26.2 Initial tests

26.2.1 Channel request

The random access procedure is used by the MS to ask for resources to the network. If it is not performed correctly, the MS could prevent other MSs from obtaining resources, or the network could be overloaded if the MS does not respect the duration between 2 CHANNEL REQUEST messages.

26.2.1.1 Channel request / initial time

26.2.1.1.1 Conformance requirement

1) The MS shall start the initial access procedure at the latest 0,7 second after reception of the paging message.

2) The MS shall spread the initial CHANNEL REQUEST with equal probability on the correct number of time slots.

Reference(s)

GSM 04.08 sections 3.3.1.2 and 3.3.2.2.

26.2.1.1.2 Test purpose

1) To verify that the MS answers to a PAGING message by sending a CHANNEL REQUEST message within 0,7 seconds after reception of the PAGING message.

2 To verify that the MS does not always use the same delay between reception of paging message and sending of the CHANNEL REQUEST message. If an MS uses a fixed delay, there is a high probability that different MSs of the same product series use the same delay. There would then be a high risk of collision.

26.2.1.1.3 Method of test

Initial Conditions

System Simulator:
1 cell, Tx-Integer = 5. The CCCH is either combined or not with SDCCH. This is arbitrarily chosen.

Mobile Station:
The MS has a valid TMSI. It is "idle updated".

Related PICS/PIXIT Statement(s)

None.

Foreseen Final State of the MS

The MS has a valid TMSI. It is "idle updated".

Test Procedure

Specific test parameters:
K = 200.

The MS is paged. The SS measures and stores the number of CCCH RACH slots between the sending of the PAGING REQUEST message and the reception of the CHANNEL REQUEST from the MS, excluding the slots containing the messages themselves. The SS sends an IMMEDIATE ASSIGNMENT REJECT. The sequence is performed K times.

Maximum Duration of Test

30 min.

Between two consecutive executions (for k and k+1), the SS must wait for an amount of time which is enough to guarantee that the MS is in service (listening to its paging subchannel).

Expected Sequence

The sequence is executed for execution counter k = 1, ... , K.

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST TYPE 1	"Mobile Identity" IE contains the TMSI allocated to the MS.
2	SS		The SS measures the number f of CCCH RACH slots between the sending of PAGING REQUEST message and the reception of a CHANNEL REQUEST message from the MS.
3	SS		The SS stores f. f(k) shall be lower than 700/4,615+8 if the CCCH is not combined or lower than 81+8 if the CCCH is combined with SDCCH.
4	MS -> SS	CHANNEL REQUEST	"Establishment Cause" = Answer to paging.
5	SS -> MS	IMMEDIATE ASSIGNMENT REJECT	the first "request reference" corresponds to the CHANNEL REQUEST sent by the MS.

NOTE: The test limit has been computed to give a confidence of [99,74 %] that a unit which follows the requirements will pass. The number of samples (200) has been chosen to get a good compromise between the test time and the risk of passing a bad unit.

26.2.1.1.4 Test requirements

S(n) = CARD {k | f(k) = n}

The following requirements shall be met:

S(n) <= 41 for all n.

NOTE: CARD {k | f(k) = n} is mathematical notation for the number of times that f(k) equals n.

26.2.1.2 Channel request / repetition time

26.2.1.2.1 Conformance requirement

1) The MS shall spread retransmissions of a CHANNEL REQUEST message, with equal probability on Tx-Integer timeslots and with the correct delay after the reception of the PAGING REQUEST.

2) The MS shall not retransmit another CHANNEL REQUEST message when Max-retrans is reached.

Reference(s)

GSM 04.08 section 3.3.1.2.

26.2.1.2.2 Test purpose

1) To verify that the MS spreads retransmission of a CHANNEL REQUEST message with equal probability on Tx-Integer time slots and correctly applies the fixed delay when the following conditions apply:
   - the CCCH is combined or not combined with SDCCHs;
   - the maximum number of retransmissions is equal to one of the following values: 1, 2, 4, 7;
   - Tx-Integer is put to any of the allowed values among those which are greater or equal to 6.

2) To verify that the MS retransmits exactly Max_Retrans times a CHANNEL REQUEST message if the network never responds to the CHANNEL REQUEST message.

26.2.1.2.3 Method of test

Initial Conditions

System Simulator:
1 cell.
Tx-Integer is arbitrarily chosen in the set {6, 7, 8, 9, 10, 11, 12, 14, 16, 20, 25, 32, 50}.
Max_Retrans is arbitrarily chosen in the set {1,2,4,7}.

Mobile Station:
The MS has a valid TMSI. It is "idle updated".

Related PICS/PIXIT Statement(s)

None.

Foreseen Final State of the MS

The MS has a valid TMSI. It is "idle updated".

Test Procedure

Specific test parameters
K equals the upper rounded value of 230/Max_Retrans.
m equals the upper rounded value of 0,5*Tx-Integer.
Counter M = 0.
Parameter S: according to table 3.1/GSM 04.08 (this parameter depend on the value chosen for Tx-Integer).
N0 = max (8, Tx-Integer)

The MS is paged. The MS sends a CHANNEL REQUEST message. The MS retransmits CHANNEL REQUEST messages Max_Retrans times. The SS measures the number of CCCH RACH slots f(i,k) between the moment where a CHANNEL REQUEST message has been received, and the reception of the following CHANNEL REQUEST message, excluding the slots containing the messages themselves. The SS updates the counter M. The SS does not answer to the CHANNEL REQUEST messages Max_Retrans times. After the last CHANNEL REQUEST message in every sequence where k is lower than K, the SS sends an IMMEDIATE ASSIGNMENT REJECT . In the last sequence (k = K), the SS does not respond to the MS. The MS shall not send any other CHANNEL REQUEST message.

Maximum Duration of Test

The execution of one sequence (for one value k): 10s.

Between two consecutive executions (for k and k+1), the SS must wait for 35 seconds,which is enough to guarantee that the MS is in service (listening to its paging subchannel).

Expected Sequence

The sequence is executed for execution counter k = 1, ... , K for each of the 2 test cases.

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST TYPE 1	"Mobile Identity" = TMSI of the MS.
2	MS -> SS	CHANNEL REQUEST	"Establishment Cause" = Answer to paging.
			Steps 3, 4, 5 are executed for execution counter i = 1,...,Max_Retrans.
3	MS -> SS	CHANNEL REQUEST	"Establishment Cause" = Answer to paging.
4	SS		The SS measures the number f(i,k) of CCCH RACH slots between: - the moment where the last CHANNEL REQUEST message has been received, and - the reception of the new CHANNEL REQUEST message from the MS, excluding the slots containing the messages themselves. f(i,k) shall be in the set {S,S+1,...,S+T-1}
5	SS		If f(i,k)-S >= m, M = M+1
			Depending on the value of k, step A6 or B6 is performed:
A6	SS -> MS	IMMEDIATE ASSIGNMENT REJECT	k < K The third "Request Reference" IE corresponds to the last CHANNEL REQUEST message received. The third "Wait Indication" IE specifies 0 second. Other fields do not address the MS under test.
B6	SS		k = K The SS checks that the MS sends no more CHANNEL REQUEST messages. This is verified during 3 seconds.
7	SS		M / (K * Max_Retrans) shall be inside the following interval: [0,8 - m/Tx-Integer ; 1,2 - m/Tx-Integer]

NOTE: The confidence interval in step 7, and the number of samples are chosen in such a way that the possibility of not accepting a correct MS is less than [0,26 %].

26.2.1.3 Channel request / random reference

26.2.1.3.1 Conformance requirement

A CHANNEL REQUEST message sent by the MS shall include a random reference randomly drawn from a uniform probability distribution for every new transmission.

Reference(s)

GSM 04.08 section 3.3.1.2.

26.2.1.3.2 Test purpose

To verify that an MS produces different random references for a CHANNEL REQUEST. If a MS always produces the same random reference, it makes possible that different MSs of the same product series produce the same random reference.

26.2.1.3.3 Method of test

Initial Conditions

System Simulator:
1 cell, CCCH not combined with SDCCH.

Mobile Station:
The MS has a valid TMSI. It is "idle updated".

Related PICS/PIXIT Statement(s)

None.

Foreseen Final State of the MS

The MS has a valid TMSI. It is in the MM-state "idle, updated" and in the RR idle-mode.

Test Procedure

Specific test parameters:
K = 7.
D = 4.

The SS sends a PAGING REQUEST message. The SS stores the "Random Reference" r(k) contained as a parameter in the CHANNEL REQUEST message sent by the MS. This sequence is performed K times, and it is verified that the MS produces different values r(k).

Maximum Duration of Test

6 min

Between two consecutive executions (for k and k+1), the SS must wait for an amount of time which is enough to guarantee that the MS is in service (listening to its paging subchannel).

Expected Sequence

The sequence is executed for execution counter k = 1, ..., K.

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST TYPE 1	
2	MS -> SS	CHANNEL REQUEST	"Establishment Cause" = Answer to paging.
3	SS		The SS stores the "Random Reference" contained in the CHANNEL REQUEST message.

26.2.1.3.4 Test requirements

At least D values of r(1),...,r(k) shall be different.

NOTE: D has been computed such that the probability of refusing a correct MS is less than [0,027 %].

26.2.2 IMSI detach and IMSI attach

The IMSI detach/attach procedures are used to indicate to the network that the MS is deactivated/activated. Theses procedures are allowed or not by the network (ATT flag set to "MSs in the cell shall apply IMSI attach and detach procedure" or "MSs in the cell are not allowed to apply IMSI attach and detach procedure").

If the IMSI attach procedure does not work correctly then the network would in certain situations not try to establish Mobile Terminating call even if the MS is "idle updated".

If an MS performs an unwanted IMSI detach procedure or does not perform IMSI detach when required, network resources are wasted.

26.2.2.1 Conformance requirement

1) When the Attach-detach flag in the Control Channel Description of the System Information Type 3 indicates "MSs in the cell are not allowed to apply IMSI attach and detach procedure", the MS shall not perform the IMSI detach procedure upon deactivation.

2) When the Attach-detach flag in the Control Channel Description of the System Information Type 3 indicates "MSs in the cell are not allowed to apply IMSI attach and detach procedure", the MS shall not perform the IMSI attach procedure upon activation.

3) The MS shall not perform the IMSI detach procedure if the Subscriber Identity Module is removed when the Attach-detach flag in the Control Channel Description of the System Information Type 3 indicates "MSs in the cell are not allowed to apply IMSI attach and detach procedure".

4) The MS shall not perform the IMSI attach procedure if the Subscriber Identity Module is inserted, when the Attach-detach flag in the Control Channel Description of the System Information Type 3 indicates "MSs in the cell are not allowed to apply IMSI attach and detach procedure".

5) The MS shall correctly perform the IMSI detach procedure, upon switch off, when it is required by the network to do so.

6) The MS shall correctly perform the IMSI attach procedure upon switch on when the IMSI attach procedure is required by the network. The MS shall correctly acknowledge the implicit TMSI reallocation procedure, which is part of this IMSI attach procedure, this means that the MS shall send a TMSI REALLOCATION COMPLETE message.

7) The MS shall correctly perform the IMSI detach procedure upon SIM removal when it is required by the network to do so.

8) The MS shall correctly perform the IMSI attach procedure, following SIM insertion and switch on when the IMSI attach procedure is required by the network. The MS shall correctly acknowledge the implicit TMSI reallocation procedure which is part of this IMSI attach procedure. This means that the MS shall send a TMSI REALLOCATION COMPLETE message.

Reference(s):

GSM 02.07, normative annex B, section B1.17.

GSM 04.08 sections 4.4.3 and 4.4.4.

26.2.2.2 Test purpose

1) To verify that the MS correctly performs IMSI detach/attach procedures when it is required by the network and upon deactivation/activation or SIM removal/insertion and does not perform these procedures when not required.

2) To verify that the mobile station acknowledges a re-allocated TMSI during IMSI attach.

26.2.2.3 Method of test

Initial Conditions

System Simulator:

1 cell, default parameters.
For procedures 1 and 2 ATT flag is set to "MSs in the cell are not allowed to apply IMSI attach and detach procedure".
For procedures 3 and 4 ATT flag is set to "MSs in the cell should apply IMSI attach and detach procedure".

Mobile Station:

The MS has a valid TMSI. It is "idle updated".

Related PICS/PIXIT Statement(s)

a:	SIM removal possible without removing power source	Yes / No.
b:	On/off switch	Yes / No.
c:	IMSI detach after SIM removal	Yes / No.
d:	IMSI detach after removing power source	Yes / No.

Foreseen Final State of the MS

The MS has a valid TMSI which may be different from the initial one. It is "idle updated".

Test Procedure

The SS indicates that IMSI detach/attach is not allowed. If possible the MS is switched off, then switched on, otherwise it has its power source removed and then restored (see b in PICS). The SS checks that the MS does not perform IMSI detach/attach procedures. If possible (if a = Yes, see PICS), the SIM is removed, then the SIM is inserted. The SS checks that the MS does not perform IMSI detach/attach procedures.

The SS indicates that IMSI detach/attach is allowed. After a delay of 35s the MS should have detected, that IMSI detach/attach is allowed. If possible (if b = Yes, see PICS) the MS is switched off, otherwise it has its power source removed (if d = Yes, see PICS). The MS initiates an IMSI detach procedure. Then depending on what has been performed before, the MS is switched on or has its power source restored. It initiates an IMSI attach procedure. The location updating procedure contains an implicit TMSI reallocation. The SIM is removed. If (a = yes and c = yes) or (a = no and d = yes) the MS initiates an IMSI detach procedure. Then the SIM is inserted, it initiates an IMSI attach procedure, the location updating procedure contains an implicit TMSI reallocation.

Maximum Duration of Test

4 min

Expected Sequence

Procedure 1

Step	Direction	Message	Comments
1	MS		If possible the MS is switched off (see b in PICS), otherwise the MS has its power source removed.
2	MS		The MS shall not initiate the IMSI detach procedure. This is checked by the SS during 5 seconds.
3	MS		Depending on what has been performed in step 1, the MS is brought back to operation.
4	MS		The MS shall not initiate an IMSI attach procedure. This is checked by the SS during 30 seconds.

Procedure 2

1	MS		If possible (a = Yes, see PICS), the SIM is removed from the MS.
2	MS		The MS shall not initiate the IMSI detach procedure. This is checked by the SS during 5 seconds.
3	MS		The SIM is inserted in the MS.
4	MS		The MS shall not initiate an IMSI attach procedure. This is checked by the SS during 30 seconds.

Procedure 3

1	MS		The MS is switched off, or has its power source removed , depending on value b in the PICS file. If b = Yes or d = Yes the MS initiates an IMSI detach procedure (steps A2, A3, A4, A5), otherwise the SS goes straight to step 6.
A2	MS -> SS	CHANNEL REQUEST	
A3	SS -> MS	IMMEDIATE ASSIGNMENT	
A4	MS -> SS	IMSI DETACH INDICATION	
A5	SS -> MS	CHANNEL RELEASE	After the sending of this message, the SS waits the disconnection of the main signalling link.
6	MS		Depending on what has been performed in step 1, the MS is brought back to operation.
7	MS -> SS	CHANNEL REQUEST	The MS initiates an IMSI attach procedure.
8	SS -> MS	IMMEDIATE ASSIGNMENT	
9	MS -> SS	LOCATION UPDATING REQUEST	"Location Updating Type" = IMSI attach.
10	SS -> MS	LOCATION UPDATING ACCEPT	The SS allocates a new TMSI
11	MS -> SS	TMSI REALLOCATION COMPLETE	
12	SS -> MS	CHANNEL RELEASE	After the sending of this message, the SS waits the disconnection of the main signalling link.

Specific message contents:

SYSTEM INFORMATION TYPE 3 message:

Information Element	value/remark
Control Channel Description - Attach/Detach allowed	MS shall apply IMSI attach and detach procedures.

Procedure 4

1	MS		The SIM is removed from the MS. If (a = Yes and c= Yes) or (a = no and d = yes) in PICS, the MS initiates an IMSI detach procedure (steps A2, A3, A4, A5), otherwise the SS goes straight to step 6.
A2	MS -> SS	CHANNEL REQUEST	
A3	SS -> MS	IMMEDIATE ASSIGNMENT	
A4	MS -> SS	IMSI DETACH INDICATION	
A5	SS -> MS	CHANNEL RELEASE	After the sending of this message, the SS waits the disconnection of the main signalling link.
6	MS		The SIM is inserted in the MS.
7	MS -> SS	CHANNEL REQUEST	The MS initiates a IMSI attach procedure.
8	SS -> MS	IMMEDIATE ASSIGNMENT	
9	MS -> SS	LOCATION UPDATING REQUEST	"Location Updating Type" = IMSI attach.
10	SS -> MS	LOCATION UPDATING ACCEPT	The SS allocates a new TMSI
11	MS -> SS	TMSI REALLOCATION COMPLETE	
12	SS -> MS	CHANNEL RELEASE	After the sending of this message, the SS waits the disconnection of the main signalling link.

Specific message contents:

SYSTEM INFORMATION TYPE 3 message:

Information Element	value/remark
Control Channel Description - Attach/Detach allowed	 MS shall apply IMSI attach and detach procedures.

26.2.3 Sequenced MM / CM message transfer

The RR sublayer of the MS shall have an associated send state variable V(SD) for sending MM and CM messages. This send state variable has been introduced to avoid the duplication of MM and CM messages. It is useful for the network after a handover or a change of channel to identify duplicated messages.

If the MS started V(SD) with 1 instead of 0 the network would incorrectly diagnose loss of message.

If the MS later on does not handle correctly incrementation of V(SD) the network would not be able to continue the dialogue.

26.2.3.1 Conformance requirement

The MS shall implement correctly the "send state variable V(SD)" ("Send duplicated"), included in transmitted MM and CM messages.

Reference(s)

GSM 04.08 section 3.1.4.3.

26.2.3.2 Test purpose

To verify that V(SD) is correctly set to 0 at the beginning of the establishment of the first RR connection and to verify that the MS handles correctly this variable in the special case of IDENTITY REQUEST messages, which are MM messages.

26.2.3.3 Method of test

Initial Conditions

System Simulator:
1 cell, default parameters.

Mobile Station:
The MS has a valid TMSI. It is "idle updated".

Related PICS/PIXIT Statement(s)

None.

Foreseen Final State of the MS

The MS has a valid TMSI. It is "idle updated".

Test Procedure

The MS is paged. After reception of the PAGING RESPONSE message from the MS, the SS sends an IDENTITY REQUEST message. The MS sends an IDENTITY RESPONSE message where N(SD) = 0. The SS repeats its IDENTITY REQUEST message 10 times. The MS transmits IDENTITY RESPONSE message with the value 1 and 0 in the N(SD) field alternately.

Maximum Duration of Test

1 min

Expected Sequence

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST TYPE 1	
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	PAGING RESPONSE	
5	SS -> MS	IDENTITY REQUEST	
6	MS -> SS	IDENTITY RESPONSE	N(SD) = 0
7	SS -> MS	IDENTITY REQUEST	Steps 7, 8, 9 and 10 are repeated 5 times.
8	MS -> SS	IDENTITY RESPONSE	N(SD) = 1.
9	SS -> MS	IDENTITY REQUEST	
10	MS -> SS	IDENTITY RESPONSE	N(SD) = 0.
11	SS -> MS	CHANNEL RELEASE	After the sending of this message, the SS waits the disconnection of the main signalling link.

26.2.4 Establishment cause

The establishment cause set by the MS in the CHANNEL REQUEST message shall be consistent with the requested service or function, with the capabilities of the MS and with the indications given by the network.

If the MS uses a wrong establishment cause, the network might assign an inappropriate or incompatible resource.

In the case of Emergency call a wrong priority might be used.

If a reserved value is used, the network may discard the channel request.

26.2.4.1 Conformance requirements

In the CHANNEL REQUEST message, the MS shall include an establishment cause which correspond to the establishment cause given by the MM sublayer and the broadcasted NECI value, or which correspond to one of the establishment causes "answer to paging" given by the RR entity in response to a PAGING REQUEST message including the Channel Needed information.

Reference(s)

GSM 04.08 section 3.3.1.2.

26.2.4.2 Test purpose

To verify that the establishment cause sent by the MS in the Max-Retrans+1 CHANNEL REQUEST messages is consistent with the requested service, with the capabilities of the MS and with the indications of the network in the following cases:

1) If the MS supports a service on a traffic channel:
when the NECI bit is set to 0 and call re-establishment is attempted and the call was established on TCH/H if the MS supports a service on half rate channel or on TCH/F otherwise.

2) If the MS supports a service on half rate channel:
when the NECI bit is set to 1 and call re-establishment is attempted and the call was established on TCH/H.

3) If the MS supports speech:

   3.1 when the NECI bit is set to 0 and a speech call is attempted.
   3.2 when the NECI bit is set to 1 and a speech call is attempted.

4) If the MS supports a data service:

4.1 when the NECI bit is set to 0 and a data call is attempted.
4.2 when the NECI bit is set to 1 and a data call is attempted for a service supported on half rate channel (if the MS does not support any data call on half rate channel any data service is used).

5)
5.1 when the NECI bit is set to 0 and the MS is paged with the paging indication set to "any channel".
5.2 when the NECI bit is set to 0 and the MS is paged with the paging indication set to "SDCCH".
5.3 when the NECI bit is set to 0 and the MS is paged with the paging indication set to "TCH/F".
5.4 when the NECI bit is set to 0 and the MS is paged with the paging indication set to "TCH/H or TCH/F".

6)
6.1 when the NECI bit is set to 0 and IMSI attach is attempted.
6.2 when the NECI bit is set to 0 and normal location updating is attempted.
6.3 when the NECI bit is set to 0 and periodic location updating is attempted.
6.4 when the NECI bit is set to 0 and IMSI detach is attempted.
6.5 when the NECI bit is set to 1 and IMSI attach is attempted.
6.6 when the NECI bit is set to 1 and normal location updating is attempted.
6.7 when the NECI bit is set to 1 and periodic location updating is attempted.
6.8 when the NECI bit is set to 1 and IMSI detach is attempted.

7) If the MS supports a non call related supplementary service operation:
when the NECI bit is set to 0 and a supplementary service operation is attempted at the MS.
when the NECI bit is set to 1 and a supplementary service operation is attempted at the MS.

8) If the MS supports SMS/PP MO:
when the NECI bit is set to 0 and a mobile originated short message service transaction is attempted.
when the NECI bit is set to 1 and a mobile originated short message service transaction is attempted.

NOTE: To verify that when the MS supports speech and an emergency call is attempted and the NECI bit is set to 0, then the MS sends a CHANNEL REQUEST message with an establishment cause consistent with the requested service, with the capabilities of the MS and with the indications of the network is done in test 26.9.6.1.1 test purpose 1.

26.2.4.3 Method of test

Initial Conditions

System Simulator:
for all procedures: 1 cell, Max-Retrans = 7 slots. The NECI bit is set to 0.

Mobile Station:
The MS has a valid TMSI. It is "idle updated".

Related PICS/PIXIT Statement(s)

a:	MS supports speech on TCH/F	Yes / No
b:	MS supports speech on TCH/H	Yes / No
c:	MS supports data on TCH/F	Yes / No
d:	MS supports data on TCH/H	Yes / No
e:	MS only supports SDCCH	Yes / No
f:	MS supports a supplementary service operation	Yes / No
g:	MS supports SMS/PP MO	Yes / No
h:	On/Off switch	Yes / No

NOTE: In the above PICS, data and speech refer to the Radio Resource Channel Mode.

Foreseen Final State of the MS

The MS has a valid TMSI. It is "idle updated".

Test Procedures

NOTE: If the procedures are chained, the SS shall ensure that at the beginning of each procedure, the initial conditions are reached and that the MS had enough time to decode the broadcasted parameters.

Procedure 1

If the MS supports a service on a traffic channel:

A call is established on TCH/H if the MS supports a service on half rate channel or on TCH/F otherwise. The SS stops transmission on the SACCH. The MS attempts call reestablishment. The SS does not answer to Max-Retrans CHANNEL REQUEST messages and answers to the next CHANNEL REQUEST with an IMMEDIATE ASSIGNMENT REJECT message. The SS checks that all CHANNEL REQUEST messages contain an establishment cause with the value "110".

Procedure 2

If the MS supports a service on half rate channel:

The NECI bit is set to 1. A call is established on TCH/H. The SS stops transmission on the SACCH. The MS attempts call reestablishment. The SS does not answer to Max-Retrans CHANNEL REQUEST messages and answers to the next CHANNEL REQUEST with an IMMEDIATE ASSIGNMENT REJECT message. The SS checks that all CHANNEL REQUEST messages contain an establishment cause with the value "011010".

Procedure 3

If the MS supports speech:

A speech call is attempted. The SS does not answer to Max-Retrans CHANNEL REQUEST messages and answers to the next CHANNEL REQUEST with an IMMEDIATE ASSIGNMENT REJECT message. The SS checks that all CHANNEL REQUEST messages contain an establishment cause with the value "111". The NECI bit is set to 1. A speech call is attempted. The SS does not answer to Max-Retrans CHANNEL REQUEST messages and answers to the next CHANNEL REQUEST with an IMMEDIATE ASSIGNMENT REJECT message. The SS checks that all CHANNEL REQUEST messages contain an establishment cause with the value "111" if the MS does not support speech on half rate channel or "0100" if the MS supports speech on half rate channel.

Procedure 4

If the MS supports a data service:

A data call is attempted. The SS does not answer to Max-Retrans CHANNEL REQUEST messages and answers to the next CHANNEL REQUEST with an IMMEDIATE ASSIGNMENT REJECT message. The SS checks that all CHANNEL REQUEST messages contain an establishment cause with the value "111". The NECI bit is set to 1. A data call is attempted for a service supported on half rate channel (if the MS does not support any data call on half rate channel any data service is used). The SS does not answer to Max-Retrans CHANNEL REQUEST messages and answers to the next CHANNEL REQUEST with an IMMEDIATE ASSIGNMENT REJECT message. The SS checks that all CHANNEL REQUEST messages contain an establishment cause with the value "111"if the MS does not support a data service on half rate channel or "0101" if the MS supports a data service on half rate channel.

Procedure 5

The MS is paged with the paging indication set to "any channel". The SS does not answer to Max-Retrans CHANNEL REQUEST messages and answers to the next CHANNEL REQUEST with an IMMEDIATE ASSIGNMENT REJECT message. The SS checks that all CHANNEL REQUEST messages contain an establishment cause with the value "100". The SS waits for a time sufficient for the MS to be "idle updated". The MS is paged with the paging indication set to "SDCCH". The SS does not answer to Max-Retrans CHANNEL REQUEST messages and answers to the next CHANNEL REQUEST with an IMMEDIATE ASSIGNMENT REJECT message. The SS checks that all CHANNEL REQUEST messages contain an establishment cause with the value "0001". The SS waits for a time sufficient for the MS to be "idle updated". The MS is paged with he paging indication set to "TCH/F". The SS does not answer to Max-Retrans CHANNEL REQUEST messages and answers to the next CHANNEL REQUEST with an IMMEDIATE ASSIGNMENT REJECT message. The SS checks that all CHANNEL REQUEST messages contain an establishment cause with the value "100" if the MS capability is full rate only, "0010" if the MS capability is dual rate and "0001" if the MS capability is SDCCH only. The SS waits for a time sufficient for the MS to be "idle updated". The MS is paged with the paging indication set to "TCH/H or TCH/F". The SS does not answer to Max-Retrans CHANNEL REQUEST messages and answers to the next CHANNEL REQUEST with an IMMEDIATE ASSIGNMENT REJECT message. The SS checks that all CHANNEL REQUEST messages contain an establishment cause with the value "100" if the MS capability is full rate only, "0011" if the MS capability is dual rate and "0001" if the MS capability is SDCCH only.

Procedure 6

This procedure is performed twice. Once for NECI = 0 and once for NECI = 1.

The MS is switched off or powered off. Then system information messages are altered so that IMSI attach/detach is allowed in the cell. The MS is switched on or powered on. The MS performs IMSI attach. The SS does not answer to Max-Retrans CHANNEL REQUEST messages and answers to the next CHANNEL REQUEST with an IMMEDIATE ASSIGNMENT message. The SS checks that all CHANNEL REQUEST messages contain an establishment cause with the values "0000" when NECI = 1, or “000” when NECI = 0. The IMSI attach procedure is followed. The location area code of the cell is changed, T3212 is set to 1 deci-hour. The MS performs a location updating. The SS does not answer to Max-Retrans CHANNEL REQUEST messages and answers to the next CHANNEL REQUEST with an IMMEDIATE ASSIGNMENT message. The SS checks that all CHANNEL REQUEST messages contain an establishment cause with the values "0000" when NECI = 1, or “000” when NECI = 0. The location updating procedure is followed. The SS waits for at least 7 minutes. The MS performs a periodic updating. The SS does not answer to Max-Retrans CHANNEL REQUEST messages and answers to the next CHANNEL REQUEST with an IMMEDIATE ASSIGNMENT message. The SS checks that all CHANNEL REQUEST messages contain an establishment cause with the values "0000". The location updating procedure is followed. The MS is switched off or powered off. If the MS has an On/off switch (see PICS), it attempts IMSI detach. The SS does not answer to Max-Retrans CHANNEL REQUEST messages and answers to the next CHANNEL REQUEST with an IMMEDIATE ASSIGNMENT REJECT message. The SS checks that all CHANNEL REQUEST messages contain an establishment cause with the value "0001" when NECI = 1, or “111” when NECI = 0.

Procedure 7

This procedure is performed twice. Once for NECI = 0 and once for NECI = 1.

If the MS supports a non call related supplementary service operation:

> A supplementary service operation is attempted at the MS. The SS does not answer to Max-Retrans CHANNEL REQUEST messages and answers to the next CHANNEL REQUEST with an IMMEDIATE ASSIGNMENT REJECT message. The SS checks that all CHANNEL REQUEST messages contain an establishment cause with the value "0001".

Procedure 8

If the MS supports SMS/PP MO:

> A mobile originated short message service transaction is attempted. The SS does not answer to Max-Retrans CHANNEL REQUEST messages and answers to the next CHANNEL REQUEST with an IMMEDIATE ASSIGNMENT REJECT message. The SS checks that all CHANNEL REQUEST

messages contain an establishment cause with the value "0001" when NECI = 1, or “111” when NECI = 0.

Maximum Duration of Test

For procedures 1, 2, 3, 4 and 5: 5 minutes, including 1 minute for any necessary operator actions.

For procedure 6: 20 minutes, including 2 minutes for any necessary operator actions.

For procedures 7, 8: 10 minutes, including 2 minutes for any necessary operator actions.

Expected Sequence

Procedure 1

This procedure is performed if the MS supports a service on a traffic channel.

Step	Direction	Message	Comments
1			a call is established on TCH/H if the MS supports a service on half rate channel or on TCH/F otherwise. The generic call setup procedure is used.
2	SS		the SS stops transmission on the SACCH.
3	MS -> SS	8 CHANNEL REQUEST	all messages have establishment cause set to "110"
4	SS -> MS	IMMEDIATE ASSIGNMENT REJECT	

Procedure 2

This procedure is performed if the MS supports a service on half rate channel.

Step	Direction	Message	Comments
1	SS		The NECI bit is set to 1, a call is established on TCH/H. The generic call setup procedure is used.
2			
3	SS		the SS stops transmission on the SACCH.
4	MS -> SS	8 CHANNEL REQUEST	all messages have establishment cause set to "011010"
5	SS -> MS	IMMEDIATE ASSIGNMENT REJECT	

Procedure 3

This procedure is performed if the MS supports speech.

Step	Direction	Message	Comments
1	MS		a speech call is attempted
2	MS -> SS	8 CHANNEL REQUEST	all messages have establishment cause set to "111"
3	SS -> MS	IMMEDIATE ASSIGNMENT REJECT	
4	SS		The NECI bit is set to 1
5	SS		The SS waits for 30 s
6	MS		a speech call is attempted
7	MS -> SS	8 CHANNEL REQUEST	all messages have establishment cause set to "0100" if the MS supports speech on half rate or set to "111" otherwise
8	SS -> MS	IMMEDIATE ASSIGNMENT REJECT	

Procedure 4

This procedure is performed if the MS supports a data service.

Step	Direction	Message	Comments
1	MS		a data call is attempted
2	MS -> SS	8 CHANNEL REQUEST	all messages have establishment cause set to "111"
3	SS -> MS	IMMEDIATE ASSIGNMENT REJECT	
4	SS		The NECI bit is set to 1
5	SS		The SS waits for 30 s
6	MS		a data call is attempted for a service supported by the MS on half rate (for any data service if the MS does not support any data service on half rate)
7	MS -> SS	8 CHANNEL REQUEST	all messages have establishment cause set to "0101" if the MS supports a data service on half rate or set to "111" otherwise
8	SS -> MS	IMMEDIATE ASSIGNMENT REJECT	

Procedure 5

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST TYPE 1	paging indication = any channel
2	MS -> SS	8 CHANNEL REQUEST	all messages have establishment cause set to "100"
3	SS -> MS	IMMEDIATE ASSIGNMENT REJECT	
4	SS		The SS waits for 5 seconds
5	SS -> MS	PAGING REQUEST TYPE 1	paging indication = SDCCH
6	MS -> SS	8 CHANNEL REQUEST	all messages have establishment cause set to "0001"
7	SS -> MS	IMMEDIATE ASSIGNMENT REJECT	
8	SS		The SS waits for 5 seconds
9	SS -> MS	PAGING REQUEST TYPE 1	paging indication = TCH/F
10	MS -> SS	8 CHANNEL REQUEST	all messages have establishment cause set to "100" if the MS capability is full rate only or "0010" if the MS capability is dual rate or "0001" if the MS capability is SDCCH only
11	SS -> MS	IMMEDIATE ASSIGNMENT REJECT	
12	SS		The SS waits for 5 seconds
13	SS -> MS	PAGING REQUEST TYPE 1	paging indication = TCH/H or TCH/F
14	MS -> SS	8 CHANNEL REQUEST	all messages have establishment cause set to "100" if the MS capability is full rate only or "0011" if the MS capability is dual rate or "0001" if the MS capability is SDCCH only
15	SS -> MS	IMMEDIATE ASSIGNMENT REJECT	

Procedure 6

The sequence is executed for execution counter k = 1, 2.

Step	Direction	Message	Comments
0	SS		When k = 1, NECI set to 0 When k = 2, NECI set to 1
1	MS		The MS is switched off or has its power source removed
2	SS		IMSI attach/detach is set to "MSs in the cell shall apply IMSI attach and detach procedure"
3	MS		The MS is switched on or powered on
4	MS -> SS	8 CHANNEL REQUEST	all messages have establishment cause set to: “000” when k = 1 "0000" when k = 2
5	SS -> MS	IMMEDIATE ASSIGNMENT	
6	MS -> SS	LOCATION UPDATING REQUEST	"location updating type" = IMSI attach
7	SS -> MS	LOCATION UPDATING ACCEPT	with no mobile identity
8	SS -> MS	CHANNEL RELEASE	
9	SS		the LAC of the cell is changed and T3212 is set to 6 minutes
10	MS -> SS	8 CHANNEL REQUEST	all messages have establishment cause set to: “000” when k = 1 "0000" when k = 2. The MS must send its first Channel Request within 33s after the LAC has been changed.
11	SS -> MS	IMMEDIATE ASSIGNMENT	
12	MS -> SS	LOCATION UPDATING REQUEST	"location updating type" = Normal location updating
13	SS -> MS	LOCATION UPDATING ACCEPT	with no mobile identity
14	SS -> MS	CHANNEL RELEASE	
15	MS -> SS	8 CHANNEL REQUEST	all messages have establishment cause set to: “000” when k = 1 "0000" when k = 2. The MS must send its first Channel Request within 7 minutes after the preceeding Channel Release
16	SS -> MS	IMMEDIATE ASSIGNMENT	
17	MS -> SS	LOCATION UPDATING REQUEST	"location updating type" = Periodic updating
18	SS -> MS	LOCATION UPDATING ACCEPT	with no mobile identity
19	SS -> MS	CHANNEL RELEASE	
20	MS		If possible (see PICS), the MS is switched off, otherwise it has its power source removed
21	MS		If the MS was switched off it attempts IMSI detach
22	MS -> SS	8 CHANNEL REQUEST	all messages have establishment cause set to: “111” when k = 1 "0001" when k = 2
23	SS -> MS	IMMEDIATE ASSIGNMENT REJECT	

Procedure 7

The sequence is executed for execution counter k = 1, 2.

This procedure is performed if the MS supports a non call related supplementary service operation.

Step	Direction	Message	Comments
1	MS		a non call related supplementary service operation is attempted
2	MS -> SS	8 CHANNEL REQUEST	all messages have establishment cause set to: “111” when k = 1 "0001" when k = 2
3	SS -> MS	IMMEDIATE ASSIGNMENT REJECT	

Procedure 8

This procedure is performed if the MS supports SMS/PP MO.

The sequence is executed for execution counter k = 1, 2.

Step	Direction	Message	Comments
0	SS		When k = 1, NECI set to 0 When k = 2, NECI set to 1
1	MS		a mobile originated short message service transaction is attempted
2	MS -> SS	8 CHANNEL REQUEST	all messages have establishment cause set to: “111” when k = 1 "0001" when k = 2
3	SS -> MS	IMMEDIATE ASSIGNMENT REJECT	