

- 1) GSM 04.08 sections 3.3.1.2 and 9.1.9.
- 2) GSM 04.08 sections 4.5.1.1, 9.2.9 and 10.5.33.
- 3) GSM 04.88, GSM 04.80 sections 2.3 and 3.6.
- 4) GSM 02.30 section 4.5.

31.8.4.2.2.2 Test purpose

- 1) To check that, when a call transaction is already established, the MS correctly requests the establishment of a parallel MM transaction for supplementary service transaction of deactivation of a group of call restriction services, sending a CM SERVICE REQUEST.
- 2) To check that the MS sends a REGISTER message containing the invoke of the DeactivateSS operation with the expected parameter values for deactivation of a group of call restriction service.
- 3) To check that upon receipt of the RELEASE COMPLETE message related to the present SS transaction, the first transaction remains unaffected.
- 4) To check that upon receipt of the RELEASE COMPLETE message, the MS provides the appropriate user indication (as described by the Manufacturer).

Those checks are performed with a call transaction already established for:

BOICExHC, the RELEASE COMPLETE message being sent at the end of the procedure with a facility IE containing a return_error(error) where error is "NegativePasswordCheck".

31.8.4.2.2.3 Method of test

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:
The MS is in CC state U10.

Related PICS/PIXIT statements

Description of the user's commands and of display of the answers from the network for call barring.

Foreseen final state of the MS

The MS is in CC state U10.

Test procedure

By means of appropriate MMI functions (using either GSM 02.30 or manufacturer defined MMI), the user requests deactivation of a group of call restriction services.

Upon receipt of the REGISTER message, the system simulator answers with the FACILITY message with the Facility information element containing an invoke of the DeactivateSS operation requiring the current password.

Then, by means of appropriate MMI functions, the user gives a password.

Upon receipt of the FACILITY message, the system simulator sends RELEASE COMPLETE message (PD and TI of the SS transaction) with the Facility information element containing a Return_error(error: NegativePasswordCheck) of the GetPassword operation.

The system simulator sends STATUS ENQUIRY, the MS responds with STATUS message indicating CC state U10.

Maximum duration of test

3 min.

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is made to initiate a deactivation of BoicExHC
2	MS -> SS	CM SERVICE REQUEST	cause: "supplementary service activation"
3	SS -> MS	CM SERVICE ACCEPT	
4	MS -> SS	REGISTER	
5	SS -> MS	FACILITY	Invoke = GetPassword (password)
6	MS		provide correct MMI user indication A password is entered.
7	SS -> MS	RELEASE COMPLETE	Register Password operation ReturnError
8	MS		provide correct MMI user indication
9	SS -> MS	STATUS ENQUIRY	
10	MS -> SS	STATUS	CC state U10

Specific message content

step 4 -

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = DeactivateSS

Supplementary service code = BOICExHC

step 7 -

- protocol discriminator: non call related SS message
- transaction identifier: same TI as previous REGISTER message
- message type: RELEASE COMPLETE
- facility:
 - reject code: NegativePasswordCheck

For the reject the invoke ID must be the same as in the invoke of the DeactivateSS operation.

step 5 -

- protocol discriminator: non call related SS message
- transaction identifier: in FACILITY same as previous REGISTER message
- message type:FACILITY
- facility

invoke = GetPassword

Guidance info: Password (step 5)

31.8.5 Invocation

Invocation is not applicable.

31.8.6 Interrogation

31.8.6.1 Interrogation accepted

31.8.6.1.1 Conformance requirements

- 1) For interrogation of any specific call restriction service with any parameters, the MS shall transmit successively:
 - 1.1) a CHANNEL REQUEST with establishment cause set to "other services requested by the mobile user",
 - 1.2) a CM SERVICE REQUEST with CM service type indicating "supplementary service activation",
 - 1.3) and then the REGISTER message containing a facility IE that includes an invoke of the InterrogateSS operation with parameter values according to the user's request (MMI action).
- 2) Upon receipt of FACILITY message requiring the password, the MS shall provide the appropriate user indication (which is to be described by the manufacturer).
- 3) The MS shall be able to send a password by sending a FACILITY message in accordance to the user request (MMI actions).
- 4) Upon receipt of the RELEASE COMPLETE message, the MS shall provide the appropriate user indication (which is to be described by the manufacturer).

References

- 1) GSM 04.08 sections 3.3.1.2 and 9.1.9.
- 2) GSM 04.08 sections 4.5.1.1, 9.2.9 and 10.5.33.
- 3) GSM 04.88, GSM 04.80 sections 2.3 and 3.6.
- 4) GSM 02.30 section 4.5.

31.8.6.1.2 Test purpose

- 1) To check that the MS correctly requests a supplementary service transaction for interrogation of a specific call barring service in CHANNEL REQUEST message.
- 2) To check that the MS correctly requests a supplementary service transaction for interrogation of a call barring service in the subsequent CM SERVICE REQUEST.
- 3) To check that the MS sends a REGISTER message containing the invoke of the InterrogateSS operation with the expected parameter values for interrogation of one call restriction service.
- 4) To check that upon receipt of FACILITY message requiring the password, the MS provides the appropriate user indication (as described by the manufacturer).
- 5) To check that the MS is able to send a password by sending a FACILITY message in accordance to the user request (MMI actions).

- 6) To check that upon receipt of the RELEASE COMPLETE message, the MS provides the appropriate user indication (which is to be described by the manufacturer).

These checks are done for:

- a) BAIC, the result of the operation being a Basic Service code.
- b) BOICExHC, the result of the operation being a SS-status.

31.8.6.1.3 Method of test

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:
The MS is "idle updated".

Related PICS/PIXIT statements

Description of the user's commands and of display of the answers from the network for call barring.

Foreseen final state of the MS

The MS is "idle updated".

Test procedure

By means of appropriate MMI functions (using either GSM 02.30 or manufacturer defined MMI), the user requests interrogation of BAIC.

Upon receipt of the operation (in a REGISTER message), the system simulator answers with the FACILITY message with the Facility information element containing an invoke of the GetPassword operation requiring the current password.

Then, by means of appropriate MMI functions, the user gives a password.

Upon receipt of the FACILITY message, the system simulator answers with a RELEASE COMPLETE message with the Facility information element containing the Return_result (basic service) of the InterrogateSS operation.

The SS transaction and the dedicated channel are released.

Then again, by means of appropriate MMI functions, the user requests activation of BOICExHC.

Upon receipt of the operation (in a REGISTER message), the system simulator answers with the FACILITY message with the Facility information element containing an invoke of the GetPassword operation requiring the current password.

Then, by means of appropriate MMI functions, the user gives a password.

Upon receipt of the FACILITY message, the system simulator answers with a RELEASE COMPLETE message with the Facility information element containing the Return_result(SS-status) of the InterrogateSS operation.

The dedicated channel is released.

Maximum duration of test

3 min.

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is made to initiate a interrogation of BAIC with establishment cause "Other procedures which can be completed with an SDCCH"
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	CM SERVICE REQUEST	
5	SS -> MS	CM SERVICE ACCEPT	
6	MS -> SS	REGISTER	
7	SS -> MS	FACILITY	GetPassword provide correct MMI user indication A password is entered. Getpassword operation Return Result InterrogateSS operation Return_result
8	MS		
9	MS -> SS	FACILITY	
10	SS -> MS	RELEASE COMPLETE	
11	SS -> MS	CHANNEL RELEASE	
12	MS		The MS is made to initiate a interrogation of call forwarding service for BOICExHC, with establishment cause "Other procedures which can be completed with an SDCCH"
13	MS -> SS	CHANNEL REQUEST	
14	SS -> MS	IMMEDIATE ASSIGNMENT	
15	MS -> SS	CM SERVICE REQUEST	
16	SS -> MS	CM SERVICE ACCEPT	
17	MS -> SS	REGISTER	
18	SS -> MS	FACILITY	GetPassword provide correct MMI user indication A password is entered. Getpassword operation Return Result InterrogateSS operation Return result provide correct MMI user indication
19	MS		
20	MS -> SS	FACILITY	
21	SS -> MS	RELEASE COMPLETE	
22	MS		
23	SS -> MS	CHANNEL RELEASE	

Specific message contents

step 6 - BOIC

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = Interrogation
Supplementary service code = BAIC

step 17 - BOICExHC

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = Interrogation
Supplementary service code = BOICExHC

steps 7, 18 -

- protocol discriminator: non call related SS message
- transaction identifier: in FACILITY same as previous REGISTER message
- message type: FACILITY
- facility

invoke = GetPassword
Guidance info: Password

31.8.6.2 Interrogation rejected

31.8.6.2.1 Conformance requirements

- 1) A transaction of any kind being already established, for interrogation of any specific call barring with any parameters, the MS shall establish a parallel MM transaction, sending a CM SERVICE REQUEST with CM service type indicating "supplementary service activation",
- 2) Then the MS shall send a REGISTER message related to the present SS transaction containing a facility IE that includes an invoke of the InterrogateSS operation with parameter values according to the user's request (MMI action).
- 3) Upon receipt of the RELEASE COMPLETE message related to the present SS transaction, the SS transaction shall be released but the first transaction shall remain unaffected.
- 4) Upon receipt of the RELEASE COMPLETE message, the MS shall provide the appropriate user indication (which is to be described by the Manufacturer).

References

- 1) GSM 04.08 sections 3.3.1.2 and 9.1.9.
- 2) GSM 04.08 sections 4.5.1.1, 9.2.9 and 10.5.33.
- 3) GSM 04.88, GSM 04.80 sections 2.3 and 3.6.
- 4) GSM 02.30 section 4.5.

31.8.6.2.2 Test purpose

- 1) To check that the MS correctly requests the establishment of a parallel MM transaction for supplementary service transaction of interrogation of a specific call barring service message, sending a CM SERVICE REQUEST.
- 2) To check that the MS sends a REGISTER message containing the invoke of the InterrogateSS operation with the expected parameter values for interrogation of call barring.
- 3) To check that upon receipt of the RELEASE COMPLETE message related to the present SS transaction, the first transaction remains unaffected.
- 4) To check that upon receipt of the RELEASE COMPLETE message, the MS provides the appropriate user indication (as described by the Manufacturer).

These checks are performed with a call transaction already established for:

- a) BICRoam, the RELEASE COMPLETE message being sent with a facility IE containing a return_error(error) where error is "SS not available".
- b) BOIC, the RELEASE COMPLETE message being sent with a facility IE containing a reject(invoked_problem) where invoked_problem is "resource limitation".

31.8.6.2.3 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS is in CC state U10.

Related PICS/PIXIT statements

Description of the user's commands and of display of the answers from the network for call barring.

Foreseen final state of the MS

The MS is in CC state U10.

Test procedure

By means of appropriate MMI functions (using either GSM 02.30 or manufacturer defined MMI), the user requests interrogation of BICRoam.

Upon receipt of the operation (in a REGISTER message), the system simulator answers with a RELEASE COMPLETE message with the Facility information element containing a Return_error(error: SS not available) of the InterrogateSS operation.

The system simulator sends STATUS ENQUIRY, the MS responds with STATUS message indicating CC state U10.

Then again, by means of appropriate MMI functions, the user requests interrogation of BOIC.

Upon receipt of the REGISTER message, the system simulator answers with the RELEASE COMPLETE message (same PD and TI that in the REGISTER message) with the Facility information element containing a reject(invoke_problem: resource limitation) of the InterrogateSS operation.

The system simulator sends STATUS ENQUIRY, the MS responds with STATUS message indicating CC state U10.

Maximum duration of test

3 min.

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is made to initiate a interrogation of call barring service for BICRoam cause: "supplementary service activation"
2	MS -> SS	CM SERVICE REQUEST	
3	SS -> MS	CM SERVICE ACCEPT	
4	MS -> SS	REGISTER	
5	SS -> MS	RELEASE COMPLETE	InterrogateSS operation Return_error CC state U10
6	SS -> MS	STATUS ENQUIRY	
7	MS -> SS	STATUS	
8	MS		The MS is made to initiate a interrogation of call barring service for BOIC cause: "supplementary service activation"
9	MS -> SS	CM SERVICE REQUEST	
10	SS -> MS	CM SERVICE ACCEPT	
11	MS -> SS	REGISTER	
12	SS -> MS	RELEASE COMPLETE	(SS) provide correct MMI user indication CC state U10
13	MS		
14	SS -> MS	STATUS ENQUIRY	
15	MS -> SS	STATUS	

Specific message content

step 4 - BICRoam

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = Interrogation

Supplementary service code = BICRoam

step 5 -

- protocol discriminator: non call related SS message
- transaction identifier: same TI as previous REGISTER message
- message type: RELEASE COMPLETE
- facility:
 - return error code: SS not available

For the return error the invoke ID must be the same as in the invoke of the InterrogateSS operation.

step 11 - BOIC

- protocol discriminator: non call related SS message
- message type: REGISTER
- facility

invoke = Interrogation
Supplementary service code = BOIC

step 12 -

- protocol discriminator: non call related SS message
- transaction identifier: same TI as previous REGISTER message
- message type: RELEASE COMPLETE
- facility:
 - reject code: resource limitation

For the reject the invoke ID must be the same as in the invoke of the InterrogateSS operation.

31.8.7 Normal operation

In case of barring of outgoing call the calling mobile receives information about the activation of supplementary services subscribed.

In case of barring of incoming call the calling mobile receives information about the activation of supplementary services subscribed by the other party (the mobile called).

31.8.7.1 Conformance requirements

Upon receipt of the RELEASE COMPLETE message the MS shall provide the appropriate user indication (which is to be described by the manufacturer).

References

31.8.7.2 Test purpose

To check that upon receipt of the RELEASE COMPLETE message the MS provides the appropriate user indication (as described by the manufacturer).

This is tested in the case of an MS making a call to a mobile with incoming calls barred.

31.8.7.3 Method of test

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station:
The MS is "idle updated".

Related PICS/PIXIT statements

Description of the user's commands and of display of the answers from the network for call barring.

Foreseen final state of the MS

The MS is "idle updated".

Test procedure

The MS is made to initiate a call.

Upon receipt of the SETUP message, the system simulator answers with the negative acknowledgement RELEASE COMPLETE (to simulate a case where call barring is activated).

Maximum duration of test

1 min.

Expected sequence

Step	Direction	Message	Comments
1	MS -> SS	CHANNEL REQUEST	provide correct MMI user indication
2	SS -> MS	IMMEDIATE ASSIGNMENT	
3	MS -> SS	CM SERVICE REQUEST	
4	SS -> MS	CM SERVICE ACCEPT	
5	MS -> SS	SETUP	
6	SS -> MS	RELEASE COMPLETE	
7	SS -> MS	CHANNEL RELEASE	

Specific message content

RELEASE COMPLETE

- protocol discriminator
- transaction identifier
- message type
- facility

invoke = notification

SS code = BI

SS status = activation indicator (indicating:
Provisioned, registered and active)

31.9 Handling of undefined (future) GSM supplementary services**31.9.1 Mobile station initiated Unstructured supplementary service data operation****31.9.1.1 ProcessUnstructuredSS-request/accepted****Conformance requirements**

- 1) The mobile station shall invoke an USSD request by sending a REGISTER message to the network containing a ProcessUnstructuredSS-Request invoke component. This message will contain the alphabet indicator set to "SMS default alphabet" and the language indicator set to "language unspecified". The ussd-string parameter shall contain the following digits and symbols depending on the operation initiated:

Activation *NN(N)# (no supplementary information included)
 *NN(N)*SI# (one field of supplementary infor. included)
 *NN(N)*SIA*SIB# (two fields of supplementary infor. included)

Deactivation	#NN(N)# #NN(N)*SI# #NN(N)*SIA*SIB#
Interrogation	*#NN(N)# *#NN(N)*SI# *#NN(N)*SIA*SIB#
Registration	**NN(N)# **NN(N)*SI# **NN(N)*SIA*SIB#
Erasure	##NN(N)# ##NN(N)*SI# ##NN(N)*SIA*SIB#
Operations not yet defined in GSM 02.30	see conformance requirement 2)

NN(N) features a set of service codes which have not yet been allocated for GSM supplementary services (see GSM 02.30 for service codes already specified).
N is a digit within 1..9 and SI, SIA, SIB strings of characters.

- 2) Concerning operations which are not yet specified in GSM 02.30, the MS shall proceed as follows:
The entry of 1 or 2 characters defined in the GSM 03.38 default alphabet followed by "SEND" shall be interpreted by the MS as an USSD request unless the MS is not engaged in a call and the first of the two character entry followed by "SEND" is a "1".
- 3) For supplementary service procedures independent of any call, the initiating side shall establish a MM-connection between the network and the mobile station according to the rules given in GSM 4.08.
- 4) Within a call, the MS shall transmit a USSD request from the user if any. See GSM 04.07 and GSM 04.08 for the handling of multiple MM connections.
- 5) Upon receipt of the RELEASE COMPLETE message, the MS shall display the information contained to the user in a way described by the manufacturer.

References

Conformance requirement 1: GSM 04.90 subclause 6.1, GSM 02.30 subclause 4.5.2, and GSM 02.90 subclause 4.1.1.

Conformance requirement 2: GSM 02.30 subclause 4.5.3.2.

Conformance requirement 3: GSM 04.10 subclause 3.2.1.

Conformance requirement 4: GSM 04.08 subclause 4.5.1.1.

Conformance requirement 5: GSM 03.90 subclause 6.2.1.

Test Purpose

- 1) To verify that the mobile station invokes an USSD request by sending a REGISTER message to the network containing a ProcessUnstructuredSS-Request invoke component. This message will contain the alphabet indicator set to "SMS default alphabet" and the language indicator set to "language unspecified". The ussd-string parameter shall contain the following digits and symbols depending on the operation initiated:

Activation	*NN(N)# (no supplementary information included) *NN(N)*SI# (one field of supplementary infor. included) *NN(N)*SIA*SIB# (two fields of supplementary infor. included)
Deactivation	#NN(N)# #NN(N)*SI# #NN(N)*SIA*SIB#

Interrogation	*#NN(N)# *#NN(N)*SI# *#NN(N)*SIA*SIB#
Registration	**NN(N)# **NN(N)*SI# **NN(N)*SIA*SIB#
Erase	##NN(N)# ##NN(N)*SI# ##NN(N)*SIA*SIB#
Operations not yet defined in GSM 02.30	see 2)

NN(N) features a set of service codes which have not yet been allocated for GSM supplementary services (see GSM 02.30 for service codes already specified).
N is a digit within 1..9 and SI, SIA, SIB strings of characters.

- 2) To check that the entry of 1 or 2 characters defined in the GSM 03.38 default alphabet followed by "SEND" shall be interpreted by the MS as an USSD request unless the MS is not engaged in a call and the first of the two character entry followed by "SEND" is a "1".
- 3) To verify that, for supplementary service procedures independent of any call, the initiating side must establish a MM-connection between the network and the mobile station according to the rules given in GSM 04.07 and GSM 04.08.
- 4) To verify that, within a call the MS shall transmit a USSD request if any. See GSM 04.07 and GSM 04.08 for the handling of multiple MM connections.
- 5) To check that upon receipt of the RELEASE COMPLETE message, the MS shall display the information contained to the user in a way described by the manufacturer.

Related PICS/PIXIT Statements

- support of USSD.
- Description of the user's commands and of display of USSD.
- Full rate supported.
- Supported teleservices.
- Support of active state of the call control protocol (U10).

Initial Conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS is in the MM-state "idle updated".

Foreseen final state of the MS

MM-state "idle updated".

Test Procedure

By means of appropriate MMI functions (using either GSM 02.30 or manufacturer defined MMI) the mobile is made to initiate an Unstructured SS data operation. The mobile first establishes a MM-connection with the SS. Then, a REGISTER message is sent to the SS. Upon receipt of this message, the system simulator answers with the RELEASE COMPLETE message. Then a CHANNEL RELEASE message is sent to the MS to release the main signalling link.

The mobile station is forced to originate a call. After the MS has received a CONNECT ACKNOWLEDGE, MMI keys are depressed on the mobile in order to initiate an Unstructured SS data operation. Then a REGISTER message is sent to the SS. Upon receipt of this message, the system simulator answers with

the RELEASE COMPLETE message. Finally, the main signalling link is released by transferring a CHANNEL RELEASE message to the MS.

Expected Sequence

The sequence is executed for execution counters c=1,...,17.

Counter c determines the ussd-string selected by the user and sent by the MS (see specific message contents concerning the REGISTER message).

Step	Direction	Message	Comments
1	MS		The user presses appropriate MMI keys to initiate the desired unstructured SS data operation.
2	MS -> SS	CHANNEL REQUEST	with establishment cause set to "Other procedures which can be completed with an SDCCH".
3	SS -> MS	IMMEDIATE ASSIGNMENT	"Supplementary service activation".
4	MS -> SS	CM SERVICE REQUEST	
5	SS -> MS	CM SERVICE ACCEPT	
6	MS -> SS	REGISTER	
7	SS -> MS	RELEASE COMPLETE	The SS checks that the content of this message matches specific message content i).
8	SS -> MS	CHANNEL RELEASE	It terminates the transaction used to initiate the desired unstructured SS data operation. It is checked that the ussd string, if any, is displayed by the MS in a way described by the manufacturer. See ii).
9	MS -> SS	CHANNEL REQUEST	The main signalling link is released.
10	SS -> MS	IMMEDIATE ASSIGNMENT	with establishment cause related to mobile originating call. a TCH/F channel is assigned to the MS. "mobile originating call"
11	MS -> SS	CM SERVICE REQUEST	
12	SS -> MS	CM SERVICE ACCEPT	
13	MS -> SS	SETUP	
14	SS -> MS	CALL PROCEEDING	
15	SS -> MS	ALERTING	
16	SS -> MS	CONNECT	
17	MS -> SS	CONNECT ACKNOWLEDGE	
18			Specific MMI keys are depressed to initiate the desired undefined SS service operation. DTMF signalling may occur.
19	MS -> SS	CM SERVICE REQUEST	"Supplementary service activation".
20	SS -> MS	CM SERVICE ACCEPT	
21	MS -> SS	REGISTER	
223	SS -> MS	RELEASE COMPLETE	The MS starts the transaction on the radio interface. The SS checks that REGISTER matches i).
23	SS -> MS	DISCONNECT	It terminates the transaction used to activate the desired undefined SS data operation. See specific message contents ii).
24	MS -> SS	RELEASE	
25	SS -> MS	RELEASE COMPLETE	
26	SS -> MS	CHANNEL RELEASE	
			See message contents iii). The main signalling link is released.

Specific message contents.

i) **REGISTER** message.

Contents	Value/remark
Protocol Discriminator	set to "Supplementary service (call independent)"
Transaction identifier	
Register message type	As GSM 04.80
Facility Information Element	See below
SS version indicator	As specified in GSM 04.80

Facility Information Element with Invoke = ProcessUnstructuredSS-Request component type as defined in GSM 04.80 section 3.6.1 table 3.3.

Contents	Value/remark
Facility IE identifier	As GSM 04.08
Length of FIE contents	
Component type tag	Invoke from GSM 04.80
Component length	depending on the length of ussd-string
InvokeID tag	From GSM 04.80
Invoke ID length	1
Invoke ID	Arbitrary (1 octet)
Operation Code tag	From GSM 04.80
Operation Code length	1
Operation Code	ProcessUnstructuredSS-Request
ussd-dataCodingScheme	1 octet long. Alphabet indicator set to "default alphabet". Language indicator set to "undefined"
ussd-string	c=1, *60# (Activation with no supplementary information included) c=2, *201*35# (Activation with one field of supplementary information included) c=3, *70*635*562# (Activation with two fields of supplementary information included) c=4, #60# (Deactivation with no supplementary information included) c=5, #201*35# (Deactivation with one field of supplementary information included) c=6, #70*635*562# (Deactivation with two fields of supplementary information included) c=7, *#60# (Interrogation with no supplementary information included) c=8, *#201*35# (Interrogation with one field of supplementary information included) c=9, *#70*635*562# (Interrogation with two fields of supplementary information included) c=10, **60# (Registration with no supplementary information included) c=11, **201*35# (Registration with one field of supplementary information included) c=12, **70*635*562# (Registration with two fields of supplementary information included) c=13, ##60# (Erasure with no supplementary information included) c=14, ##201*35# (Erasure with one field of supplementary information included) c=15, ##70*635*562# (Erasure with two fields of supplementary information included) c=16,7 (related to conformance requirement 2) c=17, 26 (related to conformance requirement 2)

ii) RELEASE COMPLETE message.

Contents	Value/remark
Protocol Discriminator	set to "Supplementary service (call independent)"
Transaction identifier	the transaction value is the same as REGISTER transaction value but the transaction flag is different
Release Complete message type	As GSM 04.80
Cause	omitted.
Facility Information Element	See below

Facility information element with Return Result = ProcessUnstructuredSS-Request component type as defined in GSM 04.80 section 3.6.1 table 3.4.

Contents	Value/remark
Facility IE identifier	As GSM 04.08
Length of IE contents	
Component type tag	Invoke from GSM 04.80
Component length	depending on the length of the ussd-string
Invoke ID tag	From GSM 04.80
Invoke ID length	1
Invoke ID	The same as the invoke of the ProcessUnstructuredSS-Request
Sequence Identifier	From GSM 04.80
Operation Code tag	From GSM 04.80
Operation Code length	1
Operation Code	ProcessUnstructuredSS-Request
ussd-dataCodingScheme	1 octet long. Alphabet indicator set to "default alphabet" Language indicator set to "undefined"
ussd-string	chosen at random

iii) **RELEASE COMPLETE** message.

Contents	Value/remark
Protocol Discriminator	set to "Supplementary service (call control)"
Transaction identifier	same as current call.
Release Complete message type	As GSM 04.08

31.9.1.2 ProcessUnstructuredSS-request/cross phase compatibility and error handling

Conformance requirements

- 1) If a mobile initiated USSD request using protocol version 2 is rejected by the network, and the reason for the rejection is indicated either by the problem code "unrecognized operation" or a cause "facility rejected", the mobile station shall assume that the network only supports protocol version 1 of USSD operations. The mobile station shall re-attempt the request by using the appropriate protocol version 1 USSD operation without a SS version indicator if the unstructured data entered by the user can be coded as an IA5 string.
- 2) Upon receipt of the RELEASE COMPLETE message, the MS shall provide the appropriate user indication (which is to be described by the manufacturer). If ussd-String information is included this shall be given to the user (in a way described by the manufacturer).

References

Conformance requirement1:GSM 04.90 subclause 6.2.1.
Conformance requirement2:GSM 03.90 subclause.

Test Purpose

- 1) To verify that If a mobile initiated USSD request using protocol version 2 is rejected by the network, and the reason for the rejection is indicated either by the problem code "unrecognized operation" or a cause "facility rejected", the mobile station shall assume that the network only supports protocol version 1 of USSD operations. The mobile station shall re-attempt the request by using the appropriate protocol version 1 USSD operation without a SS version indicator if the unstructured data entered by the user can be coded as an IA5 string.
- 2) To check that, upon receipt of the RELEASE COMPLETE message, the MS shall provide the appropriate user indication (which is to be described by the manufacturer). If ussd-String information is included this shall be given to the user (in a way described by the manufacturer).

Related PICS/PIXIT Statements

- support of USSD.
- Full rate supported.
- Supported teleservices.
- Support of active state of the call control protocol (U10).

Initial Conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS is in the MM-state "idle updated".

Foreseen final state of the MS

MM-state "idle updated".

Test Procedure

Appropriate MMI keys are depressed on the mobile in order to activate an USSD service. The mobile first establishes a MM-connection with the SS. Then, a REGISTER message is sent to the SS. Upon receipt of this message, the system simulator answers with the RELEASE COMPLETE message with the cause element set to "Facility rejected" or the problem code set to "unrecognized operation". Then the SS checks that the MS re-attempts the request by using a REGISTER message containing an invoke of the ProcessUnstructuredData operation. The SS answers with a normal RELEASE COMPLETE to terminate the transaction. Finally the main signalling link is released by transferring to the MS a CHANNEL RELEASE.

Appropriate MMI keys are depressed on the mobile in order to activate an USSD service. The mobile first establishes a MM-connection with the SS. Then, a REGISTER message is sent to the SS. Upon receipt of this message, the system simulator answers with the RELEASE COMPLETE message with the cause element set to "Facility rejected", the main signalling link is release. Then the SS checks that the MS re-establishes a MM-connection and re-attempts the request by using a REGISTER message containing an invoke of the ProcessUnstructuredData operation. Then the SS answers with a normal RELEASE COMPLETE to terminate the transaction. Finally the main signalling link is released by transferring to the MS a CHANNEL RELEASE.

The mobile station is forced to originate a call. After the SS has sent a CONNECT ACKNOWLEDGE, MMI keys are depressed on the mobile in order to activate an USSD service. A REGISTER message is sent to the SS. Upon receipt of this message, the system simulator answers with the RELEASE COMPLETE message containing a return error with an error or a reject with a problem. Then the radio link is release by transferring to the MS a CHANNEL RELEASE message. This subtest is repeated with different errors and problems in the RELEASE COMPLETE message.

Expected Sequence

Step	Direction	Message	Comments
1	MS		The user presses appropriate MMI keys to initiate the desired undefined supplementary service operation.
2	MS -> SS	CHANNEL REQUEST	with establishment cause set to "Other procedures which can be completed with an SDCCH".
3	SS -> MS	IMMEDIATE ASSIGNMENT	"Supplementary service activation". See specific message contents i). Operation code set to "ProcessUnstructuredSS-Request" See specific message contents ii). "Supplementary service activation". Operation code is set to "ProcessUnstructuredSS-Data". See specific message content i). normal release of the transaction. See iiiia). The main signalling link is released.
4	MS -> SS	CM SERVICE REQUEST	
5	SS -> MS	CM SERVICE ACCEPT	
6	MS -> SS	REGISTER	
7	SS -> MS	RELEASE COMPLETE	
8	MS -> SS	CM SERVICE REQUEST	
9	SS -> MS	CM SERVICE ACCEPT	Operation code is set to "ProcessUnstructuredSS-Data". See specific message content i). normal release of the transaction. See iiiia). The main signalling link is released.
10	MS -> SS	REGISTER	
11	MS -> SS	RELEASE COMPLETE	
12	SS -> MS	CHANNEL RELEASE	
13	MS		The user presses appropriate MMI keys to initiate the desired undefined supplementary service.
14	MS -> SS	CHANNEL REQUEST	with establishment cause set to "Other procedures which can be completed with an SDCCH".
15	SS -> MS	IMMEDIATE ASSIGNMENT	"Supplementary service activation". See specific message contents i). Operation code is set to "ProcessUnstructureSS- Request". See i). see iii). cause is set to "operation rejected" The main signalling link is released. with establishment cause set to "Other procedures which can be completed with an SDCCH". "Supplementary service activation". Operation code is "ProcessUnstructuredSSdata". See specific message contents i). normal release of the transaction. See iiiia). The main signalling link is released.
16	MS -> SS	CM SERVICE REQUEST	
17	SS -> MS	CM SERVICE ACCEPT	
18	MS -> SS	REGISTER	
19	MS -> SS	RELEASE COMPLETE	
20	SS -> MS	CHANNEL RELEASE	
21	MS -> SS	CHANNEL REQUEST	"Supplementary service activation". Operation code is "ProcessUnstructuredSSdata". See specific message contents i). normal release of the transaction. See iiiia). The main signalling link is released.
22	SS -> MS	IMMEDIATE ASSIGNMENT	
23	MS -> SS	CM SERVICE REQUEST	
24	SS -> MS	CM SERVICE ACCEPT	
25	MS -> SS	REGISTER	
26	SS -> MS	RELEASE COMPLETE	
27	SS -> MS	CHANNEL RELEASE	The main signalling link is released.
			For k=1 to 10, go through steps 28 to 45. Counter k deals with different kinds of general and invoke problems in step 41.
28	MS -> SS	CHANNEL REQUEST	with establishment cause related to mobile originating call.
29	SS -> MS	IMMEDIATE ASSIGNMENT	a TCH/F channel is assigned to the MS.
30	MS -> SS	CM SERVICE REQUEST	"mobile originating call"
31	SS -> MS	CM SERVICE ACCEPT	
32	MS -> SS	SETUP	
33	SS -> MS	CALL PROCEEDING	
34	SS -> MS	ALERTING	
35	SS -> MS	CONNECT	
36	MS -> SS	CONNECT ACKNOWLEDGE	
37			Specific MMI keys are depressed to initiate the desired undefined supplementary service. DTMF signalling may occur.
38	MS -> SS	CM SERVICE REQUEST	"supplementary service activation"
39	SS -> MS	CM SERVICE ACCEPT	
40	MS -> SS	REGISTER	
41	SS -> MS	RELEASE COMPLETE	The MS starts the transaction on the radio interface. See specific message contents i). The operation code is set to "ProcessUnstructuredSS-Request". different errors and problems are sent. See specific message contents iiib) and iiic).

42	SS -> MS	DISCONNECT	
43	MS -> SS	RELEASE	
44	SS -> MS	RELEASE COMPLETE	See message contents iv).
45	SS -> MS	CHANNEL RELEASE	The main signalling link is released.

Specific message contents.

i) **REGISTER** message.

Contents	Value/remark
Protocol Discriminator	set to "Supplementary service (call independent)"
Transaction identifier	
Register message type	As GSM 04.80
Facility Information Element	See below
SS version indicator	As specified in GSM 04.80 for version 2 protocol Always omitted for version 1 protocol

For steps 6, 18 and 40, Facility Information Element with Invoke = ProcessUnstructuredSS-Request (for version 2 protocol) component type as defined in GSM 04.80 section 3.6.1 table 3.3.

For steps 10 and 25, Facility Information Element with Invoke = ProcessUnstructuredSS-Data (for version 1 protocol) as defined in GSM 04.80 section 3.6.1 table 3.3.

Contents	Value/remark
Facility IE identifier	As GSM 04.08
Length of FIE contents	
Component type tag	Invoke from GSM 04.80
Component length	depending on the length of ussd-string
InvokeID tag	From GSM 04.80
Invoke ID length	1
Invoke ID	Arbitrary (1 octet)
Operation Code tag	From GSM 04.80
Operation Code length	1
Operation Code	ProcessUnstructuredSS-Request (for version 2 protocol) ProcessUnstructuredSS-Data (for version 1 protocol)
ussd-dataCodingScheme	1 octet long. Alphabet indicator set to "default alphabet". Language indicator set to "undefined"
ussd-string	*70*635*562#

ii) **RELEASE COMPLETE** message.

Contents	Value/remark
Protocol Discriminator	set to "Supplementary service (call independent)"
Transaction identifier	the transaction value is the same as the REGISTER transaction value but the transaction flag is different
Facility message type	As GSM 04.80
Facility Information Element	See below

Facility Information Element with Reject = ProcessUnstructuredSS-Request component type as defined in GSM 04.80 section 3.6.1 table 3.6.

Contents	Value/remark
Facility IE identifier	As GSM 04.08
Length of FIE contents	
Component type tag	Reject from GSM 04.80
Component length	depending on the length of ussd-string
InvokeID tag	From GSM 04.80
Invoke ID length	1
Invoke ID	The same as the invoke of the ProcessUnstructuredSS-Request
Problem Code tag	As GSM 04.80
Problem Code length	
General Problem code	Unrecognized operation

iii) **RELEASE COMPLETE** message.

Contents	Value/remark
Protocol Discriminator	set to "Supplementary service (call independent)"
Transaction identifier	the transaction value is the same as the REGISTER transaction value but the transaction flag is different
Release complete message type	As GSM 04.80
cause	for step 19, cause is set to "facility rejected" and FIE is omitted. for steps 11, 26, 41 this field is omitted.
Facility Information Element	for step 11 and 26 see iia). for step 41 see iib) and iic). For step 19 this field is omitted.

iiia) For steps 6, 18 and 40, Facility Information Element with Return Result = ProcessUnstructuredSS-Request component type as defined in GSM 04.80 section 3.6.1 table 3.4.

For steps 10 and 25, Facility Information Element with Return Result = ProcessUnstructuredSS-Data component type as defined in GSM 04.80 section 3.6.1 table 3.4.

Contents	Value/remark
Facility IE identifier	As GSM 04.08
Length of FIE contents	
Component type tag	Invoke from GSM 04.80
Component length	depending on the length of ussd-string
InvokeID tag	From GSM 04.80
Invoke ID length	1
Invoke ID	The same as the invoke of the ProcessUnstructuredSS-Request

iiib) Facility Information Element with Return Error = ProcessUnstructuredSS-Request component type as defined in GSM 04.80 section 3.6.1 table 3.5.

Contents	Value/remark
Facility IE identifier	As GSM 04.08
Length of FIE contents	
Component type tag	Return Error from GSM 04.80
Component length	depending on the length of ussd-string
InvokeID tag	From GSM 04.80
Invoke ID length	1
Invoke ID	The same as the invoke of the ProcessUnstructuredSS-Request
Error Code tag	As GSM 04.80
Error Code length	
Error Code	k=1, system failure k=2, data missing k=3, unknown alphabet k=4, unexpected data value

iiic) Facility Information Element with Reject = ProcessUnstructuredSS-Request component type as defined in GSM 04.80 section 3.6.1 table 3.6.

Contents	Value/remark
Facility IE identifier	As GSM 04.08
Length of FIE contents	
Component type tag	Reject from GSM 04.80
Component length	depending on the length of ussd-string
InvokeID tag	From GSM 04.80
Invoke ID length	1
Invoke ID	The same as the invoke of the ProcessUnstructuredSS-Request
Problem Code tag	As GSM 04.80
Problem Code length	
General Problem code	k=5, Unrecognized component k=6, Mistyped component k=7, Badly structured component
Invoke Problem code	k=8, Mistyped parameter k=9, Resource limitation k=10, Initiating release

iv) **RELEASE COMPLETE** message.

Contents	Value/remark
Protocol Discriminator	set to "Supplementary service (call control)"
Transaction identifier	same as current call.
Release Complete message type	As GSM 04.08

31.9.2 Network initiated unstructured supplementary service operations

31.9.2.1 UnstructuredSS-Notify/accepted

Conformance requirements

- 1) For a USSD notification, the MS shall display the text provided and await user input. The MS shall acknowledge the operation by sending a FACILITY message containing an empty result component to the network.

- 2) The MS shall include alphabet and language indicators in the response to the network. The alphabet indicator shall indicate "SMS default alphabet". The language indicator shall indicate "language unspecified".
- 3) At any stage while the MS is registered with a network, the network may send an unstructured string to the MS. So, the MS shall be able to process the operation during a call or out of a call.

References

conformance requirement 1: GSM 04.90 subclause 5.2.1.

conformance requirement 2: GSM 02.90 subclause 4.2.2.

conformance requirement 3: GSM 02.90 subclause 4.2.1.

Test Purpose

- 1) To verify that for a USSD notification, the MS shall display the text provided and await user input. If the user enters a response, the MS shall acknowledge the operation by sending a FACILITY message containing an empty result component to the network.
- 2) To verify that the MS shall include alphabet and language indicators in the response to the network. The alphabet indicator shall indicate "SMS default alphabet". The language indicator shall indicate "language unspecified".
- 3) To check that the MS shall be able to process the operation during a call or out of a call.

Related PICS/PIXIT Statements

- support of USSD.
- Full rate supported.
- Supported teleservices.
- Support of active state of the call control protocol (U10).

Initial Conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS is in the MM-state "idle updated".

Foreseen final state of the MS

MM-state "idle updated".

Test Procedure

- The MS is paged and a RR-connection is established. Then, the SS sends a REGISTER message containing a facility information element with operation code set to ProcessUnstructuredSS-Notify. The user checks that the ussd string sent by the SS is correctly displayed by the MS. The MS has to send a FACILITY message with an empty return result component.
- Then the SS originates a call to the MS. When the MS is in the U10 state, the SS releases the transaction identifier concerning USSD transaction by sending a RELEASE COMPLETE. The SS initiates a new ussd transaction by sending a REGISTER message containing a facility information element with operation code set to UnstructuredSS-Notify. The user checks that the ussd string sent by the SS is correctly displayed by the MS. The MS has to send a FACILITY message with an empty return result component. Finally the SS releases both MM connections and the radio link.

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST TYPE 1	<p>a SDCCH is allocated to the MS.</p> <p>initiation of the transaction concerning the USSD notification operation. See i).</p> <p>The MS has to display the USSD string sent from the network.</p> <p>signalling message sent by the MS as the response. The SS checks that it matches ii).</p> <p>incoming call.</p> <p>a TCH is allocated to the MS.</p> <p>this message releases the transaction concerning the USSD operation. See iii).</p> <p>initiation of a USS request operation during a call. See specific message contents i).</p> <p>The MS has to display the USSD string received from the SS.</p> <p>The SS checks that this message matches ii).</p> <p>It releases the transaction identifier concerning the ussd operation.</p> <p>call release initiation. see iv).</p>
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	PAGING RESPONSE	
5	SS -> MS	REGISTER	
6			
7	MS -> SS	FACILITY	
8	SS -> MS	SETUP	
9	MS -> SS	CALL CONFIRMED	
10	MS -> SS	ALERTING	
11	MS -> SS	CONNECT	
12	SS -> MS	ASSIGNMENT COMMAND	
13	MS -> SS	ASSIGNMENT COMPLETE	
14	SS -> MS	CONNECT ACKNOWLEDGE	
15	SS -> MS	RELEASE COMPLETE	
16	SS -> MS	REGISTER	
17			
18	MS -> SS	FACILITY	
19	SS -> MS	RELEASE COMPLETE	
20	SS -> MS	DISCONNECT	
21	MS -> SS	RELEASE	
22	SS -> MS	RELEASE COMPLETE	
23	SS -> MS	CHANNEL RELEASE	

Specific message contents.

i) REGISTER message.

Contents	Value/remark
Protocol Discriminator	set to "Supplementary service (call independent)"
Transaction identifier	
Register message type	As GSM 04.80
Facility Information Element	See below

Facility Information Element with Invoke = UnstructuredSS-Notify component type as defined in GSM 04.90, clause 5.2.1.

Contents	Value/remark
Facility IE identifier	As GSM 04.08
Length of FIE contents	
Component type tag	Invoke from GSM 04.80
Component length	depending on the length of ussd-string
InvokeID tag	From GSM 04.80
Invoke ID length	1
Invoke ID	Arbitrary (1 octet)
Operation Code tag	From GSM 04.80
Operation Code length	1
Operation Code	UnstructuredSS-Notify
ussd-dataCodingScheme	1 octet long. Alphabet indicator set to "default alphabet". Language indicator set to "undefined"
ussd-string	arbitrary chosen by the SS

ii) Facility message.

Contents	Value/remark
Protocol Discriminator	set to "Supplementary service (call independent)" the transaction value is the same as REGISTER transaction value but the transaction flag is different As GSM 04.80 See below
Transaction identifier	
Facility message type	
Facility Information Element	

Facility Information Element with Return Result = empty result component according to GSM 04.90, clause 5.2.1, figure 5.3.

Contents	Value/remark
Facility IE identifier	As GSM 04.08
Length of FIE contents	
Component type tag	Return Result from GSM 04.80
Component length	
InvokeID tag	From GSM 04.80
Invoke ID length	1
Invoke ID	The same as the invoke of the UnstructuredSS-Notify

iii) RELEASE COMPLETE message.

Contents	Value/remark
Protocol Discriminator	set to "Supplementary service (call independent)" the transaction value is the same as REGISTER transaction flag is different As GSM 04.80 omitted
Transaction identifier	
Release Complete message type	
Facility Information Element	

iv) RELEASE COMPLETE message.

Contents	Value/remark
Protocol Discriminator	set to "Supplementary service (call control)" same as current call. As GSM 04.08
Transaction identifier	
Release Complete message type	

31.9.2.2 UnstructuredSS-Notify/rejected on user busy**Conformance requirements**

- 1) When the mobile station receives an USSD operation in parallel to any call independent supplementary transaction, it shall respond with a return error component in a RELEASE COMPLETE message, containing the "USSD-Busy" error.

References

conformance requirement 1: GSM 04.90 subclause 5.1.1.

Test Purpose

- 1) To verify that when the mobile station receives an USSD operation in parallel to any call independent supplementary transaction, it responds with a return error component in a RELEASE COMPLETE message, containing the "USSD-Busy" error.

Related PICS/PIXIT Statements

- support of USSD.
- Full rate supported.
- Supported teleservices.
- **Support of active state of the call control protocol (U10).**

Initial Conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS is in the MM-state "idle updated".

Foreseen final state of the MS

MM-state "idle updated".

Test Procedure

- The MS is paged and a RR-connection is established. Then, the SS sends a REGISTER message containing a facility information element with operation code set to UnstructuredSS-Notify. The SS initiates an other USSD transaction by sending a REGISTER message with transaction identifier different from the previous one. The SS checks that the MS answers with a RELEASE COMPLETE message with an error component set to "USSD busy". Then the SS releases the radio link.

Test Procedure

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST TYPE 1	a SDCCH is allocated to the MS.
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	PAGING RESPONSE	
5	SS -> MS	REGISTER	
6			initiation of the transaction concerning the USSD notification operation. See i). The MS has to display the USSD string sent from the SS.
7	MS -> SS	FACILITY	See ii).
8	SS -> MS	REGISTER	initiation of an other USSD notification. The transaction identifier is different from that in step 5. See i).
9	MS -> SS	RELEASE COMPLETE	error set to "USSD busy". Transaction initiated in step 6 by the network is rejected by the MS. See iii).
10	SS -> MS	RELEASE COMPLETE	normal release of transaction initiated in step 5. See iii).
11	SS -> MS	CHANNEL RELEASE	release of the main signalling link.

Specific message contents.

i) REGISTER message.

See paragraph 31.9.2.1.

ii) FACILITY message.

See paragraph 31.9.2.1.

iii) RELEASE COMPLETE message.

Contents	Value/remark
Protocol Discriminator Transaction identifier	set to "Supplementary service (call independent)" for step 10, same as REGISTER transaction identifier for step 9, the transaction value is the same as REGISTER transaction value but the transaction flag is different.
Release complete message type	As GSM 04.80
Facility Information Element	for step 9 see iiib). for step 10, see iiia).

iiia) Facility Information Element with Return Result = UnstructuredSS-Notify component type as defined in GSM 04.80 section 3.6.1 table 3.4.

Contents	Value/remark
Facility IE identifier	As GSM 04.08
Length of FIE contents	
Component type tag	Return Result from GSM 04.80
Component length	
InvokeID tag	From GSM 04.80
Invoke ID length	1
Invoke ID	The same as the invoke of the UnstructuredSS-Notify in step 5

iiib) Facility Information Element with Return Error = UnstructuredSS-Notify component type as defined in GSM 04.80 section 3.6.1 table 3.5.

Contents	Value/remark
Facility IE identifier	As GSM 04.08
Length of FIE contents	
Component type tag	Return Result from GSM 04.80
Component length	
InvokeID tag	From GSM 04.80
Invoke ID length	1
Invoke ID	The same as the invoke of the UnstructuredSS-Notify in step 8
Error Code tag	As GSM 04.80
Error Code length	
Error Code	USSD Busy

31.9.2.3 UnstructuredSS-Request/accepted

Conformance requirements

- 1) For a USSD request, the MS shall display the text provided and await user input. if the user enters a response, the MS shall return the response to the network, maintaining the transaction.
- 2) The MS shall include alphabet and language indicators in the response to the network. The alphabet indicator shall indicate "SMS default alphabet". The language indicator shall indicate "language unspecified".

- 3) At any stage while the MS is registered with a network, the network may send an unstructured string to the MS. So, the MS shall be able to process the operation during a call or out of a call.

References

conformance requirement 1: GSM 03.90 subclause 5.2.5.

conformance requirement 2: GSM 02.90 subclause 4.2.2.

conformance requirement 3: GSM 02.90 subclause 4.2.1.

Test Purpose

- 1) To test that, for a USSD request, the MS shall display the text provided and await user input. if the user enters a response, the MS shall return the response to the network, maintaining the transaction.
- 2) To verify that the MS shall include alphabet and language indicators in the response to the network. The alphabet indicator shall indicate "SMS default alphabet". The language indicator shall indicate "language unspecified".
- 3) To check that the MS shall be able to process the operation during a call or out of a call.

Related PICS/PIXIT Statements

- support of USSD.
- Full rate supported.
- Supported teleservices.
- **Support of active state of the call control protocol (U10).**

Initial Conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS is in the MM-state "idle updated".

Foreseen final state of the MS

MM-state "idle updated".

Test Procedure

- The MS is paged and a RR-connection is established. Then, the SS sends a REGISTER message containing a facility information element with operation code set to ProcessUnstructuredSS-Request. The user checks that the ussd string sent by the SS is correctly displayed by the MS and answers the request by depressing MMI keys. Then the MS has to send a FACILITY message with ussd string exactly containing the digits and symbols expressed on the mobile equipment keypad.
- Then the SS originates a call to the MS. When the MS is in the U10 state, the SS releases the transaction identifier concerning USSD transaction by sending a RELEASE COMPLETE. The SS initiates a new ussd transaction by sending a REGISTER message containing a facility information element with operation code set to UnstructuredSS-Request. The user checks that the ussd string sent by the SS is correctly displayed by the MS and answers the request by depressing MMI keys. Then the MS has to send a FACILITY message with ussd string exactly containing the digits and symbols expressed on the mobile equipment keypad. Finally the SS releases both MM connections and the radio link.

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST TYPE 1	a SDCCH is allocated to the MS. initiation of the transaction concerning the USSD Request operation. See i). The MS has to display the USSD string sent from the network and waits for the user response. By depressing MMI keys followed by SEND the user answers
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	PAGING RESPONSE	
5	SS -> MS	REGISTER	
6			
7	MS -> SS	FACILITY	signalling message sent by the MS as the response. See ii).
8	SS -> MS	SETUP	incoming call. a TCH is allocated to the MS.
9	MS -> SS	CALL CONFIRMED	
10	MS -> SS	ALERTING	
11	MS -> SS	CONNECT	
12	SS -> MS	ASSIGNMENT COMMAND	
13	MS -> SS	ASSIGNMENT COMPLETE	
14	SS -> MS	CONNECT ACKNOWLEDGE	this message releases the transaction concerning the USSD operation. See iii). initiation of a USS request operation during a call. See specific message contents i). The MS has to display the USSD string received from the SS. By depressing MMI keys followed by SEND, the user answers. DTMF signalling may occur. See ii). It releases the transaction identifier concerning the ussd operation.
15	SS -> MS	RELEASE COMPLETE	
16	SS -> MS	REGISTER	
17			
18	MS -> SS	FACILITY	
19	SS -> MS	RELEASE COMPLETE	
20	SS -> MS	DISCONNECT	call release initiation. see iv).
21	MS -> SS	RELEASE	
22	SS -> MS	RELEASE COMPLETE	
23	SS -> MS	CHANNEL RELEASE	

Specific message contents

i) REGISTER message.

Contents	Value/remark
Protocol Discriminator	set to "Supplementary service (call independent)"
Transaction identifier	
Register message type	As GSM 04.80
Facility Information Element	See below

Facility Information Element with Invoke = UnstructuredSS-Request component type as defined in GSM 04.80 section 3.6.1 table 3.3.

Contents	Value/remark
Facility IE identifier	As GSM 04.08
Length of FIE contents	
Component type tag	Invoke from GSM 04.80
Component length	depending on the length of ussd-string
InvokeID tag	From GSM 04.80
Invoke ID length	1
Invoke ID	Arbitrary (1 octet)
Operation Code tag	From GSM 04.80
Operation Code length	1
Operation Code	UnstructuredSS-Request
ussd-dataCodingScheme	1 octet long. Alphabet indicator set to "default alphabet". Language indicator set to "undefined"
ussd-string	arbitrary chosen by the SS

ii) Facility message.

Contents	Value/remark
Protocol Discriminator	set to "Supplementary service (call independent)"
Transaction identifier	the transaction identifier value is the same as REGISTER transaction value but the transaction flag is different.
Facility message type	As GSM 04.80
Facility Information Element	See below

Facility Information Element with Return Result = UnstructuredSS-Request component type as defined in GSM 04.80 section 3.6.1 table 3.4.

Contents	Value/remark
Facility IE identifier	As GSM 04.08
Length of FIE contents	
Component type tag	Return Result from GSM 04.80
Component length	depending on the length of ussd-string
InvokeID tag	From GSM 04.80
Invoke ID length	1
Invoke ID	The same as the invoke of the UnstructuredSS-Request
Sequence Identifier	
Sequence length	
Operation Code tag	1
Operation Code length	1
Operation Code	UnstructuredSS-Request
ussd-dataCodingScheme	1 octet long. Alphabet indicator set to "default alphabet". Language indicator set to "undefined"
ussd-string	contains exactly the digits and symbols expressed on the mobile equipment keypad.

iii) RELEASE COMPLETE message.

Contents	Value/remark
Protocol Discriminator	set to "Supplementary service (call independent)"
Transaction identifier	same as REGISTER transaction identifier
Release Complete message type	As GSM 04.80
Facility Information Element	omitted

iv) RELEASE COMPLETE message.

Contents	Value/remark
Protocol Discriminator	set to "Supplementary service (call control)"
Transaction identifier	same as current call.
Release Complete message type	As GSM 04.08

31.9.2.4 UnstructuredSS-Request/rejected on user busy**Conformance requirements**

- 1) When the mobile station receives an USSD operation in parallel to any call independent supplementary transaction, it shall respond with a return error component in a RELEASE COMPLETE message, containing the "USSD-Busy" error.

References

conformance requirement 1: GSM 04.90 subclause 5.1.1.

Test Purpose

- 1) To verify that when the mobile station receives an USSD operation in parallel to any call independent supplementary transaction, it responds with a return error component in a RELEASE COMPLETE message, containing the "USSD-Busy" error.

Related PICS/PIXIT Statements

- support of USSD.
- Full rate supported.
- Supported teleservices.
- Support of active state of the call control protocol (U10).

Initial Conditions

System Simulator:

1 cell, default parameters.

Mobile Station:

The MS is in the MM-state "idle updated".

Foreseen final state of the MS

MM-state "idle updated".

Test Procedure

- The MS is paged and a RR-connection is established. Then, the SS sends a REGISTER message containing a facility information element with operation code set to UnstructuredSS-Request. The SS initiates an other USSD transaction by sending a REGISTER message with transaction identifier different from the previous one. The SS checks that the MS answers with a RELEASE COMPLETE message with an error component set to "USSD busy". Then the SS releases the radio link.

Test Procedure

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST TYPE 1	a SDCCH is allocated to the MS. initiation of the transaction concerning the USSD Request operation. See i). The MS has to display the USSD string sent from the network and waits for the user response. By depressing MMI keys followed by SEND the user answers.
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	PAGING RESPONSE	
5	SS -> MS	REGISTER	
6			
7	MS -> SS	FACILITY	signalling message sent by the MS as the response to the request. See ii).
8	SS -> MS	REGISTER	initiation of an other USSD request. The transaction identifier is different from that in step 5. See i).
9	MS -> SS	RELEASE COMPLETE	error set to "USSD busy". Transaction initiated in step 6 by the network is rejected by the MS. See iii).
10	SS -> MS	RELEASE COMPLETE	normal release of transaction initiated in step 5. See iii).
11	SS -> MS	CHANNEL RELEASE	release of the main signalling link.

Specific message contents**i) REGISTER message.**

See paragraph 31.9.2.3.

ii) FACILITY message.

See paragraph 31.9.2.3.

iii) RELEASE COMPLETE message.

Contents	Value/remark
Protocol Discriminator	set to "Supplementary service (call independent)" the transaction identifier value is the same as REGISTER transaction value but the transaction flag is different. As GSM 04.80 for step 9 see iiib). for step10 see iiia).
Transaction identifier	
Release complete message type	
Facility Information Element	

iiia) Facility Information Element with Return Result = UnstructuredSS-Request component type as defined in GSM 04.80 section 3.6.1 table 3.4.

Contents	Value/remark
Facility IE identifier	As GSM 04.08
Length of FIE contents	
Component type tag	Return Result from GSM 04.80 depending on the length of ussd-string
Component length	
InvokeID tag	From GSM 04.80
Invoke ID length	
Invoke ID	1
	The same as the invoke of the UnstructuredSS-Request

iiib) Facility Information Element with Return Error = UnstructuredSS-Request component type as defined in GSM 04.80 section 3.6.1 table 3.5.

Contents	Value/remark
Facility IE identifier	As GSM 04.08
Length of FIE contents	
Component type tag	Return Error from GSM 04.80
Component length	depending on the length of ussd-string
InvokeID tag	From GSM 04.80
Invoke ID length	1
Invoke ID	The same as the invoke of the UnstructuredSS-Request
Error Code tag	As GSM 04.80
Error Code length	
Error Code	USSD Busy

31.10 MMI input for USSD

31.10.1 Conformance requirements

If the MS cannot interpret the MMI input as a defined GSM Supplementary Services, SIM control procedure or MS manufacturer-defined procedure, and if the MMI input is in the form:

"entry of any characters defined in the GSM 03.38 Default Alphabet (up to the maximum defined in GSM 04.80) followed by #SEND"

or

"entry of 1 or 2 characters defined in the GSM 03.38 Default Alphabet followed by SEND"

then it shall be interpreted by the MS as Unstructured SS Data and sent transparently towards the network, unless the MS is not engaged in a call and the first digit of the 2 character entry, followed by SEND, is a "1". In this case the MS shall transmit this as a call-setup request.

References

GSM 02.30 section 4.5.3.

31.10.2 Test purpose

To check that the entry of 2 digits in the form 1X (X in the set 0,...9) followed by SEND is accepted by the mobile station in idle mode as a normal call establishment for the 1X number. It is checked that the MS sends a CHANNEL REQUEST, sends CM SERVICE REQUEST message for mobile originated call (after having received an IMMEDIATE ASSIGNMENT), and then sends the SETUP message containing the 1X phone number as called number (after having received the CM SERVICE ACCEPT message).

31.10.3 Method of test

Initial conditions

System Simulator:
1 cell, default parameters.

Mobile Station
The MS is "idle updated";

Related PICS/PIXIT statement(s)

Foreseen final state of the MS:

The MS is "idle updated.

Test procedure

The user requests call establishment successively for every 2 digit phone number of the 1X form (X in the set 0,...9) allowing ten seconds between each attempts.

Maximum duration of test

3 min.

Expected Sequence

The following sequence is executed for execution counter k = 1 to 10.

Step	Direction	Message	Comments
1	MS		The MS is made to initiate call establishment for phone number 1X (where X = k-1) with establishment cause related to mobile originating call
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	"mobile originating call"
4	MS -> SS	CM SERVICE REQUEST	
5	SS -> MS	CM SERVICE ACCEPT	called BCD number is 1X
6	MS -> SS	SETUP	
7	SS -> MS	RELEASE COMPLETE	Wait for 10 seconds
8			

Specific message contents.

None.

31.11 Specific message contents and ASN.1 codings**Introduction**

In this section a mixed form of ASN.1 coding has been used in ASN.1 components within the messages.

Some components use the indefinite form of coding, and some use the short definite form.

An example of a FACILITY message using indefinite form of coding is described below .

The same message using short definite form of coding is described in Test 31.2.1.1.1 Step 7 of this section.

Contents	Value/remark	Coding
Length of FIE contents	43	2B
Component type tag	Return Result	A2
Component length	indefinite	80
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	--
Sequence tag		30
Sequence length	indefinite	80
Operation Code tag		02
Operation Code length	1	01
Operation Code	RegisterSS	0A
SS-Information		
Forwarding Info tag	Tag=A0	A0
Forwarding Info length	indefinite	80
SS-Code tag	Tag=4	04
SS-Code length	1	01
SS-Code	CFNRy	2A
Forwarding Feature List	Seq.	30
Length Indicator	indefinite	80
Forwarding Feature	Seq.	30
Forwarding Feature length	indefinite	80
Basic Service Code identifier	TeleserviceCode	83
Teleservice length	1	01
Teleservice code	AllSpeechTransmission	10
SS-Status	Tag=84	84
SS-Status length	1	01
SS-Status code	Prov., Registered, Active	07
Forwarded To Number identifier	Tag=85	85
ISDN-AddressString length	5	05
AddressString type	Unknown	81
AddressString	TBCD-String: 00431234	00 34 21 43
NoReplyConditionTime	Tag=87	87
Length Indicator	1	01
NoReplyConditionTime	5	05
End-Of-Content Tag	0	00
Length Indicator	0	00
End-Of-Content Tag	0	00
Length Indicator	0	00
End-Of-Content Tag	0	00
Length Indicator	0	00
End-Of-Content Tag	0	00
Length Indicator	0	00

Test 31.2.1.1.1. Registration accepted

MMI sequence: ****61*00431234*11*5#**

Step 6: MS -> SS REGISTER

Contents	Value/remark	Coding
Length of FIE contents	26	1A
Component type tag	Invoke	A1 (1)
Component length	24	18
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation Code tag		02
Operation Code length	1	01
Operation Code	RegisterSS	0A
RegisterSS-Arg	Seq.	30 (1)
RegisterSS-Arg length	16	20
SS-Code tag	Tag=4	04
SS-Code length	1	01
SS-Code	CFNRy	2A
Basic Service Code identifier	TeleserviceCode	83
Teleservice length	1	01
Teleservice code	AllSpeechTransmission	10
Forwarded To Number identifier	Tag=84	84
AddressString length	5	05
AddressString type	Unknown	81
AddressString	TBCD-String: 00431234	00 34 21 43
NoReplyConditionTime tag	Tag=85	85
NoReplyConditionTime length	1	01
NoReplyConditionTime	5	05

NOTE 1: This component may use the indefinite form.

Step 7: SS -> MS RELEASE COMPLETE

Contents	Value/remark	Coding
Length of FIE contents	35	23
Component type tag	Return Result	A2 (1)
Component length	33	21
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	--
Sequence tag		30 (1)
Sequence length	28	1C
Operation Code tag		02
Operation Code length	1	01
Operation Code	RegisterSS	0A
SS-Information		
Forwarding Info tag	Tag=A0	A0 (1)
Forwarding Info length	23	17
SS-Code tag	Tag=4	04
SS-Code length	1	01
SS-Code	CFNRy	2A
Forwarding Feature List	Seq.	30 (1)
Length Indicator	18	12
Forwarding Feature	Seq.	30 (1)
Forwarding Feature length	16	20
Basic Service Code identifier	TeleserviceCode	83
Teleservice length	1	01
Teleservice code	AllSpeechTransmission	10
SS-Status	Tag=84	84
SS-Status length	1	01
SS-Status code	Prov., Registered, Active	07
Forwarded To Number identifier	Tag=85	85
ISDN-AddressString length	5	05
AddressString type	Unknown	81
AddressString	TBCD-String: 00431234	00 34 21 43
NoReplyConditionTime	Tag=87	87
Length Indicator	1	01
NoReplyConditionTime	5	05

MMI sequence: **21*00431234*13#

Step 15: MS -> SS REGISTER

Contents	Value/remark	Coding
Length of FIE contents	23	17
Component type tag	Invoke	A1 (1)
Component length	21	15
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation Code tag		02
Operation Code length	1	01
Operation Code	RegisterSS	0A
RegisterSS-Arg	Seq.	30 (1)
RegisterSS-Arg length	13	0D
SS-Code tag	Tag=4	04
SS-Code length	1	01
SS-Code	CFU	21
Basic Service Code identifier	TeleserviceCode	83
Teleservice length	1	01
Teleservice code	All Facsimile Services	60
Forwarded To Number identifier	Tag=84	84
AddressString length	5	05
AddressString type	Unknown	81
AddressString	TBCD-String: 00431234	00 34 21 43

Step 16: SS -> MS RELEASE COMPLETE

Contents	Value/remark	Coding
Length of FIE contents	42	2A
Component type tag	Return Result	A2 (1)
Component length	indefinite	80
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	--
Sequence tag		30 (1)
Sequence length	indefinite	80
Operation Code tag		02
Operation Code length	1	01
Operation Code	RegisterSS	0A
SS-Information		
Forwarding Info tag	Tag=A0	A0 (1)
Forwarding Info length	indefinite	80
SS-Code tag	Tag=4	04
SS-Code length	1	01
SS-Code	CFU	21
Forwarding Feature List	Seq.	30 (1)
Length indicator	indefinite	80
Forwarding Feature	Seq.	30 (1)
Forwarding Feature length	indefinite	80
Basic Service Code identifier	TeleserviceCode	83
Teleservice length	1	01
Teleservice code	All Facsimile Services	60
SS-Status	Tag=84	84
SS-Status length	1	01
SS-Status code	Prov., Registered, Active	07
Forwarded To Number identifier	Tag=85	85
ISDN-AddressString length	5	05
AddressString type	Unknown	81
AddressString	TBCD-String: 00431234	00 34 21 43
End-Of-Content Tag	0	00
Length Indicator	0	00
End-Of-Content Tag	0	00
Length Indicator	0	00
End-Of-Content Tag	0	00
Length Indicator	0	00
End-Of-Content Tag	0	00
Length Indicator	0	00
End-Of-Content Tag	0	00
Length Indicator	0	00

Test 31.2.1.1.2. Registration rejected

MMI sequence: **67*00431234*21#

Step 4: MS -> SS REGISTER

Contents	Value/remark	Coding
Length of FIE contents	23	17
Component type tag	Invoke	A1 (1)
Component length	21	15
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation Code tag		02
Operation Code length	1	01
Operation Code	RegisterSS	0A
RegisterSS-Arg	Seq.	30 (1)
RegisterSS-Arg length	13	0D
SS-Code tag	Tag=4	04
SS-Code length	1	01
SS-Code	CFB	29
Basic Service Code identifier	BearerserviceCode	82
Bearerservice length	1	01
Bearerservice code	AllAsynchronousServices	60
Forwarded To Number identifier	Tag=84	84
AddressString length	5	05
AddressString type	Unknown	81
AddressString	TBCD-String: 00431234	00 34 21 43

Step 5: SS -> MS RELEASE COMPLETE

Contents	Value/remark	Coding
Length of FIE contents	8	08
Component type tag	Return Error	A3 (1)
Component length	6	06
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	--
Error Code tag		02
Error Code length	1	01
Error Code	BearerServiceNot Provisioned	0A

MMI sequence: **002*00431234*13#

Step 11: MS -> SS REGISTER

Contents	Value/remark	Coding
Length of FIE contents	23	1715
Component type tag	Invoke	A1 (1)
Component length	21	15
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation Code tag		02
Operation Code length	1	01
Operation Code	RegisterSS	0A
RegisterSS-Arg		30 (1)
RegisterSS-Arg length	13	0D
SS-Code tag	Tag=4	04
SS-Code length	1	01
SS-Code	CF	20
Basic Service Code identifier	TeleserviceCode	83
Teleservice length	1	01
Teleservice code	All Facsimile Services	60
Forwarded To Number identifier	Tag=84	84
AddressString length	5	05
AddressString type	Unknown	81
AddressString	TBCD-String: 00431234	00 34 21 43

Step 12: SS -> MS RELEASE COMPLETE

Contents	Value/remark	Coding
Length of FIE contents	8	08
Component type tag	Reject	A4 (1)
Component length	6	06
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	--
Invoke Problem tag	Tag=81	81
Invoke Problem length	1	01
Invoke Problem code	Resource limitation	03

Test 31.2.1.2.1. Erasure accepted

MMI sequence: ##004**13#

Step 6: MS -> SS REGISTER

Contents	Value/remark	Coding
Length of FIE contents	16	10
Component type tag	Invoke	A1 (1)
Component length	14	0E
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation Code tag		02
Operation Code length	1	01
Operation Code	EraseSS	0B
SS-ForBS	Seq.	30 (1)
SS-ForBS length	6	06
SS-Code tag	Tag=4	04
SS-Code length	1	01
SS-Code	CFC	28
Basic Service Code identifier	TeleserviceCode	83
Teleservice length	1	01
Teleservice code	All Facsimile Services	60

Step 7: SS -> MS RELEASE COMPLETE

Contents	Value/remark	Coding
Length of FIE contents	31	1F
Component type tag	Return Result	A2 (1)
Component length	29	1D
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	--
Sequence tag		30 (1)
Sequence length	24	18
Operation Code tag		02
Operation Code length	1	01
Operation Code	EraseSS	0B
SS-Information		
Forwarding Info tag	Tag=A0	A0 (1)
Forwarding Info length	indefinite	80
SS-Code tag	Tag=4	04
SS-Code length	1	01
SS-Code	CFC	28
Forwarding Feature List	Seq.	30 (1)
Length Indicator	indefinite	80
Forwarding Feature	Seq.	30 (1)
Forwarding Feature length	indefinite	80
Basic Service Code identifier	TeleserviceCode	83
Teleservice length	1	01
Teleservice code	All Facsimile Services	60
SS-Status	Tag=84	84
SS-Status length	1	01
SS-Status code	Provisioned	04
End-Of-Content Tag	0	00
Length Indicator	0	00
End-Of-Content Tag	0	00
Length Indicator	0	00
End-Of-Content Tag	0	00
Length Indicator	0	00

MMI sequence: ##62#**Step 15: MS -> SS REGISTER**

Contents	Value/remark	Coding
Length of FIE contents	13	0D
Component type tag	Invoke	A1 (1)
Component length	11	0B
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation Code tag		02
Operation Code length	1	01
Operation Code	EraseSS	0B
SS-ForBS	Seq.	30 (1)
SS-ForBS length	3	03
SS-Code tag	Tag=4	04
SS-Code length	1	01
SS-Code	CFNRc	2B

Step 16: SS -> MS RELEASE COMPLETE

Contents	Value/remark	Coding
Length of FIE contents	22	16
Component type tag	Return Result	A2 (1)
Component length	20	14
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	--
Sequence tag		30 (1)
Sequence length	15	0F
Operation Code tag		02
Operation Code length	1	01
Operation Code	EraseSS	0B
SS-Information		
Forwarding Info tag	Tag=A0	A0 (1)
Forwarding Info length	10	0A
SS-Code tag	Tag=4	04
SS-Code length	1	01
SS-Code	CFNRc	2B
Forwarding Feature List	Seq.	30 (1)
Length Indicator	5	05
Forwarding Feature	Seq.	30 (1)
Forwarding Feature length	3	03
SS-Status	Tag=84	84
SS-Status length	1	01
SS-Status code	Provisioned	04

Test 31.2.1.2.2. Erasure rejected**MMI sequence: ##21**11#****Step 4: MS -> SS REGISTER**

Contents	Value/remark	Coding
Length of FIE contents	16	10
Component type tag	Invoke	A1 (1)
Component length	14	0E
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation Code tag		02
Operation Code length	1	01
Operation Code	EraseSS	0B
SS-ForBS		30 (1)
SS-ForBS length	6	06
SS-Code tag	Tag=4	04
SS-Code length	1	01
SS-Code	CFU	21
Basic Service Code identifier	TeleserviceCode	83
Teleservice length	1	01
Teleservice code	AllSpeechTransmission	10

Step 5: SS -> MS RELEASE COMPLETE

Contents	Value/remark	Coding
Length of FIE contents	8	08
Component type tag	Return Error	A3 (1)
Component length	6	06
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	--
Error Code tag	Tag=2	02
Error Code length	1	01
Error Code	TeleserviceNotProvisioned	0B

MMI sequence: ##61**13#

Step 11: MS -> SS REGISTER

Contents	Value/remark	Coding
Length of FIE contents	16	10
Component type tag	Invoke	A1 (1)
Component length	14	0E
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation Code tag		02
Operation Code length	1	01
Operation Code	EraseSS	0B
SS-ForBS		30 (1)
SS-ForBS length	6	06
SS-Code tag	Tag=4	04
SS-Code length	1	01
SS-Code	CFNRy	2A
Basic Service Code identifier	TeleserviceCode	83
Teleservice length	1	01
Teleservice code	All Facsimile Services	60

Step 12: SS -> MS RELEASE COMPLETE

Contents	Value/remark	Coding
Length of FIE contents	10	0A
Component type tag	Reject	A4 (1)
Component length	indefinite	80
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	--
Invoke Problem tag		81
Invoke Problem length	1	01
Invoke Problem	Resource limitation	03
End-Of-Content Tag	0	00
Length Indicator	0	00

Test 31.2.1.3. Activation

MMI sequence: *002**22#

Step 6: MS -> SS REGISTER

Contents	Value/remark	Coding
Length of FIE contents	16	10
Component type tag	Invoke	A1 (1)
Component length	14	0E
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation Code tag		02
Operation Code length	1	01
Operation Code	ActivateSS	0C
SS-ForBS		30 (1)
SS-ForBS length	6	06
SS-Code tag	Tag=4	04
SS-Code length	1	01
SS-Code	CF	20
Basic Service Code identifier	BearerserviceCode	82
Bearerservice length	1	01
Bearerservice code	AllSynchronousServices	68

Step 7:SS -> MS RELEASE COMPLETE

Contents	Value/remark	Coding
Length of FIE contents	29	1D
Component type tag	Return Result	A2 (1)
Component length	indefinite	80
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	--
Sequence tag		30 (1)
Sequence length	20	14
Operation Code tag		02
Operation Code length	1	01
Operation Code	ActivateSS	0C
SS-Information		
Forwarding Info tag	Tag=A0	A0 (1)
Forwarding Info length	indefinite	80
SS-Code tag	Tag=4	04
SS-Code length	1	01
SS-Code	CF	20
Forwarding Feature List	Seq.	30 (1)
Length Indicator	8	08
Forwarding Feature	Seq.	30 (1)
Forwarding Feature length	6	06
Basic Service Code identifier	BearerserviceCode	82
Bearerservice length	1	01
Bearerservice code	AllSynchronousServices	68
SS-Status	Tag=4	84
SS-Status length	1	01
SS-Status code	Prov., Registered, Active	07
End-Of-Content Tag	0	00
Length Indicator	0	00
End-Of-Content Tag	0	00
Length Indicator	0	00

MMI sequence: *21#**Step 15: MS -> SS REGISTER**

Contents	Value/remark	Coding
Length of FIE contents	13	0D
Component type tag	Invoke	A1 (1)
Component length	11	0B
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation Code tag		02
Operation Code length	1	01
Operation Code	ActivateSS	0C
SS-ForBS	Seq.	30 (1)
SS-ForBS length	3	06
SS-Code tag	Tag=4	04
SS-Code length	1	01
SS-Code	CFU	21

Step 16: SS -> MS RELEASE COMPLETE

Contents	Value/remark	Coding
Length of FIE contents	26	1A
Component type tag	Return Result	A2 (1)
Component length	24	18
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	--
Sequence tag		30 (1)
Sequence length	indefinite	80
Operation Code tag		02
Operation Code length	1	01
Operation Code	ActivateSS	0C
SS-Information		
Forwarding Info tag	Tag=A0	A0 (1)
Forwarding Info length	indefinite	80
SS-Code tag	Tag=4	04
SS-Code length	1	01
SS-Code	CFU	21
Forwarding Feature List	Seq.	30 (1)
Length Indicator	5	05
Forwarding Feature	Seq.	30 (1)
Forwarding Feature length	3	03
SS-Status	Tag=84	84
SS-Status length	1	01
SS-Status code	Prov. Registered, Active	07
End-Of-Content Tag	0	00
Length Indicator	0	00
End-Of-Content Tag	0	00
Length Indicator	0	00

Test 31.2.1.4. Deactivation

MMI sequence: #004**11#

Step 6: MS -> SS REGISTER

Contents	Value/remark	Coding
Length of FIE contents	16	10
Component type tag	Invoke	A1 (1)
Component length	14	0E
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation Code tag		02
Operation Code length	1	01
Operation Code	DeactivateSS	0D
SS-ForBS	Seq.	30 (1)
SS-ForBS length	6	06
SS-Code tag	Tag=4	04
SS-Code length	1	01
SS-Code	CFC	28
Basic Service Code identifier	TeleserviceCode	83
Teleservice length	1	01
Teleservice code	AllSpeechTransmission	10

Step 7: SS -> MS RELEASE COMPLETE

Contents	Value/remark	Coding
Length of FIE contents	29	1D
Component type tag	Return Result	A2 (1)
Component length	27	1B
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	--
Sequence tag		30 (1)
Sequence length	22	16
Operation Code tag		02
Operation Code length	1	01
Operation Code	DeactivateSS	0D
SS-Information		
Forwarding Info tag	Tag=A0	A0 (1)
Forwarding Info length	indefinite	80
SS-Code tag	Tag=4	04
SS-Code length	1	01
SS-Code	CFC	28
Forwarding Feature List	Seq.	30 (1)
Length Indicator	indefinite	80
Forwarding Feature	Seq.	30 (1)
Forwarding Feature length	6	06
Basic Service Code identifier	TeleserviceCode	83
Teleservice length	1	01
Teleservice code	AllSpeechTransmission	10
SS-Status	Tag=84	84
SS-Status length	1	01
SS-Status code	Provisioned, Registered	06
End-Of-Content Tag	0	00
Length Indicator	0	00
End-Of-Content Tag	0	00
Length Indicator	0	00

MMI sequence: #6213#****Step 15: MS -> SS REGISTER**

Contents	Value/remark	Coding
Same header as Step 6		
SS-Code tag	Tag=4	04
SS-Code length	1	01
SS-Code	CFNRc	2B
Basic Service Code identifier	TeleserviceCode	83
Teleservice length	1	01
Teleservice code	All Facsimile Services	60

Step 16: SS -> MS RELEASE COMPLETE

Contents	Value/remark	Coding
Length of FIE contents	27	1B
Component type tag	Return Result	A2 (1)
Component length	25	19
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	--
Sequence tag		30 (1)
Sequence length	20	14
Operation Code tag		02
Operation Code length	1	01
Operation Code	DeactivateSS	0D
SS-Information		
Forwarding Info tag	Tag=A0	A0 (1)
Forwarding Info length	15	0F
SS-Code tag	Tag=4	04
SS-Code length	1	01
SS-Code	CFNRc	2B
Forwarding Feature List	Seq.	30 (1)
Length Indicator	10	0A
Forwarding Feature	Seq.	30 (1)
Forwarding Feature length	indefinite	80
Basic Service Code identifier	TeleserviceCode	83
Teleservice length	1	01
Teleservice code	All Facsimile Services	60
SS-Status	Tag=4	84
SS-Status length	1	01
SS-Status code	Provisioned, Registered	06
End-Of-Content Tag	0	00
Length Indicator	0	00

Test 31.2.1.6.1. Interrogation accepted

MMI sequence: *#67#

Step 6: MS -> SS REGISTER

Contents	Value/remark	Coding
Length of FIE contents	13	0D
Component type tag	Invoke	A1 (1)
Component length	11	0B
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation Code tag		02
Operation Code length	1	01
Operation Code	InterrogateSS	0E
SS-ForBS		30 (1)
SS-ForBS length	3	03
SS-Code tag	Tag=4	04
SS-Code length	1	01
SS-Code	CFB	29

Step 7: SS -> MS RELEASE COMPLETE

Contents	Value/Remark	Coding
Length of FIE contents	13	0D
Component type tag	Return Result	A2 (1)
Component length	11	0B
Invoke ID tag	Tag=02	02
Invoke ID length	1	01
Invoke ID	As received	03
Sequence tag		30 (1)
Sequence length	6	06
Operation code tag	Tag=02	02
Operation code length	1	01
Operation code	InterrogateSS	0E
InterrogateSS-Res	Choice	
SS-Status	Tag=80	80
SS-Status length	1	01
SS-Status	Provisioned	04

MMI sequence: *#6111#**

Step 15: MS -> SS REGISTER

Contents	Value/Remark	Coding
Length of FIE contents	16	10
Component type tag	Invoke	A1 (1)
Component length	14	0E
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation code tag		02
Operation code length	1	01
Operation code	InterrogateSS	0E
SS-ForBS	Seq	30 (1)
SS-ForBS length	6	06
SS code tag	Tag=4	04
SS code length	1	01
SS code	CFNRy	28
Basic Service Code identifier	TeleserviceCode	83
Teleservice length	1	01
Teleservice code	AllSpeechTransmission	10

Step 16: SS -> MS RELEASE COMPLETE

Contents	Value/Remark	Coding
Length of FIE contents	26	1A
Component type tag	Return Result	A2 (1)
Component length	24	18
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	03
Sequence tag		30 (1)
Sequence length	19	13
Operation code tag		02
Operation code length	1	01
Operation code	InterrogateSS	0E
InterrogateSS-Res	Choice	
Forwarding Feature List	Seq.	A3 (1)
length indicator	14	0E
Forwarding Feature tag	Seq.	30 (1)
Forwarding Feature length	12	0C
Basic Service Code identifier	TeleserviceCode	83
Teleservice length	1	01
Teleservice code	AllSpeechTransmission	10
SS-Status	Tag=84	84
SS-Status length	1	01
SS-Status code	Prov. Registered Active	07
Forwarded To Number Identifier	Tag=85	85
ISDN-AddressString length	4	04
AddressString type	International Number	91
AddressString	TBCD-String: 431234	34 21 43

Test 31.2.1.6.2. Interrogation rejected

MMI sequence: *#62#

Step 4: MS -> SS REGISTER

Contents	Value/remark	Coding
Length of FIE contents	13	0D
Component type tag	Invoke	A1 (1)
Component length	11	0B
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation Code tag		02
Operation Code length	1	01
Operation Code	InterrogateSS	0E
SS-ForBS		30 (1)
SS-ForBS length	3	03
SS-Code tag	Tag=4	04
SS-Code length	1	01
SS-Code	CFNRc	2B

Step 5: SS -> MS RELEASE COMPLETE

Contents	Value/remark	Coding
Length of FIE contents	8	08
Component type tag	Return Error	A3 (1)
Component length	6	06
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	--
Error Code tag		02
Error Code length	1	01
Error Code	SS-NotAvailable	12

MMI sequence: *#6713#**

Step 11: MS -> SS REGISTER

Contents	Value/remark	Coding
Length of FIE contents	16	10
Component type tag	Invoke	A1 (1)
Component length	14	0E
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation code tag		02
Operation code length	1	01
Operation code	InterrogateSS	0E
SS-ForBS	Seq	30 (1)
SS-ForBS length	6	06
SS code tag	Tag=04	04
SS code length	1	01
SS code	CFB: CF on MS Busy	29
Basic Service Code identifier	TeleserviceCode	83
Teleservice length	1	01
Teleservice code	AllFacsimileServices	60

Step 12: SS -> MS RELEASE COMPLETE

Contents	Value/remark	Coding
Length of FIE contents	8	08
Component type tag	Reject	A4 (1)
Component length	indefinite	80
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	--
Problem code tag	Tag=81	81
Problem code length	1	01
Invoke problem	Resource limitation	03
End-Of-Content Tag	0	00
Length Indicator	0	00

Test 31.2.1.7.1.1. Notification during an incoming call

Step 10 and 15: SS -> MS FACILITY

Contents	Value/remark	Coding
Length of FIE contents	18	12
Component type tag	Invoke	A1 (1)
Component length	16	10
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation Code tag		02
Operation Code length	1	01
Operation Code	NotifySS	10
SS-ForBS		30 (1)
SS-ForBS length	indefinite	80
SS-Code tag	Tag=81	81
SS-Code length	1	01
SS-Code	CFB	29
SS-Notification tag	Tag=85	85
SS-Notification length	1	01
SS-Notification	Incoming call forwarded	02
End-Of-Content Tag	0	00
Length Indicator	0	00

Test 31.2.1.7.1.2. Notification during an outgoing call

Step 9 : SS -> MS ALERTING

Contents	Value/remark	Coding
Length of FIE contents	18	12
Component type tag	Invoke	A1 (1)
Component length	indefinite	80
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	00
Operation code tag		02
Operation code length	1	01
Operation code	NotifySS	10
NotifySS-Arg tag	Seq.	30 (1)
NotifyBS-Arg length	6	06
SS code tag	Tag=81	81
SS code length	1	01
SS code	CFU: Forw Unconditional	21
SS-Status	Tag=84	84
SS-Status length	1	01
SS-Status code	Prov. Registered Active	07
End-Of-Content Tag	0	00
Length Indicator	0	00

Step 10 : SS -> MS CONNECT

Contents	Value/remark	Coding
Length of FIE contents	18	12
Component type tag	Invoke	A1 (1)
Component length	16	10
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	01
Operation code tag		02
Operation code length	1	01
Operation code	NotifySS	10
NotifySS-Arg tag	Seq.	30 (1)
NotifyBS-Arg length	indefinite	80
SS code tag	Tag=81	81
SS code length	1	01
SS code	CFC: Conditional Forw.	28
SS-Status	Tag=84	84
SS-Status length	1	01
SS-Status code	Prov. Registered Active	07
End-Of-Content Tag	0	00
Length Indicator	0	00

Test 31.2.1.7.2. Forwarded-to mobile subscriber side**Step 5 : SS -> MS SETUP**

Contents	Value/remark	Coding
Length of FIE contents	18	12
Component type tag	Invoke	A1 (1)
Component length	indefinite	80
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	00
Operation code tag		02
Operation code length	1	01
Operation code	NotifySS	10
NotifySS-Arg tag	Seq.	30 (1)
NotifyBS-Arg length	6	06
SS code tag	Tag=81	81
SS code length	1	01
SS code	CFNRc MS not reachable	2B
SS-Notification tag	Tag=85	85
SS-Notification length	1	01
SS-Notification	Forwarded call	01
End-Of-Content Tag	0	00
Length Indicator	0	00

Test 31.6.1.1. AOC time related charging/MS originated call

k=1 Step 11: SS -> MS CONNECT

Contents	Value/remark	Coding
Length of FIE contents	41	29
Component type tag	Invoke	A1 (1)
Component length	39	27
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation code tag		02
Operation code length	1	01
Operation code	ForwardChargeAdvice	7D
ForwardChargeAdviceArg	Seq.	30 (1)
ForwardChargeAdviceArg length	indefinite	80
SS code tag	Tag=80	80
SS code length	1	01
SS code	AoC-Charging	72
Charging Information	Tag=a1	A1 (1)
Charging Information length	24	18
e1 tag	Tag=81	81
e1 length	1	01
e1	Value = 6,0	3C
e2 tag	Tag=82	82
e2 length	2	02
e2	Value = 14,0	00 8C
e3 tag	Tag=83	83
e3 length	1	01
e3	Value = 1,0	64
e4 tag	Tag=84	84
e4 length	2	02
e4	Value = 25,0	00 FA
e5 tag	Tag=85	85
e5 length	1	01
e5	Value = 0,0	00
e6 tag	Tag=86	86
e6 length	1	01
e6	Value = 0,0	00
e7 tag	Tag=87	87
e7 length	2	02
e7	Value = 60,0	02 58
End-Of-Content Tag	0	00
Length Indicator	0	00

Step A13/B12: MS -> SS FACILITY

Contents	Value/remark	Coding
Length of FIE contents	5	05
Component type tag	Return Result	A2 (1)
Component length	3	03
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	--

k=1...5: e-parameters

k-value	e-parameter values						
	e1	e2	e3	e4	e5	e6	e7
1	6	14	1	25	0	0	60
2	0	0	1	100	0	0	0
3	250	16	2	500	0	0	60
4	1	1	1	0	10	10	1
5	12,5	30	1	25	10	10	30

k-value	e-parameter coding						
	e1	e2	e3	e4	e5	e6	e7
1	3C	00 8C	64	00 FA	00	00	02 58
2	00	00	64	03 E8	00	00	00
3	09 C4	00 A0	00 C8	13 88	00	00	02 58
4	00 0A	00 0A	00 64	00 00	00 64	00 0A	00 0A
5	7D	01 2C	64	00 FA	64	0A	01 2C

Test 31.6.1.2. AOC time related charging/MS terminated call**k=1...5 Step 12: SS -> MS FACILITY e-parameters**

k-value	e-parameter values						
	e1	e2	e3	e4	e5	e6	e7
1	0	0	0	0	0	0	0
2	0	0	1	100	0	0	0
3	6	14	1	25	0	0	60
4	1	1	1	0	0	0	1
5	12,5	30	1	25	0	0	30

k-value	e-parameter coding						
	e1	e2	e3	e4	e5	e6	e7
1	00	00	00	00	00	00	00
2	00	00	64	03 E8	00	00	00
3	3C	00 8C	64	00 FA	00	00	02 58
4	0A	0A	64	00	00	00	0A
5	7D	01 2C	00 64	FA	00	00	01 2C

Test 31.6.1.5. Change in charging information during a call

Step A12: SS -> MS FACILITY (initial CAI message)

Contents	Value/remark	Coding
CAI header element		
e1 tag	Tag=81	81
e1 length	1	01
e1	Value = 10,0	64
e2 tag	Tag=82	82
e2 length	2	02
e2	Value = 28,0	01 18
e3 tag	Tag=83	83
e3 length	1	01
e3	Value = 1,0	64
e4 tag	Tag=84	84
e4 length	1	01
e4	Value = 10,0	64
e5 tag	Tag=85	85
e5 length	1	01
e5	Value = 0,0	00
e6 tag	Tag=86	86
e6 length	1	01
e6	Value = 0,0	00
e7 tag	Tag=87	87
e7 length	2	02
e7	Value = 60,0	02 58

Step A12: SS -> MS FACILITY (subsequent CAI message)

Contents	Value/remark	Coding
CAI header element		
e1	Value = 10,0	64
e2	Value = 14,0	00 8C
e3	Value = 1,0	64
e4	Value = 5,0	32
e5	Value = 0,0	00
e6	Value = 0,0	00
e7	Value = 60,0	02 58

Test 31.6.1.6. Different formats of charging information

k=1 SS -> MS FACILITY

Contents	Value/remark	Coding
CAI header element		
e1	Value = 10,0	64
e2	Value = 40,0	01 90
e3	Value = 1,0	64
e4	Value = 0,0	00
e5	Value = 0,0	00
e6	Value = 0,0	00
e7	Value = 0,0	00 00

k=2 SS -> MS FACILITY

Contents	Value/remark	Coding
Length of FIE contents	27	1B
Component type tag	Invoke	A1 (1)
Component length	25	19
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation code tag		02
Operation code length	1	01
Operation code	forwardChargeAdvice	7D
ForwardChargeAdviceArg	Seq.	30 (1)
ForwardChargeAdviceArg length	17	11
SS code tag	Tag=80	80
SS code length	1	01
SS code	AoC-Charging	72
Charging Information	Tag=a1	A1 (1)
Charging Information length	indefinite	80
e1 tag	Tag=81	81
e1 length	1	01
e1	Value = 10,0	64
e2 tag	Tag=82	82
e2 length	2	02
e2	Value = 40,0	01 90
e3 tag	Tag=83	83
e3 length	1	01
e3	Value = 1,0	64
End-Of-Content Tag	0	00
Length Indicator	0	00

Test 31.6.1.7. AOC on a Call Hold call

Step 11: SS -> MS CONNECT

Contents	Value/remark	Coding
CAI header element		
e1	Value = 7,0	46
e2	Value = 40,0	01 90
e3	Value = 1,0	64
e4	Value = 0,0	00
e5	Value = 0,0	00
e6	Value = 0,0	00
e7	Value = 0,0	00

Step 20: SS -> MS CONNECT

Contents	Value/remark	Coding
CAI header element		
e1	Value = 13,0	00 82
e2	Value = 40,0	01 90
e3	Value = 1,0	64
e4	Value = 0,0	00
e5	Value = 0,0	00
e6	Value = 0,0	00
e7	Value = 0,0	00

Test 31.6.1.8. AOC on a Multi-party call

Step 11 & 20: SS -> MS CONNECT

k-value	e-parameter values						
	e1	e2	e3	e4	e5	e6	e7
1	19	40	1	0	0	0	0
2	29	40	1	0	0	0	0

k-value	e-parameter coding						
	e1	e2	e3	e4	e5	e6	e7
1	00 BE	01 90	64	00	00	00	00
2	01 22	01 90	64	00	00	00	00

Step 23: MS -> SS FACILITY

Contents	Value/remark	Coding
Length of FIE contents	8	08
Component type tag	Invoke	A1 (1)
Component length	6	06
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation code tag		02
Operation code length	1	01
Operation code	BuildMPTY	7C

Step 24: SS -> MS FACILITY

Contents	Value/remark	Coding
Length of FIE contents	7	07
Component type tag	Return Result	A2 (1)
Component length	indefinite	80
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	--
End-Of-Content Tag	0	00
Length Indicator	0	00

Test 31.6.2. Charge Storage**31.6.2.1 Removal of SIM during an active call****and 31.6.2.2 Interruption of power supply during an active call****and 31.6.2.3 MS going out of coverage during an active AoCC call****Step A11: SS -> MS CONNECT**

Contents	Value/remark	Coding
Length of FIE contents	39	27
Component type tag	Invoke	A1 (1)
Component length	indefinite	80
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation code tag		02
Operation code length	1	01
Operation code	forwardChargeAdvice	7D
ForwardChargeAdviceArg	Seq.	30 (1)
ForwardChargeAdviceArg length	27	1B
SS code tag	Tag=80	80
SS code length	1	01
SS code	AoC-Charging	72
Charging Information	Tag=a1	A1 (1)
Charging Information length	22	16
e1 tag	Tag=81	81
e1 length	1	01
e1	Value = 10,0	64
e2 tag	Tag=82	82
e2 length	2	02
e2	Value = 55,0	02 26
e3 tag	Tag=83	83
e3 length	1	01
e3	Value = 1,0	64
e4 tag	Tag=84	84
e4 length	1	01
e4	Value = 10,0	64
e5 tag	Tag=85	85
e5 length	1	01
e5	Value = 0,0	00
e6 tag	Tag=86	86
e6 length	1	01
e6	Value = 0,0	00
e7 tag	Tag=87	87
e7 length	1	01
e7	Value = 10,0	64
End-Of-Content Tag	0	00
Length Indicator	0	00

Test 31.6.2.4. ACMmax operation/Mobile Originating

k=1 Step A11: SS -> MS FACILITY

Contents	Value/remark	Coding
Length of FIE contents	41	29
Component type tag	Invoke	A1 (1)
Component length	indefinite	80
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation code tag		02
Operation code length	1	01
Operation code	ForwardChargeAdvice	7D
ForwardChargeAdviceArg	Seq.	30 (1)
ForwardChargeAdviceArg length	27	1B
SS code tag	Tag=80	80
SS code length	1	01
SS code	AoC-Charging	72
Charging Information	Tag=a1	A1 (1)
Charging Information length	22	16
e1 tag	Tag=81	81
e1 length	1	01
e1	Value = 1,0	0A
e2 tag	Tag=82	82
e2 length	2	02
e2	Value = 30,0	01 2C
e3 tag	Tag=83	83
e3 length	1	01
e3	Value = 1,0	64
e4 tag	Tag=84	84
e4 length	1	01
e4	Value = 0,0	00
e5 tag	Tag=85	85
e5 length	1	01
e5	Value = 0,0	00
e6 tag	Tag=86	86
e6 length	1	01
e6	Value = 0,0	00
e7 tag	Tag=87	87
e7 length	1	01
e7	Value = 0,0	00
End-Of-Content Tag	0	00
Length Indicator	0	00

k=2 Step A11: SS -> MS FACILITY

Contents	Value/remark	Coding
Length of FIE contents	40	28
Component type tag	Invoke	A1 (1)
Component length	indefinite	80
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation code tag		02
Operation code length	1	01
Operation code	ForwardChargeAdvice	7D
ForwardChargeAdviceArg	Seq.	30 (1)
ForwardChargeAdviceArg length	26	1A
SS code tag	Tag=80	80
SS code length	1	01
SS code	AoC-Charging	72
Charging Information	Tag=a1	A1 (1)
Charging Information length	21	15
e1 tag	Tag=81	81
e1 length	1	01
e1	Value = 0,0	00
e2 tag	Tag=82	82
e2 length	1	01
e2	Value = 0,0	00
e3 tag	Tag=83	83
e3 length	1	01
e3	Value = 0,0	00
e4 tag	Tag=84	84
e4 length	1	01
e4	Value = 0,0	00
e5 tag	Tag=85	85
e5 length	1	01
e5	Value = 0,0	00
e6 tag	Tag=86	86
e6 length	1	01
e6	Value = 0,0	00
e7 tag	Tag=87	87
e7 length	1	01
e7	Value = 0,0	00
End-Of-Content Tag	0	00
Length Indicator	0	00

Test 31.6.2.5 ACMmax operation/Mobile Terminating

k=1 Step A13: SS -> MS FACILITY, k=2 Step B13: SS -> MS FACILITY

Contents	Value/remark	Coding
Length of FIE contents	41	29
Component type tag	Invoke	A1 (1)
Component length	indefinite	80
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation code tag		02
Operation code length	1	01
Operation code	ForwardChargeAdvice	7D
ForwardChargeAdviceArg	Seq.	30 (1)
ForwardChargeAdviceArg length	27	1B
SS code tag	Tag=80	80
SS code length	1	01
SS code	AoC-Charging	72
Charging Information	Tag=a1	A1 (1)
Charging Information length	28	1C
e1 tag	Tag=81	81
e1 length	1	01
e1	Value = 1,0	00 0A
e2 tag	Tag=82	82
e2 length	2	02
e2	Value = 30,0	01 2C
e3 tag	Tag=83	83
e3 length	1	01
e3	Value = 1,0	64
e4 tag	Tag=84	84
e4 length	1	01
e4	Value = 0,0	00
e5 tag	Tag=85	85
e5 length	1	01
e5	Value = 0,0	00
e6 tag	Tag=86	86
e6 length	1	01
e6	Value = 0,0	00
e7 tag	Tag=87	87
e7 length	1	01
e7	Value = 0,0	00
End-Of-Content Tag	0	00
Length Indicator	0	00

k=3 Step A13: SS -> MS FACILITY

Contents	Value/remark	Coding
Length of FIE contents	40	28
Component type tag	Invoke	A1 (1)
Component length	indefinite	80
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation code tag		02
Operation code length	1	01
Operation code	ForwardChargeAdvice	7D
ForwardChargeAdviceArg	Seq.	30 (1)
ForwardChargeAdviceArg length	26	1A
SS code tag	Tag=80	80
SS code length	1	01
SS code	AoC-Charging	72
Charging Information	Tag=a1	A1 (1)
Charging Information length	21	15
e1 tag	Tag=81	81
e1 length	1	01
e1	Value = 0,0	00
e2 tag	Tag=82	82
e2 length	1	01
e2	Value = 0,0	00
e3 tag	Tag=83	83
e3 length	1	01
e3	Value = 0,0	00
e4 tag	Tag=84	84
e4 length	1	01
e4	Value = 0,0	00
e5 tag	Tag=85	85
e5 length	1	01
e5	Value = 0,0	00
e6 tag	Tag=86	86
e6 length	1	01
e6	Value = 0,0	00
e7 tag	Tag=87	87
e7 length	1	01
e7	Value = 0,0	00
End-Of-Content Tag	0	00
Length Indicator	0	00

Test 31.8.1.1. Registration of a password accepted**MMI sequence:**03*330*1234*9876*9876#****Step 6: MS -> SS REGISTER**

Contents	Value/remark	Coding
Length of FIE contents	11	0B
Component type tag	Invoke	A1 (1)
Component length	9	09
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation Code tag		02
Operation Code length	1	01
Operation Code	RegisterPasswordSS	11
SS-Code tag	Tag=4	04
SS-Code length	1	01
SS-Code	B: All barring services	90

Step 7: SS -> MS FACILITY

Contents	Value/remark	Coding
Length of FIE contents	14	0E
Component type tag	Invoke	A1 (1)
Component length	12	0C
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Linked ID tag		80
Linked ID length	1	01
Linked ID	As received	--
Operation Code tag		02
Operation Code length	1	01
Operation Code	GetPasswordSS	12
Guidance information	Enumerated	0A
Guidance length	1	01
Guidance	enter password	00

Step 9: MS -> SS FACILITY

Contents	Value/remark	Coding
Length of FIE contents	16	10
Component type tag	Return Result	A2 (1)
Component length	14	0E
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	--

Sequence tag		30 (1)
Sequence length	9	09
Operation Code tag		02
Operation Code length	1	01
Operation Code	GetPasswordSS	12
Password tag	Numeric String	12
Password length	4	04
Password	Password = 1234	31 32 33 34

Step 10 & 12: FACILITY

Contents	Value/remark	Coding
Guidance	Enter New Password	01

Contents	Value/remark	Coding
Password	Password = 9876	39 38 37 36

Step 13 & 15: FACILITY

Contents	Value/remark	Coding
Guidance	EnterNewPasswordAgain	02

Contents	Value/remark	Coding
Password	Password = 9876	39 38 37 36

Step 16: SS -> MS RELEASE COMPLETE

Contents	Value/remark	Coding
Length of FIE contents	20	14
Component type tag	Return Result	A2 (1)
Component length	indefinite	80
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	--
Sequence tag		30 (1)
Sequence length	indefinite	80
Operation Code tag		02
Operation Code length	1	01
Operation Code	RegisterPasswordSS	11
Password tag	Numeric String	12
Password length	4	04
Password	Password = 1234	31 32 33 34
End-Of-Content Tag	0	00
Length Indicator	0	00
End-Of-Content Tag	0	00
Length Indicator	0	00

Test 31.8.1.2. Registration of a password rejected**MMI sequence:**03*330*1234*9876*987X#****Test 31.8.1.2.1. Rejection after invoke of the RegisterPassword operation****Step 4: MS -> SS REGISTER**

Contents	Value/remark	Coding
Length of FIE contents	11	0B
Component type tag	Invoke	A1 (1)
Component length	9	09
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation Code tag		02
Operation Code length	1	01
Operation Code	RegisterPasswordSS	11
SS-Code tag	Tag=4	04
SS-Code length	1	01
SS-Code	B: All barring services	90

Step 5: SS -> MS RELEASE COMPLETE

Contents	Value/remark	Coding
Length of FIE contents	8	08
Component type tag	Return Error	A3 (1)
Component length	6	06
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	--
Error Code tag	Tag=2	02
Error Code length	1	01
Error Code	SS subscription violation	13

Test 31.8.1.2.2. Rejection after password check with negative result**Step 6: SS -> MS RELEASE COMPLETE**

Contents	Value/remark	Coding
Length of FIE contents	10	0A
Component type tag	Return Error	A3 (1)
Component length	indefinite	80
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	--
Error Code tag	Tag=2	02
Error Code length	1	01
Error Code	Negative Password Check	26
End-Of-Content Tag	0	00
Length Indicator	0	00

Test 31.8.1.2.3. Rejection after new password mismatch

Step 14: SS -> MS RELEASE COMPLETE

Contents	Value/remark	Coding
Length of FIE contents	11	0B
Component type tag	Return Error	A3 (1)
Component length	9	09
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	--
Error Code tag	Tag=2	02
Error Code length	1	01
Error Code	PW-Registration Failure	25
pw-Registration Failure cause	Tag=04	04 (2)
pw-Registration Failure length	1	01
pw-Registration Failure	New Password Mismatch	02

NOTE 2: This element is described in Rec. GSM 04.80 4.3.2.12, but there is no ASN.1 description in chapter 4.5. Description given in the informative annex A should be put at the end of chapter 4.5.

Test 31.8.3.1. Activation accepted

MMI sequence: *33**22#

Step 6: MS -> SS REGISTER

Contents	Value/remark	Coding
Length of FIE contents	16	10
Component type tag	Invoke	A1 (1)
Component length	14	0E
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary (01)	--
Operation code tag		02
Operation code length	1	01
Operation code	ActivateSS	0C
SS-ForBS	Seq.	30 (1)
SS-ForBS length	6	06
SS code tag	Tag=04	04
SS code length	1	01
SS code	BAOC	92
Basic Service Code identifier	BearerServiceCode	82
BearerService length	1	01
BearerService code	AllSynchronousServices	68

Step 7: SS -> MS FACILITY

Contents	Value/remark	Coding
Length of FIE contents	14	0E
Component type tag	Invoke	A1 (1)
Component length	12	0C
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary (02)	--
Linked ID tag		80
Linked ID length	1	01
Linked ID	As received (01)	--
Operation code tag		02
Operation code length	1	01
Operation code	Getpassword	12
Guidance tag	Enumerated	0a
Guidance length	1	01
Guidance	Enter Password	00

Step 9: MS -> SS FACILITY

Contents	Value/remark	Coding
Length of FIE contents	16	10
Component type tag	Return Result	A2 (1)
Component length	14	0E
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received (02)	--
Sequence tag		30 (1)
Sequence length	9	09
Operation code tag		02
Operation code length	1	01
Operation code	Getpassword	12
Password tag	NumericString	12
Password length	4	04
Password	Password = 1234	31 32 33 34

Step 10: SS -> MS RELEASE COMPLETE

This message is coded to give a complete answer to the MS request. Shorter message can also be used (see last paragraph).

Contents	Value/remark	Coding
Length of FIE contents	29	1D
Component type tag	Return Result	A2 (1)
Component length	27	1B
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received (01)	--
Sequence tag		30 (1)
Sequence length	indefinite	80
Operation code tag		02
Operation code length	1	01
Operation code	ActivateSS	0C
SS information		
CallBarringInfo	Tag=a1	A1 (1)
CallBarringInfo length	indefinite	80
SS code tag	Tag=04	04
SS code length	1	01
SS code	BAOC	92
CallBarringFeature List	Seq.	30 (1)
Length indicator	8	08
CallBarring Feature tag	Seq.	30 (1)
CallBarring Feature length	6	06
Basic Service Code identifier	BearerserviceCode	82
BearerService length	1	01
BearerService code	AllSynchronousServices	68
SS-Status	Tag=84	84
SS-Status length	1	01
SS-Status code	Prov. Registered Active	07
End-Of-Content Tag	0	00
Length Indicator	0	00
End-Of-Content Tag	0	00
Length Indicator	0	00

MMI sequence: *351#

Step 18: MS -> SS REGISTER

Contents	Value/remark	Coding
Length of FIE contents	13	0D
Component type tag	Invoke	A1 (1)
Component length	11	0B
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation code tag		02
Operation code length	1	01
Operation code	ActivateSS	0C
SS-ForBS	Seq	30 (1)
SS-ForBS length	3	03
SS code tag	Tag=04	04
SS code length	1	01
SS code	BICRoam	9B

Step 22: SS -> MS RELEASE COMPLETE

Contents	Value/remark	Coding
Length of FIE contents	26	1A
Component type tag	Return Result	A2 (1)
Component length	24	18
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	--
Sequence identifier		30 (1)
Sequence length	19	13
Operation code tag		02
Operation code length	1	01
Operation code	ActivateSS	0C
SS-Information		
CallBarringInfo	Tag=a1	A1 (1)
CallBarringInfo length	14	0E
SS code tag	Tag=04	04
SS code length	1	01
SS code	BICRoam	9B
CallBarringFeature List	Seq.	30 (1)
Length indicator	indefinite	80
CallBarring Feature tag	Seq.	30 (1)
CallBarring Feature length	indefinite	80
SS-Status	Tag=84	84
SS-Status length	1	01
SS-Status code	Prov. Registered Active	07
End-Of-Content Tag	0	00
Length Indicator	0	00
End-Of-Content Tag	0	00
Length Indicator	0	00

Step 10 & 22: short messages

Step 11 and 24 messages can be coded using this shorter form:

Message containing only the "Return result"

Contents	Value/remark	Coding
Length of FIE contents	5	05
Component type tag	Return Result	A2 (1)
Component length	3	03
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	--

Message containing the "Return result" and the "Operation Code"

Contents	Value/remark	Coding
Length of FIE contents	12	0C
Component type tag	Return Result	A2 (1)
Component length	indefinite	80
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	--
Sequence identifier		30 (1)
Sequence length	3	03
Operation code tag		02
Operation code length	1	01
Operation code	ActivateSS	0C
End-Of-Content Tag	0	00
Length Indicator	0	00

Test 31.8.3.2.1. Rejection after invoke of ActivateSS operation

MMI sequence: *331#

Step 4: MS -> SS REGISTER

Contents	Value/remark	Coding
Length of FIE contents	13	0D
Component type tag	Invoke	A1 (1)
Component length	11	0B
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation code tag		02
Operation code length	1	01
Operation code	ActivateSS	0C
SS-ForBS	Seq	30 (1)
SS-ForBS length	3	03
SS code tag	Tag=04	04
SS code length	1	01
SS code	BOIC	93

Step 5: SS -> MS RELEASE COMPLETE

Contents	Value/remark	Coding
Length of FIE contents	8	08
Component type tag	Return Error	A3 (1)
Component length	6	06
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	--
Error code tag		02
Error code length	1	01
Error code	SS Subscription Violation	13

Test 31.8.3.2.2. Rejection after use of password procedure**MMI sequence: *35#****Step 4: MS -> SS REGISTER**

Contents	Value/remark	Coding
Length of FIE contents	13	0D
Component type tag	Invoke	A1 (1)
Component length	11	0B
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation code tag		02
Operation code length	1	01
Operation code	ActivateSS	0C
SS-ForBS	Seq	30 (1)
SS-ForBS length	3	03
SS code tag	Tag=04	04
SS code length	1	01
SS code	BAIC	9A

Step 8: SS -> MS RELEASE COMPLETE

Contents	Value/remark	Coding
Length of FIE contents	10	0A
Component type tag	Return Error	A3 (1)
Component length	indefinite	80
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	--
Error code tag		02
Error code length	1	01
Error code	NegativePasswordCheck	26
End-Of-Content Tag	0	00
Length Indicator	0	00

Test 31.8.4.1. Deactivation accepted

MMI sequence: *330**11#

Step 6: MS -> SS REGISTER

Contents	Value/remark	Coding
Length of FIE contents	16	10
Component type tag	Invoke	A1 (1)
Component length	14	0D
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation code tag		02
Operation code length	1	01
Operation code	DeactivateSS	0D
SS-ForBS	Seq	30 (1)
SS-ForBS length	3	03
SS code tag	Tag=04	04
SS code length	1	01
SS code	B: All barring services	90
Basic Service Code identifier	TeleserviceCode	83
Teleservice length	1	01
Teleservice code	AllSpeechTransmission	10

Step 10: SS -> MS RELEASE COMPLETE

Contents	Value/remark	Coding
Length of FIE contents	21	15
Component type tag	Return Result	A2 (1)
Component length	indefinite	80
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	--
Sequence identifier		30 (1)
Sequence length	12	0C
Operation code tag		02
Operation code length	1	01
Operation code	DeactivateSS	0D
SS-Information		
CallBarringInfo	Tag=a1	A1 (1)
CallBarringInfo length	7	07
CallBarringFeature List	Seq.	30 (1)
Length indicator	5	05
CallBarring Feature tag	Seq.	30 (1)
CallBarring Feature length	3	03
Basic Service Code Identifier	TeleserviceCode	83
Teleservice Length	1	01
Teleservice code	AllSpeechTransmission	10
End-Of-Content Tag	0	00
Length Indicator	0	00

MMI sequence: #333**13#

Step 17: MS -> SS REGISTER

Contents	Value/remark	Coding
Length of FIE contents	16	10
Component type tag	Invoke	A1 (1)
Component length	14	0E
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation code tag		02
Operation code length	1	01
Operation code	DeactivateSS	0D
SS-ForBS	Seq	30 (1)
SS-ForBS length	6	06
SS code tag	Tag=04	04
SS code length	1	01
SS code	BO	91
Basic Service Code identifier	TeleserviceCode	83
Teleservice length	1	01
Teleservice code	AllFacsimileServices	60

Step 21: MS -> SS RELEASE COMPLETE

Contents	Value/remark	Coding
Length of FIE contents	21	15
Component type tag	Return Result	A2 (1)
Component length	indefinite	80
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	--
Sequence identifier		30 (1)
Sequence length	12	0C
Operation code tag		02
Operation code length	1	01
Operation code	DeactivateSS	0D
SS-Information		
CallBarringInfo	Tag=a1	A1 (1)
CallBarringInfo length	7	07
CallBarringFeature List	Seq.	30 (1)
Length indicator	5	05
CallBarring Feature tag	Seq.	30 (1)
CallBarring Feature length	3	03
Basic Service Code Identifier	TeleserviceCode	83
Teleservice Length	1	01
Teleservice code	AllFacsimileServices	60
End-Of-Content Tag	0	00
Length Indicator	0	00

Test 31.8.4.2.1. Deactivation rejected after invoke operation

MMI sequence: *#353#

Step 4: MS -> SS REGISTER

Contents	Value/remark	Coding
Length of FIE contents	13	0D
Component type tag	Invoke	A1 (1)
Component length	11	0B
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation code tag		02
Operation code length	1	01
Operation code	DeactivateSS	0D
SS-ForBS	Seq	30 (1)
SS-ForBS length	3	03
SS code tag	Tag=04	04
SS code length	1	01
SS code	BI	99

Step 5: SS -> MS RELEASE COMPLETE

Contents	Value/remark	Coding
Length of FIE contents	10	0A
Component type tag	Return Error	A3 (1)
Component length	indefinite	80
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	--
Error code tag		02
Error code length	1	01
Error code	SS Subscription Violation	13
End-Of-Content Tag	0	00
Length Indicator	0	00

Test 31.8.4.2.2. Deactivation rejection after password operation**MMI sequence: *#332#****Step 4: MS -> SS REGISTER**

Contents	Value/remark	Coding
Length of FIE contents	13	0D
Component type tag	Invoke	A1 (1)
Component length	11	0B
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation code tag		02
Operation code length	1	01
Operation code	DeactivateSS	0D
SS-ForBS	Seq	30 (1)
SS-ForBS length	3	03
SS code tag	Tag=04	04
SS code length	1	01
SS code	BOICExHome	94

Step 7: SS -> MS RELEASE COMPLETE

Contents	Value/remark	Coding
Length of FIE contents	8	08
Component type tag	Return Error	A3 (1)
Component length	6	06
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	--
Error code tag		02
Error code length	1	01
Error code	NegativePasswordCheck	26

Test 31.8.6.1. Interrogation accepted**MMI sequence: *#35#****Step 6: MS -> SS REGISTER**

Contents	Value/remark	Coding
Length of FIE contents	13	0D
Component type tag	Invoke	A1 (1)
Component length	11	0B
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation code tag		02
Operation code length	1	01
Operation code	InterrogateSS	0E
SS-ForBS	Seq	30 (1)
SS-ForBS length	3	03
SS code tag	Tag=04	04
SS code length	1	01
SS code	BAIC	9A

Step 10: SS -> MS RELEASE COMPLETE

Contents	Value/remark	Coding
Length of FIE Contents	15	0F
Component type tag	Return Result	A2
Component length	13	0D
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	--
Sequence tag		30
Sequence length	8	08
Operation Code tag		02
Operation Code length	1	01
Operation Code	InterrogateSS	0E
InterrogateSS-Res	Choice	
BasicServiceGroupList tag	Seq.	A2
BasicServiceGroupList length	3	03
BasicService Code identifier	TeleserviceCode	83
Teleservice length	1	01
Teleservice code	Telephony	11

MMI sequence: *#332#**Step 17: MS -> SS REGISTER**

Contents	Value/remark	Coding
Length of FIE Contents	13	0D
Component type tag	Invoke	A1
Component length	11	0B
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation Code tag		02
Operation Code length	1	01
Operation Code	InterrogateSS	0E
SS-ForBS	Seq	30
SS-ForBS length	3	03
SS-Code tag	Tag=4	04
SS-Code length	1	01
SS-Code	BOICExHome	94

Step 21: SS -> MS RELEASE COMPLETE

Contents	Value/remark	Coding
Length of FIE Contents	13	0D
Component type tag	Return Result	A2
Component length	11	0B
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	--
Sequence tag		30
Sequence length	6	06
Operation Code tag		02
Operation Code length	1	01
Operation Code	InterrogateSS	0E
InterrogateSS-Res	Choice	
SS-Status	Tag=80	80
SS-Status length	1	01
SS-Status	Prov., Registered, Active	07

Test 31.8.6.2. Interrogation rejected**MMI sequence: *#351#****Step 4: MS -> SS REGISTER**

Contents	Value/remark	Coding
Length of FIE Contents	13	0D
Component type tag	Invoke	A1
Component length	11	0B
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation Code tag		02
Operation Code length	1	01
Operation Code	InterrogateSS	0E
SS-ForBS	Seq	30
SS-ForBS length	3	03
SS-Code tag	Tag=4	04
SS-Code length	1	01
SS-Code	BICRoam	9B

Step 5: SS -> MS RELEASE COMPLETE

Contents	Value/remark	Coding
Length of FIE Contents	10	0A
Component type tag	Return Error	A3
Component length	indefinite	80
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	--
Error code tag		02
Error code length	1	01
Error code	SS_NotAvailable	12
End-Of-Content Tag	0	00
Length Indicator	0	00

MMI sequence: *#331#

Step 11: MS -> SS REGISTER

Contents	Value/remark	Coding
Length of FIE Contents	13	0D
Component type tag	Invoke	A1
Component length	11	0B
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation Code tag		02
Operation Code length	1	01
Operation Code	InterrogateSS	0E
SS-ForBS	Seq	30
SS-ForBS length	3	03
SS-Code tag	Tag=4	04
SS-Code length	1	01
SS-Code	BOIC	93

Step 12: SS -> MS RELEASE COMPLETE

Contents	Value/remark	Coding
Length of FIE Contents	8	08
Component type tag	Reject	A4
Component length	6	06
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	As received	--
Problem code tag	Tag=81	81
Problem code length	1	01
Invoke problem code	Resource limitation	03

Test 31.8.7. Normal operation**Incoming call****Step 6: MS -> SS RELEASE COMPLETE**

Contents	Value/remark	Coding
Length of FIE contents	16	10
Component type tag	Invoke	A1 (1)
Component length	14	0E
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation code tag		02
Operation code length	1	01
Operation code	NotifySS	10
NotifySS-Arg tag	Seq.	30 (1)
NotifySS-Arg length	6	06
SS code tag	Tag=81	81
SS code length	1	01
SS code	BI	99
SS-Status	Tag=84	84
SS-Status length	1	01
SS-Status code	Prov. Registered Active	07

Test 31.9. Registration accepted of a USSD**MMI sequence: **00#**

Contents	Value/remark	Coding
Length of FIE contents	15	0F
Component type tag	Invoke	A1 (1)
Component length	13	0D
Invoke ID tag		02
Invoke ID length	1	01
Invoke ID	Arbitrary	--
Operation Code tag		02
Operation Code length	1	01
Operation Code	ProcessUSSDSS	0A
IA5 String tag	Tag=16	16
IA5 String length	5	05
Content	**00#	2A 2A 30 30 23