28 Test of autocalling restrictions

28.1 General

It is essential that all autocalling apparatus is prevented from continuously dialling a given number, to avoid machines repeatedly disturbing PSTN subscribers in error, or numerous repeat attempts to unobtainable numbers which cause waste of valuable network resources. Therefore autocalling restrictions are defined by GSM 02.07.

The tests shall be performed using all of the call methods specified by the supplier in the PIXIT statement (annex 3). The supplier shall state any autocalling procedures implemented and how many times they can be repeated to a single number and the minimum re-attempt interval(s), i.e. the complete re-try schedule or algorithm with parameter values. The supplier shall further describe any automatic methods for making repeated calls to a single number. The supplier shall also state in the PIXIT statement (annex 3) the number of B-party numbers that can be stored on the list of blacklisted numbers as described in GSM 02.07, annex A.

For an external R-interface the supplier shall state in the PIXIT statement (annex 3) the procedure for autocalling restrictions for that interface and the possible parameter settings for the number of times the LTE can make a re-attempt and the minimum accepted time between re-attempts accepted by the MS. The conditions for clearing the autocalling constraints shall be stated in the PIXIT statement (annex 3).

For external interfaces the LTE must be programmed so that it clearly attempts to violate the autocalling constraints.

It is assumed that the MS has passed the tests of section 29 before these tests are performed.

All the tests are performed using valid SETUP messages as defined in section 29.

28.2 Constraining the access to a single number (GSM 02.07 category 3)

During this test the SETUP messages shall contain the same B-party number.

No manual intervention shall be performed except to initiate and end the test.

28.2.1 Conformance requirement

A repeat call attempt may be made when a call attempt is unsuccessful for the reasons listed below (as defined in GSM 04.08).

These reasons are classified in three major categories:

1. "Busy destination".

2. "Unobtainable destination - temporary".

3. "Unobtainable destination - permanent/long term".

NOTE: Cause values for each category are defined in GSM 02.07, annex A.

The table below describes a repeat call restriction pattern to any B number. This pattern defines a maximum number (n) of call repeat attempts; when this number n is reached, the associated B number shall be blacklisted by the MT until a manual re-set at the MT is performed in respect of that B number. When a repeat attempt to anyone B number fails, or is blacklisted, this does not prevent calls being made to other B numbers.

For the categories 1 and 2 above, n shall be 10; for category 3, n shall be 1.

Call attempt	Minimum duration between call attempts
Initial call attempt	-
1st repeat attempt	5 sec
2nd repeat attempt	1 min
3rd repeat attempt	1 min
4th repeat attempt	1 min
5th repeat attempt	3 min
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nth repeat attempt	3 min

Reference:

GSM 02.07, annex A.

Purpose of the test

28.2.2 Test purpose

To ensure the correct behaviour of the MS to GSM 02.07 Category 3.

28.2.3 Method of test

Initial condition.

There shall be no numbers in the list of blacklisted numbers in the MS. The time set between the first re-attempt and the next re-attempt is set to the minimum value possible. The number of re-attempts is set to the lowest possible number, greater than 1, that is supported by the MS. The autocalling function is invoked for the B-party number to be used during the test.

Related PICS/PIXIT Statement(s)

PICS: Cause number 27 implemented in:

-category 2 (preferred);

-category 3.

PIXIT: Description of auto calling management:

-selection of the auto calling;

-indication that the call failed and a re-try is attempted;

-indication that a call finally failed.

Non standard keystroke sequences to be used on the EMMI (in line with GSM 11.10, sect. 36):

Foreseen Final State of the MS

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

Test Procedure

Step	Direction	Message	Comments
1	MS		"called number" entered
2	MS -> SS	CHANNEL REQUEST	Establishment cause indicates "originating call".
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	CM SERVICE REQUEST	Message is contained in SABM.
5	SS -> MS	AUTHENTICATION REQUEST	
6	MS -> SS	AUTHENTICATION RESPONSE	
7	SS -> MS	CIPHERING MODE COMMAND	
8	MS -> SS	CIPHERING MODE COMPLETE	
9	SS		SS starts ciphering.
10	MS -> SS	SETUP	
11	SS -> MS	RELEASE COMPLETE	Cause value from category 3 of GSM 02.07, annex A.
12	SS -> MS	CHANNEL RELEASE	The main signalling link is released
13			The MS is invoking the auto calling function. The time between step 12 and 14 must be minimum 5 sec.
14	MS -> SS	CHANNEL REQUEST	Establishment cause indicates "originating call".
15	SS -> MS	IMMEDIATE ASSIGNMENT	
16	MS -> SS	CM SERVICE REQUEST	Message is contained in SABM.
17	SS -> MS	AUTHENTICATION REQUEST	
18	MS -> SS	AUTHENTICATION RESPONSE	
19	SS -> MS	CIPHERING MODE COMMAND	
20	MS -> SS	CIPHERING MODE COMPLETE	
21	SS		SS starts ciphering.
22	MS -> SS	SETUP	
23	SS -> MS	RELEASE COMPLETE	Cause value from category 3 of GSM 02.07, annex A.
24	SS -> MS	CHANNEL RELEASE	The main signalling link is released
25	MS		Clear the auto calling constraint by manual intervention after a minimum of 2 minutes from step 24.

28.3 Constraining the access to a single number (GSM 02.07 categories 1 and 2)

During this test the SETUP messages shall contain the same B-party number.

No manual intervention shall be performed except to initiate and end the test.

28.3.1 Conformance requirement

The MS must fulfil the requirements for category 1 and 2, see sect. 28.2.1

Reference:

GSM 02.07, annex A.

28.3.2 Test purpose

To ensure the correct behaviour of the MS to GSM 02.07 Categories 1 and 2.

28.3.3 Method of test

Initial condition.

There shall be no numbers in the list of blacklisted numbers in the MS. The re-try scheme is set to give the shortest possible intervals between re-tries. The number of re-attempts is set to the maximum possible number (N), that is supported by the MS. The autocalling function is invoked for the B-party number to be used during the test.

Related PICS/PIXIT Statement(s)

PICS: Cause number 27 implemented in:

-category 2 (preferred);

-category 3.

PIXIT: Description of auto calling management:

-selection of the auto calling;

-indication that the call failed and a re-try is attempted;

-indication that a call finally failed.

Non standard keystroke sequences to be used on the EMMI (in line with GSM 11.10, sect. 36):

Foreseen Final State of the MS

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

Test Procedure

A, MS initiated, generic call setup is performed up to and including CIPHERING MODE COMPLETE. The SS then releases the establishment with a cause value from category 1 or 2 (GSM 02.07, annex A).

The MS is continuously making new generic call setup attempts invoked by the auto calling function after each CHANNEL RELEASE from the SS.

Step	Direction	Message	Comments
1	MS		"called number" entered
2	MS -> SS	CHANNEL REQUEST	Establishment cause indicates "originating call".
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	CM SERVICE REQUEST	Message is contained in SABM.
5	SS -> MS	AUTHENTICATION REQUEST	
6	MS -> SS	AUTHENTICATION RESPONSE	
7	SS -> MS	CIPHERING MODE COMMAND	SS starts deciphering after sending the message.
8	MS -> SS	CIPHERING MODE COMPLETE	
9	SS		SS starts ciphering.
10	MS -> SS	SETUP	
11	SS -> MS	RELEASE COMPLETE	Cause value from category 1 or 2 of GSM 02.07, annex A. This shall be chosen randomly, from both categories. Cause no. 27 shall be excluded if the MS has implemented in category 3 of GSM 02.07, as declared in PIXIT statement
12	SS -> MS	CHANNEL RELEASE	The main signalling link is released
13			The MS is invoking the auto calling function. 1: At the first re-attempt the time between step 12 and 14 must be minimum 5 sec. 2: At the 2nd, 3rd and 4th re-attempt the time between step 12 and 14 must be minimum 1 min. 3: At the 5th to 10th re-attempt the time between step 12 and 14 must be minimum 3 min.
14	MS -> SS	CHANNEL REQUEST	Establishment cause indicates "originating call".
15	SS -> MS	IMMEDIATE ASSIGNMENT	
16	MS -> SS	CM SERVICE REQUEST	Message is contained in SABM.
17	SS -> MS	AUTHENTICATION REQUEST	
18	MS -> SS	AUTHENTICATION RESPONSE	
19	SS -> MS	CIPHERING MODE COMMAND	SS starts deciphering after sending the message.
20	MS -> SS	CIPHERING MODE COMPLETE	
21	SS		SS starts ciphering.
22	MS -> SS	SETUP	
23	SS -> MS	RELEASE COMPLETE	Cause value from category 1 or 2 of GSM 02.07, annex A. This shall be chosen randomly, from both categories. Cause no. 27 shall be excluded if the MS has implemented in category 3 of GSM 02.07, as declared in PIXIT statement
24	SS -> MS	CHANNEL RELEASE	The main signalling link is released.
25			The auto calling function shall repeat step 13 to 24 (N-1) times. The MS shall not make more than maximum 10 re-attempts.
26	MS		Clear the auto calling constraint by manual intervention after a minimum of 4 minutes from step 25. Following the final completion of step 25 the MS initiate a call prior to manual intervention.

28.4 Behaviour of the MS when its list of blacklisted numbers is full

The number of B-party numbers that can be stored in the list of blacklisted numbers, as stated in the PIXIT statement (annex 3), is M.

This test shall only apply to MS that are capable of autocalling more than M B-party numbers.

28.4.1 Conformance requirement

The number of B numbers that can be held in the blacklist is at the manufacturers discretion but there shall be at least 8. However, when the blacklist is full the MT shall prohibit further automatic call attempts to any one number until the blacklist is manually cleared at the MT in respect of one or more B numbers.

Reference:

GSM 02.07, annex A.

28.4.2 Test purpose

To ensure the correct behaviour of the MS when its list of blacklisted numbers is full.

28.4.3 Method of test

Initial condition.

The list of blacklisted numbers, in the MS, shall be full. This may be achieved as described in the procedure in 28.2, applied to M B-party numbers.

Related PICS/PIXIT Statement(s)

PICS: Cause number 27 implemented in:

-category 2 (preferred),

-category 3.

PIXIT: Description of auto calling management:

-selection of the auto calling,

-indication that the call failed and a re-try is attempted,

-indication that a call finally failed.

Non standard keystroke sequences to be used on the EMMI (in line with GSM 11.10, sect. 36):

Foreseen Final State of the MS

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

Test Procedure

The autocalling function is invoked for a B-party number that is not in the list of blacklisted numbers.

Clear the autocalling constraint by manual intervention after a minimum of 10 s.

28.4.4 Test requirements

The MS must not initiate a call.