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GPH / OPH

FUNCTIONAL TESTS & VALIDATION

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B	25/08/03	Sagem SA	Updated release taken into account the comments from the Operator working group
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1. OBJECT

1.1 PURPOSE OF THE DOCUMENT

The purpose of this document is to describe the test cases to be performed for the functional validation of GPH and OPH mobiles according to Eirene specifications.

1.2 GENERAL REMARKS

1.2.1 Test names

Tests are named in the following way:

ATPXY, with:

ATP → Application Test Procedure.

X → G for General tests, E for Eirene tests, A for ASCI tests, O for OPH specific tests, S for SIM tests.

Y → Test number.

1.2.2 Test execution

The tests in the current document are written in the following way:

(Act) means an Action to be performed.

(Ver) means a Verification -> to be checked (Expected result).

1.3 EQUIPMENT REQUIRED

- GSM-R network.
- An Abis or an A tracer, in order to check the contents on the messages exchanged between mobiles and network when required.
- At least 4 mobile stations of the type to be tested.
- 2 data cables for the tested mobiles.
- 4 chargers for the tested mobiles.
- 4 GSM-R SIM cards with all the services and features provisioned.
- A SIM card reader/writer, in order to be able to modify the features on the SIM cards for the different test requirements.
- 2 PC with Hyperterminal application, in order to test data features.
- User's Manual of the tested mobiles.

1.4 DEFINITIONS

- F.N. : Functional Number
- MS: Mobile Subscriber = GSM-R mobile phone (either GPH or OPH) with a valid SIM Card from a GSM-R network operator.
- PTT key : Push-To-Talk function key
- GCA : Group Call Area

- GID : Group IDentity
- PTP : Point-to-point call

2. REFERENCE DOCUMENTS

[1]* GPH User's Manual

[1]* OPH User's Manual

[2] EIRENE - Functional Requirement Specification (FRS) Version 7

[3] EIRENE - System Requirement Specification (SRS) Version 15

* Document [1] refers to the User's Manual of the tested type of mobile. Use the User's Manual corresponding to the tested version of mobile.

3. PRODUCT ACCEPTANCE FORM

The GSM-R product referenced hereafter, tested with the software referenced _____, was tested according to the test procedure included in the present document.

The results of the tests are listed in Annex 1 of the present document.

Product:

Reference of the mobile(s): _ _ _ _ _ _

Serial numbers of the tested mobile(s):

Tested in (location):

On the network:

The product described above is declared as:

«ACCEPTED » « REJECTED»

With the following remarks:

Date: Date:

Suppliers Customer

4. MOBILE VISUAL CONTROL

4.1 GENERAL

4.1.1 ATPG1 - Main components of the mobile

4.1.1.1 Reference

SRS § 6.4.1

FRS § 6.4.1.1

FRS § 7.4.1.1

4.1.1.2 Purpose

To check the main components of the mobile.

4.1.1.3 Test execution

(Ver) The mobile is composed of the following components:

- Display.
- Handset operated through its keypad.
- Loudspeaker.
- Microphone.

4.1.2 ATPG2 - Contrast on the display

4.1.2.1 Reference

FRS § 6.4.1.2

FRS § 7.4.1.2

4.1.2.2 Test execution

(Ver) It is possible to adjust the contrast of the screen through the menu of settings**.**

4.1.3 Test results

Test Case	RESULT OK / NOK	Date of SAT	Remarks	Signature
Mobile Visual Control				
ATPG1 - Main components of the mobile				
ATPG2 - Contrast on the display				

4.2 INDICATIONS

4.2.1 ATPG3 - Indication on low battery

4.2.1.1 Reference

FRS § 6.4.3.1

4.2.1.2 Test execution

(Act) Under menu, activate the audible indication (if necessary), which signals that the capacity of the battery is low.

(Ver) When the capacity of the battery is low, the battery indicator on the mobile is showing empty, and an audible indication is issued.

4.2.2 ATPG4 - Indication of network

4.2.2.1 Reference

FRS § 6.4.3.2

4.2.2.2 Test execution

(Ver) When the mobile is camped in a network, the name and/or number of the network is displayed, accordind to EF_{NW}, and the signal strength is shown.

4.2.3 ATPG5 - Indication when no network

4.2.3.1 Reference

FRS § 6.4.3.3, 7.4.4.2

4.2.3.2 Test execution

(Ver) If the network service is not available, the mobile provides to the user this information by displaying nothing as network name.

4.2.4 Test results

Test Case	RESULT OK / NOK	Date of SAT	Remarks	Signature
Indications				
ATPG3 - Indication on low battery				
ATPG4 - Indication of network				
ATPG5 - Indication when no network				

5. BASIC FEATURES

5.1 COMMON USE FUNCTIONS

5.1.1 ATPG6 - Switch on/off

5.1.1.1 Reference

SRS § 4.4.1, 6.3.1, 7.3.1

FRS § 6.2.1.2, 6.2.3.1, 6.2.3.3, 6.4.2.1, 7.2.1.2, 7.2.3.1, 7.2.3.3

5.1.1.2 Test execution

Switching ON

(Act) To switch ON the MS, press the starting button, then, if required, enter pin code.

(Ver) The following procedure is initiated:

1. Lighting of the display and keypad is performed.
2. Self-testing. No error message appears if the self-testing is passed.
3. If coverage from the last authorised network is available, the MS tries to connect to the network.
4. If the connection is successful, the name of the network is displayed. An audible confirmation of success is given (if activated).
5. In case of no success, the MS radio indicates if available other GSM-R or GSM networks and asks for connection. If manual network selection is the basis, in case of no success, the MS proposes to choose a PLMN.
6. De-registration of the temporary functional number (except permanent functional number) if stored in the SIM card (if network is available).
7. Emergency call confirmation if applicable.

Switching OFF

(Act) To switch off, press the switch off button.

(Ver) At switch off, the following procedure is initiated:

1. Termination of ongoing call, if applicable.
2. De-registration of the temporary functional number (except permanent functional number and if network is available).
3. A radio disconnection from the Network is performed.
4. The display is cleared and no function is active.
5. The MS keeps some settings that are stored at the time the MS is switched off.

5.1.2 ATPG7 - Data saved when switched off

5.1.2.1 Reference

FRS § 6.2.3.4, 7.2.3.4

5.1.2.2 Test execution

(Act) Set the date and time in the mobile.

(Act) Place a point-to-point call, in order to have a number stored in the “Last calls” menu.

(Act) Switch the mobile off, and then on again.

(Ver) The number stored in the “Last calls” menu can be called by pressing green key twice.

(Ver) The date and time information is still up to date.

5.1.3 ATPG8 - Data saved when changing battery

5.1.3.1 Purpose

To check that the data stored in the terminal are not lost when changing the battery and that the battery can be removed without using specific tools.

5.1.3.2 Reference

SRS § 6.4.6, 7.5.9

FRS § 6.3.3, 6.3.6, 7.3.7, 7.3.9

5.1.3.3 Test execution

(Act) Create an entry on the telephone book, and store it in the terminal.

(Act) Switch off the terminal, remove the battery and put it back on.

(Ver) The battery can be removed without tools.

(Act) Switch the mobile back on.

(Ver) The number stored in the terminal is still in the telephone book.

5.1.4 ATPG9 - Language selection

5.1.4.1 Reference

FRS § 6.2.1.2, 6.2.3.5, 6.2.3.6, 6.2.3.7, 7.2.1.2, 7.2.3.5, 7.2.3.6, 7.2.3.7

5.1.4.2 Test execution

(Act) Put in the mobile a SIM card of a national Railway provider.

(Act) Switch on the mobile.

(Ver) Check that the language of the displayed message is the one set on the SIM card.

(Act) Scroll in the menu, and change the language to another one.

(Ver) Check that the language of the displayed message has been changed.

(Act) Switch off the mobile and then on again.

(Ver) Check that the language of the displayed message is the same as the one before switching off.

(Ver) Check in the menu that permits to change the language, that 10 languages are selectable.

5.1.5 ATPG10 - Loudspeaker adjustment

5.1.5.1 Reference

FRS § 6.2.1.2, 6.4.2.2, 7.2.1.2

5.1.5.2 Test execution

(Ver) During a call, the loudspeaker volume can be adjusted by using vol + and vol – keys.

5.1.6 ATPG11 - Computer interface

5.1.6.1 Reference

SRS § 6.2.2

FRS § 6.2.3.14, 12.4.1, 7.2.1.2, 7.2.3.14

5.1.6.2 Test execution

(Act) Connect the mobile to a PC using a data cable.

(Act) Start Hyperterminal application on the PC, and set up the correct parameters.

(Ver) You can send command to the mobile with the PC (« AT » command replies « OK »).

5.1.7 ATPG12 - Use of the mobile on the public network

5.1.7.1 Reference

FRS § 6.2.2.1

5.1.7.2 Test execution

(Act) Insert in the mobile a public SIM card and switch on the mobile.

(Ver) You can establish a point-to-point call to a subscriber on the public network.

5.1.8 ATPG13 - Receive calls on the public network

5.1.8.1 Reference

FRS § 6.2.1.2, 6.2.2.5, 7.2.1.2, 7.2.2.13

5.1.8.2 Test execution

(Ver) When you put a public SIM card in the mobile, you can receive calls from the public network, notified by audible and visual indication.

5.1.9 ATPG14 - Terminate calls on the public network

5.1.9.1 Reference

FRS § 6.2.1.2, 6.2.2.16, 7.2.1.2, 7.2.2.24

5.1.9.2 Test execution

(Ver) You can terminate the point-to-point call established above.

5.1.10 ATPG15 - Dialling formats

5.1.10.1 Purpose

To check the different dialling format in the numbering plan.

5.1.10.2 Reference

SRS § 9.1.3, 9.4.1, 9.4.2, 9.10.1

5.1.10.3 Test execution

(Act) On the mobile, dial a number of 15 digits, starting with 900.

(Ver) The number is transmitted to the network.

Remark: The selection analysis and the related routing are handled by the network. The only process of the mobile is to transmit the selected number to the network.

(Act) On the mobile, dial the selection 1xxx (short dialling code affected to an appropriate controller).

(Ver) A call is initiated to the appropriate number, as defined in the numbering plan.

5.1.11 ATPG16 - Network selection

5.1.11.1 Reference

FRS § 3.3.2, 6.2.1.2, 6.2.3.9, 7.2.1.2, 7.2.3.9

5.1.11.2 Test execution

(Act) Scroll in the menu “Networks available”, and launch the network search.

(Act) Select one of the displayed networks by scrolling in the list and OK.

(Ver) The mobile camps onto the selected network if available and if roaming on this network is allowed.

(Act) When the mobile is camped on a network, move the mobile into a new network (or simulate it), until the mobile camps on the new network.

(Ver) When moving onto the new network, the name of the new network is displayed on the mobile and an audible indication is given.

5.1.12 ATPG17 - Storing numbers in telephone book

5.1.12.1 Reference

FRS § 6.2.3.12, 6.2.3.13, 6.4.2.5, 7.2.1.2, 7.2.3.12, 7.2.3.13

5.1.12.2 Test execution

(Act) Store several numbers in the telephone book.

(Act) Display a number from idle screen by entering the first letter of the name.

(Act) Launch the call by pushing call key when the entry is selected.

(Act) Delete an entry in the telephone book, and enter a new entry in the same location.

(Ver) All the above operations are successful.

5.1.13 ATPG18 - Soft keys

5.1.13.1 Reference

FRS § 6.4.2.4, 7.4.3.1

5.1.13.2 Test execution

(Act) In the menu of the GPH, select one programmable key, and assign to this key one of the features proposed in the scrolling list.

(Ver) The selected feature can be accessed directly, by pressing on the desired key.

5.1.14 Test results

Test Case	RESULT OK / NOK	Date of SAT	Remarks	Signature
Common use features				

Test Case	RESULT OK / NOK	Date of SAT	Remarks	Signature
ATPG6 - Switch on/off				
ATPG7 - Data saved when switched off				
ATPG8 - Data saved when changing battery				
ATPG9 - Language selection				
ATPG10 - Loudspeaker adjustment				
ATPG11 - Computer interface				
ATPG12 - Use of the mobile on the public network				
ATPG13 - Receive calls on the public network				
ATPG14 - Terminate calls on the public network				
ATPG15 - Dialling formats				
ATPG16 - Network selection				
ATPG17 - Storing numbers in Telephone book				
ATPG18 - Soft keys				

6. SERVICES AND FACILITIES

6.1 VOICE SERVICES

Under this section the following voice telephony services that are tested.

6.1.1 ATPG19a - Point-to-point voice calls

6.1.1.1 References

SRS § 4.3.1, 6.3.2, 7.3.2, 9.7.1, 9.7.2

FRS § 1.4.1.1, 4.2.1

6.1.1.2 Test execution

National calls:

1. (Act) **Mobile user to ground**: Dial the number of the fixed line you want to call using the national format (usually starting with “0”). Then press the green button to send the call.
2. (Act) **Ground to mobile user**: From a fixed line, dial the number of the mobile line you want to call using the national format (usually starting with “0”).
3. (Act) **Mobile user to mobile user**: Dial the number of the mobile line you want to call using the national format (usually starting with “0”). Then press the green button to send the call.

(Ver) For each test, the call is established.

International calls:

4. (Act) **Mobile user to ground**: Press the key 0 and keep it pressed until “+” appears. Then enter the country code without waiting for the tone followed by the area code (national destination code) and finally the desired number (subscriber number). Then press the green button to send the call.
5. (Act) **Ground to mobile user**: From a fixed line, dial the number of the mobile line you want to call using the international format (starting with the international access code).
6. (Act) **Mobile user to mobile user**: Press the key 0 and hold down it until “+” appears. Then enter the country code without waiting for the tone followed by the area code and finally the desired number. Then press the green button to send the call.

(Ver) For each test, the call is established.

6.1.2 ATPG19b - Point-to-point call (full duplex)

Repeat the test case ATPG19A and after each successful call establishment verify the speech from mobile user to ground, ground to mobile user and mobile to mobile. Verify that the speech is provided in both ways.

6.1.3 ATPG20 - Multi-party voice calls

6.1.3.1 Specific requirements

The SIM card must be provisioned with Conference feature enabled.

Warning: public subscriptions often do not have this feature.

6.1.3.2 Reference

SRS § 4.3.3

FRS § 1.4.1.1, 4.2.1

6.1.3.3 Test execution

(Act) From MS A, establish a point-to-point call to MS B.

(Ver) MS A can talk with MS B.

(Act) On MS A, put the current call on hold.

(Act) On MS A, dial a new call to MS C by typing MS C number, and then the call key.

(Ver) MS A can talk with MS C.

(Act) On MS A, group the two point-to-point calls by pressing or choosing the conference feature.

(Ver) The three parties are connected together, and each of them can speak, and the other parties can hear.

6.1.4 Test results

Test Case	RESULT OK / NOK	Date of SAT	Remarks	Signature
Voice services				
ATPG19 - Point-to-point voice calls				
ATPG20 - Multi-party voice calls				

6.2 EMERGENCY SERVICES

6.2.1 ATPG21 - Public emergency calls

6.2.1.1 Reference

SRS § 4.3.1

FRS § 1.4.1.1, 4.2.1

6.2.1.2 Test execution

(Act) Dial 112 (emergency number) on the mobile.

(Ver) A public emergency call is initiated.

Remark: This test should not be carried out too often, for it is calling the actual emergency service of the country.

6.2.2 Test results

Test Case	RESULT OK / NOK	Date of SAT	Remarks	Signature
Emergency services				
ATPG21 - Public emergency calls				

6.3 DATA SERVICES

The following data applications that are supported by the GPH/OPH can be tested:

6.3.1 ATPG22 - Text messages (SMS)

6.3.1.1 Purpose

To check that the terminal GPH/OPH allows the user to transmit point-to-point text messages using the Short Message Service supported by the Network. A valid Service centre address shall be stored in SIM EF_{SMSP}

6.3.1.2 Reference

SRS § 4.3.1, 12.2.1

FRS § 1.4.1.1, 4.2.2, 12.3.1

6.3.1.3 Test execution

(Act) In menu, create a message with 96 characters, and then press OK.

(Act) Scroll to “Send” option and confirm the sending.

(Act) Enter the number of the mobile you want to send the message to, then confirm.

(Ver) The message “Sending SMS” is displayed on the MS, and the other party receives the message in its entirety.

6.3.2 ATPG23 - Text messages (SMS CB)

6.3.2.1 Purpose

To check that the terminal GPH/OPH allows the user to receive SMS CB messages when supported by the Network.

6.3.2.2 Reference

SRS § 4.3.1, 10.6.1

6.3.2.3 Specific requirements

The network must use the Cell Broadcast Feature, and broadcast messages on a specific index.

6.3.2.4 Test execution

(Act) In menu, activate the receiving of the cell broadcast messages.

(Act) In menu, define the index that is used in the network to broadcast the message.

(Act) From the network, broadcast a message on the defined index.

(Ver) The Cell broadcast message is shown on the display of the mobile.

6.3.3 ATPG24 - General data applications

6.3.3.1 Reference

SRS § 4.3.2, 6.2.2, 7.2.2

FRS § 1.4.1.1, 4.2.2

6.3.3.2 Specific requirements

- In order to perform this test, two MS have to be connected to a PC with data application “Hyperterminal”.
- The network has to support the bearer service for the different speeds.

6.3.3.3 Test execution

Repeat the tests hereafter at the following speed rates in both transparent and non-transparent modes:

- 2,4 kbits/sec
- 4,8 kbits/sec
- 9,6 kbits/sec

(Act) Select the mobile speed in the menu.

(Act) Adapt the speed on Hyperterminal software to the Mobile speed.

(Act) On one PC, dial the number by the proper AT command (ATD), of the MS you want to reach.

(Act) When the other MS rings, accept the incoming call by typing ATA on the other PC.

(Ver) The connection is established. The characters typed on one PC are displayed on the other PC.

6.3.4 ATPG25 - Automatic fax

6.3.4.1 Reference

SRS § 4.3.1

FRS § 1.4.1.1, 4.2.2

6.3.4.2 Specific requirements

In order to perform this test, one MS has to be connected to a PC with a data/fax application.

Besides, a fixed fax has to be reachable (via a gateway) from the GSM-R network.

6.3.4.3 Test execution

(Act) On the PC, in the fax application, prepare a fax, and dial the number of a fax on a fixed line to send it.

(Ver) fax is sent to the fixed fax device.

6.3.5 Test results

Test Case	RESULT OK / NOK	Date of SAT	Remarks	Signature
Data services				
ATPG22 - Text messages (SMS)				
ATPG23 - Text messages (SMS CB)				
ATPG24 - General data applications				
ATPG25 - Automatic fax				

6.4 CALL RELATED SERVICES

6.4.1 ATPG26 - Display of identity/restriction of display of identity

6.4.1.1 Reference

SRS § 4.3.3

FRS § 4.2.3

6.4.1.2 Test execution

(Act) On MS A, call MS B.

(Ver) The MSISDN of MS A is displayed on MS B while it is ringing.

(Act) On MS A, in menu, choose “anonymous”, and validate.

(Act) On MS A, call MS B.

(Ver) The MSISDN of MS A is not displayed on MS B when ringing.

6.4.2 ATPG27 - Closed user group

6.4.2.1 Reference

SRS § 4.3.3, 10.4.1

FRS § 1.4.1.1, 4.2.3, 10.4.1, 10.4.2, 10.4.3

6.4.2.2 Test execution

(Act) In the network, define MS A with restricted access, not allowed to call MS B.

(Act) On MS A, try to call MS B.

(Ver) A rejection message is displayed on MS A, and the call is rejected.

6.4.3 ATPG28 - Call forwarding

6.4.3.1 Specific requirement

This service is allowed if the Network supports this functionality and the service is subscribed.

6.4.3.2 Reference

SRS § 4.3.3

FRS § 4.2.3, 1.4.1.1

6.4.3.3 Test execution

(Act) On MS A, in menu, select feature call forwarding “To a number” and enter the number of MS B.

(Act) On MS C, call MS A using his MSISDN number.

(Ver) The call is routed to MS B.

Check the above with the different types of call forwarding:

1. Unconditional: The call is forwarded whatever the status of the called party is.
2. Busy: The call is forwarded when the called party is busy.
3. No reply: The call is forwarded when there is no reply from the called party.
4. Not reachable: The call is forwarded when the called party can not be contacted via the network.

6.4.4 ATPG29 - Call hold

6.4.4.1 Specific requirement

This service must be supported by the network, and must be allowed by the subscription.

6.4.4.2 Reference

SRS § 4.3.3

FRS § 1.4.1.1, 4.2.3

6.4.4.3 Test execution

(Act) On MS A, call MS B.

(Act) When the call is established, place the call on Hold through MMI action.

(Ver) The current call is put on HOLD.

6.4.5 ATPG30 - Call wait

6.4.5.1 Specific requirement

This service must be supported by the Network, and must be allowed by the subscrption.

6.4.5.2 Reference

SRS § 4.3.3

FRS § 1.4.1.1, 4.2.3

6.4.5.3 Test execution

(Act) On MS A, call MS B.

(Act) When the call is established, on MS C, call MS B.

(Ver) The new call is shown on the screen on MS B, and a beep is issued on MS B in the earphone.

6.4.6 ATPG31 - Barring incoming or outgoing calls

6.4.6.1 Reference

SRS § 4.3.3

FRS § 4.2.3

6.4.6.2 Specific requirement

This service must be supported by the network. If it is supported, a password is provided by the supplier in order to access and modify the barring parameters in the network.

6.4.6.3 Test execution

(Act) In menu, activate the barring for all outgoing calls.

(Ver) Outgoing calls are no longer allowed by the network.

Repeat this test with the other kinds of barring.

6.4.7 Test results

Test Case	RESULT OK / NOK	Date of SAT	Remarks	Signature
Call related services				
ATPG26 - Display of identity/restriction of display of identity				
ATPG27 - Closed user group				
ATPG28 - Call forwarding				
ATPG29 - Call hold				

Test Case	RESULT OK / NOK	Date of SAT	Remarks	Signature
ATPG30 - Call wait				
ATPG31 - Barring incoming or outgoing calls				

7. EIRENE FEATURES

7.1 REGISTRATION OF FUNCTIONAL NUMBER

7.1.1 Purpose

These tests check the registration procedure and the functionality of the functional numbers.

7.1.2 Specific requirements

MS A has Follow Me feature active in the SIM.

7.1.3 ATPE1 - Registration: Successful Case (USSD)

7.1.3.1 Reference

SRS § 4.3.3, 6.3.3, 7.3.3

FRS § 11.3.2.1

7.1.3.2 Test execution

(Act) MS A performs the registration of FN, using the USSD sequence << **214*ICxxxxxxxx***# >> (“080xxxxxxxx” is the functional number).

(Ver) The registration is successful. The functional number is displayed on the screen in idle mode.

(Act) MS B calls MS A in a point-to-point call by dialling the FN.

(Ver) The call is initiated to MS A.

(Act) MS B terminates the call.

(Ver) The call is closed.

7.1.4 ATPE2 - Registration: Successful Case using MENU (numbering plan)

7.1.4.1 Reference

SRS § 9A, 11.3.2, 11.3.7, 11.3.14, 11.3.15

FRS § 6.2.1.2, 6.2.3.10, 6.2.3.11, 7.2.1.2, 7.2.3.10, 7.2.3.11, 11.2.1.4, 11.3.2.2

7.1.4.2 Test execution

(Act) On MS A, perform the registration of FN, using the MMI Menu.

(Ver) The registration is successful. The functional Number is displayed on IDLE mode.

(Ver) The format of USSD message sent to the network is correct.

(Act) On MS B, call MS A in point-to-point using FN.

(Ver) The call is initiated to MS A.

(Act) On MS B, terminate the call.

(Ver) The call is closed.

(Act) On MS A, perform a registration for 2 additional functional numbers, using the MMI Menu.

(Act) On MS A, change the current functional number, using menu.

(Ver) In the menu, the three functional numbers are proposed.

(Ver) The newly selected functional number is displayed on the screen in idle mode.

(Act) On MS A, call MS B in point-to-point.

(Ver) The newly selected functional number of MS A is displayed on the screen of MS B.

7.1.5 ATPE3 - Registration : Functional number already registered (numbering plan)

7.1.5.1 Reference

SRS § 11.3.9

7.1.5.2 Purpose

- This test shows that a functional number can only be registered if this FN is not already in use by another subscriber.
- The registration request is rejected with explicit error message.

7.1.5.2.1 Specific Requirement

- MS A has a valid subscription for the Follow Me feature, and the correct numbering plan in the SIM. .
- MS B has a valid subscription for the Follow Me feature, and the correct numbering plan in the SIM.

7.1.5.2.2 Test execution

(Act) On MS B, perform registration of a functional number, using the MMI Menu.

(Ver) Check that the registration is successful on the MS (registered FN is displayed on IDLE mode)

(Act) On MS A, perform registration of the same functional number, using the MMI Menu.

(Ver) The registration of the F.N. is rejected by the network.

(Ver) Explicit error message is displayed on the MS (e.g. “Functional number already registered”).

(Ver) The Functional number is not displayed on MS A in idle mode.

7.1.6 Test results

Test Case	RESULT OK / NOK	Date of SAT	Remarks	Signature
Registration of Functional number				
ATPE1 - Registration: Successful Case (USSD)				
ATPE2 - Registration: Successful Case using MENU (numbering plan)				
ATPE3 - Registration : Functional number already registered (numbering plan)				

7.2 DEREGISTRATION OF FUNCTIONAL NUMBER

7.2.1 Purpose

These tests check the de-registration procedure and the functionality of the functional numbers.

7.2.2 Specific Requirement

MS A has Follow-Me feature active in the SIM.

7.2.3 ATPE4 - De-registration: Successful Case using MENU

7.2.3.1 Specific reference

SRS § 11.3.2, 11.3.7, 11.3.12, 11.3.14, 11.3.15

FRS § 6.2.1.2, 6.2.3.10, 6.2.3.11, 7.2.1.2, 7.2.3.10, 7.2.3.11, 11.2.1.7, 11.3.3.1, 11.3.3.2

7.2.3.2 Purpose

This test shows the de-registration procedure.

7.2.3.3 Test execution

(Act) MS A performs the registration of FN, using the Menu.

(Ver) The registration is successful. The functional Number is displayed on IDLE mode.

(Act) MS B calls MS A using FN.

(Ver) The call is initiated to MS A.

(Act) MS B terminates the call.

(Ver) The call is closed.

(Act) MS A performs the de-registration of FN, using the Menu.

(Ver) The de-registration is successful, and the message “follow-me deactivated” is displayed. The functional Number is no longer shown on the IDLE screen.

(Ver) The format of USSD message sent to the network for de-registration is correct.

(Act) MS B calls MS A using FN.

(Ver) The call is not successful.

7.2.4 ATPE5 - Forced De-registration

7.2.4.1 Specific reference

FRS § 11.3.3.4

7.2.4.2 Purpose

This test shows the ability of the mobile to request towards the network a de-registration of a functional number that is registered on another mobile.

7.2.4.3 Test execution

(Act) MS A performs the registration of FN, using the Menu.

(Ver) The registration is successful. The functional Number is displayed on IDLE mode.

(Act) On MS B, try to perform the registration on the same FN, using the Menu.

(Ver) The registration attempt is rejected by the network, because the FN is already registered.

(Act) On MS B, using the menu, request from the network the MSISDN of the mobile to be de-registered (MS A), by entering the functional number.

(Act) On MS B, using the menu, perform a de-registration of the FN that has been registered by MS A., using the functional number and the MSISDN given by the network.

(Ver) The FN has been de-registered. MS B can now register on the functional number that has been de-registered.

(Ver) On MS A, a USSD message is received, generated by the network, indicating that the functional number has been “forced” de-registered.

(Ver) The functional number that was still registered in the mobile is locally de-registered, and the mobile A no longer shows this functional number.

7.2.5 Test results

Test Case	RESULT OK / NOK	Date of SAT	Remarks	Signature
De-registration of Functional number				
ATPE4 – De-registration: Successful Case using MENU				
ATPE5 - Forced De-registration				

7.3 PRESENTATION OF FUNCTIONAL NUMBER

7.3.1 Purpose

These tests check the presentation of the functional numbers:

- When functional numbers are registered the current functional number is displayed on IDLE screen.
- When initiating point-to-point call the functional number is transmitted to the other user and displayed on both side.

7.3.2 Specific Requirement

MS A has Follow Me feature active in the SIM.

7.3.3 ATPE6 - Presentation of Functional Number MOC case

7.3.3.1 Specific reference

SRS § 11.5.4, 11.5.5

7.3.3.2 Purpose

To verify that the functional number of the MS is displayed on the MS side and the MSISDN number of the called side is displayed on the calling side.

7.3.3.3 Specific Requirement

MS A has registered a functional number.

MS B has not registered a functional number.

7.3.3.4 Test execution

(Act) MS A initiates the point-to-point call to MS B by dialling the MSISDN.

(Ver) MS B is ringing. MS B displays the functional number of the MS A during ringing (UUS1 in Set up).

(Act) MS B accepts the incoming Call.

(Ver) MS B displays the functional number of MS A. MS A displays the MSISDN of MS B.

(Act) MS A terminates the call.

(Ver) When MS A is in idle mode his FN is displayed on the screen.

7.3.4 ATPE7 - Presentation of Functional Number MTC case

7.3.4.1 Specific reference

SRS § 11.5.3, 11.5.6

FRS § 6.2.2.6, 7.2.2.14, 11.2.3.3, 11.2.3.5

7.3.4.2 Purpose

To verify that the functional number of the MS is displayed on the MS side and the MSISDN of the MS is displayed on the MS side.

7.3.4.3 Specific Requirement

MS B has registered a functional number.

MS A has not registered a functional number.

7.3.4.4 Test execution

(Act) MS A initiates the Ppoint-to-point call to MS B by dialling the F.N. or the MSISDN.

(Ver) MS B is ringing. MS B displays the MSISDN of MS A during ringing.

(Act) MS B accepts the incoming call.

(Ver) MS B displays the MSISDN of MS A. MS A displays the functional number of MS B.

(Act) MS A terminates the Call.

(Ver) When MS A is in idle mode no FN is displayed on the screen. When MS B is in IDLE mode FN is displayed on the screen.

7.3.5 ATPE8 - Presentation of Functional Number at both sides

7.3.5.1 Specific reference

SRS § 4.3.3, 7.3.7, 11.5.2

FRS § 6.2.1.2, 6.2.2, 7.2.1.2, 11.2.3.1

7.3.5.2 Purpose

To verify that the functional number of each MS is displayed on the other side.

7.3.5.3 Specific Requirement

MS A has registered a functional number.

MS B has registered a functional number.

7.3.5.4 Test execution

(Act) MS A initiates a point-to-point call to MS B by dialling the F.N. or the MSISDN.

(Ver) MS B is ringing. MS B displays the functional number of MS A during ringing.

(Act) MS B accepts the incoming call.

(Ver) MS B displays the functional number of MS A. MS A displays the functional number of MS B.

(Act) MS A terminates the Call.

(Ver) When MS A is in idle mode his FN is displayed on the screen. When MS B is in idle mode his FN is displayed on the screen.

7.3.6 Test results

Test Case	RESULT OK / NOK	Date of SAT	Remarks	Signature
Presentation of Functional number				
ATPE6 - Presentation of Functional Number MOC case				
ATPE7 - Presentation of Functional Number MTC case				
ATPE8 - Presentation of Functional Number at both sides				

7.4 SHORT DIALLING NUMBERS

7.4.1 Purpose

- This test shows the management of the SDN file from the SIM card.
- The specific short codes to Primary Controller, Secondary Controller… are stored in the SDN file from the SIM card.
- On the MS the SDN file are shown in Menu "Services". The calls to this specific number are initiated by selecting the appropriate Railway function.

7.4.2 ATPE9 - SDN File Handling for initiating Railway specific calls

7.4.2.1 Specific reference

SRS § 9.8

7.4.2.2 Specific Requirement

SIM cards with SDN file validated.

7.4.2.3 Test execution

(Act) On MS A scroll to the menu allowing the SDN functions.

(Ver) MS A can see the numbers stored in the SDN file on the SIM card.(Act) MS A initiates a call. Select the specific Railway call service and press the call button.

(Ver) The call is initiated with the correct dialling number, priority and call type stored in the SIM card. The name of the service is displayed during establishment of the call.

(Act) MS A terminates the call.

7.4.3 Test results

Test Case	RESULT OK / NOK	Date of SAT	Remarks	Signature
Short Dialling Numbers				
ATPE9 - SDN File Handling for initiating Railway specific calls				

7.5 RAILWAY EMERGENCY CALL

7.5.1 Purpose

To check the Railway emergency call feature.

7.5.2 ATPE10 - Railway Emergency Call initiating

7.5.2.1 Specific reference

SRS § 13.2.2, 13.3.1, 13.4.2

FRS § 6.2.1.2, 6.2.2.2, 6.2.2.3, 10.4.5, 13.2.2.4, 13.2.2.5, 13.2.2.6, 13.2.3.1, 13.2.4.1

7.5.2.2 Purpose

This test shows the procedure to initiate a railway emergency call.

7.5.2.3 Specific Requirement

SIM card has got the subscription to initiate Train emergency call.

7.5.2.4 Test execution

(Ver) Check by menu where activated GIDs are listedthat GID 299 cannot be accessed and deactivated.

(Act) On MS A, initiate a Train emergency call.

(Ver) During the establishment of the Train emergency call, a visual indication is shown on MS A.

(Ver) When the call is connected, a visual and audible indication is provided on MS A.

(Act) MS A takes the uplink.

(Ver) MS A can speak using the P.T.T.

(Ver) MS B can hear MS A.

(Ver) MS B is not able to leave or to close the ongoing train emergency call (when pushing the end key, no choice is given to the user for leaving the call).

(Act) MS A terminates the call, by pushing the end call key.

7.5.3 ATPE11 - Railway Emergency Call receiving

7.5.3.1 Specific reference

FRS § 6.2.1.2, 6.2.2.15, 7.2.2.23, 13.2.2.4, 13.2.2.5, 13.2.2.6, 13.2.4.1, 13.3.1

7.5.3.2 Purpose

This test shows the receiving of a Railway emergency call.

7.5.3.3 Specific Requirement

- SIM card has got the subscription for Train emergency call.
- Emergency call is defined with priority “0” on the SIM card.

7.5.3.4 Test execution

(Act) On MS A, initiate a Train emergency call.(Ver) MS B receives Train emergency call: specific audible and visual indication is shown on MS B.

(Ver) After few rings the call is automatically answered by MS B.

(Ver) MS A gets the uplink automatically and can immediately speak.

(Act) Confirm the uplink by pressing the P.T.T.

(Ver) MS B can hear MS A speaking.

(Act) On MS B, press the end call key.

(Ver) MS B is not able to close or to leave the ongoing emergency call.

(Act) MS A terminates the call, by pushing the end call key.

7.5.4 ATPE12 - Railway Emergency Call receiving – late entry

7.5.4.1 Specific reference

FRS § 13.2.2.7

7.5.4.2 Purpose

To check the indication of a Railway emergency call when the mobile arrives in the area.

7.5.4.3 Specific Requirement

SIM card has got the subscription for Train emergency call.

Emergency call is defined with priority “0” on the SIM card.

7.5.4.4 Test execution

(Act) Move MS B out of the emergency call area.

(Act) On MS A, initiate a Train emergency call.

(Act) Move MS B into the emergency call area.

(Ver) MS B receives Train emergency call after moving into the coverage area.

7.5.5 ATPE13 - Railway Emergency Call – Uplink exchange

7.5.5.1 Specific reference

FRS § 13.2.3.2

7.5.5.2 Test execution

(Act) On MS A, initiate a Train emergency call.

•

(Ver) After few rings the call is automatically answered by MS B.

(Ver) MS B can speak after uplink-request and indication on the display to use the P.T.T. and pressing the P.T.T.

(Ver) MS A can hear MS B speaking.

(Ver) Uplink exchange between MS A and MS B.

(Act) MS A terminates the call, by pushing the end call key.

7.5.6 ATPE14 - Railway Emergency Call Set-up fails

7.5.6.1 Specific reference

SRS § 4.3.5, 4.4.3

FRS § 6.2.2.4, 6.4.2.6, 13.2.2.3

7.5.6.2 Purpose

To check the different cases when a Railway emergency call is not successful.

7.5.6.3 Specific Requirement

- SIM card has got the subscription to initiate Train emergency call.
- On the network, disable the emergency call handling, so that the call set up required by the MS towards the network does not succeed.

7.5.6.4 Test execution

(Act) On MS A, launch a VGCS 299.

(Ver) The call is rejected.

(Act) On MS A, initiate a Railway emergency call using the menu.

(Ver) The call set-up fails. Visual and audible indication is provided that the call is not successful.

(Ver) MS A repeats the call attempt cyclically, and a message “Still trying emergency call” is displayed for each retry.

(Ver) After 30 seconds the call is still not established, another beep and a visual indication “Emergency call unsuccessful" are emitted.

7.5.7 ATPE15 - Railway Emergency Call area leaving

7.5.7.1 Specific reference

FRS § 13.2.4.2

7.5.7.2 Test execution

(Act) On MS A, initiate a Train emergency call

(Ver) MS B receives Train emergency call

(Ver) After few rings the call is automatically answered by MS B.

(Act) Move MS B out of the emergency call area.

(Ver) Specific audible and visual indication about the loss of the call are issued on MS B.

7.5.8 Test results

Test Case	RESULT OK / NOK	Date of SAT	Remarks	Signature
Railway Emergency Call				
ATPE10 - Railway Emergency Call initiating				
ATPE11 - Railway Emergency Call receiving				
ATPE12 - Railway Emergency Call receiving – late entry				
ATPE13 - Railway Emergency Call – Uplink exchange				
ATPE14 - Railway Emergency Call Set-up fails				
ATPE15 - Railway Emergency Call area leaving				

7.6 RAILWAY EMERGENCY CALL CONFIRMATION

7.6.1 Purpose

To check the Railway emergency call confirmation feature.

7.6.1.1 Specific Requirement

An Abis tracer is necessary in order to check the contents of the message.

7.6.2 ATPE16 - Railway Emergency Call Confirmation for MO

7.6.2.1 Specific reference

SRS § 13.5

FRS § 13.4.2, 13.4.3, 13.4.4, 13.4.5

7.6.2.2 Purpose

To check the procedure for confirmation of the Railway emergency call when this call was initiated by the MS.

7.6.2.3 Test execution

(Act) On MS A, initiate a Train emergency call.

(Ver) The emergency call is established.

(Act) On MS A, terminate the emergency call.

(Ver) MS A automatically initiates Call confirmation after random delay (from 0 to 30 seconds, to be checked in the traces).

(Ver) The call confirmation is initiated to the appropriate short code “1612” (to be checked in the traces).

(Ver) The message is sent by the MS radio through UUS1, and its contents are consistent (to be checked in the traces).

7.6.3 ATPE17 - Railway Emergency Call Confirmation for MT

7.6.3.1 Specific reference

SRS § 13.5

FRS § 13.4.2, 13.4.3, 13.4.4, 13.4.6

7.6.3.2 Purpose

To check the procedure for confirmation of the Railway emergency call when this call was received by the MS-radio.

7.6.3.3 Test execution

(Act) On MS A, initiate a Train emergency call

(Act) MS B receives Train emergency call

(Act) MS A terminates the call

(Ver) MS B automatically initiates Call confirmation after random delay (from 0 to 30 seconds, to be checked in the traces).

(Ver) The call confirmation is initiated to the appropriate short code “1612” (to be checked in the traces).

(Ver) The message is sent by the MS radio through UUS1, and its contents are consistent (to be checked in the traces).

7.6.4 Test results

Test Case	RESULT OK / NOK	Date of SAT	Remarks	Signature
Railway Emergency Call Confirmation				
ATPE16 - Railway Emergency Call Confirmation for MO				
ATPE17 - Railway Emergency Call Confirmation for MT				

8. ASCI FEATURES

8.1 DEFINITIONS

- Uplink: voice link from the Mobile to the Network. There is only one uplink available in a VGCS call: the request for the uplink is done by pressing the PTT key.
- Talker: Mobile subscriber, which has the uplink.
- Down link: voice link from the Network to the Mobile. In a VGCS call, all the mobile subscribers have a downlink.
- Listener: Mobile subscriber, which does not have the uplink, but has a downlink.
- Originator: Mobile subscriber, which initiates the VGCS call.

8.2 VOICE BROADCAST CALL SERVICE (VBS)

8.2.1 Purpose

To check the correct handling of a VBS call.

8.2.2 General Reference

ETSI	Voice Broadcast Service (VBS)-Stage 1	GSM 02.69 v8.0.0
ETSI	Voice Broadcast Service (VBS)-Stage 2	GSM 03.69 v8.2.0
ETSI	Voice Broadcast Service (VBS)-Stage 3	GSM 04.69 v8.1.0

8.2.3 General Requirement

- GSM-R network.
- 3 mobile stations MS A, MS B, MS C.
- 3 SIM cards with VBS group ID xxx defined, but not activated. The SIM cards are defined in the network Database.
- Group call priority (associated to the GID in the network database): Any priority with no auto-answering.

8.2.4 ATPA1 - VBS feature testing

8.2.4.1 Specific reference

SRS § 4.3.1, 9.9

FRS § 1.4.1.1, 4.2.1, 6.2.1.2, 6.2.2.7, 6.2.2.8, 6.2.2.9, 7.2.1.2, 7.2.2.15, 7.2.2.16, 7.2.2.17, 11.2.3.2

8.2.4.2 Purpose

- To verify the correct establishment of a VBS call originated by a Mobile subscriber.
- To verify that a mobile subscriber is not allowed to originate a VBS for a not activated group ID.
- To verify that a listening Mobile subscriber cannot speak.
- To verify the ability of the originator of the VBS to terminate the call.

8.2.4.3 Test execution

(Act) Initiate a VBS call on MS A with GID xxx.

(Ver) The call is rejected with « Group ID not activated ».

(Act) Activate the Broadcast GID xxx on MS A, MS B and MS C, using menu.

(Act) Initiate a VBS call on MS A on GID xxx.

(Ver) The GID for the initiated call is displayed on the screen on MS A.

(Ver) The call is indicated on MS B and MS C.

(Ver) The VBS and GID information for the initiated call displayed on the screen on MS B and MS C.

(Act) Accept the incoming call on MS B and MS C.

(Ver) A can speak, B and C can hear the talking from A.

(Ver) B and C cannot speak.

(Ver) If B leaves the call, C can still hear A (B cannot close the call).

(Act) Close VBS call from MS A.

(Ver) All MS return to idle mode.

8.2.5 Test results

Test Case	RESULT OK / NOK	Date of SAT	Remarks	Signature
Voice Broadcast call service (VBS)				
ATPA1 - VBS feature testing				

8.3 VOICE GROUP CALL SERVICE (VGCS)

8.3.1 Purpose

To check the correct handling of a VGCS call.

8.3.2 General Reference

ETSI	Voice Group Call Service (VGCS)-Stage 1	GSM 02.68 v8.0.0
ETSI	Voice Group Call Service (VGCS)-Stage 2	GSM 03.68 v8.2.0
ETSI	Voice Group Call Service (VGCS)-Stage 3	GSM 04.68 v8.1.0

8.3.3 General Requirement

- GSM-R network.
- 3 mobile stations MS A, MS B, MS C.
- 3 SIM cards with VGCS group ID xxx. The SIM cards are defined in the network Database.
- Group call priority (associated to the GID in the network database): Any priority with no auto-answering.

8.3.4 ATPA2 - VGCS feature testing

8.3.4.1 Specific reference

SRS § 4.3.1, 9.9

FRS § 1.4.1.1, 4.2.1, 6.2.1.2, 6.2.2.7, 6.2.2.8, 6.2.2.10, 6.2.2.11, 6.2.2.13, 6.4.2.3, 7.2.1.2, 7.2.2.15, 7.2.2.16, 7.2.2.18, 7.2.2.19, 7.2.2.20, 7.2.2.21, 7.4.3.4, 11.2.3.2

8.3.4.2 Purpose

- To verify the correct establishment of a VGCS call originated by a Mobile subscriber.
- To verify the indication “Press PTT to speak”
- To verify that a non-qualified mobile subscriber is not allowed to originate a VGCS.
- To verify that a listening Mobile subscriber can become the talker by requesting the uplink after the originator has released it.
- To verify the ability of the originator of the VGCS to terminate the call.

8.3.4.3 Test execution

(Act) Deactivate Group ID xxx on MS A, if necessary, using mobile menu.

(Act) Initiate a VGCS call on MS A: dial Group ID and launch this VGCS.

(Act) The VGCS call is rejected.

(Act) Activate Group ID xxx on MS A, MS B and MS C, using mobile menu.

(Act) Initiate a VGCS call on MS A: dial Group ID and launch this VGCS.

(Act) The incoming call is notified to MS B and MS C.

(Act) Accept the incoming call from MS B and MS C: press call key.

(Ver) The GID information is displayed on the screen of MS A, MS B and MS C.

(Act) When the VGCS is established, take the uplink on MS A by pressing the PTT key.

(Ver) MS B and MS C receive voice from MS A when MS A presses the PTT key.

(Act) MS A releases the PTT.

(Ver) MS B and MS C receive indication to use PTT to speak.

(Ver) MS A and MS C receive voice from MS B when MS B presses the PTT key.

(Act) Close VGCS call from MS A: press the red key and then press the Close key.

(Ver) MS A returns to idle mode and no VGCS call is presented in “Join ongoing VGCS”.

(Ver) MS B returns to idle mode and no VGCS call is presented in “Join ongoing VGCS”.

8.3.5 ATPA3 - VGCS call leaving GCA

8.3.5.1 Specific reference

FRS § 6.2.2.14, 7.2.2.22

8.3.5.2 Test execution

(Act) On MS A, initiate a VGCS call.

(Ver) The VGCS call is presented on MS B.

(Act) On MS B, accept the incoming call.

(Act) Move MS B out of the group call area.

(Ver) Specific audible and visual indication are issued on MS B.

8.3.6 Test results

Test Case	RESULT OK / NOK	Date of SAT	Remarks	Signature
Voice Group call service (VGCS)				
ATPA2 - VGCS feature testing				
ATPA3 - VGCS call leaving GCA				

8.4 PRIORITY AND PREEMPTION TESTS (EMLPP)

8.4.1 Purpose

To check the eMLPP ASCI feature.

8.4.2 General Reference

3GPP	Enhanced Multi-Level Precedence and Pre-Emption Service (eMLPP)-Stage 1	3G 22.067 v3.0.1
3GPP	Enhanced Multi-Level Precedence and Pre-Emption Service (eMLPP)-Stage 2	3G 23.067 v3.2.0
3GPP	Enhanced Multi-Level Precedence and Pre-Emption Service (eMLPP)-Stage 3	3G 24.067 v3.1.0

8.4.3 General Requirement

- Network, with ASCI features.
- 3 mobile stations MS A, MS B and MS C.
- 1 VBS GID xxx defined in the network, with priority 2, and activated on MS A, MS B and MS C.
- 1 VGCS GID yyy defined in the network with priority 3, and activated on MS A, MS B and MS C.
- 1 VGCS GID 299 (emergency call) with priority 0.
- As defined in Eirene, auto-answering is defined for priorities 0 to 2. No auto-answering for priorities 3 and 4.

8.4.4 ATPA4 - Allocation of priority

8.4.4.1 Reference

SRS § 4.3.3, 10.2.1

FRS § 1.4.1.1, 10.2.1

8.4.4.2 Test description

(Act) Initiate a Railway emergency call on MS A.

(Ver) The priority is transmitted to the network, and that it is set to “0”.

(Ver) The MS receiving the emergency call performs auto-answering.

(Act) Close the emergency call from MS A.

(Act) Initiate a VBS call on GID xxx from MS B.

(Ver) The priority given by the mobile is transmitted to the network (Default priority from the Mobile station is 4).

(Ver) The network establishes the VBS call to the other mobiles with priority “2” and sends priority “2” back to the mobile.

(Ver) The MS receiving the VBS call performs auto-answering (due to priority” 2” provided by the network.

(Act) Close the VBS call from MS B.

(Act) Initiate a point-to-point call from MS C.

(Ver) Check that the priority is transmitted to the network, and that it is set to “4”.

8.4.5 ATPA5 - Pre-emption of point to point call by a higher priority call with automatic answering.

8.4.5.1 Reference

SRS § 4.3.3, 10.2.1

FRS § 3.5.6, 4.2.3, 10.2.1, 10.2.2 table 10-1, 10.2.3

8.4.5.2 Purpose

To verify that the MS is able to pre-empt the ongoing call and to answer the new incoming call.

8.4.5.3 Test execution

(Act) On MS A, initiate PTP call to MS B.

(Act) On MS B accept the call.

(Act) On MS C, initiate VGCS call with priority “0” (emergency call).

(Ver) The ongoing PTP call is released on MS A and MS B.

(Ver) The new VGCS call is indicated on MS A and MS B and joined automatically.

(Act) Release VGCS call.

8.4.6 ATPA6 - Pre-emption of point to point call by a higher priority call with no automatic answering

8.4.6.1 Purpose

To verify that the MS is able to pre-empt the ongoing call and to indicate the new incoming call.

8.4.6.2 Reference

SRS § 4.3.3, 10.2.1

FRS § 3.5.6, 4.2.3, 10.2.1, 10.2.2 table 10-1, 10.2.3

8.4.6.3 Test execution

(Act) Deactivate VBS GID xxx on MS A

(Act) On MS A, initiate PTP call to MS B.

(Act) On MS B accept the call.

(Act) On MS C, initiate VBS call on GID xxx (priority 3).

(Ver) The new VBS call is indicated on the MMI on MS B.

(Ver) The PTP call is still ongoing.

(Act) Accept the new incoming VBS call on MS B.

(Ver) The PTP call is released.

(Ver) The VBS call is established on MS B.

(Act) Close VBS call.

8.4.7 ATPA7 - Pre-emption of a group call by a new call with auto-answering

8.4.7.1 Reference

SRS § 4.3.3, 10.2.1

FRS § 3.5.6, 4.2.3, 10.2.1, 10.2.2 table 10-1, 10.2.3

8.4.7.2 Purpose

To check that the MS is able to pre-empt ongoing group call and to indicate the new incoming call with higher priority.

8.4.7.3 Test execution

(Act) On MS A, initiate VBS call on GID xxx.

(Act) On MS B, accept VBS call.

(Act) On MS C, initiate VGCS call with GID 299 (emergency call with priority 0).

(Ver) The VGCS call is indicated on MS B.

(Ver) The VBS call is left by MS B and closed by MS A.

(Ver) The VGCS call is established and MS A and MS B automatically join the VGCS call in group receive mode.

(Ver) MS A and MS B can hear the VGCS originator.

(Act) Release VGCS (emergency) call.

8.4.8 ATPA8 - Pre-emption of group call by a new call with higher priority

8.4.8.1 Reference

SRS § 4.3.3, 10.2.1

FRS § 3.5.6, 4.2.3, 10.2.1, 10.2.2 table 10-1, 10.2.3

8.4.8.2 Test execution

(Act) On MS A, activate GID yyy for VGCS.

(Act) On MS A, deactivate GID xxx for VBS.

(Act) On MS A, initiate VGCS call with GID yyy (priority 3).

(Act) On MS B, accept the call.

(Act) On MS C, initiate VBS call on GID xxx (priority 2).

(Ver) The new VBS call is indicated on the MMI on MS B, and automatically answered by MS B, which leaves the VGCS call.

(Ver) MS B can hear the VBS call talker C.

(Ver) The VGCS call is still ongoing (on MS A).

(Act) Close VBS call.

(Act) Close VGCS call.

8.4.9 ATPA9 - Pre-emption of group call with lower priority

8.4.9.1 Reference

SRS § 4.3.3, 10.2.1

FRS § 3.5.6, 4.2.3, 10.2.1, 10.2.2 table 10-1, 10.2.3

8.4.9.2 Test execution

(Act) On MS A, deactivate GID yyy for VGCS.

(Act) On MS A, initiate VBS call on GID xxx (priority 2).

(Act) On MS B, accept VBS call.

(Act) On MS C, initiate VGCS call with VGCS GID yyy (priority 3).

(Ver) The VGCS call is indicated on MS B, with question “Join?”.

(Act) Refuse VGCS call on MS B.

(Ver) MS B remains in the VBS call.

(Ver) The indication of VGCS call on the MMI of MS B is stopped.

(Ver) The VGCS call is still ongoing (on MS C).

(Act) Close VBS call.

(Act) Close VGCS call.

8.4.10 Test results

Test Case	RESULT OK / NOK	Date of SAT	Remarks	Signature
Priority and pre-emption tests (eMLPP)				
ATPA4 - Allocation of priority				
ATPA5 - Pre-emption of point to point call by a higher priority call with automatic answering				
ATPA6 - Pre-emption of point to point call by a higher priority call with no automatic answering				
ATPA7 - Pre-emption of group call with auto-answering				
ATPA8 - Pre-emption of group call with higher priority				
ATPA9 - Pre-emption of group call with lower priority				

9. SIM CARDS HANDLING

9.1 GENERAL REFERENCE

3GPP	Specification of the Subscriber identity Module – Mobile Equipment (SIM – ME) interface (Release 1999)	3GPP TS 11.11 v8.4.0
MORANE	FFFIS for GSM-R SIM cards	P 38 T 9001 4

9.2 REQUIREMENTS

- 2 SIM cards with valid DF EIRENE files. Make a record of the values of all DF EIRENE files in the SIM card.
- The FN obtained by the numbering plan are defined in the network database.

9.3 NUMBERING PLAN AND FN TESTING

9.3.1 Purpose

To check the correct handling of the EIRENE SIM card fields concerning the numbering plan and FN.

9.3.2 Reference

SRS § 9

FRS § 9

FFFIS for GSM-R SIM cards: § 5.3.5, 5.3.6

9.3.3 ATPS1 – Register FN and incoming call with FN

9.3.3.1 Purpose

- To verify the mobile subscriber can register a FN according the numbering plan structure from the SIM card if allowed also by the network. It uses the dialling help for registration.
- To verify the mobile subscriber can be called with this FN by another service subscriber.
- To verify the FN is registered in the SIM card in field EF_{FN} as a temporary FN.

9.3.3.2 Test execution

(Ver) On mobile A, go to the menu to register a FN. If an IC value is asked, check we can enter a 3-digits IC value and validate it.

(Act) Choose one valid Call Type.

(Ver) Check the following fields are consistent to the expected fields in FFFIS for GSM-R SIM cards: § 5.3.6.8.

(Act) Choose one valid value for each list.

(Ver) Check the registration is successful and the FN is now appearing on screen in idle mode.

(Act) Another mobile B calls mobile A using this FN without IC.

(Ver) The mobile A rings and may receive the incoming call.

(Act) Hang up the call.

(Ver) Check in mobile A the FN has been correctly registered in the SIM card in field EF_{FN} as a temporary FN (just take away the SIM card without switching off the mobile).

Example: By using mobile menu to register a FN, choose RAC= 080, Call Type = 2 (TR: Train), enter a number of 0 to 8 digits corresponding to the $EF_{5to8digits}$ (i.e. 11111) and choose 01 (Drv1: driver 1) corresponding to the EF_{FC} field in the SIM card. The EF_{FN} file must be filled with this FN.

9.3.4 ATPS2 – Outgoing call with FN

9.3.4.1 Purpose

- To verify the mobile subscriber respects the numbering plan structure on SIM.
- To verify the mobile subscriber can call another service subscriber with its FN if exists.

9.3.4.2 Test execution

(Ver) On mobile A, by using mobile menu "Dialling help" check that all call types listed correspond to the call types registered in the SIM card field EF_{CT} which address is given by $EF_{GsmrPLMN}$ by the field "Outgoing" of the current PLMN.

(Act) Choose one valid Call Type.

(Ver) Check the following fields correspond to the expected fields in FFFIS for GSM-R SIM cards: § 5.3.6.8.

(Ver) Check the proposed values correspond to the values registered in the SIM card in the corresponding EF.

(Act) Call the subscriber associated to this FN. The call is established.

Example: By using mobile menu "Dialling help" choose Call Type = 7 (CT: Controller), enter a number of 5 digits corresponding to the $EF_{Location}$ (i.e. 11111) and choose 02 (CTR 2: Secondary Controller) corresponding to the $EF_{Controller}$ file in SIM card. The call to the service subscriber which FN is 71111102 is done. If this FN exists, the call is established.

9.3.5 ATPS3 – De-register FN

9.3.5.1 Requirements

- 1 SIM card with a permanent FN.

9.3.5.2 Purpose

- To verify temporary FN registered in the SIM card are deleted after de-registration, but not permanent FN.

9.3.5.3 Test execution

(Ver) On mobile A, on idle screen check the permanent FN is correctly displayed.

(Act) Reproduce test ATPS1, register a FN by menu.

(Ver) Check the new registered FN appears on idle screen.

(Act) Switch off mobile A.

(Ver) The mobile A de-registers the temporary FN.

(Ver) Check in mobile A the temporary FN has been correctly erased in the SIM card in field EF_{FN} but not the permanent one.

(Act) Switch on mobile A.

(Ver) The permanent FN appears on idle screen.

9.3.6 Test results

Test Case	RESULT OK / NOK	Date of SAT	Remarks	Signature
Numbering plan and FN testing				
ATPS1 – Register FN and incoming call with FN				
ATPS2 – Outgoing call with FN				
ATPS3 – De-register FN				

9.4 VGCS AND VBS GIDS ACTIVATION

9.4.1 Purpose

- To verify the consistence between the display of possible GIDs and their registration in the SIM card (except for emergency and shunting GIDs).
- To verify the mobile subscriber can activate or deactivate GIDs on the SIM card.
- To verify the mobile subscriber can initiate and receive VGCS and VBS calls registered and activated in the SIM card.

9.4.2 Reference

FFFIS for GSM-R SIM cards: § 5.2.3, 5.2.4

9.4.3 Requirements

- 2 mobiles
- 1 SIM card with valid EF_{VGCS} EF_{VGCSS} EF_{VBS} EF_{VBSS} ,DF GSM files. EF_{VGCS} and EF_{VBS} must contain valid GID also valid on the network side. Take note of the content of these files.
- Valid $EF_{Shunting}$ and $EF_{CallconfI}$,DF EIRENE files.

9.4.4 ATPS4 - VGCS GID

9.4.4.1 Test execution

(Act) On mobile A, by menu, go to the list of activated Group IDs.

(Ver) Check that the list of GIDs displayed corresponds to the list in EF_{VGCS} file with or without emergency and shunting GIDs.

(Ver) Check that the activated GIDs correspond to those activated in the EF_{VGCSS} file on SIM card.

(Act) Activate or deactivate one or some GIDs by this menu, except emergency and shunting GIDs which are not changeable, and remember it.

(Act) Put the SIM card in the mobile B.

(Act) On mobile B go by menu to the list of activated Group IDs.

(Ver) Check that the list of GID displayed corresponds to the last list obtained on mobile A. It checks the EF_{VGCS} file.

(Ver) Check that the activated GIDs correspond to those activated on mobile A before. It checks the EF_{VGCSS} file.

(Act) Go to initiate a group call by the list of activated group calls.

(Ver) Check that the displayed list corresponds to the activated GIDs of the last list without emergency and shunting GIDs.

(Ver) It is possible to initiate or to receive one of these activated group calls.

9.4.5 ATPS5 - VBS GID

9.4.5.1 Test execution

(Act) On mobile A, by menu, go to the list of activated broadcast IDs.

(Ver) Check that the list of GIDs displayed corresponds to the list in EF_{VBS} file.

(Ver) Check that the activated GIDs correspond to those activated in the EF_{VBSS} file on SIM card.

(Act) Activate or deactivate one or some GIDs by this menu, and remember it.

(Act) Put the SIM card in the mobile B.

(Act) On mobile B go by menu to the list of activated broadcast IDs.

(Ver) Check that the list of GID displayed corresponds to the last list obtained on mobile A. It checks the EF_{VBS} file.

(Ver) Check that the activated GIDs correspond to those activated on mobile A before. It checks the EF_{VBSS} file.

(Act) Go to initiate a broadcast call by the list of activated broadcast calls.

(Ver) Check that the list corresponds to the activated GID of the last list.

(Ver) It is possible to initiate or receive one of these activated broadcast calls.

9.4.6 Test results

Test Case	RESULT OK / NOK	Date of SAT	Remarks	Signature
VGCS and VBS GIDs activation				
ATPS4 – VGCS GID				
ATPS5 – VBS GID				

9.5 CALL CONFIRMATION

9.5.1 Reference

SRS § 13.5

FRS § 13.4.2, 13.4.3, 13.4.4, 13.4.5

9.5.2 ATPS6 - Call confirmation

9.5.2.1 Purpose

To check when a procedure for confirmation of the Railway emergency call is necessary, all information are stored in the SIM card using $EF_{CallconfC}$ and $EF_{CallconfI}$.

9.5.2.2 Test execution

(Act) On MS A, initiate a Railway emergency call.

(Ver) The emergency call is established.

(Act) On MS A, terminate the emergency call.

(Act) Take away the SIM card without switching off the mobile.

(Act) Take note of the content of the files $EF_{CallconfC}$ and $EF_{CallconfI}$. in the SIM card.

(Act) Put the SIM card in MS A, and switch on the mobile.

(Ver) MS A automatically initiates call confirmation.

(Ver) The message is sent by the MS radio through UUS1. Notice its content obtained by mobile or network traces.

(Ver) Compare the values obtained for the last UUS1 message with the content of the files $EF_{CallconfC}$ and $EF_{CallconfI}$. in the SIM card.

9.5.3 ATPS7 – Retry call confirmation to the Ack centre

9.5.3.1 Purpose

To verify that after m failed attempts (where m<N_ACK_MAX and N_ACK_MAX is a value stored in the SIM card in $EF_{CallconfC}$) to conclude successfully the procedure of confirmation of high priority calls, the terminal shall store the REC information on the SIM card using $EF_{CallconfI}$.,

After power OFF/ON, if network is available, GPH/OPH shall automatically retry to send the REC call confirmation to the Acknowledgment Centre.

9.5.3.2 Test execution

(Act) MS A takes part to a REC as originator or as a receiver.

(Ver) When the REC is ended, MS A performs spontaneously m<N_ACK_MAX successive attempts to send the Confirmation Call: if Ack Centre is switched off or MS A has moved out of coverage these attempts fail.

(Act) Switch MS A OFF and ON.

(Act) Take note of the content of the file $EF_{CallconfI}$ in the SIM card.

(Ver) When the booting phase is completed and the mobile is attached to the network, the Call Confirmation of the previous REC is sent with right information and may be retried if unsuccessful for max N_ACK_MAX attempts.

(Ver) Compare the values obtained for the last UUS1 message with the content of the file $EF_{CallconfI}$ noted before.

9.5.4 Test results

Test Case	RESULT OK / NOK	Date of SAT	Remarks	Signature
Call confirmation				
ATPS6 - Call confirmation				
ATPS7 – Retry call confirmation to the Ack centre				

9.6 PRIORITISED LIST OF NETWORKS

9.6.1 Reference

FRS § 7.2.3.8, 10.5

SRS § 10.5

FFFIS for GSM-R SIM cards: § 5.2.1, 5.3, 5.3.5

GSM 03.22 version 8.3.0 Release 1999

9.6.2 Requirements

- 1 SIM card with valid $EF_{PLMNsel}$, $EF_{GsmrPLMN.}$ and EF_{NW}. $EF_{PLMNsel}$ contains PLMN B and $EF_{GsmrPLMN}$ contains the HPLMN, followed by PLMN A and PLMN B in this order.
- EF_{NW} contains the name of the HPLMN, PLMN A and B.

9.6.3 ATPS8 – List of networks

9.6.3.1 Purpose

- To verify the mobile subscriber uses the $EF_{GsmrPLMN}$ file in the SIM card for the order of appearance of PLMN and not the order given in $EF_{PLMNSel}$ file.
- To verify the names in EF_{NW} are used for display.

9.6.3.2 Test execution

(Act) Go to the list of preferred networks.

(Ver) Check that the order of the listed networks respects the order of the prioritised list in $EF_{GsmrPLMN}$ and that network names are displayed according to EF_{NW}. HPLMN must appear before PLMN A in the list followed by PLMN B and PLMN C in this order.

9.6.4 Test results

Test Case	RESULT OK / NOK	Date of SAT	Remarks	Signature
Prioritised list of networks				
ATPS8 – List of networks				

10. OPH RELATED FUNCTIONS

10.1.1 ATPO1 – OPH mobile specifics

10.1.1.1 Purpose

To check the OPH specific display.

10.1.1.2 Reference

FRS § 7.4.2.1

10.1.1.3 Test execution

(Act) Switch the mobile on.

(Ver) The screen of the OPH display contains 6 lines and one line can contain at least 20 characters.

10.1.2 ATPO2 – Call controller

10.1.2.1 Purpose

To test the Call Controller feature.

10.1.2.2 Reference

SRS § 7.3.4, 7.3.5

FRS § 7.2.1.2, 7.2.2.2, 7.2.2.4, 7.2.2.5, 7.2.2.6, 7.2.2.7, 7.2.2.8, 7.2.2.9

10.1.2.3 Specific Requirement

The short numbers for the different controllers have to be defined in the SIM (EF_{SDN} file), as defined in Morane FFFIS for GSM-R SIM cards.

The network must support this feature, and route the call to the right controller.

10.1.2.4 Test execution

(Act) On MS A, go to the menu allowing the SDN functions, and scroll to entry ”PPC” for Primary Controller (respectively PSC for Secondary Controller, PEC for Power Supply Controller).

(Act) Press “OK”, in order to launch the call.

(Ver) The call is initiated to the selected controller, the correct selection is sent to the network, with the priority “Railway operation”.

(Ver) While the call is in progress, the information that the call is in progress is shown on the display.

(Ver) When the call is connected, the information that the call is connected is shown on the display.

(Ver) When the call is connected, the functional identity of the connected party is displayed if available.

(Act) Close the call.

(Act) On MS A, go to the menu allowing the SDN functions , and scroll to an entry that is not supported by the network (wrong number, group not activated…), and press “OK”.

(Ver) The call is rejected with a message on the screen and an audible indication.

10.1.3 ATPO3 - Emergency call

10.1.3.1 Purpose

To check the initiation of emergency call using emergency key.

10.1.3.2 Reference

FRS § 7.2.1.2, 7.2.2.10, 7.4.3.2, 13.2.2.1

10.1.3.3 Test execution

(Act) Push the emergency key.

(Ver) One beep is issued for key push feedback, and another one for emergency call initiation. The emergency call is initiated.

10.1.4 ATPO4 - Emergency call disabled

10.1.4.1 Purpose

To check that the emergency call function can be disabled on the mobile.

10.1.4.2 Reference

FRS § 7.2.2.11, 7.2.2.12ii

10.1.4.3 Specific Requirement

A SIM card with emergency call disabled.

10.1.4.4 Test execution

(Act) Put the special SIM card in the mobile and switch it on.

(Act) Push the emergency key (long push).

(Ver) The call is rejected with visual and audible indication, for the emergency call is disabled.

10.1.5 ATPO5 - Emergency call – specific cases

10.1.5.1 Purpose

To check the initiation of emergency call when initiator engaged in an ongoing call.

10.1.5.2 Reference

FRS § 13.2.2.1

10.1.5.3 Test execution

(Act) On MS A, initiate a VGCS call.

(Act) On MS B, accept VGCS call.

(Act) When the VGCS call is established, on MS A, push the emergency key (long push).

(Ver) An emergency call is initiated. The call is established, and VGCS call on MS B is pre-empted.

(Act) Close the emergency call on MS A.

(Act) On MS A, initiate a point to point call to MS B.

(Act) On MS B, accept the call.

(Act) When the call is established, on MS A, push the emergency key (long push).

(Ver) An emergency call is initiated. The call is established, and point to point call on MS B is terminated.

10.1.6 Test results

Test Case	RESULT OK / NOK	Date of SAT	Remarks	Signature
OPH related functions				
ATPO1 – OPH mobile specifics				
ATPO2 – Call controller				
ATPO3 - Emergency call				
ATPO4 - Emergency call disabled				
ATPO5 - Emergency call – specific cases				

11. ANNEX 1 – TESTING RESULTS

Test Case	RESULT OK / NOK	Date of SAT	Remarks	Signature
Mobile Visual Control				
General				
Indications				
Basic Features				
Common use functions				
Services and Facilities				
Voice services				
Emergency services				
Data services				
Call related services				
EIRENE Dedicated Features				
Registration of functional number				
De-registration of functional number				
Presentation of functional number				
Short dialling numbers				
Railway Emergency call				
Railway Emergency call confirmation				
ASCI Features				
Voice Broadcast call service				
Voice Group call service				
Priority and pre-emption				
SIM cards handling				
Numbering plan and FN testing				
VGCS and VBS GIDs activation				
Call confirmation				
Prioritised list of networks				
OPH related functions				
OPH mobile specifics				
Call controller				
Emergency call				
Emergency call disabled				
Emergency call – specific cases				