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## 39 Additional CTS-MS testcases

### 39.1 General paragraph

Void.

### 39.2 Tests for CTS-MS/PLMN interface

#### 39.2.1 CTS not allowed by GSM Network

The normal location updating procedure is used to update the registration of the actual Location Area of a Mobile Station in the network.

##### 39.2.1.1 Conformance requirements

The network may grant authorisation for the mobile station to use GSM-Cordless Telephony System (CTS) in the Location Area and its immediate neighbourhood. The mobile should memorise this permission in non-volatile memory. If the "CTS permission" IE is not present in the message, the mobile is not authorised to use GSM-CTS, and shall accordingly delete any memorised permission.

##### 39.2.1.2 Test purpose

To check that the CTS-MS is able to delete any memorised CTS permission when CTS permission is not allowed by a GSM network.

##### References

3GPP TS 04.08 / 3GPP TS 24.008, subclause 4.4.4.6.

##### 39.2.1.3 Method of test

##### Related PICS/PIXIT statements

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##### Initial conditions

CTS-MS:

CTS-MS is OFF and under coverage of a GSM network.

CTS-MS is enroled on at least one CTS-FP.

##### Foreseen Final State of the CTS-MS

CTS-MS is "idle, updated".

##### Test procedure

The CTS-MS is switched ON. The CTS-MS shall perform a Location Registration procedure. The SS answers with a LOCATION UPDATE ACCEPT without including "CTS permission" IE. The CTS-MS shall accordingly delete any memorised CTS permission. The SS establishes a BCH channel. The CTS-MS has one entry in the DF\_CTS of the SIM corresponding to the FPBI broadcasted by the SS, before the location updating procedure. The CTS-MS shall not perform an Attachment procedure.

Maximum Duration of Test

[TBD]

Expected Sequence

Step	Direction	Message	Comments
1	CTS-MS -> SS	ACCESS REQUEST	
2	SS -> CTS-MS	IMMEDIATE ASSIGNMENT	
3	CTS-MS -> SS	LOCATION UPDATE REQUEST	
4	SS -> CTS-MS	IDENTITY REQUEST	
5	CTS-MS -> SS	IDENTITY RESPONSE	
6	SS -> CTS-MS	AUTHENTICATION REQUEST	
7	CTS-MS -> SS	AUTHENTICATION RESPONSE	
8	SS -> CTS-MS	CIPHERING COMMAND	
9	CTS-MS -> SS	CIPHERING COMPLETE	
10	SS -> CTS-MS	LOCATION UPDATE ACCEPT	"CTS permission" IE is not present
11	SS -> CTS-MS	CHANNEL RELEASE	
12			The SS establish a BCH channel. The CTS-MS had one entry in the DF_CTS of the SIM corresponding to the FPBI broadcasted by the SS, before the location updating procedure.
13			Check that the CTS-MS does not send CTS ACCESS REQUEST for 2 minutes.

Specific Message Contents

None

### 39.3 RF tests for CTS-MS/FP interface

#### 39.3.1 Transmit power control timing and confirmation

##### 39.3.1.1 Definition and applicability

The RF power level to be employed by the CTS-MS is indicated by means of the 5 bit TXPWR field sent in the layer 1 header of each downlink SACCH message block and may be sent in a dedicated signalling block.

When a power change is signalled the CTS-MS must change its power control level to the new level at a certain rate of change.

The CTS-MS shall confirm the power level that it is currently employing by setting the CTS-MS\_TXPWR\_CONF field in the uplink SACCH L1 header.

The requirements and this test apply to all types of GSM 900 and DCS 1 800 CTS-MS.

##### 39.3.1.2 Conformance requirement

1. The RF power control level to be employed by the CTS-MS is indicated by means of the power control information sent in the layer 1 header of each downlink SACCH message block and may be sent in a dedicated signalling block; 3GPP TS 05.08, subclause 11.3.2.
2. The CTS-MS shall confirm the power level that it is currently employing in the uplink SACCH L1 header. The indicated value shall be the power control level actually used by the CTS-MS for the last burst of the previous SACCH period; 3GPP TS 05.08, subclause 11.3.2.
3. Upon receipt of a command on the SACCH to change its RF power level, the CTS-MS shall change to the new level at a rate of one nominal 2 dB power control step every 60 ms; 3GPP TS 05.08, subclause 11.3.7.

4. The change (in conformance requirement 3) shall commence at the first TDMA frame belonging to the next reporting period; 3GPP TS 05.08, subclause 11.3.7.
5. In case of channel change the commanded power level shall be applied on the new channel immediately; 3GPP TS 05.08, subclause 11.3.7.

#### 39.3.1.3 Test purpose

1. To verify that the CTS-MS will set its transmitter output power in accordance with conformance requirement 1.
2. To verify that the CTS-MS will confirm the power level it is currently employing according to conformance requirement 2.
3. To verify that the CTS-MS, upon receipt of a command from the SACCH to change its RF power level, will change according to conformance requirement 3.
4. To verify that the CTS-MS will commence the change of power level at least by the sixth TDMA frame belonging to the next reporting period.
5. To verify that in case of new channel assignment the commanded power level is applied on the new channel according to conformance requirement 5.

#### 39.3.1.4 Method of test

NOTE: The method of measuring the CTS-MS transmitter output power is given in subclause 13.3. For CTS-MS transmission, the nominal maximum output power is:

- 11 dBm (0.015 W) in GSM 900 i.e. power control level 16;
- 12 dBm (0.016 W) in DCS 1 800 i.e. power control level 19. (see 3GPP TS 05.05, subclause 4.1.1).

#### Initial conditions

A call is set up by the SS according to the generic call set up procedure on a channel with ARFCN in the Mid ARFCN range (see table 3.3), power control level set to maximum power.

#### Procedure

- a) The SS signals minimum power control level to the CTS-MS in the SACCH.
- b) The SS measures the CTS-MS transmitter output power on TDMA frames 6, 19, 32 and every subsequent 13th TDMA frame to TDMA frame 214. The SS also monitors the CTS-MS\_TXPWR\_CONF field in the uplink SACCH L1 header for the four SACCH multiframes after the SS signals the power change.
- c) The SS now sets TXPWR in the SACCH to the maximum peak power appropriate to the CTS-MS.
- d) The SS measures the CTS-MS transmitter output power on TDMA frames 6, 19, 32 and every subsequent 13th TDMA frame to TDMA frame 214. The SS also monitors the CTS-MS\_TXPWR\_CONF field in the uplink SACCH L1 header for the four SACCH multiframes after the SS signals the power change.
- e) The SS now sets the SACCH TXPWR to 17 in GSM 900 or 11 in DCS 1 800.
- f) After 3 s the SS sets the SACCH TXPWR to 18 in GSM 900 or 12 in DCS 1 800.
- g) The SS measures the CTS-MS transmitter output power on TDMA frame 6.
- h) The SS sets the SACCH TXPWR to 17 in GSM 900 or 11 in DCS 1 800.
- i) The SS measures the CTS-MS transmitter output power on TDMA frame 6.
- j) The channel assignment is changed and the demanded power within the channel assignment is set to the minimum power control level of the CTS-MS.
- k) When the CTS-MS has changed channel its output power is measured on the first burst on the new channel.

## Test requirements

NOTE: Refer to tables 13-2 and 13-4 for relationship between the power control level, transmitter output power and the relevant tolerances.

- a) In steps b) and d), the transmitter output power shall change by one power step towards the new level signalled for each measured burst until the CTS-MS is operating at the closest supported power control level and from then on, all transmissions shall be at that level.
- b) In steps b) and d), the value of the CTS-MS\_TXPWR\_CONF field in the uplink SACCH LI header shall correspond to the actual power control level used for the last transmitted burst of the previous SACCH multiframe. The first one shall indicate the initial transmitted power control level, the subsequent ones shall change by 17 in GSM 900 or 11 in DCS 1 800 each time until the final power control level has been reached in which case that value shall be indicated.
- c) In steps g) and i) the transmitter output power of TDMA frame 6 shall correspond to the new commanded power control level.
- d) In step k) the CTS-MS output power, measured on the new channel shall correspond to the power control level in the channel assignment.

## 39.3.2 CTS Fixed Part selection

### 39.3.2.1 Definition and applicability

CTS-FP selection is a process in which a CTS-MS attempts to find a suitable CTS-FP. Two methods of searching for a suitable CTS-FP are possible, automatic mode and manual mode. The process ensures that the CTS-MS is attached to a CTS-FP from which it can reliably decode downlink data and with which it has a high probability of communications on the uplink. Once the CTS-MS is attached to a CTS-FP, access to the network is allowed.

In CTS mode only or in automatic mode with CTS preferred, the CTS-MS normally operates on CTS fixed part on which the mobile station is already enrolled. If the CTS-MS loses coverage in these modes, it shall attempt periodically to select again a CTS fixed part.

There are two modes for CTS-FP selection:

- i) automatic mode : This mode uses a list of CTS-FP in priority order. The highest priority CTS-FP available is selected.
- ii) Manual mode : The user selects one of the CTS-FP on which the MS is enrolled. The MS shall attempt only to attach to the selected CTS-FP.

To select a CTS fixed part, the CTS-MS shall listen to the CTSBCH frequencies of all the fixed parts on which the MS is currently enrolled.

This test is applicable for all types of GSM 900 and DCS 1 800 MSs.

### 39.3.2.2 Conformance requirement

1. In CTS mode only, the CTS-MS shall be able to synchronise to the CTSBCH carrier and to transmit on CTSARCH within 30 s.
2. There are various requirements that a CTS fixed part must satisfy before an CTS-MS can perform normal camping on it:
  - 2.1 (i) It should be a CTS fixed part on which the CTS-MS is enrolled with.
  - 2.2 (ii) The radio path loss between CTS-MS and CTS fixed part must be below a threshold set by the CTS operator. This is estimated as shown in subclause 3GPP TS 05.08, subclause 11.1.2.
3. The MS shall be able to calculate correctly the path loss criterion parameter C1, used for CTS fixed part cell selection; 3GPP TS 05.08, subclause 11.1.2.

### 39.3.2.3 Test purpose

1. To verify that the MS meets conformance requirement 1.
2. To verify that the CTS-MS does not select a CTS fixed part on which it is not enrolled.
3. To verify that the MS does not select a cell with  $C1 < 0$ .

### 39.3.2.4 Method of test

#### Initial conditions

Parameter	Carrier 1	Carrier 2
RF Signal Level (dBμV emf() / dBm )	48 / -65	38 / -75
CBA	1	0
RXLEV_ACCESS_MIN (dBm)	-90	-67
C1	25	-8

The CTS-MS is enrolled with the SS.

#### Procedure

- a) The SS activates the carriers and monitors carriers 1 and 2 for Access requests from the CTS-MS.
- b) The CTS-MS which is in CTS mode only, is switched on.

#### Test requirements

After step b), the CTS-MS shall be able to send a CTSARCH on carrier 1 within 30 s. There shall be no Access requests from the CTS-MS on carrier 2.

## 39.3.3 Monitoring of CTSBCH

### 39.3.3.1 Definition and applicability

Whilst in CTS idle mode, the CTS-MS shall measure the received signal level of the CTSBCH and shall calculate the received level average of the CTSBCH carrier. This ensure that the CTS-MS is attached on a CTS-FP from which it can reliably decode downlink data and with which it has a high probability of communications on the uplink.

This test is applicable for all types of GSM 900 and DCS 1 800 CTS-MSs.

### 39.3.3.2 Conformance requirement

1. The CTS-MS shall measure the received signal level of the CTSBCH and shall calculate the received level average of the CTSBCH carrier on at least five collected measurement samples; 3GPP TS 05.08, subclause 11.1.3.1.
2. There are various requirements that a cell must satisfy before an CTS-MS can perform normal camping on it:
  - 2.1 (i) It should be a CTS fixed part on which the CTS-MS is enrolled with.
  - 2.2 (ii) The radio path loss between CTS-MS and CTS fixed part must be below a threshold set by the CTS operator. This is estimated as shown in subclause 3GPP TS 05.08, subclause 11.1.2.

NOTE: Criterion (ii) refers to the C1 parameter.

3. The CTS-MS shall be able to calculate correctly the path loss criterion parameter C2 used for the monitoring of received signal level everytime that it decodes the CTSBCH in its CTS paging group; 3GPP TS 05.08, subclause 11.1.3.1.



### 39.3.3.3 Test purpose

1. To verify that the CTS-MS meets conformance requirement 1.
2. To verify that:
  - 2.1 The CTS-MS does not "reselect" a fixed part on which it is not enrolled with.
  - 2.2 The CTS-MS does not "reselect" a CTS cell which has a  $C1 < 0$ .
3. To verify that the CTS-MS calculates the C2 parameter correctly.

### 39.3.3.4 Method of test

#### Initial conditions

The CTS-MS is enrolled with the SS.

The CTS-MS is in CTS preferred mode.

Parameter	Carrier 1	Carrier 2
RF Signal Level (dBμV emf() / dBm )	63 / -50	33 / -80
RXLEV_ACCESS_MIN (dBμV emf() / dBm )	43 / -70	23 / -90
CTS_CELL_RESELECT_OFFSET	5	0
C1	20	10
C2	35	10

#### Procedure

- a) The SS activates the carriers. The CTS-MS is not paged on carrier 1. The SS monitors CTSBCH on carrier 1 and BCCH on carrier 2 for Access requests from the CTS-MS.
- b) The CTS-MS which is in CTS preferred mode is switched on.
- c) The SS reduces signal level on carrier 1 to -80 dBm / 33 dBμV emf() for 4 s. Then, the SS raises the level back to -50 dBm / 63 dBμV emf(). (C1 becomes -10 dB and C2, -5 dB during this period).
- d) The SS reduces signal level on carrier 1 to -80 dBm / 33 dBμV emf().

### 39.3.3.5 Test requirements

- 1) After step b), the CTS-MS shall be able to transmit a CTSARCH on carrier 1 within 30 s and there shall be no access request from the CTS-MS on carrier 2.
- 2) After step c), the CTS-MS is still "attached to carrier 1" and there shall be no access on carrier 2.
- 3) After step d), the CTS-MS shall consider itself as de-attached to carrier 1 and perform a GSM cell selection by sending a RACH on carrier 2 within 30 s.

## 39.3.4 AFA measurement and reporting

### 39.3.4.1 Definition and applicability

A precise frequency planning can not be applied to the CTS-FP/MS pair, as the CTS is intended to be developed by the end-user. Therefore, a list of frequencies (GFL) on which it is allowed to operate is given to the CTS. With the AFA, interference measurements will be performed on the frequencies in the GFL to provide a ranking in the AFA table, in order to exclude unacceptably interfered frequencies from the usage in CTS. A set of frequencies shall be selected from the AFA table by the CTS-FP for effective use by the CTS-FP and CTS-MS performing frequency hopping. This subset of frequencies is called the TFH carrier list.

The requirements and this test apply to all types of GSM 900 and DCS 1 800 CTS-MS.

#### 39.3.4.2 Conformance requirement

1. For each carrier of the AMFL (AFA monitoring frequency list) the CTS-MS shall perform NAMC (Number of AFA monitoring cycles) basic measurements, where a basic measurement shall be the average received signal level on the 8 timeslots of the TDMA frame, over the full range of -110 dBm to -48 dBm ; 3GPP TS 05.08, subclause 11.1.4.1.
2. The RMS received signal level at the receiver input for each frequency specified in the AMFL shall be measured with an absolute accuracy of  $\pm 6$  dB over the full range of -110 dBm to -48 dBm under normal conditions; 3GPP TS 05.08, subclause 8.1.2.
3. When ordered by the CTS-FP, the CTS-MS shall report in the next AFA monitoring report message a table of received interference level of the AMFL, AMFL\_INTERF\_LEV (1,...,n) with the tolerances given in conformance requirements 2. Above, together with the minimum of the numbers of performed AFA monitoring cycles, NAMC\_REAL; 3GPP TS 05.08, subclause 11.1.4.1.

#### 39.3.4.3 Test purpose

1. To check that the CTS-MS is able to perform AFA monitoring procedure.
2. To check that the CTS-MS is able to perform AFA monitoring reporting when order by the CTS-FP.

#### 39.3.4.4 Method of test

##### Initial conditions

The CTS-MS is in the "Attached, idle, updated" mode, with a CTS-MSI allocated.

AFML:

Parameter	Carrier 1	Carrier 2	Carrier 3	Carrier 4	Carrier 5	Carrier 6	Carrier 7
RF signal level (dB $\mu$ V emf ( )/dBm)	53 / -60	48 / -65	43 / -70	38 / -75	33 / -80	33 / -80	38 / -75

NAMC= 50

##### Procedure

- a) The SS activates carriers 1 to 7. The CTS-MS is not paged on any of the carriers.
- b) The attached CTS-MS shall respond to a pending CTS\_PAGING\_REQUEST message.
- c) The CTS-MS shall send CTS\_ACCESS\_REQUEST messages until the SS answered.
- d) The SS sends a CTS\_AFA\_MONITORING\_COMMAND to ask the CTS\_MS to performed 50 basic average received signal measurement on each of the seven carriers representing the AMFL. The received interference level of the carrier shall be the maximum of the NAMC basic measurement.
- e) The SS shall wait (NAMC\*5 + 20) seconds ie. Approximately five minutes before starting the AFA reporting procedure to let the CTS-MS enough time to perform the monitoring procedure during NAMC cycles.
- f) When ordered by the SS, the CTS\_MS shall report in the CTS\_AFA\_MONITORING\_REPORT message a table of received interference level for all frequencies of the AFA list.

##### Test requirements

1. After step d), the CTS-MS shall perform 50 basic measurements on each of the frequencies contained in the AMFL.

2. After step f), the CTS-MS shall report to the SS an ordered table of received interference level of the carriers of AMFL containing the seven carriers with the average received signal level at the receiver input for each frequency measured with an absolute accuracy of  $\pm 6$  dB as specified in the subclause 39.3.4.4.1.

## 39.4 L2 tests for CTS-MS/FP interface

Void.

## 39.5 L3 tests for CTS-MS/FP interface

### 39.5.1 to 39.5.3 Void

#### 39.5.3.1 Elementary Procedures

##### 39.5.3.1.1 System Access

###### 39.5.3.1.1.1 Not corresponding FPBI

The purpose of the immediate assignment procedure is to establish an RR connection between the mobile station and the CTS-FP.

###### 39.5.3.1.1.1.1 Conformance requirements

The MS when attached to GSM, but not registered to the CTS-FP, and with a user selection for parallel mode or automatic mode with CTS preferred, shall register with the CTS-FP within 2 minutes after coming in range of the CTS-FP.

The FPBI field indicates the identity of the CTS-FP, in such a way that invalid attachment attempts by CTS-MS which are not enrolled (see 3GPP TS 03.56) with this CTS-FP are minimised.

###### 39.5.3.1.1.1.2 Test purpose

To verify that the CTS-MS does not access to a CTS-FP if the FPBI does not match.

#### References

3GPP TS 02.56 subclause 5.6.

3GPP TS 03.56 subclause 10.1.4.

###### 39.5.3.1.1.1.3 Method of test

#### Related PICS/PIXIT statements

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#### Initial conditions

SS:

Radio\_Link\_Timeout set to [TBC].

CTS-MS:

The CTS-MS is OFF.

The CTS-MS does not have the FPBI nor IFPEI of the SS in the DF-CTS field of the SIM.



The CTS-MS is enrolled on a CTS-FP with a different FPBI but with the same CTSBCH ARFCN.

#### Foreseen Final State of the CTS-MS

Scanning for an available Network.

#### Test procedure

The CTS-MS is switched ON. The CTS-MS is looking for a suitable Network. It shall not select nor send a CTS ACCESS REQUEST message to start attachment to the SS as long as its FPBI is not known.

#### Maximum Duration of Test

[TBD]

#### Expected Sequence

Step	Direction	Message	Comments
1			The CTS-MS is looking for a suitable Network.
2			Check that the CTS-MS does not send CTS ACCESS REQUEST for 2 minutes.

#### Specific Message Contents

None.

#### 39.5.3.1.1.2 Retransmission of CTS Access Request

##### 39.5.3.1.1.2.1 Conformance requirements

After sending the first CTS ACCESS REQUEST, the CTS-MS shall start listening continuously to the CTSAGCH. After having sent MCTS + 1 CTS ACCESS REQUEST messages, the CTS-RR entity of the CTS-MS shall start timer TC3150. At expiry of this timer, the immediate assignment procedure is aborted. If the immediate assignment procedure was triggered by a request from the CTS-MM sublayer, a access failure is indicated to the CTS-MM sublayer.

##### 39.5.3.1.1.2.2 Test purpose

To check that the CTS-MS well manages MCTS and TC3150.

#### References

3GPP TS 04.56 subclause 4.3.1.1.2

##### 39.5.3.1.1.2.3 Method of test

#### Related PICS/PIXIT statements

#### Initial conditions

SS:

Radio\_Link\_Timeout set to [TBC].

CTS-MS:

The CTS-MS is OFF.

#### Foreseen Final State of the CTS-MS

Scanning for available Network.

#### Test procedure

The attached CTS-MS is switched ON. The CTS-MS sends a CTS ACCESS REQUEST. As long as the SS does not send a CTS IMMEDIATE ASSIGNMENT, the CTS-MS shall send MCTS CTS ACCESS REQUEST. Then the CTS-MS shall start timer TC3150. When TC3150 expires the CTS-MS shall report the Immediate Assignment failure to upper layers.

The attached CTS-MS is switched OFF then ON. The CTS-MS sends a CTS ACCESS REQUEST. As long as the SS does not send a CTS IMMEDIATE ASSIGNMENT, the CTS-MS shall send MCTS CTS ACCESS REQUEST. Then the CTS-MS shall start timer TC3150. Before expiry of TC3150, the SS sends the CTS IMMEDIATE ASSIGNMENT. The CTS-MS should complete the attachment procedure.

#### Maximum Duration of Test

[TBD]

## Expected Sequence

Step	Direction	Message	Comments
1	CTS-MS -> SS	CTS ACCESS REQUEST	
2	CTS-MS -> SS	CTS ACCESS REQUEST	
3	CTS-MS -> SS	CTS ACCESS REQUEST	
4	CTS-MS -> SS	CTS ACCESS REQUEST	
5	CTS-MS -> SS	CTS ACCESS REQUEST	
6	CTS-MS -> SS	CTS ACCESS REQUEST	
7	CTS-MS -> SS	CTS ACCESS REQUEST	
8	CTS-MS -> SS	CTS ACCESS REQUEST	
9			T <sub>C3150</sub> expiry
10	SS -> CTS-MS	CTS IMMEDIATE ASSIGNMENT	
11			Check that the CTS-MS doesn't send CTS ATTCHMENT REQUEST for 30 s
12			Switch the CTS-MS OFF then ON
13	CTS-MS -> SS	CTS ACCESS REQUEST	
14	CTS-MS -> SS	CTS ACCESS REQUEST	
15	CTS-MS -> SS	CTS ACCESS REQUEST	
16	CTS-MS -> SS	CTS ACCESS REQUEST	
17	CTS-MS -> SS	CTS ACCESS REQUEST	
18	CTS-MS -> SS	CTS ACCESS REQUEST	
19	CTS-MS -> SS	CTS ACCESS REQUEST	
20	CTS-MS -> SS	CTS ACCESS REQUEST	
21			Wait T <sub>C3150</sub> expiry minus n multiframes
21	SS -> CTS-MS	CTS IMMEDIATE ASSIGNMENT	
22	CTS-MS -> SS	CTS ATTACHMENT REQUEST	
23	SS -> CTS-MS	CTS MS AUTHENTICATION REQUEST	
24	CTS-MS -> SS	CTS MS AUTHENTICATION RESPONSE	
25	SS -> CTS-MS	CTS FP AUTHENTICATION RESPONSE	
26	SS -> CTS-MS	CTS CIPHERING MODE COMMAND	Cipher Mode Setting = "Start Ciphering; cipher with algorithm A5/2". The SS starts deciphering
27	CTS-MS -> SS	CTS CIPHERING MODE COMPLETE	Sent in ciphered mode using the cipher key determined between steps 23&25
28	SS -> CTS-MS	IDENTITY REQUEST	
29	CTS-MS -> SS	IDENTITY RESPONSE	
30	SS -> CTS-MS	CTS CTS-MSI UPDATE COMMAND	New CTS-MSI sent to CTS-MS in ciphered mode
31	CTS-MS -> SS	CTS CTS-MSI UPDATE COMPLETE	New CTS-MSI stored in CTS-MS SIM, however old CTS-MSI is not cancelled [TBC]
32	SS -> CTS-MS	CTS ATTACHMENT ACCEPT	
33	SS -> CTS-MS	CTS CHANNEL RELEASE	

## Specific Message Contents

None

## 39.5.3.1.1.3 No access request when FP is in busy state

In cases where the CTS-FP has no resources to handle accesses from a CTS-MS, the CTSBCH shall indicate that no CTS-MS shall attempt to access the CTS-FP.

## 39.5.3.1.1.3.1 Conformance requirements

Access to the CTS-FP is allowed to any enrolled CTS-MS when the CTSBCH status field indicates idle. CTS-MS shall not try to access the CTS-FP when the status field indicates busy.

## 39.5.3.1.1.3.2 Test purpose

To check that the CTS-MS is able to manage dynamically the CTSBCH status field.

## References

3GPP TS 03.52 subclause 10.1.

3GPP TS 04.56 subclause 4.3.1.1.1.

### 39.5.3.1.1.3.3 Method of test

## Related PICS/PIXIT statements

-

## Initial conditions

SS:

Status Bit in CTSBCH-SB set to Busy.

Radio\_Link\_Timeout set to [TBC].

CTS-MS:

The CTS-MS is OFF.

The CTS-MS was previously attached on that CTS-FP.

## Foreseen Final State of the CTS-MS

"Attached, idle, update", with CTS-MSI allocated.

## Test procedure

The attached CTS-MS is switched ON. As long as the CTSBCH-SB Status Bit is set to Busy, the CTS-MS shall not send CTS ACCESS REQUEST. The CTS-MS shall go back to reselection mode.

The CTSBCH-SB Status Bit is set to Idle. The CTS-MS shall periodically scan the CTSBCH-SB Status Bit and send a CTS ACCESS REQUEST message to start the attachment procedure.

The CTSBCH-SB Status Bit is set to Busy. The CTS-MS is made to start an outgoing call. As long as the CTSBCH-SB Status Bit is set to Busy, the CTS-MS shall not send CTS ACCESS REQUEST.

## Maximum Duration of Test

[TBD]

## Expected Sequence

Step	Direction	Message	Comments
1			SS CTSBCH-SB Status Bit set to Busy
2			CTS-MS switched ON. Then check for no CTS ACCESS REQUEST during 2 minutes.
3			SS CTSBCH-SB Status Bit set to Idle
4	CTS-MS -> SS	CTS ACCESS REQUEST	
5	SS -> CTS-MS	CTS IMMEDIATE ASSIGNMENT	
6	CTS-MS -> SS	CTS ATTACHMENT REQUEST	
7	SS -> CTS-MS	CTS MS AUTHENTICATION REQUEST	
8	CTS-MS -> SS	CTS MS AUTHENTICATION RESPONSE	
9	SS -> CTS-MS	CTS FP AUTHENTICATION RESPONSE	
10	SS -> CTS-MS	CTS CIPHERING MODE COMMAND	Cipher Mode Setting = "Start Ciphering; cipher with algorithm A5/2". The SS starts deciphering
11	CTS-MS -> SS	CTS CIPHERING MODE COMPLETE	Sent in ciphered mode using the cipher key determined between steps 7&9
12	SS -> CTS-MS	IDENTITY REQUEST	
13	CTS-MS -> SS	IDENTITY RESPONSE	
14	SS -> CTS-MS	CTS CTS-MSI UPDATE COMMAND	New CTS-MSI sent to CTS-MS in ciphered mode
15	CTS-MS -> SS	CTS CTS-MSI UPDATE COMPLETE	New CTS-MSI stored in CTS-MS SIM, however old CTS-MSI is not cancelled [TBC]
16	SS -> CTS-MS	CTS ATTACHMENT ACCEPT	
17	SS -> CTS-MS	CTS CHANNEL RELEASE	
18			Wait 30 s
19			CTSBCH-SB Status Bit set to Busy
20			Start an CTS Outgoing Call. Then check for no CTS ACCESS REQUEST during 30 s

## Specific Message Contents

None.

## 39.5.3.1.2 Immediate Assignment

## 39.5.3.1.2.1 Immediate assignment success

The immediate assignment procedure is used by the CTS-FP to establish a dedicated control channel for the attached CTS-MS and CTS-FP to communicate the detail of the service requested.

## 39.5.3.1.2.1.1 Conformance requirements

Following a CTS PAGING REQUEST message, the attached CTS-MS shall correctly set up an RR connection on the dedicated channel TCH/F described in the CTS IMMEDIATE ASSIGNMENT message

## 39.5.3.1.2.1.2 Test purpose

To check that the attached CTS-MS is able to accept a CTS IMMEDIATE ASSIGNMENT message and to switch to the indicated channel by sending a CTS PAGING RESPONSE message.

## References:

3GPP TS 04.56 subclause 4.3.1.

## 39.5.3.1.2.1.3 Method of test

Related PICS/PIXIT statements:

-

Initial conditions:

CTS-MS:

"Idle, updated", with CTS-MSI allocated.

Foreseen Final State of the CTS-MS

"Idle, updated", with CTS-MSI allocated.

Test procedure

The SS pages the attached CTS-MS and after the CTS-MS has responded with an CTS ACCESS REQUEST message the SS assigns a dedicated channel. The CTS-MS shall go to the correct channel and send a CTS PAGING RESPONSE message. Then the SS initiates RR-release by sending a CTS CHANNEL RELEASE message.

Maximum Duration of Test

6 s.

Expected Sequence

Step	Direction	Message	Comments
1	SS -> CTS-MS	CTS PAGING REQUEST	
2	CTS-MS -> SS	CTS ACCESS REQUEST	
3	SS -> CTS-MS	CTS IMMEDIATE ASSIGNMENT	Channel Type: TCH/F
4	CTS-MS -> SS	CTS PAGING RESPONSE	Shall be sent on the correct channel
5	SS -> CTS-MS	CTS CHANNEL RELEASE	

Specific Message Contents

None

## 39.5.3.1.2.2 Immediate Assignment after Immediate assignment rejection

## 39.5.3.1.2.2.1 Conformance requirements

If no channel is available for assignment, the CTS-FP may send to the CTS-MS a CTS IMMEDIATE ASSIGNMENT REJECT in unacknowledged mode in the CTSAGCH channel. This message contains an access request reference and a wait indication.

## 39.5.3.1.2.2.2 Test purpose

To verify that the MS correctly responds to an CTS IMMEDIATE ASSIGNMENT message sent after an CTS IMMEDIATE ASSIGNMENT REJECT message before expiration of Wait indication.

References

3GPP TS 04.56 subclause 4.3.1.1.3.2.



## 39.5.3.1.2.2.3 Method of test

## Related PICS/PIXIT statements

-

## Initial conditions

SS:

Radio\_Link\_Timeout set to [TBC].

CTS-MS:

The CTS-MS is in the "Attached, idle, updated" mode, with a CTS-MSI allocated.

## Foreseen Final State of the CTS-MS

Scanning for available Network.

## Test procedure

The SS pages the CTS-MS, which shall react by sending a CTS CHANNEL REQUEST. Immediately after reception of the CTS CHANNEL REQUEST the SS sends a CTS IMMEDIATE ASSIGNMENT REJECT message which has the Wait Indication IE set to 6 s.

Between 0,75 s and 1,25 s after sending the CTS IMMEDIATE ASSIGNMENT REJECT message the SS sends a CTS IMMEDIATE ASSIGNMENT message. The MS shall go to the correct channel and send a CTS PAGING RESPONSE message. Then the SS initiates RR-release by sending a CTS CHANNEL RELEASE message.

## Maximum Duration of Test

[TBD]

## Expected Sequence

Step	Direction	Message	Comments
1	SS -> CTS-MS	CTS PAGING REQUEST	
2	CTS-MS -> SS	CTS ACCESS REQUEST	
3	SS -> CTS-MS	CTS IMMEDIATE ASSIGNMENT REJECT	Wait Indication IE set to 6 s.
4	SS -> CTS-MS	CTS IMMEDIATE ASSIGNMENT	references the request from the SS sent between 0,75 s and 1,25 s after the completion of step 3.
5	CTS-MS -> SS	CTS PAGING RESPONSE	
6	SS -> CTS-MS	CTS CHANNEL RELEASE	

## Specific Message Contents

None.

## 39.5.3.1.2.3 Immediate assignment / ignore assignment

The purpose of the immediate assignment procedure is to establish an RR connection between the mobile station and the CTS-FP.

## 39.5.3.1.2.3.1 Conformance requirements

A CTS-MS waiting for a response from the CTS-FP, following the sending of a CTS ACCESS REQUEST, shall ignore a CTS IMMEDIATE ASSIGNMENT message with an Access Request Reference containing another CTS-MSI.

**39.5.3.1.2.3.2 Test purpose**

To verify that the CTS-MS ignores an assignment for another CTS-MS while waiting for an assignment of its own.

**References**

3GPP TS 04.56 subclause 4.3.1.1.3.

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

-

**Initial conditions**

SS:

Radio\_Link\_Timeout set to [TBC].

CTS-MS:

The CTS-MS is in the "Attached, idle, updated" mode, with a CTS-MSI allocated.

**Foreseen Final State of the CTS-MS**

Scanning for available Network.

**Test procedure**

The SS pages the CTS-MS, which shall react by sending CTS ACCESS REQUEST. Immediately after reception of the third CTS ACCESS REQUEST the SS sends a CTS IMMEDIATE ASSIGNMENT message which has another CTS-MSI in the access request reference field. The CTS-MS shall ignore the assignment and send another CTS ACCESS REQUEST message.

**Maximum Duration of Test**

[TBD]

**Expected Sequence**

Step	Direction	Message	Comments
1	SS -> CTS-MS	CTS PAGING REQUEST	
2	CTS-MS -> SS	CTS ACCESS REQUEST	
3	SS -> CTS-MS	CTS IMMEDIATE ASSIGNMENT	CTS-MSI in the access request reference field is not the one allocated to the CTS-MS.
4	CTS-MS -> SS	CTS ACCESS REQUEST	
5	SS -> CTS-MS	CTS IMMEDIATE ASSIGNMENT	CTS-MSI in the access request reference field is the one allocated to the CTS-MS.
6	CTS-MS -> SS	CTS PAGING RESPONSE	
7	SS -> CTS-MS	CTS CHANNEL RELEASE	

**Specific Message Contents**

None.

### 39.5.3.1.3 Paging

#### 39.5.3.1.3.1 Paging with current CTS-MSI

The Paging procedure is used by the CTS-FP to cause the CTS Mobile Station to establish a radio connection. Normally the CTS Mobile Station listens to its paging subchannel but the correct implementation of the paging procedure in the CTS Mobile Station is essential for the basic establishment of a connection.

##### 39.5.3.1.3.1.1 Conformance requirements:

The attached CTS-MS shall respond correctly to various CTS PAGING REQUEST messages. The MS shall send CTS ACCESS REQUEST messages, with an Establishment Cause set to "Answer to Paging", until the CTS-FP answers. The number of CTS ACCESS REQUEST messages shall be limited by the parameter Max-retrans. After the assignment procedure, the CTS-MS shall send a CTS PAGING RESPONSE message on the channel assigned by the CTS-FP.

##### 39.5.3.1.3.1.2 Test purpose:

To test that the attached CTS-MS is able to determine its paging subgroup correctly and that the CTS-MS responds correctly to various CTS PAGING REQUEST messages. All valid ways of addressing the CTS-MS are tested. It is tested that the CTS-MS responds with the same last issued CTS-MS Identity that is used in the CTS PAGING REQUEST message.

##### References:

3GPP TS 04.56 subclause 4.3.2.

##### 39.5.3.1.3.1.3 Method of test

##### Related PICS/PIXIT statements:

-

##### Initial conditions:

SS:

Max-Retrans = 2.

CTS-MS:

The CTS-MS is in the "Attached, idle, updated", with a CTS-MSI allocated.

##### Foreseen Final State of the CTS-MS

"Attached, idle, updated", with CTS-MSI allocated.

##### Test procedure

The SS pages the attached CTS-MS 5 times with different CTS PAGING REQUEST messages on the paging subchannel which corresponds to the CTS-MS's IMSI (CTS-IMSI).

In all the cases the attached CTS-MS shall answer to the paging by sending CTS ACCESS REQUESTs. The SS responds to the second CTS ACCESS REQUEST by assigning a channel, and the CTS-MS shall then send a correct CTS PAGING RESPONSE.

##### Maximun Duration of Test

5 minutes.

## Expected Sequence

Step	Direction	Message	Comments
			PROCEDURE 1.
1	SS -> CTS-MS	CTS PAGING REQUEST	1st CTS-MSI addresses CTS-MS; 2nd, 3rd and 4th CTS-MSIs address other CTS-MSs.
2	CTS-MS -> SS	CTS ACCESS REQUEST	Establ. Cause = "Answer to paging".
3	CTS-MS -> SS	CTS ACCESS REQUEST	Establ. Cause = "Answer to paging".
4	SS -> CTS-MS	CTS IMMEDIATE ASSIGNMENT	Access Request Reference = pertaining to the message received in step 3.
5	CTS-MS -> SS	CTS PAGING RESPONSE	Mobile Ident: CTS-MSI.
6	SS -> CTS-MS	CTS CHANNEL RELEASE	
			PROCEDURE 2.
7	SS -> CTS-MS	CTS PAGING REQUEST	2nd CTS-MSI addresses CTS-MS; 1st, 3rd and 4th CTS-MSIs address other CTS-MSs.
8	CTS-MS -> SS	CTS ACCESS REQUEST	Establ. Cause = "Answer to paging".
9	CTS-MS -> SS	CTS ACCESS REQUEST	Establ. Cause = "Answer to paging".
10	SS -> CTS-MS	CTS IMMEDIATE ASSIGNMENT	Access Request Reference = pertaining to the message received in step 9.
11	CTS-MS -> SS	CTS PAGING RESPONSE	Mobile Ident: CTS-MSI.
12	SS -> CTS-MS	CTS CHANNEL RELEASE	
			PROCEDURE 3.
13	SS -> CTS-MS	CTS PAGING REQUEST	3rd CTS-MSI addresses CTS-MS; 1st, 2nd and 4th CTS-MSIs address other CTS-MSs.
14	CTS-MS -> SS	CTS ACCESS REQUEST	Establ. Cause = "Answer to paging".
15	CTS-MS -> SS	CTS ACCESS REQUEST	Establ. Cause = "Answer to paging".
16	SS -> CTS-MS	CTS IMMEDIATE ASSIGNMENT	Access Request Reference = pertaining to the message received in step 15.
17	CTS-MS -> SS	CTS PAGING RESPONSE	Mobile Ident: CTS-MSI.
18	SS -> CTS-MS	CTS CHANNEL RELEASE	
			PROCEDURE 4
19	SS -> CTS-MS	CTS PAGING REQUEST	4th CTS-MSI addresses CTS-MS; 1st, 2nd and 3rd CTS-MSIs address other CTS-MSs.
20	CTS-MS -> SS	CTS ACCESS REQUEST	Establ. Cause = "Answer to paging".
21	CTS-MS -> SS	CTS ACCESS REQUEST	Establ. Cause = "Answer to paging".
22	SS -> CTS-MS	CTS IMMEDIATE ASSIGNMENT	Access Request Reference = pertaining to the message received in step 21.
23	CTS-MS -> SS	CTS PAGING RESPONSE	Mobile Ident: CTS-MSI.
24	SS -> CTS-MS	CTS CHANNEL RELEASE	

## Specific Message Contents

None.

## 39.5.3.1.3.2 Paging with invalid CTS-MSI

## 39.5.3.1.3.2.1 Conformance requirements

The attached CTS-MS shall not respond to CTS PAGING REQUEST messages with invalides CTS-MSIs.

## 39.5.3.1.3.2.2 Test purpose

To test that the attached CTS-MS is able to determine its paging subgroup correctly and that the CTS-MS does not respond to a CTS PAGING REQUEST message containing invalid CTS Mobile identities CTS-MSIs.

## References:

3GPP TS 04.56 subclause 4.3.2.

## 39.5.3.1.3.2.3 Method of test

Related PICS/PIXIT statements:

None.

Initial conditions:

The CTS-MS is in the "Attached, idle, updated", with a CTS-MSI allocated.

Foreseen Final State of the CTS-MS

"Attached, idle, updated", with CTS-MSI allocated.

Test procedure

The SS pages the attached CTS-MS with a CTS PAGING REQUEST message containing invalid CTS-MSIs on the paging subchannel which corresponds to the CTS-MS's IMSI (CTS-IMSI). The SS does not respond nor produce any Layer 3 message. The SS then stop the paging upon timer expiration.

Maximun Duration of Test

2 s

Expected Sequence

Step	Direction	Message	Comments
1	SS -> CTS-MS	CTS PAGING REQUEST	None of the 4 CTS-MSIs addresses correctly CTS-MS.
2	-----	-----	During 1 second, the SS checks that the CTS-MS does not produce any Layer 3 messages.

Specific Message Contents

None

39.5.3.1.4 Reserved

39.5.3.1.5 Reserved

39.5.3.1.6 Reserved

39.5.3.1.7 Reserved

39.5.3.1.8 Reserved

39.5.3.1.9 Channel Release

39.5.3.1.9.1 Channel Release/ TCH-F - L2 ACK

39.5.3.1.9.1.1 Conformance requirements[TBC]

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

## 39.5.3.1.9.1.2 Test purpose

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

## References:

3GPP TS 04.56 subclause 4.4.13.1.

## 39.5.3.1.9.1.3 Method of test

## Related PICS/PIXIT statements:

-

## Initial conditions:

CTS-MS:

The CTS-MS is in the "Attached, idle, updated", with a CTS-MSI allocated.

## Foreseen Final State of the CTS-MS

"Attached, idle, updated", with CTS-MSI allocated.

## Test procedure

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

## Maximun Duration of Test

[TBD]

## Expected Sequence

Step	Direction	Message	Comments
1	SS->CTS-MS	CTS PAGING REQUEST	
2	CTS-MS->SS	CTS ACCESS REQUEST	Establishment cause indicates "answer to paging".
3	SS->CTS-MS	CTS IMMEDIATE ASSIGNMENT	Channel Type = "Bm + ACCHs"
4	CTS-MS->SS	CTS PAGING RESPONSE	
5	SS->CTS-MS	CTS CHANNEL RELEASE	With a valid RR cause value
6	CTS-MS->SS	DISC L2 frame	The CTS-MS may send the DISC message without performing a layer 2 acknowledgement of the CTS CHANNEL RELEASE message
7	SS->CTS-MS	UA L2 frame	
8			The SS verifies for 3 s that the CTS-MS does not produce any Layer 2 messages.
9	SS->CTS-MS	CTS PAGING REQUEST	
10	CTS-MS->SS	CTS ACCESS REQUEST	Establ. Cause = "Answer to paging".
11	SS->CTS-MS	CTS IMMEDIATE ASSIGNMENT	
12	CTS-MS->SS	CTS PAGING RESPONSE	
13	SS->CTS-MS	CTS CHANNEL RELEASE	



## Specific Message Contents

[TBD]

39.5.3.1.9.2 Channel Release/ TCH-F – no L2 ACK

39.5.3.1.9.2.1 Conformance requirements [TBC]

After the expiry of timer TC3151 the CTS-MS shall not produce any further RF-transmission.

39.5.3.1.9.2.2 Test purpose

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

## References:

3GPP TS 04.56 subclause 4.4.13.1.

39.5.3.1.9.2.3 Method of test

## Related PICS/PIXIT statements:

-

## Initial conditions:

CTS-MS:

The CTS-MS is in the "Attached, idle, updated", with a CTS-MSI allocated.

## Foreseen Final State of the CTS-MS

"Attached, idle, updated", with CTS-MSI allocated.

## Test procedure

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

## Maximum Duration of Test

[TBD]

## Expected Sequence

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

## Specific Message Contents

[TBD]

## 39.5.3.1.10 Authentication

## 39.5.3.1.10.1 Local Mutual Authentication failure

According to 3GPP TS 03.20 annex E, subclause 3.2.1.1, an authentication failure occurs if:

- the CTS-MS and the CTS-FP have different Ka; or/and
- the algorithms B3 and/or B4 are not implemented as specified (i.e. non type approved equipment).

## 39.5.3.1.10.1.1 Conformance requirements:

After reception of a CTS Authentication Response message from the CTS-FP and SRES2 does not match with the local XSRES2, the CTS Mobile Station shall disconnect the main signalling link by sending a DISC L2 frame to the CTS-FP.

## 39.5.3.1.10.1.2 Test purpose:

To check that the CTS-MS is able to process B3 and B4 algorithms.

To check that the CTS-MS abort the RR connection if the authentication of the fixed part fails.

## References:

3GPP TS 03.20 subclause 3.2.1.

3GPP TS 04.56.

## 39.5.3.1.10.1.3 Method of test

## Related PICS/PIXIT statements:

-

Initial conditions:

SS:

The SS has valid Ka, Kc.

CTS-MS:

The CTS-MS is in the "Attached, idle, updated", with valid CTS-MSII, Ka', Kc'.

Ka # Ka'

Foreseen Final State of the CTS-MS

"Attached, idle, updated", with CTS-MSI2, Ka', Kc' allocated.

Test procedure

The attached CTS-MS is paged. After the CTS-MS has sent a CTS PAGING RESPONSE message to the SS, the SS initiates a CTS authentication procedure by sending a CTS MS AUTHENTICATION REQUEST with an unpredictable number CH1. The CTS-MS shall send in turn a CTS FP AUTHENTICATION REQUEST with an unpredictable number CH2 and checks the value SRES2 sent by the SS in the CTS FP AUTHENTICATION RESPONSE message. Ka and Ka' are different so the checked SRES2 value is not valid, then CTS-MS shall disconnect the main signalling link by sending a DISC L2 frame to the SS.

Maximun Duration of Test

[TBD]

Expected Sequence

Step	Direction	Message	Comments
1	SS -> CTS-MS	CTS PAGING REQUEST	
2	CTS-MS -> SS	CTS ACCESS REQUEST	Establ. Cause = "Answer to paging"
3	SS -> CTS-MS	CTS IMMEDIATE ASSIGNMENT	
4	CTS-MS -> SS	CTS PAGING RESPONSE	
5	SS -> CTS-MS	CTS MS AUTHENTICATION REQUEST	CH1 is sent by SS
6	CTS-MS -> SS	CTS FP AUTHENTICATION REQUEST	CH2 is sent by CTS-MS
7	SS -> CTS-MS	CTS FP AUTHENTICATION RESPONSE	"Auth. parameter SRES2" IE is not equal to the value XSRES2 produced by the authentication algorithm
8	CTS-MS -> SS	DISC	
9	SS -> CTS-MS	UA	

Specific Message Contents

None.

39.5.3.1.11 Reserved

39.5.3.1.12 Reserved

39.5.3.1.13 Radio Link Management

39.5.3.1.13.1 AFA Measurement and Reporting

The CTS radio interface has been designed to meet a requirement of low generated interference, either from the CTS to existing overlaying PLMNS, either from a CTS to another CTS. This requirement is achieved by the combined usage of the three concepts : beacon concept, AFA concept and TFH concept.

#### 39.5.3.1.13.1.1 Conformance requirements

A precise radio frequency planning can not be applied to the CTS-FP/MS pair, as the CTS is intended to be deployed by the end-user. Therefore, a list of frequencies (the GFL) on which it is allowed to operate is given to the CTS. With the AFA, interference measurements will be performed on the frequencies in the GFL to provide a ranking in the AFA table, in order to exclude unacceptably interfered frequencies from the usage in CTS.

#### 39.5.3.1.13.1.2 Test purpose

To check that the CTS-MS is able to perform AFA monitoring procedure.

To check that the CTS-MS is able to perform AFA monitoring reporting when order by the CTS-FP.

#### References

3GPP TS 03.52 subclause 12.2.2.1.

3GPP TS 03.52 subclause 12.3.3.2.1.

3GPP TS 05.08 subclause 11.1.4.1.

#### 39.5.3.1.13.1.3 Method of test

#### Related PICS/PIXIT statements

-

#### Initial conditions

CTS-MS:

The CTS-MS is in the "Attached, idle, updated" mode, with a CTS-MSI allocated.

#### Foreseen Final State of the CTS-MS

The CTS-MS is in the "Attached, idle, updated" mode, with a CTS-MSI allocated.

#### Test procedure

The attached CTS-MS shall respond to a pending CTS PAGING REQUEST message. The CTS-MS shall send CTS ACCESS REQUEST messages, with an Establishment Cause set to "Answer to Paging", until the SS answers. The general access procedure is then performed. The SS sends a CTS AFA MONITORING COMMAND. Finally the SS sends a CTS CHANNEL RELEASE. For each carrier of the AFA List, the CTS-MS shall perform NAMC basic measurements, where a basic measurement shall be the average received signal level on the 8 timeslots of the TDMA frame. The delay between two consecutive basic measurements shall be at least 5 seconds. The received interference level of the carrier shall be the maximum of the NAMC basic measurements. The maximum processing time for this procedure shall be  $NAMC \times 10$  s.

The SS shall wait  $(NAMC \times 10 + 20)$  seconds before starting the AFA reporting procedure to let the CTS-MS enough time to perform the monitoring procedure during NAMC cycle. When ordered by the SS with the CTS AFA MONITORING ENQUIRY, the CTS-MS shall report in the CTS AFA MONITORING REPORT message a table of received interference level for all frequencies of the AFA List, together with the AFA monitoring cycles equal to NAMC. Finally the SS sends a CTS CHANNEL RELEASE.

#### Maximum Duration of Test

[TBD]

## Expected Sequence

Step	Direction	Message	Comments
1	SS -> CTS-MS	CTS PAGING REQUEST	CTS-MSI
2	CTS-MS -> SS	CTS ACCESS REQUEST	
3	SS -> CTS-MS	CTS IMMEDIATE ASSIGNMENT	
4	CTS-MS -> SS	CTS PAGING RESPONSE	
5	SS -> CTS-MS	CTS MS AUTHENTICATION REQUEST	
6	CTS-MS -> SS	CTS MS AUTHENTICATION RESPONSE	
7	SS -> CTS-MS	CTS FP AUTHENTICATION RESPONSE	
8	SS -> CTS-MS	CTS CIPHERING MODE COMMAND	
9	CTS-MS -> SS	CTS CIPHERING MODE COMPLETE	
10	SS -> CTS-MS	CTS AFA MONITORING COMMAND	AFA List NAMC = 6
11	SS -> CTS-MS	CTS CHANNEL RELEASE	
12			The CTS-MS is performing AFA measurement. The SS shall wait 80 s before starting the AFA reporting procedure to let the CTS-MS enough time to perform the monitoring procedure during NAMC cycle
13	SS -> CTS-MS	CTS PAGING REQUEST	CTS-MSI
14	CTS-MS -> SS	CTS ACCESS REQUEST	
15	SS -> CTS-MS	CTS IMMEDIATE ASSIGNMENT	
16	CTS-MS -> SS	CTS PAGING RESPONSE	
17	SS -> CTS-MS	CTS MS AUTHENTICATION REQUEST	
18	CTS-MS -> SS	CTS MS AUTHENTICATION RESPONSE	
19	SS -> CTS-MS	CTS FP AUTHENTICATION RESPONSE	
20	SS -> CTS-MS	CTS CIPHERING MODE COMMAND	
21	CTS-MS -> SS	CTS CIPHERING MODE COMPLETE	
22	SS -> CTS-MS	CTS AFA MONITORING ENQUIRY	
23	CTS-MS -> SS	CTS AFA MONITORING REPORT	The SS checks the AFA List The SS checks that NAMC = 6
24	SS -> CTS-MS	CTS CHANNEL RELEASE	

## Specific Message Contents

None.

## 39.5.3.1.13.2 Total Frequency Hopping List update

The CTS radio interface has been designed to meet a requirement of low generated interference, either from the CTS to existing overlaying PLMNS, either from a CTS to another CTS. This requirement is achieved by the combined usage of the three concepts : beacon concept, AFA concept and TFH concept.

## 39.5.3.1.13.2.1 Conformance requirements

A precise radio frequency planning can not be applied to the CTS-FP/MS pair, as the CTS is intended to be deployed by the end-user. Therefore, a list of frequencies (the GFL) on which it is allowed to operate is given to the CTS. With the AFA, interference measurements will be performed on the frequencies in the GFL to provide a ranking in the AFA table, in order to exclude unacceptably interfered frequencies from the usage in CTS.

The remaining frequencies are used by the Total Frequency Hopping algorithm in order to reduce the interference of the CTS with the overlaying PLMN and other CTS-FP/MS pairs. With TFH the interference caused by the CTS link is spread across multiple GSM links (interference averaging) and the co-channel interference is due to different users at different locations (interference diversity).

## 39.5.3.1.13.2.2 Test purpose

To check that the CTS-MS is able to store the new TFH list broadcast by the CTS-FP on a dedicated channel. To check that the CTS-MS is able to establish a TCH/F channel in total frequency hopping mode using the new TFH list.

## References

3GPP TS 03.52 subclause 12.2.2.1.

3GPP TS 03.52 subclause 12.3.3.2.1.

## 39.5.3.1.13.2.3 Method of test

## Related PICS/PIXIT statements

-

## Initial conditions

CTS-FP:

Radio\_Link\_Timeout set to [TBC].

CTS-MS:

The CTS-MS is in the "Attached, idle, updated" mode, with a CTS-MSI allocated.

## Foreseen Final State of the CTS-MS

The CTS-MS is in the "Attached, idle, updated" mode, with a CTS-MSI allocated.

## Test procedure

The attached CTS-MS shall respond to a pending CTS PAGING REQUEST message. The CTS-MS shall send CTS ACCESS REQUEST messages, with an Establishment Cause set to "Answer to Paging", until the SS answers. The general access procedure is then performed. The SS sends a CTS FREQUENCY HOPPING REDEFINITION. The CTS-MS should store the new TFH list without erasing the old one as long as the frame number broadcast in the Starting Time field as not occurred.

Finally the SS sends a CTS CHANNEL RELEASE.

The SS wait until the new TFH list is applicable.

The SS send a CTS PAGING REQUEST with the last known CTS-MS's CTS-MSI. The CTS-MS should establish a TCH/F channel in total frequency hopping mode using the new TFH list.

## Maximum Duration of Test

[TBD]



## Expected Sequence

Step	Direction	Message	Comments
1	SS -> CTS-MS	CTS PAGING REQUEST	CTS-MSI
2	CTS-MS -> SS	CTS ACCESS REQUEST	
3	SS -> CTS-MS	CTS IMMEDIATE ASSIGNMENT	
4	CTS-MS -> SS	CTS PAGING RESPONSE	
5	SS -> CTS-MS	CTS MS AUTHENTICATION REQUEST	
6	CTS-MS -> SS	CTS MS AUTHENTICATION RESPONSE	
7	SS -> CTS-MS	CTS FP AUTHENTICATION RESPONSE	
8	SS -> CTS-MS	CTS CIPHERING MODE COMMAND	
9	CTS-MS -> SS	CTS CIPHERING MODE COMPLETE	
10	SS -> CTS-MS	CTS FREQUENCY HOPPING REDEFINITION	Starting Time = [TBD]
11	SS -> CTS-MS	CTS CHANNEL RELEASE	
12			Wait Starting Time plus n multiframes.
13	SS -> CTS-MS	CTS PAGING REQUEST	CTS-MSI
14	CTS-MS -> SS	CTS ACCESS REQUEST	
15	SS -> CTS-MS	CTS IMMEDIATE ASSIGNMENT	TCH/F
16	CTS-MS -> SS	CTS PAGING RESPONSE	
17	SS -> CTS-MS	CTS CHANNEL RELEASE	

## Specific Message Contents

None.

## 39.5.3.2 Structured Procedures

## 39.5.3.2.1 Attachment

## 39.5.3.2.1.1 CTS attachment retry with same FPBI and BCH carrier

## 39.5.3.2.1.1.1 Conformance requirements

If the fixed part identity is not the expected one, the mobile station shall start the timer TC3256. The mobile shall not attempt to attach to any fixed part having the same FPBI before expiration of the timer TC3256. This does not forbid attachment to fixed parts having another FPBI.

## 39.5.3.2.1.1.2 Test purpose

To check that the CTS-MS does not start the CTS attachment procedure if there was a failed CTS attachment with the same FPBI, same BCH carrier and same relative frame position of the BCH SB in the BCH superframe within the last 10 minutes.

## References

3GPP TS 04.56 subclause 5.3.2.4.

3GPP TS 04.56 subclause 5.2.3.

## 39.5.3.2.1.1.3 Method of test

## Related PICS/PIXIT statements

#### Initial conditions

SS:

Radio\_Link\_Timeout set to [TBC].

CTS-MS:

The CTS-MS is in the "Enrolled, idle, updated" mode, with a CTS-MSI allocated.

#### Foreseen Final State of the CTS-MS

The CTS-MS is in the "Enrolled, idle, updated" mode, with a CTS-MSI allocated.

#### Test procedure

1. The enrolled CTS-MS is made to register on a SS. The CTS-MS is locked on the BCH carrier with a known FPBI identity. It shall send at least one CTS ACCESS REQUEST message with establishment cause set to "CTS attachment", the SS sends a CTS IMMEDIATE ASSIGNMENT. The CTS-MS shall send a CTS ATTACHMENT REQUEST message. The SS does not identify the CTS-MSI so it starts an identification procedure to get the IMSI of the CTS-MS. The SS returns a CTS ATTACHMENT REJECT message with Reject cause = "not enrolled". The SS sends a CTS CHANNEL RELEASE. The CTS-MS shall not initiate a RR connection establishment during 10 minutes.
2. The test is started again. Now the CTS-MSI is recognised but the keys Ka and Kinit does not match so the authentication of the CTS-MS fails. In this case, the SS shall send a CTS AUTHENTICATION REJECT, and the CTS attachment reject is implicit. The SS sends a CTS CHANNEL RELEASE. The CTS-MS shall not initiate a RR connection establishment during 10 minutes.

#### Maximum Duration of Test

[TBD]

## Expected Sequence

Step	Direction	Message	Comments
			PROCEDURE 1
1	CTS-MS -> SS	CTS ACCESS REQUEST	Establ. Cause = "CTS attachment"
2	SS -> CTS-MS	CTS IMMEDIATE ASSIGNMENT	
3	CTS-MS -> SS	CTS ATTACHMENT REQUEST	CTS-MSI is not recognised by the SS
4	SS -> CTS-MS	IDENTITY REQUEST	
5	CTS-MS -> SS	IDENTITY RESPONSE	IMSI is sent to the SS
6	SS -> CTS-MS	CTS ATTACHMENT REJECT	Reject cause = "Not enrolled"
7	SS -> CTS-MS	CTS CHANNEL RELEASE	
8			The CTS-MS shall not initiate a RR connection establishment on the same BCH carrier with the same FPBI. This is checked during 10 mn.
			PROCEDURE 2
9	CTS-MS -> SS	CTS ACCESS REQUEST	
10	SS -> CTS-MS	CTS IMMEDIATE ASSIGNMENT	
11	CTS-MS -> SS	CTS ATTACHMENT REQUEST	
12	SS -> CTS-MS	CTS MS AUTHENTICATION REQUEST	
13	CTS-MS -> SS	CTS MS AUTHENTICATION RESPONSE	SRES1 # XSRES1. The SS initiates identification procedure
14	SS -> CTS-MS	IDENTITY REQUEST	
15	CTS-MS -> SS	IDENTITY RESPONSE	IMSI is sent to the SS
16	SS -> CTS-MS	CTS MS AUTHENTICATION REQUEST	
17	CTS-MS -> SS	CTS MS AUTHENTICATION RESPONSE	
18	SS -> CTS-MS	CTS FP AUTHENTICATION REJECT	SRES1 # XSER1. Attachment reject is implicit.
19	SS -> CTS-MS	CTS CHANNEL RELEASE	
20			The CTS-MS shall not initiate a RR connection establishment on the same BCH carrier with the same FPBI. This is checked during 10 mn.

## Specific Message Contents

None

## 39.5.3.2.2 Detachment

## 39.5.3.2.2.1 CTS detachment upon CTS-MS power off

The CTS detachment procedure is used to detach an enattached CTS-MS from a CTS-FP.

## 39.5.3.2.2.1.1 Conformance requirements

The purpose of the CTS detach procedure is to detach a mobile station from a fixed part. The mobile station may launch the detach procedure during the CTS mode deactivation (e.g. at the power off, when the SIM is extracted, when the mobile station is set in GSM mode only).

The CTS detach procedure is always initiated by the mobile station.

## 39.5.3.2.2.1.2 Test purpose

To check that the CTS-MS starts the CTS detachment procedure if:

- it is switched off within the range of the CTS-FP;
- the SIM is extracted;
- the mobile station is set in GSM mode only.

## References:

3GPP TS 04.56 subclause 5.2.1.

## 39.5.3.2.2.1.3 Method of test

## Related PICS/PIXIT statements:

-

## Initial conditions:

SS:

Radio\_Link\_Timeout set to [TBC].

CTS-MS:

The CTS-MS is in the "Attached, idle, updated", with a CTS-MSI allocated. The CTS-MS is in CTS mode only.

## Foreseen Final State of the CTS-MS

"Enrolled, idle, updated", with CTS-MSI allocated.

## Test procedure

1. The attached CTS-MS is switched off. It shall send at least one CTS ACCESS REQUEST message with establishment cause set to "detachment", the SS sends a CTS IMMEDIATE ASSIGNMENT. The CTS-MS shall send a CTS DETACHMENT INDICATION message. Finally the SS sends a CTS CHANNEL RELEASE to end the test.
2. The CTS-MS is switched on. It shall start the attach procedure. When the attachment procedure is completed, the SIM is removed from the CTS-MS. The CTS-MS should start the detach procedure as described in phase 1.
3. The CTS-MS is switched on. It shall start the attach procedure. When the attachment procedure is completed, the CTS-MS is switched to GSM mode only. The CTS-MS should start the detach procedure as described in phase 1.

## Maximun Duration of Test

[TBD]

## Expected Sequence

Step	Direction	Message	Comments
			PROCEDURE 1
1			The attached CTS-MS is switched off
2	CTS-MS -> SS	CTS ACCESS REQUEST	Establ. Cause = "CTS detachment"
3	SS -> CTS-MS	CTS IMMEDIATE ASSIGNMENT	
4	CTS-MS -> SS	CTS DETACHMENT INDICATION	CTS-MSI
5	SS -> CTS-MS	CTS CHANNEL RELEASE	
			PROCEDURE 2
6			The CTS-MS is switched on
7	SS -> CTS-MS	CTS CHANNEL RELEASE	
8	CTS-MS -> SS	CTS ACCESS REQUEST	
9	SS -> CTS-MS	CTS IMMEDIATE ASSIGNMENT	
10	CTS-MS -> SS	CTS ATTACHMENT REQUEST	
11	SS -> CTS-MS	CTS MS AUTHENTICATION REQUEST	
12	CTS-MS -> SS	CTS MS AUTHENTICATION RESPONSE	
13	SS -> CTS-MS	CTS FP AUTHENTICATION RESPONSE	
14	SS -> CTS-MS	CTS CIPHERING MODE COMMAND	
15	CTS-MS -> SS	CTS CIPHERING MODE COMPLETE	
16	SS -> CTS-MS	IDENTITY REQUEST	
17	CTS-MS -> SS	IDENTITY RESPONSE	
18	SS -> CTS-MS	CTS CTS-MSI UPDATE COMMAND	
19	CTS-MS -> SS	CTS CTS-MSI UPDATE COMPLETE	
20	SS -> CTS-MS	CTS ATTACHMENT ACCEPT	
21	SS -> CTS-MS	CTS CHANNEL RELEASE	
22			The SIM is removed from the CTS-MS
23	CTS-MS -> SS	CTS ACCESS REQUEST	Establ. Cause = "CTS detachment"
24	SS -> CTS-MS	CTS IMMEDIATE ASSIGNMENT	
25	CTS-MS -> SS	CTS DETACHMENT INDICATION	CTS-MSI
26	SS -> CTS-MS	CTS CHANNEL RELEASE	
			PROCEDURE 3
27			The SIM is inserted in the CTS-MS
28	SS -> CTS-MS	CTS CHANNEL RELEASE	
29	CTS-MS -> SS	CTS ACCESS REQUEST	
30	SS -> CTS-MS	CTS IMMEDIATE ASSIGNMENT	
31	CTS-MS -> SS	CTS ATTACHMENT REQUEST	
32	SS -> CTS-MS	CTS MS AUTHENTICATION REQUEST	
33	CTS-MS -> SS	CTS MS AUTHENTICATION RESPONSE	
34	SS -> CTS-MS	CTS FP AUTHENTICATION RESPONSE	
35	SS -> CTS-MS	CTS CIPHERING MODE COMMAND	
36	CTS-MS -> SS	CTS CIPHERING MODE COMPLETE	
37	SS -> CTS-MS	IDENTITY REQUEST	
38	CTS-MS -> SS	IDENTITY RESPONSE	
39	SS -> CTS-MS	CTS CTS-MSI UPDATE COMMAND	
40	CTS-MS -> SS	CTS CTS-MSI UPDATE COMPLETE	
41	SS -> CTS-MS	CTS ATTACHMENT ACCEPT	
42	SS -> CTS-MS	CTS CHANNEL RELEASE	
43			The CTS-MS is switched to GSM mode only
44	CTS-MS -> SS	CTS ACCESS REQUEST	Establ. Cause = "CTS detachment"
45	SS -> CTS-MS	CTS IMMEDIATE ASSIGNMENT	
46	CTS-MS -> SS	CTS DETACHMENT INDICATION	CTS-MSI
47	SS -> CTS-MS	CTS CHANNEL RELEASE	

## Specific Message Contents

None.

39.5.3.2.3 Reserved

39.5.3.2.4 Reserved

39.5.3.2.5 Reserved

39.5.3.2.6 Reserved

39.5.3.2.7 Handover

39.5.3.2.7.1 Handover / successful / active call / total frequency hopping

39.5.3.2.7.1.1 Conformance requirements

The MS shall correctly apply the handover procedure when a call is in progress and when handover is performed from a TCH/F with total frequency hopping towards a TCH/F with total frequency hopping.

39.5.3.2.7.1.2 Test purpose

To test that the MS correctly handles the values of any Starting Time IE in the CTS HANDOVER COMMAND message. To test that the CTS-MS activates the new channel correctly and transmits the SABM on a correct frame number.

#### References

3GPP TS 04.56 subclause 4.4.3.

39.5.3.2.7.1.3 Method of test

#### Related PICS/PIXIT statements

-

#### Initial conditions

SS:

Radio\_Link\_Timeout set to [TBC].

CTS-MS:

The CTS-MS is in the active state of a call using a full rate TCH in total frequency hopping mode.

#### Foreseen Final State of the CTS-MS

The CTS-MS is in the active state of a call using a full rate TCH in total frequency hopping mode.

#### Test procedure

The CTS-MS is in the active state of a call. The SS send a CTS INTRACELL HANDOVER COMMAND on the main DCCH. The CTS-MS shall (at the time defined by the Starting Time information element) activate the channel by sending a SABM message. The CTS-MS shall be ready to transmit a CTS HANDOVER COMPLETE message, after a UA frame has been sent by the SS.

#### Maximum Duration of Test

[TBD]



## Expected Sequence

Step	Direction	Message	Comments
1	SS -> CTS-MS	CTS INTRACELL HANDOVER COMMAND	Indicates the frame number that will occur approximately 1.1 seconds after the CTS HANDOVER COMMAND is sent.
2	CTS-MS -> SS	SABM	The SS checks the Frame Number.
3	SS -> CTS-MS	UA	
4	CTS-MS -> SS	CTS INTRACELL HANDOVER COMPLETE	

## Specific Message Contents

None.

## 39.5.3.2.8 Handover

## 39.5.3.2.8.1 Handover / Layer 1 Failure

## 39.5.3.2.8.1.1 Conformance requirements

The MS shall return to the old channel in the case of an handover failure caused by the non establishment of the new channel. On the old channel the MS shall use the old channel description or channel mode.

## 39.5.3.2.8.1.2 Test purpose

To test that the CTS-MS try to activates the new channel correctly and transmits the SABM. To test that CTS-MS switch ack to the old channel if the activation of the new channel fails.

## References

-

## 39.5.3.2.8.1.3 Method of test

## Related PICS/PIXIT statements

-

## Initial conditions

SS:

Radio\_Link\_Timeout set to [TBC].

CTS-MS:

The CTS-MS is in the active state of a call using a full rate TCH in total frequency hopping mode.

## Foreseen Final State of the CTS-MS

The CTS-MS is in the active state of a call using a full rate TCH in total frequency hopping mode.

## Test procedure

The CTS-MS is in the active state of a call. The SS send a CTS INTRACELL HANDOVER COMMAND on the main DCCH. The CTS-MS shall (at the time defined by the Starting Time information element) activate the channel by sending a SABM message and start timer T200. When timer T200 ends, the CTS-MS should retransmits the Layer 2 SABM up to N200 times. Then the CTS-MS sends the SABM frame on the old time slot, wait for the UA frame and sends the CTS INTRACELL HANDOVER FAILURE on the old time slot.

Maximum Duration of Test

[TBD]

Expected Sequence

Step	Direction	Message	Comments
1	SS -> CTS-MS	CTS INTRACELL HANDOVER COMMAND	Indicates the frame number that will occur approximately 1.1 seconds after the CTS HANDOVER COMMAND is sent.
2	CTS-MS -> SS	L2 SABM	
3			Timer T200
4	CTS-MS -> SS	L2 SABM	New Time Slot, N200 Times
5	CTS-MS -> SS	L2 SABM	Old Time Slot
6	CTS-MS -> SS	L2 UA	Old Time Slot
7	CTS-MS -> SS	CTS INTRACELL HANDOVER FAILURE	Old Time Slot

Specific Message Contents

None.

### 39.5.3.3 Initialisation

#### 39.5.3.3.1 Enrolment

##### 39.5.3.3.1.1 Enrolment with non CTS SIM

To check that the CTS-MS does not ask for CTS services with a non CTS SIM.

##### 39.5.3.3.1.1.1 Conformance requirements

The MS-SIM verification follows the normal GSM requirements. The GSM subscription is checked whenever the CTS-MS accesses the PLMN (authentication performed using the IMSI, Ki and A3 in the MS-SIM card).

##### 39.5.3.3.1.1.2 Test purpose

To check that the CTS-MS checks for the DF-CTS presence in the SIM before starting enrolment procedure.

References

3GPP TS 03.20 annex E and subclause 4.6.

##### 39.5.3.3.1.1.3 Method of test

Related PICS/PIXIT statements

-

Initial conditions

SS:

Enrolment procedure ready at the SS side.

CTS-MS:

The CTS-MS is OFF.

The DF-CTS field is not available in the SIM.

**Foreseen Final State of the CTS-MS**

Scanning for an available Network.

**Test procedure**

The CTS-MS is switched ON. The CTS-MS is made to start enrolment procedure. It shall not start the enrolment procedure as long as the SIM has no DF-CTS entry.

**Maximum Duration of Test**

[TBD]

**Expected Sequence**

Step	Direction	Message	Comments
1			The CTS-MS is looking for a suitable GSM only Network.
2			Check that the CTS-MS doesn't send CTS ACCESS REQUEST for 2 minutes.

**Specific Message Contents**

None.

**39.5.3.3.1.2 CTS-FP not ready for Enrolment**

The CTS-MS/CTS-FP enrolment is the procedure, which generates an association between a certain CTS-MS and a certain CTS-FP, i.e. a CTS-MS/CTS-FP pair is established.

**39.5.3.3.1.2.1 Conformance requirements**

In order to perform the enrolment of a CTS-MS, a special procedure shall be implemented in the CTS-FP, by which the initial synchronisation of a CTS-MS with the CTS-FP is eased. This procedure of synchronisation for CTS-MS enrolment shall be triggered by the CTS upper layers.

**39.5.3.3.1.2.2 Test purpose**

To check that the CTS-MS is looking at the enrolment state of the CTS-FP before starting enrolment procedure.

**References**

3GPP TS 03.20 annex E and subclause 3.4.1.1.

3GPP TS 05.08 subclause 11.1.1.2.

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

-

**Initial conditions**

SS:

Enrolment procedure not ready at the SS side.

CTS-MS:

The CTS-MS is not enrolled on the SS, and idle.

**Foreseen Final State of the CTS-MS**

Scanning for an available Network.

**Test procedure**

The CTS-MS is not enrolled with that SS, i.e. the CTS-IFPSI nor the CTS-IFPEI of that SS are stored in the SIM of the CTS-MS. The SS is not switched to the CTS enrolment mode. The CTS-MS is made to start enrolment to that SS. It shall not start the procedure as long as the SS is not in the enrolment mode.

**Maximum Duration of Test**

[TBD]

**Expected Sequence**

Step	Direction	Message	Comments
1			SS enrolment mode not set
2			Check that the CTS-MS doesn't send CTS ACCESS REQUEST for 2 minutes.

**Specific Message Contents**

None.

**39.5.3.3.2 Reserved****39.5.3.3.3 De-enrolment****39.5.3.3.3.1 Attached CTS-MS de-enrolment**

The de-enrolment of a CTS-MS is the procedure which cancel the association between a certain CTS-MS and a certain CTS-FP.

**39.5.3.3.3.1.1 Conformance requirements**

The fixed part initiates the CTS de-enrolment procedure by sending a CTS DE-ENROLMENT INDICATION to the mobile station. Then the fixed part will request the RR sublayer to release the RR connection.

**39.5.3.3.3.1.2 Test purpose**

To check that the CTS-MS is able to execute the CTS-MS CTS de-enrolment procedure and to erase the corresponding entry in the SIM.

**References**

3GPP TS 03.20 annex E, subclause E.3.4.3.1.

3GPP TS 04.56 subclause 5.2.2.1.

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

## Initial conditions

SS:

Radio\_Link\_Timeout set to [TBC].

CTS-MS:

The CTS-MS is in the "Attached, idle, updated" mode, with a CTS-MSI allocated.

## Foreseen Final State of the CTS-MS

The CTS-MS is not enrolled one that SS, and idle

## Test procedure

The attached CTS-MS shall respond to a pending CTS PAGING REQUEST message. The CTS-MS shall send CTS ACCESS REQUEST messages, with an Establishment Cause set to "Answer to Paging", until the SS answers. The general access procedure is then performed. The SS sends a CTS DE-ENROLMENT INDICATION.

Finally the SS sends a CTS CHANNEL RELEASE.

The CTS-MS should remove the corresponding data entry in the SIM.

The SS send a CTS-PAGING REQUEST with the last known CTS-MS's CTS-MSI.

## Maximum Duration of Test

[TBD]

## Expected Sequence

Step	Direction	Message	Comments
1	SS -> CTS-MS	CTS PAGING REQUEST	
2	CTS-MS -> SS	CTS ACCESS REQUEST	Establ. Cause "Answer to paging"
3	SS -> CTS-MS	CTS IMMEDIATE ASSIGNMENT	
4	CTS-MS -> SS	CTS PAGING RESPONSE	
5	SS -> CTS-MS	CTS MS AUTHENTICATION REQUEST	Mutual Authentication
6	CTS-MS -> SS	CTS MS AUTHENTICATION RESPONSE	
7	SS -> CTS-MS	CTS FP AUTHENTICATION RESPONSE	
8	SS -> CTS-MS	CTS CIPHERING MODE COMMAND	Cipher Mode Setting = "Start Ciphering; cipher with algorithm A5/2". The SS starts deciphering
9	CTS-MS -> SS	CTS CIPHERING MODE COMPLETE	Sent in ciphered mode using the cipher key determined between steps 5&7
10	SS -> CTS-MS	CTS DE-ENROLMENT INDICATION	
11	SS -> CTS-MS	CTS CHANNEL RELEASE	
12	SS -> CTS-MS	CTS PAGING REQUEST	
13			Check that the CTS-MS doesn't send CTS ACCESS REQUEST for 30 s

## Specific Message Contents

None.