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Test specifications for GSM-R MI related requirements Part 4: Network

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Evolution Sheet

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1 Object

1.1 Purpose of the document

This document defines the test plan and the test cases for GSM-R network, i.e. track side infrastructure, to allow its assessment to prove the fulfilment of EIRENE MI (Mandatory for Interoperability in EU) requirements for GSM-R Baseline 1 release 0, according to reference [1].

It is a guide for the tests to be used to prove a majority of requirements marked as Mandatory for Interoperability (MI) in the EIRENE specification, during the Notified Body process of certification of the GSM-R network elements.

A cross-reference table, mapping the EIRENE specification requirements for the Network towards the test cases identified to verify them, is indicated in Annex A.

The test cases are grouped per MI requirements and each requirement is referred to the necessary test(s) case(s) which verify the corresponding correct implementation.

Some test cases, in particular addressing VBS, for which no corresponding MI requirements exist, are included. Besides representing important functionality and to make the document more useful as well as future proof, this inclusion has been done.

Many of the proposed test cases feasibility were verified by lab tests. These were performed with the purpose to validate that the test cases fulfil the objective of proving the MI requirements in EIRENE and that they can be executed efficiently.

The testing was carried out in the test labs of NOKIA and between 10^{th} of August 2013 and 25^{th} of October 2013 according to [i2] and [i3].

1.2 Abbreviations

AM	Access Matrix
APN	Access Point Name
ATO	Automatic Train Operation
BAIC	Barring Incoming Call
BAOC	Barring Outgoing Call
ВССН	Broadcast Channel
BSC	Base Station Controller
BSS	Base Station Sub-system
BTS	Base Transceiver Station
CDR	Call Data Record
CF	Call Forwarding
CFB	Call Forwarding Busy Subscriber
CFU	Call Forwarding Unconditional
CLIP	Calling Line Identification Presentation
CLIR	Calling Line Identification Restriction
COO	Cell of Origin
COR	Class of Right
CT	Call Type
DCH	Dedicated Channel
DISP	Dispatcher

DMI Driver Machine Interface
DNS Domain Name Server
EDOR ETCS Data Only Radio

eMLPP enhanced Multi-Level Precedence and Pre-emption

ER Extended Range

eREC Enhanced Railway Emergency Call
ER-GSM band Extended Railways GSM band
ETCS European Train Control Service

EU European Union

EVEA Enhanced Very Early Assignment

FA Functional Addressing

FC Functional Code
FN Functional Number

FNN Follow Me Function Node

FRS Functional Requirements Specification

GCA Group Call Area

GCCH Group Control Channel

GCH Group Cannel

GCR Group Call Register
GCRef Group Call Reference

GGSN Gateway GPRS Support Node

GID Group ID

GID Group Identity

GPRS General Packet Radio Service
HLR Home Location Register

HO Handover

IC International Code

IF Interface

IMEI International Mobile Equipment Identity
IMSI International Mobile Subscriber Identity

IOT Interoperability Test

KMS Key Management System

LDA Location Dependent Addressing

LU Location Update

MI Mandatory for Interoperability in EU

MMC Mobile to Mobile Call

MPTY Multi Party
MS Mobile Station

MSC Mobile services Switching Centre

MSG Message

MSISDN Mobile Station International ISDN Number

MSUB Mobile Subscriber

MTC Mobile Terminating Call
NSS Network Sub-system

ODB Operator determined barring
OM Operational Measurement

OTDI Originator to Dispatcher Information

PCU Packet Control Unit
PEC Public Emergency Call

PFN Presentation of Functional Numbers

PLMN Public Land Mobile Network

PtP Point to Point

QoS Quality of Service RBC Radio Block Center

REC Railway Emergency Call

SA Service Area

SGSN Serving GPRS Support Node

SID Sector ID

SIM Subscriber Identity Module

SMS Short Message

SMSC Short Message Service Center

SRS System Requirements Specification

SS Service Subscriber
TCH Traffic Channel

TCT Train Controller Terminal

TCU Transcoding Unit

TRX Transceiver

UE User Equipment

UIC Union Internationale des Chemins de Fer

UL Uplink

USSD Unstructured Supplementary Service Data

UUS1 User-to-User Signaling type 1

VBS Voice Broadcast Service
VGCS Voice Group Call Service
VLR Visitor Location Register

1.3 Reference Documents

1.3.1 Normative references

- [1] EIRENE FRS 8.0.0 UIC 950-0.0.2 and EIRENE SRS 16.0.0 UIC 951-0.0.2
- [2] ETSI EN 301 515 v2.3.0, "Global System for Mobile Communication (GSM); Requirements for GSM operation on railways"
- [3] ETSI TS 102 281 v3.0.0 "Railways Telecommunications (RT); Global Systems for Mobile Communication (GSM); Detailed requirements for GSM operation on Railway"
- [4] ETSI TS 103 169 'Railway Telecommunications (RT); ASCI Options for Interoperability for GSM operation on Railways version 1.1.1 (2011-09)
- [5] Opinion on errors ERA/OPI/2020-2

1.3.2 Informative references

- [i1] GSM-R Network Assessment Test Plan; UIC document O 3114 Version 1.0 dated 24.1.2013
- [i2] GSM-R IOT test cases as part of the TEN-T 2007-EU-60040-P project "TP TEN Phase 9.1 v. 1.4 and TP TEN Phase 9.2 and 9.3 v. 1.4/ February 2012"
- [i3] GSM-R IOT test results as part of the TEN-T 2007-EU-60040-P project "IOT 9.1 report v.1.7, IOT 9.2 report v.1.7 and IOT 9.3 report v.1.7 / May 2012"

2 Test Configuration

2.1 Overview

Following components of the EIRENE GSM-R system are needed to execute the tests:

- GSM-R Network(s)
- Cab Radio
- General purpose radio (GPH) or operational purpose radio (OPH)
- Shunting radio (OPS)
- Controller terminal
- ISDN termination (RBC)
- SIM Cards

2.2 Equipment required

- GSM-R network(s) operating in the R-GSM 900 band
- GSM Abis-tracer or GSM A-tracer, in order to check the contents on the messages exchanged between mobiles and network when required
- Cab Radio
- Fixed network controller (dispatcher)
- ISDN termination (RBC)
- Enough mobile stations (Cab Radio or handheld) to cover multiparty calls
- GSM-R SIM cards with all the services and features provisioned and configured for the appropriate mobile user and function
- SIM card editor, in order to be able to modify the services and features provisioned and the configuration on the SIM cards for the different test requirements

2.3 Network configuration

The GSM-R network needs to be fully compliant to the requirements listed in EIRENE FRS and SRS [1] and to ETSI specifications referenced in [2], [3] and [4].

2.4 Cross-Reference of test cases and EIRENE FRS and SRS

Annex A includes a cross reference between the requirements listed in EIRENE FRS and SRS [1] and the test cases listed in this document. Performing the test for a specific requirement may require several test cases respectively results of a specific test case may be used for several different requirements. The cross-reference tables included in Annex A allow an easy overview about the relation between test and requirement.

The cross-reference is split between EIRENE FRS and SRS [1] and includes the section number, a short description of the requirement, status of the requirement and a list of test cases to be performed to prove the requirement.

A separate table includes information about the sections in the EIRENE FRS and SRS [1] the results of a test case will be used for.

3 Completion of the Functional tests

3.1 Test Cases List for Mandatory for Interoperability (MI) features

3.1.1 Basic and Supplementary GSM Services

This test area covers a set of tests for basic and supplementary GSM voice and data services in a GSM-R system.

This includes

- Location Update and Location Cancellation
- IMSI Attach and Detach
- Mobile Originated and Mobile Terminated Calls
- Data calls
- Subscription, Activation, Deactivation, Interrogation of supplementary services
- Call Hold, Call Waiting, CLIP, CLIR, notification of Call Forwarding
- Multi-Party, MPTY
- Closed user Group, CUG
- Public emergency calls

Test Id	Description
RINF_GSM_1	Successful Location Update after MS Power On
RINF_GSM_2	Supplementary Service Call Hold
RINF_GSM_3	Supplementary Service Call Waiting
RINF_GSM_4	Supplementary Service CLIP – MMC with Call Forwarding Unconditional
RINF_GSM_5	Supplementary Service MPTY
RINF_GSM_6	Establishment of several PtP calls with different priorities
RINF_GSM_7	Public Emergency Call – With SIM
RINF_GSM_8	Short and long SMS
RINF_GSM_9	Mobile subscriber receives a call from Subscriber on other Network

3.1.2 Handover

This test area verifies the correct functioning of handovers for different services in different scenarios in a GSM-R system.

This is:

- Inter BTS handovers for Point to Point calls

Test id	Title
RINF_HO_1	Inter BTS handover of a point to point voice call
RINF_HO_2	Ongoing point to point voice call in the destination cell preempted by a inter BTS handover inwards of a point to point voice call

Number of test cases: 2

3.1.3 Functional Addressing (FA)

This test area verifies the correct functioning of the FA service in a GSM-R system.

This includes:

- Registration Management
- Calls to Functional Numbers
- Failure cases (e.g. registration failure, party already registered)

Test Id	Description
RINF_FA_1	Registration of an FN Number
RINF_FA_2	Registration of an unknown FN fails
RINF_FA_3	Deregistration of an FN Number
RINF_FA_4	Deregistration of an FN fails
RINF_FA_5	Interrogation of an FA Number
RINF_FA_6	Interrogation of an FN fails
RINF_FA_7	FA Call - Successful Call
RINF_FA_8	FA Call – Call is not completed
RINF_FA_9	Verification of Functional Numbers previously registered in HPLMN (CT2/3/4)
RINF_FA_10	Deregistration of CT2 numbers while roaming
RINF_FA_11	Forced Deregistration
RINF_FA_12	Unsuccessful registration with Lead driver number (CT2 FC 01) because of wrong CoR (CT2 FC10 works)
RINF_FA_13	Register 3 function numbers to one user (non-roaming case)
RINF_FA_14	Registration of an FN fails - remote party already registered
RINF_FA_15	FA Call - Successful Call

Number of test cases: 15

3.1.4 Location Dependent Addressing (LDA)

This test area verifies the correct functioning of the LDA service in a GSM-R system

This includes:

- Successful LDA call, correct transfer of the Cell of Origination information
- Failure cases (e.g. LDA destination does not exist)

Test Id	Description
RINF_LDA_1	Successful LDA Call - Verify the cell format is correct
RINF_LDA_2	Unsuccessful LDA Call - Call to invalid Short Code

Number of test cases: 2

3.1.5 Enhanced Multi-Level Precedence and Pre-emption Service (eMLPP)

This test area verifies the correct functioning of the eMLPP service in a GSM-R system.

This includes:

- Pre-emption of PtP, VBS, VGCS, data calls by PtP, VBS, VGCS, data calls of higher priority and REC calls
- Assigning and handling of priorities to different resources and passing the priority information through the system
- Interaction of eMLPP with handovers
- Failure scenarios

Test Id	Description
RINF_eMLPP_1	MS in VGCS call on DCH, pre-emption on Air IF by higher prio PtP call
RINF_eMLPP_2	MS in VBS call as listener, pre-emption on Air IF by higher prio VBS call.
RINF_eMLPP_3	MS in VGCS call having the UL of the GCH, pre-emption on Air IF by higher prio VBS call.
RINF_eMLPP_4	MS in PtP call, pre-emption on MS by higher prio VGCS call (REC)
RINF_eMLPP_5	MS in VBS call as originator, pre-emption on Air IF by higher prio VGCS call (REC)
RINF_eMLPP_6	MS in VGCS call having the UL of the GCH, pre-emption on MS by higher prio VGCS call (REC)
RINF_eMLPP_7	MS in data call, pre-emption on Air IF by higher prio VGCS call (REC)
RINF_eMLPP_8	MS in PtP call, pre-emption on Air IF by higher prio data call (4800 baud, transparent)
RINF_eMLPP_9	eMLPP priority is preserved during CFU (Call Forwarding Unconditionally)
RINF_eMLPP_10	eMLPP prio is preserved during CFB (Call Forwarding Busy)

3.1.6 Voice Group Call Service (VGCS)

This test area verifies the correct functioning of the VGCS service in a GSM-R system.

This includes:

- Uplink management between BSSs.
- Muting/Unmuting

Test Id	Description
RINF_VGCS_1	SS originates VGCS call
RINF_VGCS_2	Controller originates VGCS call and takes it down with the kill Sequence
RINF_VGCS_3	SS originates VGCS call, leaves, rejoins and ends it.
RINF_VGCS_4	SS enters into VGCS broadcast area with ongoing VGCS call and is notified of it
RINF_VGCS_5	Controller joins ongoing VGCS call
RINF_VGCS_6	Parallel group calls are possible in the same cell.
RINF_VGCS_7	GID delivered correctly to terminating SS in SS originated VGCS call

Number of test cases: 7

3.1.7 Voice Broadcast Service (VBS)

This test area verifies the correct functioning of the VBS service in a GSM-R system

Test Id	Description
RINF_VBS_1	SS originates VBS call
RINF_VBS_2	SS originates prio0 VBS call
RINF_VBS_3	Controller originates VBS call and takes down the call by disconnecting
RINF_VBS_4	Controller originates VBS call and takes down the call with the kill sequence
RINF_VBS_5	Controller joins ongoing VBS call
RINF_VBS_6	SS enters into VBS broadcast area with ongoing VBS call and is notified of it, SS joins the VBS call

3.1.8 Railway Emergency Call (REC)

This test area verifies the REC functionality including the acknowledgement functionality in a GSM-R system

Test Id	Description
RINF_REC_1	SS originates a REC
RINF_REC_2	SS initiated REC (no talker change, normal clear down of call)
RINF_REC_3	SS accepts an incoming REC
RINF_REC_4	Controller originates a REC
RINF_REC_5	SS originates Acknowledgement Call
RINF_REC_6	REC in a GCA with a locked cell

Number of test cases: 6

3.1.9 Originator to Dispatcher Information (OTDI)

This test area verifies the correct functioning of the OTDI feature in a GSM-R system

This test will be performed using Mobile Subscriber as Mobile dispatcher. This only allow to show the functionality in the traces from protocol analyzers.

Test Id	Description
RINF_OTDI_1	SS originates VGCS call, terminating Controller receives the OTDI
RINF_OTDI_2	SS originates VGCS Immediate Setup 2 call, terminating Controller receives the OTDI

Number of test cases: 2

3.1.10 Late Entry

This test area verifies the correct functioning of the Late Entry feature in a GSM-R system

Test Id	Description
RINF_LE_1	SS active in a PtP (P4) call move in a cell with ongoing REC call
RINF_LE_2	Orig. SS active in a VBS (P4) call move in a cell with ongoing REC call
RINF_LE_3	Orig. SS active in a VGCS (P4) call on GCH (talker) move in a cell with ongoing REC call

3.1.11 Access Matrix

Test Id	Description
RINF_AM_1	National call - AM allows call
RINF_AM_2	National call - AM denies call

Number of test cases: 2

3.1.12 GPRS

Test Id	Description
RINF_GPRS_1	GPRS Connection Setup
RINF_GPRS_2	Contact an RBC in the ETCS domain
RINF_GPRS_3	QOS and priority test between ETCS and Background traffic

3.2 Test Cases List for Optional (O) features (testing MI Requirements for O features)

3.2.1 Uplink Reply/Notification response

This test area verifies the correct functioning of the feature uplink reply/notification response.

This includes:

- Allocation of a GCH when a subscriber involved in a VGCS call moves into the empty cell
- Allocation of a GCH when a subscriber involved in a VBS call moves into the empty cell
- Allocation of a GCH in all cells (even empty ones) when a subscriber originates a REC call

Test Id	Description
RINF_URNR_1	SS active in a VGCS call moves in empty cell
RINF_URNR_2	SS active in a VBS call moves in empty cell
RINF_URNR_3	SS active in a REC call moves in empty cell

Number of test cases: 3

3.2.2 Enhanced Railway Emergency Call (eREC)

This test area verifies the correct functioning of the eREC feature.

This includes:

- Verify eREC terminals are joining an eREC call if the SID is same and eREC terminals are not joining an eREC call if the registered SID is different
- Verify eREC call and REC call are both joined by eREC capable (and registered) and non eREC capable terminals

Test Id	Description
RINF_eREC_1	eREC call with correct SID – eREC MS with same SID are joining, eREC MS with different SID will not be alerted
RINF_eREC_2	eREC call which involve with eREC capable and non eREC capable terminals

Number of test cases: 2

3.2.3 **ER-GSM**

Verify basic GSM functionality when the network utilizes the ER-GSM frequency band. Both types of UE with and without ER-GSM capability should be capable to accede to the network.

Test Id	Description
RINF_ER-GSM	Establishment of a PtP call in a ER-GSM network (Test case description moved to chapter 5)

4 Test Cases Description for Mandatory for Interoperability (MI) features

4.1 Basic and Supplementary GSM Services

4.1.1 Successful Update Location after MS Power On

Test case ID: RINF_GSM_1

Purpose: Verify the correct data are inserted to VLR during LU

Precondition: MS subscribed to Basic and Supplementary Services

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / Effect
1	Power on the MS	Location Update (LU) is performed
2	Verify the service subscriber data is inserted correctly to VLR	Subscriber data is inserted correctly into the VLR

Supplementary Service Call Hold 4.1.2

Test case ID: RINF_GSM_2

Verify the Supplementary Service Call Hold. **Purpose:**

Subscriber A is provisioned to the Call Hold supplementary service and has it activate Subscriber A has an ongoing call with Subscriber B. **Precondition:**

See Annex A – Cross-reference tables. **References:**

Step	Procedure	Result / Effect
1	Subscriber A puts Subscriber B on hold.	Subscriber B is put on hold, no speech path between Subscriber A and B. Subscriber A gets dial tone.
2	Subscriber A calls Subscriber C.	Call between Subscriber A and C is setup successfully.
3	Subscriber A toggles between Subscriber B and C by putting them on hold and retrieving them.	The subscriber that is on hold has no speech path to Subscriber A. The subscriber that is not on hold is able to communicate with Subscriber A.

4.1.3 Supplementary Service Call Waiting

Test case ID: RINF_GSM_3

Purpose: Verify the Supplementary Service Call Waiting.

Precondition: Subscriber A is provisioned to the Call Waiting supplementary service.

Subscriber A has an ongoing communication with Subscriber B.

Higher priority than the default priority should be used.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / Effect
1	Subscriber C calls Subscriber A.	Subscriber A is notified of the incoming call from Subscriber C. Subscriber C gets ringing tone. Paging message have to be checked that the priority is included – priority to be reported.

4.1.4 Supplementary Service CLIP – MMC with Call Forwarding Unconditional

Test case ID: RINF_GSM_4

Purpose: Verify the Supplementary Service Calling Line Identification Presentation (CLIP) with

activated Call Forwarding Unconditional (CFU).

Precondition: Subscriber B is provisioned to the CLIP and the CFU supplementary service and has his

calls forwarded to Subscriber C.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / Effect
1	Subscriber A calls Subscriber B.	Subscriber A is forwarded to Subscriber C. Subscriber A's MSISDN is presented to Subscriber C.

4.1.5 Supplementary Service MPTY

Test case ID: RINF_GSM_5

Purpose: Verify the Supplementary Service Multiparty (MPTY).

Precondition: Subscriber A is provisioned to the MPTY supplementary service.

Subscriber B is provisioned with the HOLD supplementary service.

Subscribers A, B, C, D, E, F are registered with function codes FC01, FC02, FC03, FC04,

FC05, FC10 respectively.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / Effect
1	Subscriber A builds MPTY call involving 6 subscribers.	MPTY call is setup to 6 subscribers.
2	Conferee Leaves and is joined back into the MPTY call for some subscribers.	The call is stable during the leaving and joining of the conferees of MPTY.
3	Subscriber B puts the call on HOLD and resumes the call later on.	Hold notification is available for the conference controller, other conferees are still able to communicate. After resuming the call, all conferees can communicate.
4	Subscriber A drops a conferee from the MPTY call	Dropped conferee is successfully removed from the MPTY call and communication is not possible
5	Subscriber A closes the MPTY call.	Call is taken down successfully, all resources are freed.

4.1.6 Establishment of several PtP calls with different priorities

Test case ID: RINF_GSM_6

Purpose: Verify basic GSM functionality.

Precondition: Subscriber A and B are provisioned to the eMLPP service.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / Effect
1	Subscriber A calls Subscriber B with priority 0, 2, 3, 4 dialling *75 <priority>#<msisdn>.</msisdn></priority>	The calls are setup correctly and the priorities are transferred correctly through the network.

4.1.7 Public Emergency Call – With SIM

Test case ID: RINF_GSM_7

Purpose: Verify Public Emergency Call – With SIM.

Precondition: MS has a SIM.

Proper termination point for the 112 Emergency call is available.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / Effect
1	Make the 112 Public Emergency Call.	Call is established. No error logs.

4.1.8 Short and long SMS

Test case ID: RINF_GSM_8

Purpose: Verify that users can use the radio while receiving SMS the following requirements.

Sending SMS with 160 characters.

Precondition: 3 GSM-R mobiles (MS A, MS B, MS C) with standard options, datafill and routing.

GSM-R mobiles support long text message.

1 BTS. 1 BSC. 1 MSC.

SMSC available.

MS B is in active call with Primary Controller.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / Effect
1	MS A sends a SMS to MS B using a message text with 160 characters.	MS B receives the SMS including the message text with 160 characters. Ongoing call with the controller is maintained.
2	MS C sends a SMS to MS B using a message text with 300 characters.	MS B receives the SMS including the message text with 300 characters. Ongoing call with the controller is maintained

4.1.9 Mobile subscriber receives a call from Subscriber on other Network

Test case ID: RINF_GSM_9

Purpose: Verify Mandatory Requirement - Point-to-Point voice call external network.

Precondition: 1 GSM-R mobiles (MS-A) with standard options, datafill and routing.

1 BTS. 1 BSC. 1 MSC.

1 Fixed Line phone on external Network.

1 MS on external network.

Routing established to route from external network subscriber.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / Effect
1	Fixed line dials the MS A number.	MS A answers the call.
2	MS A releases the call.	The call is released properly.
3	External MS dials the MS A number	MS A answers the call.
4	MS A releases the call.	The call is released properly.

4.2 Handover

4.2.1 Inter BTS handover of a point to point voice call

Test case ID: RINF_HO_1

Purpose: To verify that an Inter BTS handover of a point to point voice call functions as expected.

Precondition: The BSS network is fully functional with correct reselection and handover datafill

created.

Analyzers are configured and capturing messaging for the duration of the test.

A test mobile MS A is used to decode and display the BCCH information of the serving

and neighbor cells.

References: See Annex A – Cross-reference tables.

Test Procedure:

Step	Procedure	Result / effect
1	MS A establishes a point to point call to MS B.	Verify that the MS A is engaged in a point to point voice call with MS B.
2	Move MS A from one cell of a BTS to a different BTS – the destination cell - on the same BSC.	Ensure that MS A camps onto the BCCH of the destination cell and that the call with MS B remains connected.
3		The recorded message flow is analyzed and checked for correctness.

Further Handover Test cases are part of the O-2875 Version 2.0.0 Specification

4.2.2 Ongoing point to point voice call in the destination cell preempted by a inter BTS handover inwards of a point to point voice call

Test case ID: RINF_HO_2

Purpose: To verify that an ongoing point to point voice call in the destination cell is preempted by

a inter BTS handover inwards of a point to point voice call that has a higher priority.

Precondition: The BSS network is fully functional with correct reselection and handover datafill

created.

Analyzers are configured and capturing messaging for the duration of the test.

A debug mobile is used to decode and display the BCCH information of the serving and

neighbor cells.

Lock all traffic channels except 2 TCH in the Destination Cell. Originating and destination cells are located in different BTSs.

References: See Annex A – Cross-reference tables.

Test Procedure:

Step	Procedure	Result / effect
1	MS A establishes a point to point call – Call A - to MS B, both camping in the destination cell.	 Ensure that there is an ongoing point to point call in the destination cell (Call A). Ensure that Call A is the only call in the destination cell and that there are no free traffic channels on the Um interface of the destination cell.
3	MS C establishes a point to point call - Call B - to MS D, both camping in the originating cell. Ensure that this Call B has a higher eMLPP priority level than Call A.	Call B is established.
4	Move MS C from the originating cell to the destination cell.	MS C handovers to the destination cell, Call B is maintained, Call A is preempted.
5		The recorded message flow is analyzed and checked for correctness.

Further Handover Test cases are part of the O-2875 Version 2.0.0 Specification

4.3 Functional Addressing (FA)

4.3.1 Registration of an FN Number

Test case ID: RINF_FA_1

Purpose: Verify the registration of an FN.

Precondition: FN is in not registered.

Subscriber A is provisioned to the FA service.

Subscriber A can register/deregister COR A, B or C numbers.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	Subscriber A initiates a registration.	The network response for a successful registration. The FN is activated and displayed.
2	Query FNN for the FN.	The MSISDN of Subscriber A is registered to the FN and the FN is in registered state.
3	Verify OMs Verify ERs	The correct OMs and ERs have been generated.

4.3.2 Registration of an unknown FN fails

Test case ID: RINF_FA_2

Purpose: Verify a scenario for the registration of an invalid FN.

Precondition: FN is not registered.

Subscriber A is provisioned to the FA service.

Subscriber A can register/deregister COR A, B and C numbers.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	Subscriber A initiates a registration to an FN that does not exist.	The request fails and the FN is neither activated nor displayed on the mobile.
2	Verify OMs Verify Event Records Verify the system for possible error logs	The correct OMs, Event Records have been generated. No error logs have been generated.

4.3.3 Deregistration of an FN Number

Test case ID: RINF_FA_3

Purpose: Verify the deregistration of a FN.

Precondition: FN is registered and is assigned to the MSISDN of Subscriber A.

Subscriber A is provisioned to the FA service.

Subscriber A can register/deregister COR A, B or C numbers.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	Subscriber A initiates a deregistration.	The network response for a successful deregistration. The FN is deactivated and is NOT displayed on the mobile anymore.
2	Query FNN for the FN.	The MSISDN of Subscriber A is NOT registered to the FN and the FN is not registered.
3	Verify OMs Verify ERs	The correct OMs, ERs have been generated. No error logs have been generated.

4.3.4 Deregistration of a FN fails

Test case ID: RINF_FA_4

Purpose: Verify a failed deregistration scenario of a FN

Precondition: Subscriber A is not registered to any functional number Subscriber A is allowed to use

Functional Addressing (provisioning) Subscriber A can register/deregister COR A, B

and C numbers.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	Subscriber A initiates a deregistration.	The request fails and Subscriber A is notified of the failed deregistration.
2	Verify OMs Verify ERs Verify the system for possible error logs and alarms.	The correct OMs, ERs have been generated. No error logs have been generated.

4.3.5 Interrogation of an FA Number

Test case ID: RINF_FA_5

Purpose: Verify the interrogation of an FN.

Precondition: FN is registered and is assigned to the MSISDN of Subscriber A.

Subscriber A and Subscriber B are provisioned to the FA service. Subscriber A can register/deregister COR A, B and C numbers.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	Subscriber A initiates an interrogation.	The network response for a successful interrogation. The FN is still activated and displayed on the mobile.
2	Query FNN for the FN.	The MSISDN of Subscriber A is registered to the FN and the FN is still in the registered state.
3	Subscriber B initiates an interrogation.	The network response for a successful interrogation. The FN is still activated and displayed on the mobile.
4	Query FNN for the FN.	The MSISDN of Subscriber A is registered to the FN and the FN is still in the registered state.
5	Verify OMs Verify ERs Verify the system for possible error logs and alarms.	The correct OMs, ERs have been generated. No error logs have been generated.

4.3.6 Interrogation of a FN fails

Test case ID: RINF_FA_6

Purpose: Verify a failed scenario of an interrogation of an FN.

Precondition: The FA service is not allowed to use this functional number (this specific FN is not

provisioned in the system) Subscriber A is provisioned to the FA service.

Subscriber A can register/deregister COR A, B and C numbers.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	Subscriber A initiates an interrogation for the non-existing functional number.	The network response for a failed interrogation.
2	Query FNN for the FN.	The FN is still not provisioned in the system.
3	Verify OMs Verify ERs Verify the system for possible error logs and alarms.	The correct OMs, ERs have been generated. No error logs have been generated.

4.3.7 FA Call - Successful Call

Test case ID: RINF_FA_7

Purpose: Verify a successful basic FA scenario.

 $\label{eq:precondition: Subscriber A is registered to FN_A.}$ Subscriber A is registered to FN_A.

Subscriber B is registered to FN_B.

Subsribers can be of any type: mobile, fixed in any combinations of calls.

References: See Annex A – Cross-reference tables.

Step	Action	Result
1	Subscriber A dials FN _B .	The call is established between Subscriber A and Subscriber B.
2	Check the number, which is displayed at Subscriber A.	FN _B is displayed in the display of Subscriber A.
3	Check the number, which is displayed at Subscriber B.	FN_A is displayed in the display of Subscriber B.
4	Verify OMs Verify ERs Verify the system for possible error logs and alarms.	The correct OMs, ERs have been generated. No error logs have been generated.

4.3.8 FA Call – Call is not completed

Test case ID: RINF_FA_8

Purpose: Verify that a call to an inactive FN is released.

Precondition: Subscriber A is provisioned to the FA service.

Subscriber A is registered to $FN_{A.}$

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	Subscriber A dials an FN that does not exist.	No call will be established. Subscriber A returns to idle.
2	Verify OMs Verify ERs Verify the system for possible error logs and alarms.	The correct OMs, ERs have been generated. No error logs have been generated.

4.3.9 Verification of Functional Numbers previously registered in HPLMN

Test case ID: RINF_FA_9

Purpose: This test case is to verify that the functional numbers previously registered in the

HPLMN can be used in the VPLMN to receive calls.

Precondition: MS_A#1 being a subscriber of PLMN A has registrations to CT2, CT3 in PLMN A.

MS_B#1 being a subscriber of PLMN B has registrations to CT2, CT3 in PLMN B.

	PLMN A	PLMN B
Train number - CT2	TBD	TBD
Engine number - CT3	TBD	TBD

MS_A#1 is located in its Home PLMN A, MS_B#1 is roaming in PLMN A

PLMN A		PLMN B
MSa #1		
MSb #1	+	

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	MS_A #1 calls MS_B #1 on all his functional numbers.	MS_B #1 receives all calls correctly Correct Presentation of the FN to be checked.
2	MS_B #1 calls MS_A #1 on all its functional numbers.	MS_A #1 receives all calls correctly Correct Presentation of the FN to be checked.

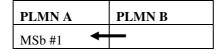
4.3.10 Deregistration of CT2 numbers while roaming

Test case ID: RINF_FA_10

Purpose: Verify that the Mobile Station can deregister the functional numbers when roaming in a

VPLMN.

Precondition:



MSb #1 is roaming into the visited PLMN A from its home PLMN B MSb #1 registered to CT2 number 2-xxxxx xx in both networks.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	Using the DMI MSb#1 deregisters from the CT2 number registered in the HPLMN.	MSb#1 is de-registered and receives a confirmation message. MSb #1 is still registered for the VPLMN CT2 number.

4.3.11 Forced Deregistration

Test case ID: RINF_FA_11

Verify that a MS can perform a forded deregistration procedure and the network informs the mobile which has been deregistered. **Purpose:**

Precondition: Subscriber A is provisioned to the FA service.

Subscriber A is registered to FN_A.

Subscriber B is not registered to a Functional Number.

See Annex A – Cross-reference tables. **References:**

Step	Procedure	Result / effect
1	Subscriber B initiates a forced deregistration notification procedure.	Procedure completes successfully and Mobile of Subscriber B is registered to the FN previously held by Subscriber A.
2	Mobile Station of Subscriber A is notified of the forced deregistration and performs an interrogation procedure.	After the interrogation procedure the MS informs the user that the status of the FN has changed (i.e. starts to let the FN blink on the screen).

4.3.12 Class of Registration (CoR) for CT2 FC01 not allowed, CT2 FC10 allowed

Test case ID: RINF_FA_12

Purpose: Verify that a subscriber, MS A#1 can be restricted from registration of defined functional

numbers.

Precondition: Class of Registration (CoR) is set with CT2 FC01 not allowed, CT2 FC10 allowed for

MS A#1 in the HLR of PLMN, i.e.

• MS A#1 has no permission to register to CT2 number with function code 01

• MS A#1 has permission to register to CT2 number with function code 10

MS A#1 is not registered to any CT2 number MS A#1 is located in its Home PLMN A

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	MS A#1tries to register with a functional CT2number with FC=01 (CT2 FC01) in PLMN B.	MS A#1 is not allowed to register to CT2 FC01 and receives an error message.
2	MS A#1 tries to register with a functional CT2 number with FC=10 (CT2 FC 10) in PLMN B.	MS A#1 is successfully registered to CT2 FC10 and receives a confirmation message.

4.3.13 Register 3 functional numbers to one user (non-roaming case)

Test case ID: RINF_FA_13

Purpose: Verify the registration of 3 Functional Numbers (FN) to one and the same user.

Precondition: Subscriber MS_A#1 is located in its Home PLMN A. MS_A#1 is not registered to any

FN. All FN to register are unregistered.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	MS_A1 registers a FN_1, CT3, FC01 by sending an USSD string "**214* <ic_a+fn_1>***#".</ic_a+fn_1>	The USSD outcome code "01" which means "FollowMe activated" is displayed on MS A1. Alternatively MS converts the outcome code in an appropriate text message.
2	MS_A1 registers a FN_2, CT2, FC01 by sending an USSD string "**214* <ic_a+fn_2>***#".</ic_a+fn_2>	The USSD outcome code "01" which means "Follow Me activated" is displayed on MS_A1. Alternatively MS converts the outcome code in an appropriate text message.
3	MS_A1 registers a FN_3, CT2, FC08 by sending an USSD string "**214* <ic_a+fn_3>***#".</ic_a+fn_3>	The USSD outcome code "01" which means "Follow Me activated" is displayed on MS_A1. Alternatively MS converts the outcome code in an appropriate text message.
4		MS_A#1 is registered to 3 FN.

4.3.14 Registration of an FN fails - remote party already registered

Test case ID: RINF_FA_14

Purpose: Verify that a MS cannot register to a FN which is already registered.

Precondition: Subscriber A is provisioned to the FA service.

Subscriber B is registered to $FN_{A.}$

Subscriber A is not registered to a Functional Number.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	Subscriber A initiates a registration to FN _A .	The request fails and the FN is neither activated nor displayed on the mobile.
2	Verify OMs Verify ERs Verify the system for possible error logs.	The correct OMs, ERs have been generated. No error logs have been generated.

4.3.15 Call - Successful Call

Test case ID: RINF_FA_15

Purpose: Verify a successful basic FA scenario.

Precondition: Select any FN_A and FN_B available in the Network.

Network restrictions are set to allow calls between FN_A and FN_B (e.g. Access Matrix).

Subscriber A is registered to $FN_{A.}$ Subscriber B is registered to $FN_{B.}$

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	Subscriber A dials FN _B .	The call is established between Subscriber A and Subscriber B.
2	Check the number, which is displayed at Subscriber A.	FN _B is displayed in the display of Subscriber A.
3	Check the number, which is displayed at Subscriber B.	FN _A is displayed in the display of Subscriber B.
4	Verify OMs Verify ERs Verify the system for possible error logs and alarms. Verify subaddressing information.	The correct OMs, ERs have been generated. No error logs have been generated. Subaddressing information is correct.

4.4 Location Dependent Addressing (LDA)

4.4.1 Successful LDA Call - Verify the cell format is correct

Test case ID: RINF_LDA_1

Purpose: Verify Short Code call is setup correctly and the format of the COO is transferred

correctly.

Precondition: Subscriber A is located in cell #1.

The MSISDN of Subscriber B is assigned to Short Code 1200 for calls originated in cell

#1.

The MSISDN of Subscriber C is assigned to Short Code 1300 for calls originated in cell

#1.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	Subscriber A dials the 'Short Code' 1200 and 1300.	The call with short code 1200 is connected to Subscriber B.
		The call with short code 1300 is connected to Subscriber C.
2	Verify OMs Verify ERs Verify the cell format is correct.	The correct OMs, ERs have been generated. No error logs have been generated.

4.4.2 Unsuccessful LDA Call-Call to invalid Short Code

Test case ID: RINF_LDA_2

Purpose: Verify Short Code call with unknown Short Code is released.

Precondition: Subscriber A is located in cell #1.

1299 is a not valid SC number.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	Subscriber A dials the 'Short Code' 1299.	The call is released.
2	Verify OMs Verify ERs Verify the system for possible error logs and alarms.	The correct OMs, ERs have been generated. No error logs have been generated.

4.5 Enhanced Multi-Level Precedence and Pre-emption Service (eMLPP)

4.5.1 MS in VGCS call on DCH, pre-emption on Air IF by higher prio PtP call

Test case ID: RINF_eMLPP_1

Purpose: Verify preemption of the Air-Interface channel of MS in VGCS call on DCH by higher

prio PtP call.

Precondition: 1 NSS Provider's MSC/HLR, 2 BSS Provider's for BTS (BTS1 and BTS2).

5 GSM-R mobiles (MS-A, MS-B, MS-C, MS-D, MS-E) with standard features. MS-A,

MS-B and MS-E have the GID activated.

MS-A, MS-B, MS-C and MS-D are in BTS1-Cell.

MS-E is on BTS-2 Cell.

All but 2 TCH are locked on BTS1.

All cells are in same GCA.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	Serv. Subs. MS-A establishes a prio 3 VGCS in cell A.	A prio 3 VGCS call is established and MS A has the Uplink of the DCH.
	MS-B and MS-E joins the VGCS call.	
	MS-A keeps the Uplink on dedicated channel.	
2	From the same Cell A originate prio 2 PtP call between (MS-C <-> MS-D).	The origination of the prio 2 PtP call causes Air- Interface pre-emption upon the resource being used by VGCS call in cell A.
		-The DCH and GCH are released.
		- A prio 2 PtP call (MS-C<-> MS-D) is established.
		- Verify correct prio 2 is seen in the CALL PROCEEDING message from the BSS.
		- Group call is still on air in Cell B.

4.5.2 MS in VBS call as listener, pre-emption on Air IF by higher prio VBS call

Test case ID: RINF_eMLPP_2

Purpose: Service Subscriber in a VBS call as a listener can be preempted from the VBS call on

Air IF by a higher prio VBS call. However, the VBS call stays up.

Precondition: 4 GSM-R mobiles with standard features.

2 cell (Cell-A and Cell-B).1 BSS Provider's BSC.

1 MSC.

2 mobiles MS-A, MS –B in BSC1/BTS1/Cell-A.2 mobiles MS-C, MS-D in BSC1/BTS2/Cell-B.All but 2 TCH on the Air IF to Cell-B are locked.

All Cells are in same GCA.

MS-A, MS-B, MS-C subscribe to GID1, but not GID2.

MS-D subscribe to GID2 and not to GID1.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	MS-A originates a prio 4 VBS call (Cell A and B). MS-B, MS-C join the VBS call.	VBS call is established.
2	MS-D originates a prio 2 VBS (Cell B only).	MS-C is pre-empted of the prio 4 VBS call. But MS-A and MS-B remain on call.
3	MS-D closes the prio 2 VBS call.	VBS call is released properly.
4	MS-A closes the prio 4 VBS call.	VBS call is released properly.

4.5.3 MS in VGCS call having the UL of the GCH, pre-emption on Air IF by higher prio VBS call

Test case ID: RINF_eMLPP_3

Purpose: Verify preemption of MS in VGCS call in (Group Mode) by higher prio VBS call.

Precondition: 1 NSS Provider's MSC/HLR, 1 BSS Provider's BSC, 1 BSS Provider's BTS.

5 GSM-R mobiles (MS-A, MS-B, MS-C, MS-D, MS-E) with standard features. MS-A and MS-B have the Broadcast GID activated. MS-E is in a different cell than the other

MSs.

All but 2 TCHs are blocked in the Air IF. 2 BSS Provider's BTS (BTS1, BTS2). All but 2 TCH are locked on BTS1.

MS-A, MS-B, MS-C, MS-D are in BTS1-Cell.

MS-E is on BTS2-Cell.

all Cells are in the same GCA.

GID1 (VGCS) is only activated on MS-A, MS-B, MS-E.

GID2 (VBS) is only activated on MS-C, MS-D.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	Serv. Subs. MS-A establishes a prio 3 VGCS MS-B and MS-E join the VGCS call. MS-A takes the Uplink on group channel.	A prio 3 VGCS call is established and MS A has the Uplink of the Group Call Channel.
2	From the same Cell originate prio 2 VBS call from MS-C.	MS-A and MS-B are pre-empted. A prio 2 VBS call is established Verify correct prio 2 is seen in the CALL PROCEEDING message from the BSS.
3	MS-E grabs the GCH UL.	MS-E is granted the UL.
4	MS C ends the prio 2 VBS call.	VBS call is ended and all resource are freed.

4.5.4 MS in PtP call, pre-emption on A IF by higher prio VGCS call (REC)

Test case ID: RINF_eMLPP_4

Purpose: Verify preemption of an A-Interface SCCP connection with a PtP call due to activation

of a REC group call channel.

Precondition: 1 MSC/HLR, 2 BSC, 2 BTS, 2 Cells.

The 2 BSC/BTS/Cells will be labeled BSC/BTS/Cell-A and BSC/BTS/Cell-B.

4 GSM-R mobiles (MS-A, MS-C, MS-D, MS-E) with standard features.

MS-A and MS-B are on BSC/BTS/Cell-A.
MS-C and MS-D are on BSC/BTS/Cell-B.

All but 2 TCH on the A IF to Cell-A are locked.

All Cells are in same GCA.
All MS subscribe to REC.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	MS-A calls (p4 – PTP) MS-D.	A prio 4 PtP call (MS-A <-> MS-D) is established. Correct prio 4 is seen in the outgoing CALL PROCEEDING message from the BSS.
2	MS-B establishes a REC.	MS-A and MS-C are automatically pre-empted. The REC is established and MS-A, MS-C and MS-D join.
3	MS-B closes the REC.	REC call is released correctly.

4.5.5 MS in VBS call as originator, pre-emption on Air IF by higher prio VGCS call (REC)

Test case ID: RINF_eMLPP_5

Purpose: Verify preemption on the Air-Interface of MS in VBS call as originator due to a

VGCS (REC) call setup.

Precondition: 1 MSC/HLR, 1 BSC, 2 BTS.

The 2 BTS will be labelled BTS-A and BTS-B.

4 GSM-R mobiles (MS-A, MS-B, MS-C, MS-D) with standard features.

MS-A, MS-B, and MS-C are on BTS-A.

MS-D is on BTS-B.

MS-A and MS-D are subscribed to the VBS call.

All but 2 Air IF timeslots to Cell-A and Cell-B are locked.

Cells are Cell-A and Cell-B. **All Cells are in same GCA.**

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	MS-A establishes a prio 2 VBS call.	A prio 2 VBS call (MS-D <-> MS-A) is established. MS-D joins as listener Verify correct prio 2 is seen in the NOTIFICATION message from the BSS.
2	MS-B establishes a REC.	MS-A and MS-D are automatically pre-empted. The VBS call is released. The REC is established and MS-A, MS-C and MS-D join.
3	MS-B closes the REC.	REC call is released correctly.

4.5.6 MS in VGCS call having the UL of the GCH, pre-emption on MS by higher prio VGCS call (REC)

Test case ID: RINF_eMLPP_6

Purpose: Verify preemption of a VGCS call with subsequent talker due to another higher priority

VGCS call (REC).

Precondition: 1 MSC/HLR, 1 BSC, 1 BTS.

3 GSM-R mobiles (MS-A, MS-B, MS-C) with standard features.

MS-A, MS-B – are subscribed to the VGCS call. MS –A is not subscribed to REC call.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	Service Subscriber MS-A establishes a prio 4 VGCS call on GID-1.	A prio 4 VGCS call (MS-A <-> MS-B) is established.
	MS-B accepts the call.	- Verify correct prio 4 is seen in the NOTIFICATION message from the BSS.
2	MS-B grabs the GCH UL.	The GCH UL is granted to MS-B.
3	Service Subscriber MS-C establishes a VGCS call (REC).	MS-B is leaving the VGCS call and join the REC call.
4	MS A grabs the uplink.	Uplink is granted.
5	MS A releases uplink.	Uplink is released.
6	MS-C closes the REC.	The REC is taken down. MS-B is re-notified of the VGCS call.
7	MS B takes the UL.	The GCH UL is granted to MS-B.
8	MS B releases uplink.	Uplink is released.
9	MS-A takes down the VGCS call.	The VGCS call is released and all resources are freed.

MS in data call, pre-emption on Air IF by higher prio VGCS call (REC) 4.5.7

RINF_eMLPP_7 **Test case ID:**

Verify that a PTP- Data Call Protocol = transparent, Speed = 4800, preempted on Air interface by high Priority VGCS call (REC). **Purpose:**

Precondition: 2 GSM-R mobiles (MS-A, MS-B,) with standard features, 2 mobiles for data call (MS-

C, MS-D).

1 cell. 1 BSC. 1 MSC.

Lock all but 2 Air IF timeslots.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	MS-C establishes a prio 3 - Data Call to MS-D.	A prio 3 DataCall (MS-C <-> MS-D) is established. - Verify correct prio 3 in the PAGING message, transparent service and Data Rate 4.8 Kbits/s are seen in the Assignment Request Message from the BSS.
2	MS-A establishes a REC call.	The origination of the REC causes Air Interface preemption upon the resources being used by the prio 3 -Data Call. - Data call is released.
3	MS-A closes the REC.	REC is ends and all resource are free.

4.5.8 MS in PtP call, pre-emption on Air IF by higher prio data call (4800 baud, transparent)

Test case ID: RINF_eMLPP_8

Purpose: Verify pre-emption MS in PtP call on Air IF by higher prio data call (4800 baud,

transparent).

Precondition: 4 GSM-R mobiles (MS-A, MS-B, MS-C, MS-D) with standard features.

MS-A and MS B for PtP call.

MS-C and MS-D for data call (4800 baud, transparent).

cell.
 BSC.
 MSC.

Lock all but 2 Air IF timeslots.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	MS A establishes a priority 2 PtP call to MS –B.	MS B answers the call.
2	MS C makes prio 0 data call to MS D.	The origination of the prio 0 data call causes Air Interface preemption upon the resources being used by the prio 2 PTP. - PtP voice call is released.
3	MS C releases the data call.	The call is released properly.

4.5.9 eMLPP prio is preserved during CFU (Call Forwarding Unconditional)

Test case ID: RINF_eMLPP_9

Purpose: When an eMLPP subscriber with CFU feature receives a call, verify the priority is

preserved when the call is forwarded unconditionally.

Precondition: 1 MSC/HLR, 1 BSC, 1 BTS.

3 GSM-R Terminals (MS-A, MS-B, MS-C) with standard features.

MS-B has CFU feature with the call being forwarded to MS-C.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	MS-A calls (p2 – PTP) MS-B.	MS-B remains idle since the call is forwarded to MS-C.MS-C is alerting.
2	MS-C answers the call.	- A prio 2 PtP call (MS-A <-> MS-C) is established.
		- Verify the correct prio 2 is seen in the outgoing CALL PROCEEDING message from the BSS to MS-C.
3	MS-A drops the prio 2 PtP call.	The PtP call call ends. The CDR contains the correct eMLPP information.

4.5.10 eMLPP prio is preserved during CFB (Call Forwarding Busy)

Test case ID: RINF_eMLPP_10

Purpose: When an eMLPP subscriber with CFB feature is in a call and receives another call,

verify the priority is preserved when the call is forwarded.

Precondition: 1 MSC/HLR, 1 BSC, 1 BTS.

3 GSM-R Terminals (MS-A, MS-B, MS-C, MS-D) with standard features. MS-B has no CW, CFB is provisioned with calls being forwarded to MS-C.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	MS-D calls (p4 – PTP) to MS-B.	PtP call (MS-D <-> MS-B) is established.
2	MS-A calls (prio 3 – PtP) MS-B.	MS-B being busy and forwards the call to MS-C MS-C is alerting. A prio 3 PtP call (MS-A <-> MS-C) is established The call between MS-D and MS-B remains connected Verify the correct prio 3 is seen in the outgoing. PAGING message from the BSS to MS-C.
3	MS-C answers the call.	The PtP call is established.
4	MS-A drops the PtP call.	The PtP call between MS-A and MS-C ends. The CDR contains the correct eMLPP information.
5	MS-D closes the PtP call with MS-B.	The PtP call between MS-D and MS-B ends.

4.6 Voice Group Call Service (VGCS)

4.6.1 Service Subscriber originates VGCS Call

Test case ID: RINF_VGCS_1

Purpose: Verify that a Service Subscriber is able to originate a VGCS call.

Precondition: 2 GSM-R subscribers (MS A, MS B) with standard options, data fill and routing.

MS-A and MS-B are SS of the VGCS, they are located in the GCA in 2 different cells.

2 cells on BSS Provider's BSS on 1 BSC.

1 MSC in NSS Provider's NSS.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	MS A originates a VGCS call as a service subscriber.	 Origination is successful, DCH and GCH allocated in cell of originator, GCH allocated in cell of terminator. MS B is notified of the VGCS call. MS A has two way voice path until the dedicated channel is released.
2	MS B joins the VGCS call.	 MS B is able to join the VGCS call. MS B is in listening mode all the time.
3	MS A closes the call.	The VGCS call is released properly and all resources are deallocated correctly.

4.6.2 Controller originates VGCS call and takes it down with the Kill Sequence

Test case ID: RINF_VGCS_2

Purpose: Verify that Controller can originate the VGCS call and end the call by pressing the kill

Sequence.

Precondition: 2 GSM-R subscribers (MS A, MS B) with standard options, data fill and routing.

MS-A is a controller that is allowed to originate the VGCS call. MS-B is SS of the

VGCS call, MS-B is located in the GCA. 2 cells in BSS Provider's BSS on 1 BSC.

1 MSC in NSS Provider's NSS.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	MS A as a controller originates Voice Group call by dialing 50 + < GCA > + <gid>.</gid>	 Origination is successful, DCH allocated in cell of originator, GCH allocated in cell of terminator. The DCH of the Controller stays allocated for the duration of the call. MS A as a controller has two way voice path during the whole duration of the call. MS B is notified of the VGCS call.
2	MS B joins the VGCS call.	MS B is able to join the VGCS call.MS B is in listening mode.
3	MS B takes the Uplink.	MS B has two-way voice path.
4	MS A as a controller closes the call by entering the killing sequence.	The VGCS call is released properly and all resources are deallocated correctly.

4.6.3 Service Subscriber originates VGCS call, leaves, rejoins and ends it.

Test case ID: RINF_VGCS_3

Purpose: Verify SS can originate VGCS call, later leave the group call and rejoin.

Precondition: 2 GSM-R subscribers (MS A, MS B) with standard options, data fill and routing.

MS A and MS B are SS of the VGCS, they are located in the GCA in 2 different cells.

2 cells on BSS Provider's BSS on 1BSC.

1 MSC in NSS Provider's NSS.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	MS A originates VGCS call as a service subscriber.	 Origination is successful, DCH and GCH allocated in cell of originator, GCH allocated in cell of terminator. MS B is notified of the VGCS call. MS A has two way voice path until the dedicated channel is released.
2	MS B joins the VGCS call.	MS B is able to join and is in listening mode all the time.
3	MS A leaves the group call.	The VGCS call stays up.
4	MS A rejoins the group call.	MS A is in listening mode in the VGCS call.
5	MS A takes the Uplink.	MS A has two way voice path after obtaining the GCH UL.
6	MS A closes the group call.	The VGCS call is released properly and all resources are de-allocated correctly.

Service Subscriber enters into VGCS broadcast area with ongoing VGCS call and is 4.6.4 notified of it

RINF_VGCS_4 **Test case ID:**

Purpose: Verify Mobiles which enter the group call area after the call has been established shall

get notification.

Precondition: 2 GSM-R subscribers (MS A, MS B) with standard options, data fill and routing.

MS-A is a controller that is allowed to originate the VGCS, MS-A is located outside of the GCA. MS-B is SS of the VGCS, MS-B is located outside the GCA.

2 cells on BSS Provider's BSS, one on each of 2 BSCs 1 MSC in NSS Provider's NSS.

See Annex A – Cross-reference tables. **References:**

Step	Procedure	Result / effect
1	Establish voice group call from MS A as a controller by dialing 5+0+ <sa>+<gid>.</gid></sa>	 Origination is successful, DCH allocated in cell of originator, GCH allocated in cell of terminator. The DCH of the Controller stays allocated for the duration of the call. MS B is so far not notified of the VGCS call MS A as a controller has two way voice path during the whole duration of the call.
2	MS B moves into the GCA, where the VGCS call is ongoing.	MS B is notified of the ongoing VGCS call.
3	MS B joins the VGCS call.	MS B is able to join the VGCS call.MS B is in listening mode.
4	MS B takes the Uplink.	MS B has two-way voice path.
5	MS A as a controller closes the VGCS call by dialing the killing sequence.	The VGCS call is released properly and all resources are deallocated correctly.

4.6.5 Controller joins ongoing VGCS call

Test case ID: RINF_VGCS_5

Purpose: Verify controller is able to join ongoing VGCS (only) when he is entitled to.

Precondition: 1 Controller MS A that is entitled to originate and to kill the VGCS call,

1 controller MS B that is not entitled to originate the VGCS call, located outside the

GCA.

1 service subscribers: MS C, located in the GCA.

2 cells in BSS Provider's BSS on 1 BSC.

1 MSC in NSS Provider's NSS.

MS A is configured as an originating controller and is allowed to terminate (kill-

sequence) the VGCS.

MS B is configured as an terminating controller only.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	Establish voice group call from MS C as SS.	Origination is successful, DCH allocated in cell of originator, GCH allocated in cell of terminator. MS C is in listening mode after losing the UL on the DCH.
2	MS A joins the VGCS call by dialing 5+0+ <sa>+<gid>.</gid></sa>	MS A is able to join VGCS call and has two way voice path during the whole duration of the call.
3	MS B tries to join the VGCS call by dialing 5+0+ <sa>+<gid>.</gid></sa>	VGCS origination/joining of MS B is rejected by the NSS.
4	MS A closes the call by dialing the killing sequence.	VGCS calls get released properly. All resources are free.

4.6.6 Parallel group calls are possible to the same cell

Test case ID: RINF_VGCS_6

Purpose: Verify whether it is possible to have parallel VGCS calls in the same cell.

Precondition: 2 service subscribers with GID A: MS A, MS B.

2 service subscribers with GID B: MS D, MS E.

1 BSS Provider's cell.

1 BSC. 1 MSC.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	MS A originates VGCS call to GID A. MS B takes call.	VGCS call is established between MS A and MS B.VGCS call up.
2	MS A request the DCH UL.	MS A has two way voice path, MS B is in listening mode.
3	MS D originates VGCS call to GID B. MS E takes call.	VGCS call is established between MS D and MS E.VGCS call up.
4	MS E request the GCH UL.	MS E has two way voice path, MS D is in listening mode.
5	MS A releases UL and MS B requests the GCH UL.	MS B have speech path to MS A.
6	MS B releases UL and MS A requests the GCH UL.	MS A have speech path again to MS B.
7	MS A and MS D close the VGCS calls.	Both VGCS calls get released properly. All resources are idle.

4.6.7 GID delivered correctly to terminating SS in SS originated VGCS call

Test case ID: RINF_VGCS_7

Purpose: Verify correct GID is shown on the display of the terminating SS.

Precondition: 2 service subscribers: MS A, MS B activated for GID<xxx> with standard options,

datafill and routing.

1 cell. 1 BSC. 1 MSC.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	MS A originates VGCS call with GIDxxx as a service subscriber.	MS B is paged for the call and on its display GID <xxx> is displayed correctly.</xxx>
2	MS B answers the call.	
3	MS A closes the call.	VGCS calls is released and all resources are deallocated.

4.7 Voice Broadcast Service (VBS)

4.7.1 Service Subscriber originates Voice Broadcast (VBS) Call

Test case ID: RINF_VBS_1

Purpose: Verify SS can originates Voice Broadcast (VBS) Call

Precondition: 2 GSM-R mobiles with standard options, datafill and routing, (MS A present in BSS

Provider's BSS and MS B present in NSS Provider's BSS).

2 cell (Cell-A present in BSS Provider's BSS and Cell-B present in NSS Provider's

BSS).

2 BSC (BSC-A present in BSS Provider's BSS and BSC-B present in NSS Provider's

BSS).

1 MSC in NSS Provider's NSS.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	MS A originates prio 2 Voice broadcast call as a service subscriber.	 Origination is successful, DCH and GCH allocated in cell of originator, GCH allocated in cell of terminator. The DCH UL stays allocated during the duration of the VBS call. MS B is notified of the VBS call.
2	MS B joins the call.	MS A has two way voice path while MS B is in listening mode.
3	MS A closes the call.	VBS calls is released and all resources are deallocated.

4.7.2 Service Subscriber originates prio0 VBS call

Test case ID: RINF_VBS_2

Purpose: Verify SS can originates prio0 Voice Broadcast (VBS) Call

Precondition: 2 GSM-R mobiles with standard options, datafill and routing, (MS-A present in Cell-A

and MS-B in Cell-B).

2 cell (Cell-A and Cell-B present in BSS Provider's BSS).

1 BSC (BSS Provider's BSC).1 MSC in NSS Provider's NSS.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	MS A originates prio 0 Voice broadcast call as a service subscriber	 Origination is successful, DCH and GCH allocated in cell of originator, GCH allocated in cell of terminator. MS B is notified of the VBS call
2	MS B joins the call	MS A has two way voice path while MS B is in listening mode
3	MS A closes the call	VBS calls is released and all resources are deallocated

4.7.3 Controller originates VBS call and takes down the call by disconnecting

Test case ID: RINF_VBS_3

Purpose: Controller can Originates VBS call and terminate the call by disconnecting from the

call.

Precondition: 2 GSM-R mobiles (MS A present in BSS Provider's BSS and MS B present in NSS

Provider's BSS) with standard options, datafill and routing.

2 cell (Cell-A present in BSS Provider's BSS and Cell-B present in NSS Provider's

BSS).

2 BSC (BSC-A present in BSS Provider's BSS and BSC B present in NSS Provider's

BSS).

1 MSC in NSS Provider's NSS.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	Controller originates voice broadcast call (<51>+ <gca>+<gid>)</gid></gca>	 Origination is successful, DCH allocated in cell of originator, GCH allocated in cell of terminator. MS B is notified of the VBS call
2	MS B joins the call	MS A has two way voice path while MS B is in listening mode
3	Contoller closes the call	VBS calls is released and all resources are deallocated

4.7.4 Controller originates VBS call and takes down call with the kill sequence

Test case ID: RINF_VBS_4

Purpose: Controller can Originates VBS call and terminate the call with the killing Sequence

Precondition: 2 GSM-R mobiles (MS A present in BSS Provider's BSS and MS B present in NSS

Provider's BSS) with standard options, datafill and routing.

2 cell (Cell-A present in BSS Provider's BSS and Cell-B present in NSS Provider's

BSS).

2 BSC (BSC-A present in BSS Provider's BSS and BSC B present in NSS Provider's

BSS).

1 MSC in NSS Provider's NSS.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	Controller originates voice broadcast call	Origination is successful, DCH allocated in cell of originator, GCH allocated in cell of terminator. • MS B is notified of the VBS call
2	MS B joins the call	MS A has two way voice path while MS B is in listening mode
3	Controller closes the call by sending the kill sequence	VBS call is released and all resources are deallocated.

4.7.5 Controller joins ongoing VBS call

Test case ID: RINF_VBS_5

Purpose: Verify VBS Controller can join the ongoing VBS call.

Precondition: 2 GSM-R mobiles with standard options, datafill and routing, (MSA present in BSS

Provider's BSS and MS B present in NSS Provider's BSS).

Controller (present in BSS Provider's BSS).

Controller is configured as an originating controller for the VBS.

2 cell (Cell-A present in BSS Provider's BSS and Cell-B present in NSS Provider's

BSS).

2 BSC (BSC-A present in BSS Provider's BSS and BSC B present in NSS Provider's

BSS).

1 MSC in NSS Provider's NSS.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	MS A originates Voice broadcast call as a service subscriber	Origination is successful, DCH and GCH allocated in cell of originator, GCH allocated in cell of terminator. • MS B is notified of the VBS call
2	MS B joins the call	MS A has two way voice path while MS B is in listening mode.
3	Controller joins ongoing VBS call by dialing 51+ <gca>+<gid></gid></gca>	Controller joins ongoing VBS and is in the listening mode.
4	MS A closes the call	VBS calls is released and all resources are deallocated.

4.7.6 Service Subscriber enters into VBS broadcast area with ongoing VBS call and is notified of it, Service Subscriber joins the VBS call

Test case ID: RINF_VBS_6

Purpose: Verify Mobile Subscriber is paged/notified about the ongoing VBS call when enters in

to the broadcast call area.

Precondition: 3 GSM-R mobiles (MS A and MS C present in BSS Provider's BSS and MS B present

in NSS Provider's BSS) with standard options, datafill and routing.

2 cell (Cell-A present in BSS Provider's BSS and Cell-B present in NSS Provider's

BSS).

2 BSC (BSC A present in BSS Provider's BSS and BSC B present in NSS Provider's

BSS).

1 MSC in NSS Provider's NSS.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	MS A originates Voice broadcast call as a service subscriber	 Origination is successful, DCH and GCH allocated in cell of originator, GCH allocated in cell of terminator. MS B is notified of the VBS call
2	Turn on MS C. MS C join ongoing VBS call.	MS C perform LOCATION_UPDATE and receive notifications on ongoing VBS calls. VBS call up, MS A is able to talk, MS B and MS C are in listening mode.
3	MS A close the call	The call gets released properly. VBS resources are free.

4.8 Railway Emergency Call (REC)

4.8.1 Service Subscriber originates a REC

Test case ID: RINF_REC_1

Purpose: Verify SS can originate Railway Emergency Call.

Precondition: 1 cell (BSS Provider's BSS).

1 BSC (BSS Provider's BSS).1 MSC in NSS Provider's NSS.

3 GSM-R mobiles (MS A, MS B and MS C) with standard options, datafill and routing.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	MS A originates emergency call as service subscriber and releases the UL on the DCH	 Origination is successful, DCH and GCH allocated in cell of originator, GCH allocated in cell of terminator. MS B and MS C is notified of the REC call MS B and MS C join the call automatically. MS A has two way voice path until the dedicated channel is released
2	MS A request the uplink on GCH	MS A has speech path, MS B and MS C are in listening mode.
3	MS A release the call	The call gets released properly.
4	Check the signaling msg's.	Immediate SETUP is used by MS A (configured on the SIM) ISETUP (= Immediate Setup (BCC/GCC) is used by MS A

4.8.2 Service Subscriber initiated REC (no talker change, normal clear down of call)

Test case ID: RINF_REC_2

Purpose: MSa #1 initiates a REC, MSa #2, MSb #1, MSb #2 and the Controllers A and B join.

MSa #1 releases the call.

Precondition: All subscribers are members of the REC group and are in the correct area

PLMN A	PLMN B
Anchor	Relay
Controller A	Controller B
MSa #1/2	
MSb #1/2	

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	MSa #1 initiates a REC	Call is offered to all subscribers. They auto connect.
2	MSa #1 releases the call.	The call is cleared down.
3	Verify that acknowledgements are send and received.	Records are sent from the Mobiles

4.8.3 Service Subscriber accepts an incoming REC

Test case ID: RINF_REC_3

Purpose: Verify SS can accept an incoming REC.

Precondition: 3 GSM-R subscribers (MS A, MS B and MS C) with standard options, data fill and

routing.

MS A, MS B and MS C are SS of the REC call, they are located in the GCA in 2

different cells (MS A in Cell A and MS B, MS C in Cell-B).

2 cells on BSS Provider's BSS, one on each of 2 BSCs Voice Inactivity timer is set long

enough in order to execute steps 1-4 before the timer expires.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	MS A originates emergency call as service subscriber	 Origination is successful, DCH and GCH allocated in cell of originator, GCH allocated in cell of terminator. MS B is notified of the REC call MS B join the call automatically. MS A has two way voice path until the dedicated channel is released
2	MS C moves into the GCA, where the REC call is ongoing	MS C is notified of the ongoing REC call
3	MS C joins the REC call	 MS C is able to join the VGCS call. MS C is in listening mode
4	MS C takes the Uplink	MS C has two-way voice path
5	MS C releases the uplink	Uplink is released
6	MS A closes the REC call	The REC call is released properly and all resources are deallocated correctly

4.8.4 Controller originates a REC

Test case ID: RINF_REC_4

Purpose: Verify that Controller can originate the Railway Emergency Call and end the call by

pressing the kill Sequence.

Precondition: 2 GSM-R subscribers (MS A, MS B) with standard options, data fill and routing.

MS A is a controller that is allowed to originate the VGCS call, MS A is located outside

of the GCA. MS B is SS of the VGCS call, MS B is located in the GCA.

2 cells on BSS Provider's BSS, one on each of 2 BSCs 1 MSC in NSS Provider's NSS.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	MS A as a controller originates Voice Group call by dialing 50 + < GCA > + <gid></gid>	 Origination is successful, DCH allocated in cell of originator, GCH allocated in cell of terminator. The DCH of the Controller stays allocated for the duration of the call. MS A has two way voice path during the whole duration of the call MS B is notified of the Railway Emergency call
2	MS B joins the Railway Emergency Call	 MS B is able to join the call MS B is in listening mode
3	MS B takes the Uplink	MS B has two-way voice path
4	MS A as a controller closes the call by entering the killing sequence.	The REC is released properly and all resources are deallocated correctly

4.8.5 Service Subscriber originates Acknowledgement Call

Test case ID: RINF_REC_5

Purpose: This test case is to verify if the Acknowledgement Call setup and the release complete

message is generated after an emergency call and that the content is correct.

Precondition: 1 cell (BSS Supplier).

1 BSC (BSS Supplier).

1 MSC in NSS (NSS Supplier).

3 service subscribers: MS A, MS B, MS C.

A and A-bis monitoring links set up.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	MS A originates emergency call as service subscriber	 Origination is successful, DCH and GCH allocated in cell of originator, GCH allocated in cell of terminator. MS B and MS C is notified of the REC call MS B and MS C join the call automatically. MS A has two way voice path until the dedicated channel is released
2	MS A request the uplink on GCH	MS A has speech path, MS B and MS C are in listening mode.
3	MS A releases the Uplink. MS A release the call	MS A isn't able to talk. The call gets released properly.
4	Acknowledgement calls are automatically initiated by all mobiles	Acknowledgement calls are successful
5	Verify the content of the USS1 information element of the RELEASE COMPLETE message.	Verify User to User info: Protocol discriminator = 00000000; originator tag; listener tag; T_DUR; T_REL; priority level 0 =01, termination cause = 000; GCRef.

4.8.6 REC in a GCA with a locked cell

Test case ID: RINF_REC_6

Purpose: Verify that a Railway Emergency Call can be established, even if not all cells in the

GCA are active. The call should be established after the Timer Txx has expired.

→In case of a dispatcher originated Railway Emergency Call, the call is successful if it

was established in any cell.

→ In case of a service subscriber originated REC, the call is successful, if it was

established at least in the Cell Of Origin

Precondition: 2 NSS Provider's cell.

GCA with all available cells.

2 SS MSA, MS B and mobile dispatcher DISP A at least in COO.

Second cell locked.

1 MSC in Provider's NSS.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	Lock a cell	One of the cells inside of GCA is locked.
2	DISP A dials 50+ <gcarea>+<emergency gid=""></emergency></gcarea>	Call is established to all cells in service
	The call is accepted by the participants	DISP A has two-way voice path. The remaining participants are in listening mode.
	DISP A release the call by sending the disconnect sequence "***"	The REC call gets terminated. All resources are idle.
3	MS A originates a REC call.	Call is established to all cells in service
	The call is accepted by the participants	The REC call gets terminated. All resources are idle.
	MS A release the VGCS call.	REC establishment is possible, when one or more of the cells belonging to the GCA are locked.

4.9 Originator to Dispatcher Information (OTDI)

4.9.1 Service Subscriber originates VGCS call, terminating Controller receives the OTDI

Test case ID: RINF_OTDI_1

Purpose: Verify that the terminating controller receives the OTDI from the originating SS.

Precondition: 1 cell (BSS Provider's BSS).

1 SS (Registered to a Functional Number.

1 MSC in NSS Provider's NSS.

5 terminating controllers of a VGCS call.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	SS originates a prio 2 VGCS call and sends the OTDI IE	VGCS getting established -> dispatcher included in VGCS -> GCC/BCC_SETUP contains OTDI IE
2	Verify that the terminating controller got OTDI from originating SS	Controller receives the uncompressed OTDI in UUS IE of the call setup message
3	Originator takes the VGCS call down	VGCS call is taken down, all resources are released properly

4.9.2 Service Subscriber originates VGCS Immediate Setup 2 call, MSC uncompresses the OTDI info and terminating Controller receives the uncompressed OTDI

Test case ID: RINF_OTDI_2

Purpose: Verify that the VGCS Immediate Setup 2 message contains the compressed OTDI info

and that the terminating controller receives the uncompressed OTDI.

Precondition: 1 cell (BSS Provider's BSS).

1 SS (Registered to Functional Number).

1 MSC in NSS Provider's NSS.

5 terminating controllers of a VGCS call.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	SS originates a prio 0 VGCS call	VGCS getting established -> controller included in GC -> GCC/BCC_IMMEDIATE_SETUP 2 contains compressed OTDI IE
2	Verify that the terminating controller got OTDI from originating SS	Controller receives the uncompressed OTDI in UUS IE of the call setup message
3	Originator takes the VGCS call down	VGCS call is taken down, all resources are released properly

4.10 Late Entry

4.10.1 Service Subscriber active in a PtP call move in a cell with ongoing REC call

Test case ID: RINF_LE_1

Purpose: Verify that a SS which is active in a PtP call and move in a cell with an ongoing REC

call, getting a notification, that there is an ongoing Railway Emergency call.

Precondition: 2 cell at least

4 Mobiles3 SS at least

Emergency Threshold (Signalling Point Object) = Priority 0

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	A Mobile SS which is member of the REC group establishing a PtP call to another Mobile/fixed call in a cell A what is not part of the REC group call area.	PtP call getting established -> has voice path
2	In the second cell B a SS establishing a REC.	REC call getting established -> has voice path
3	Mobile SS which has established PtP call moves from cell A -> B -> Verify on the Abis Interface that the Mobile SS getting notified with a GCCH Notification Request message.	->Handover successful ->Mobile getting Notification of the ongoing REC ->PtP (ends) call getting preempted and SS getting the REC call
4	In the new cell B the SS request the uplink of the REC call.	SS get the uplink and has voice path
5	Originating SS takes down the call.	The REC call getting properly closed

4.10.2 Orig. SS active in a VBS call move in a cell with ongoing REC call

Test case ID: RINF_LE_2

Purpose: Verify that a SS which is active in a VBS call and move in a cell with an ongoing REC

call, getting a notification, that there is an ongoing Railway Emergency call.

Precondition: 2 cell at least

4 Mobiles3 SS at least

Emergency Threshold (Signalling Point Object) = Priority 0

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	A Mobile SS which is member of the REC group establishing a VBS (P4) call in a cell A what is not part of the REC group call area.	VBS (P4) call getting established -> has voice path
2	In the second cell B a SS establishing a REC.	REC call getting established -> has voice path
3	Mobile SS which has established VBS call moves from cell A -> B -> Verify on the Abis Interface that the Mobile SS getting notified with a GCCH Notification Request message.	->Handover successful ->Mobile getting Notification of the ongoing REC ->VBS (ends) call getting preempted and SS getting the REC call
4	In the new cell B the SS request the uplink of the REC call.	SS get the uplink and has voice path.
5	Originating SS takes down the call.	The REC call getting properly closed.

4.10.3 Service Subscriber active in a VGCS (GCH) call move in a cell with ongoing REC call

Test case ID: RINF_LE_3

Purpose: Verify that a SS which is active in a VGCS call (GCH) and move in a cell with an ongoing

REC call, getting a notification, that there is an ongoing Railway Emergency call.

Precondition: 2 cell at least

4 Mobiles

3 SS at least

Emergency Threshold (Signalling Point Object) = Priority 0

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	A Mobile SS which is member of the REC group establishing a VGCS call (p4) in a cell A what is not part of the REC group call area and going on a GCH.	VGCS call (P4) getting established -> has voice path
2	In the second cell B a SS establishing a REC.	REC call getting established -> has voice path
3	Mobile SS with pressed Uplink in the VGCS call moves from cell A -> B -> Verify on the Abis Interface that the Mobile SS getting notified with a GCCH Notification Request message.	->Handover successful ->Mobile getting Notification of the ongoing REC -> Ongoing VGCS call is left and SS going to the REC call
4	In the new cell B the SS request the uplink of the REC call.	SS get the uplink and has voice path
5	originating SS takes down the call	The REC call getting properly closed.

4.11 Access Matrix

4.11.1 National call - AM allows call

Test case ID: RINF_AM_1

Purpose: Verify the Access matrix configuration works.

Precondition: Access Matrix AM configured to allow for following:

Case 1: CT2 / FC 01 calls CT7 /FC01.
Case 2: CT2 / FC 02 calls CT7 /FC02.
Case 3: CT2 / FC 01 calls CT2 /FC10.
Case 4: CT2 /FC10 calls CT2 /FC01.

Functional numbers have been registered in PLMN A as follows:

MS_A1 reg with FN_1 MS_A2 reg with FN_5 MS_A3 reg with FN_7 TCT_A1 (FN_11) TCT_A2 (FN_13)

(TCT=Train Controller Terminal, also sometimes called Dispatcher Terminal))MS_A3

has the Follow Me subscription ABCD.

References: See Annex A – Cross-reference tables.

Test Procedure:

Case 1: CT2 / FC 01 calls CT7 /FC01.

Step	Procedure	Result / effect
1	MS_A1 calls FN_11.	AM allows the call, the incoming call is displayed on TCT_A1.
2	MS_A1 accepts the call	The PtP call between TCT_A1 and MS_A1 is successfully established
3	Verify PFN and check the number displayed on both calling- and called party.	TCT_A1 displays the function of the connected MS_A1 and MS_A1 displays the function of TCT_A1.
4	One of the calling- and called party closes the call.	Call is released.

Case 2: CT2 / FC 02 calls CT7 /FC02.

Step	Procedure	Result / effect
1	MS_A2 calls FN_13.	AM allows the call, the incoming call is displayed on TCT_A2.
2	CT_A2 accepts the call.	The PtP call between TCT_A2 and MS_A2 is successfully established
3	Verify PFN and check the number displayed on both calling- and called party.	TCT_A2 displays the function of the connected MS_A2 and MS_A2 displays the function of TCT_A2.
4	One of the calling- and called party closes the call.	Call is released

Case 3: CT2 / FC 01 calls CT2 /FC10.

Step	Procedure	Result / effect
1	MS_A1 calls FN_7.	AM allows the call, the incoming call is displayed on MS_A3.
2	MS_A3 accepts the call.	The PtP call between MS_A3 and MS_A1 is successfully established.
3	Verify PFN and check the number displayed on both calling- and called party.	MS_A3 displays the function of the connected MS_A1 and MS_A1 displays the function of MS_A3.
4	One of the calling- and called party closes the call.	Call is released.

Case 4: CT2/FC10 calls CT2/FC01.

Step	Procedure	Result / effect
1	MS_A3 calls FN_1.	AM allows the call, the incoming call is displayed on MS_A1.
2	MS_A1 accepts the call.	The PtP call between MS_A3 and MS_A1 is successfully established
3	Verify PFN and check the number displayed on both calling- and called party.	MS_A3 displays the function of the connected MS_A1 and MS_A1 displays the function of MS_A3.
4	One of the calling- and called party closes the call.	Call is released.

4.11.2 National call - AM denies call

Test case ID: RINF_AM_2

Purpose: Verify the Access matrix check on call processing.

Precondition: This test case has been divided into the following subcases:

Case 1: CT7 /FC 01 calls CT2 /FC02. Case 2: CT7 /FC02 calls CT2 /FC10. Case 3: CT7 /FC02 calls CT2 /FC08. Case 4: CT2 /FC10 calls CT7 /FC02.

Access Matrix is enabled and configured with the cells marked with "Open" in EIRENE set to "No".

Functional numbers have been registered in PLMN A as follows:

MS_A1 reg with FN_1 MS_A2 reg with FN_5 MS_A3 reg with FN_7 TCT_A1 (FN_11) TCT_A2 (FN_13)

(TCT=Train Controller Terminal, also sometimes called Dispatcher Terminal)

MS_A3 has the Follow Me subscription ABCD.

References: See Annex A – Cross-reference tables.

Test procedure:

Case 1: CT7 /FC 01 calls CT2 /FC02.

Step	Procedure	Result / effect
1	TCT_A1 calls FN_5	AM does not allow the call.
		Release cause indicating a disallowed call by AM to be checked.
2	Change the according entry of AM to allow the call ("yes") temporarily.	The affected call is configured to be allowed.
3	TCT_A1 calls FN_5.	AM now allows the call, the incoming call is displayed on MS_A2.
4		The PtP call between MS_A2 and TCT_A1 is successfully established.
5	Verify PFN and check the number displayed on both calling- and called party	MS_A2 displays the function of the connected TCT_A1 and TCT_A1 displays the function of MS_A2.
6	One of the calling- and called party closes the call.	Call is released.
7	Undo the above temporary change.	The affected cell of AM is configured to "No".

Case 2: CT7 /FC02 calls CT2 /FC10.

Step	Procedure	Result / effect
1	TCT_A2 calls FN_7.	1) AM does not allow the call.
		Check release cause indicating a disallowed call by AM.
2	Change the according entry of AM to allow the call ("yes") temporarily.	The affected call is configured to be allowed.
3	TCT_A2 calls FN_7.	AM now allows the call, the incoming call is displayed on MS_A3.
4		The PtP call between MS_A3 and TCT_A2 is successfully established.
5	Verify PFN and check the number displayed on both calling- and called party.	MS_A3 displays the function of the connected TCT_A2 and TCT_A2 displays the function of MS_A3.
6	One of the calling- and called party closes the call.	Call is released.
7	Undo the above temporary change	The affected cell of AM is configured to "No".

Case 3: CT7/FC02 calls CT2/FC08.

Step	Procedure	Result / effect
1	MS_A2 registers to IC_A, FN_6.	The USSD outcome code "01" or corresponding message which means "Follow Me activated" is displayed on MS_A2.
2	2) TCT_A2 calls FN_6.	2) AM does not allow the call. Check release cause indicating a disallowed call by AM
3	Change the according entry of AM to allow the call ("yes") temporarily.	The affected call is configured to be allowed.
4	TCT_A2 calls FN_6.	AM now allows the call, the incoming call is displayed on MS_A2.
5		The PtP call between MS_A2 and TCT_A2 is successfully established
6	Verify PFN and check the number displayed on both calling- and called party.	MS_A2 displays the function of the connected TCT_A2 and TCT_A2 displays the function of MS_A2.
7	One of the calling- and called party closes the call.	Call is released.
8	Undo the above temporary change.	The affected cell of AM is configured to "No".

Case 4: CT2 /FC10 calls CT7 /FC02.

Step	Procedure	Result / effect
1	MS_A3 calls FN_13.	AM does not allow the call.
		Check release cause indicating a disallowed call by AM.
2	Change the according entry of AM to allow the call ("yes") temporarily.	The affected call is configured to be allowed.
3	MS_A3 calls FN_13.	AM now allows the call, the incoming call is displayed on TCT_A2.
4	TCT_A2 accepts the call.	The PtP call between MS_A3 and TCT_A2 is successfully established.
5	Verify PFN and check the number displayed on both calling- and called party.	MS_A3 displays the function of the connected TCT_A2 and TCT_A2 displays the function of MS_A3.
6	One of the calling- and called party closes the call.	Call is released.
7	Undo the above temporary change.	The affected cell of AM is configured to "No".
8	Undo the subscription change for MS_A3.	MS_A3 has no more Follow Me subscription.

4.12 GPRS

4.12.1 GPRS Connection Setup

Test case ID: RINF_GPRS_1

Purpose: This test case will create and test 3 GPRS service connections:

1: Set-up a GPRS session for an ETCS user.

2: Set-up a GPRS session for a KMS user (except for countries where included in ETCS)

3: Set-up a GPRS session for "other traffic (office, internet, etc...)

4: Optional: ATO

test GPRS connection (and indirectly test the APN naming conventions)

- test data connection

test IPV4 for ETCS

test that no cross connections (ETCS mobile cannot access other traffic and vice versa)

Precondition: 1 cell (BSS Provider's BSS)

1 PCU (BSS Provider's BSS)

1 packet core SGSN-GGSN (NSS Provider's NSS)

2-3 servers (servers in fixed IP network)

2-3 GSM-R mobiles (PC + module, supporting GPRS).

References: See Annex A – Cross-reference tables.

Test Procedure:

Step	Procedure	Result / effect
1	Create APN's for each service ETCS, KMS and background traffic. Country specific: ETCS and KMS might use same APN.	APN for different service should lead to correct server in dedicated IP network with own address space: at least ETCS server (IPV4 network) and Background server (IPV4 allowed).
2	Setup data connection and send data over each connection a. ETCS mobile to ETCS server b. KMS mobile to KMS(ETCS) server c. Background mobile to background server	Successful data path for each APN
3	Send data from background traffic mobile to ETCS APN	Background traffic should not have access to data or server of the other services (ETCS, ATO and KMS) and vice versa.

It shall be understood, that APN separation may be implemented in different points in the overall network topology.

4.12.2 Contact an RBC in the ETCS domain

Test case ID: RINF_GPRS_2

Purpose: Contact an RBC using the DNS service (conversion of RBC number into IP address).

Precondition: 1 cell (BSS Provider's BSS).

1 BSC (BSS Provider's BSS).

1 packet core SGSN-GGSN (NSS Provider's NSS).

1 RBC, 1 DNS (servers in fixed IP network) (access/connectivity available to those

servers).

1 GSM-R mobiles (PC + module, supporting GPRS).

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	Use ETCS APN of RINF_GPRS_1	
2	On DNS server, create Domain name(s) for at least one RBC.	Domain name should be linked to valid ip address.
3	Set up data path to an RBC a. Look up IP address using full text domain name of RBC b. Start data transfer to RBC	Successful request of IP address, a data transfer can be started.

4.12.3 QOS and priority test between ETCS and Background traffic

Test case ID: RINF_GPRS_3

Purpose: Verify that an ETCS user (using the ETCS APN with QOS) can setup session with

sufficient bandwidth if other service is running (Background traffic, fully loaded Cell

(GPRS timeslots) on radio interface).

Precondition: 1 cell (BSS Provider's BSS).

1 BSC (BSS Provider's BSS).

1 packet core SGSN-GGSN (NSS Provider's NSS).

1 RBC, 1 DNS (servers in fixed IP network) (access/connectivity available to those

servers).

1 GSM-R mobiles (PC + module, supporting GPRS).

Traffic generation for the Background traffic APN: for example a typical handset can generate traffic for 2 UL 2DL timeslots with a (massive) file upload and download.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	Start GPRS session with back ground traffic.	GPRS timeslots should be loaded with traffic.
2	Set up GPRS session (with ETCS APN) and transmit data.	Session should establish without noticeable delay and receive the minimum of 4kbps (corresponding QOS profile).

5 Test Cases Description for O (Optional) features (testing MI Requirements for O features)

5.1 Uplink reply/Notification Response

5.1.1 Service Subscriber active in a VGCS call moves in empty cell

Test case ID: RINF_URNR_1

Purpose: Verify that GCH is allocated in a previously empty cell when a SS which was active in

a VGCS call moves in that cell.

Precondition: 2 cells (cell_A, cell_B).

Both cells in the same group call area and have handover relationship to each other.

Activate the uplink reply timer/notification response on on both cells.

3 mobiles (MS_1, MS_2, MS_3).

VGCS GID is defined.

MS_1 (cell_A, VGCS GID active).

MS_2 (cell_A, VGCS GID active).

MS_3 (cell_B, VGCS GID not active).

In cell_B, no other mobile with activated VGCS GID.

General: Status of the TCH should be checked by an O&M System.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	MS_1 initiates VGCS call.	Call established. MS_2 is listener MS_3 in cell_B is not notified
2	MS_1 takes the GCH for a period greater than uplink timer value configured in BSS	Due to lack of uplink reply (on air interface "Uplink access burst - absence of MS with the activated VGCS GID) in cell_B the GCH get de-allocated
3	MS_2 moves from cell_A to cell_B	The GCH in cell_B gets re-allocated because of the new presence of MS_2 having the VGCS GID activated. Re-allocation is based on notication response
4	MS_1 takes down the call.	The call is properly released

5.1.2 Service Subscriber active in a VBS call moves in empty cell

Test case ID: RINF_URNR_2

Purpose: Verify that GCH is allocated in a previously empty cell when a SS which was active in

a VBS call moves in that cell.

Precondition: 2 cells (cell_A, cell_B).

Both cells in the same group call area and have handover relationship to each other.

Both cells: uplinkReplyTimer >= 6s. 3 mobiles (MS_1, MS_2, MS_3).

VGCS GID is defined.

MS_1 (cell_A, VBS GID active).

MS_2 (cell_A, VBS GID active).

MS_3 (cell_B, VBS GID not active).

In cell_B, no other mobile with activated VBS GID.

General: Status of the TCH should be checked by an O&M System.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	MS_1 initiates VGCS call.	Call established. MS_2 is listener
		MS_3 in cell_B is not notified Due to lack of uplink reply (on air interface "Uplink access burst - absence of MS with the activated VBS GID) in Cell_B the GCH get de-allocated.
2	MS_2 moves from cell_A to cell_B	MS_2 makes location update and gets notified of the VBS call as the GCH gets re-allocated because of the new presence of MS_2 having the VBS GID activated.
3	MS_1 takes down the call	The call is properly released.

5.1.3 Service Subscriber active in a REC call moves in empty cell

Test case ID: RINF_URNR_3

Purpose: Verify that TCH is allocated in a cell, no matter if the cell.is empty or not

Precondition: 2 cells (cell_A, cell_B)

Both cells in the same group call area and have handover relationship to each other

Both cells: uplinkReplyTimer >= 6s

2 mobiles (MS_1, MS_2)

MS_1 (cell_A)
MS_2 (cell_A)
No mobile in cell B

REC GID is active on all mobiles

Handset for MS_2 either

o Supports tracing of Cell-ID or

o Supports display of Cell-broadcast information

If handset for MS_2 supports only Cell-broadcast information, the network shall

provide unique cell broadcast information for cell_B

General: Status of the TCH should be checked by an O&M System.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	MS_1 initiates REC call.	Call established. MS_2 is listener A GCH is allocated in cell_B despite the absence of subscribers
2	MS_1 takes the uplink for a period greater than uplink timer value configured in BSS	A GCH is still allocated in cell_B despite the absence of subscribers
3	As listener MS_2 moves from cell_A to cell_B	MS_A2 makes a location update and gets notified of the REC call does a cell reselection to cell_B and continues to listen to the REC. Information about current cell can be checked on the handset.
4	MS_1 takes down the call.	The call is properly released

5.2 Enhanced Railway Emergency Call (eREC)

5.2.1 eREC call with correct SID – eREC MS with same SID are joining, eREC MS with different SID will not be alerted

Test case ID: RINF_eREC_1

Purpose: Verify eREC terminals are joining an eREC call if the SID is same and eREC terminals

are not joining an eREC call if the registered SID is different.

Precondition: eREC is activated in the network

At least 4 eREC devices

LAC_1 and CID_1 for which eREC is used are defined in the network LAC_2 and CID_2 for which eREC is used are defined in the network

2 sectors (SID_1, SID_2) are defined

eREC GIDs are defined: 299

A controller

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	Using 2 eREC devices, perform a registration on the concerned defined LAC and CID with SID_1	Registration is performed, no error is returned to the eREC device.
2	Using 2 other eREC devices, perform a registration on the concerned defined LAC and CID with SID_2	Registration is performed, no error is returned to the eREC device.
3	Perform an eREC call with an existing SID defined.	All eREC terminals with same SID are alerted and join the eREC call. The terminal registered with a different SID will not be alerted
4	Verify the correct controller is alerted.	Controller number is according to the one defined for this SID.

5.2.2 eREC call which involve with eREC capable and non eREC capable terminals

Test case ID: RINF_eREC_2

Purpose: Verify eREC call and REC call are both joined by eREC capable (and registered) and

non eREC capable terminals.

Precondition: eREC is activated in the network

1 terminal capable and supporting eREC is available (registered to eREC): MS_1

1 non capable eREC terminal: MS_2

LAC and CID for which eREC is used are defined in the network

eREC GIDs are defined: 299 Sector ID (SID_1) is defined

A Controller

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	Perform a 299 REC call.	Call is generated all concerned terminals and controller are alerted.
		The eREC terminals are joining.
2	Use a eREC terminal which is registered to eREC.	Registration is performed.
3	Perform a 299 eREC call with SID_1	eREC call is established. The eREC terminal are joining. The non eREC capable terminal is joining.
4	Perform a 299 REC call.	Call is generated all concerned terminals and controller are alerted. The eREC terminals and the non eREC capable terminals are joining.

5.3 ER-GSM

5.3.1 Establishment of a PtP call in an ER-GSM network

Test case ID: RINF_ER_GSM

Purpose: Verify basic GSM functionality when the network utilizes the ER-GSM frequency

band. Both types of UE with and without ER-GSM capability should be capable to

accede to the network.

Precondition: A cell with more than one TRX, the BCCH TRX must belong to the UIC GSM-R Band

(without the E-Band) and the second TRX to the ER-GSM band.

Subscriber A has a UE in ER-GSM band. Subscriber B has an UE in the GSM-R band.

References: See Annex A – Cross-reference tables.

Step	Procedure	Result / effect
1	Subscriber B calls Subscriber A	- The system allocates TCH in the TRX configured with ER-GSM frequency for Subscriber A.
		- The system allocates TCH in the TRX configured with UIC GSM-R frequency for Subscriber B.
		- The call is setup correctly.

Annex A – Cross-reference tables

A-1 Cross reference for EIRENE FRS [1]

Section	RequirementText	Requirement Status	TestcaseID	TestcaseHeading
2.2.1	This section describes the generic voice telephony services which shall/should be supported by the EIRENE network:	(1)	RINF_GSM_4	Supplementary Service CLIP – MMC with Call Forwarding Unconditional
	- point-to-point voice calls;	(MI)	RINF_GSM_5	Supplementary Service MPTY
	- public emergency voice calls;	(M)	RINF_GSM_6	Establishment of several PTP calls with different priorities
	- broadcast voice calls;	(M)	RINF_VGCS_1	SS originates VGCS call
	- group voice calls;	(MI)	RINF_VGCS_2	Controller originates VGCS call and takes it down with the kill Sequence
	- multi-party voice calls.	(MI)	RINF_VGCS_3	SS originates VGCS call, leaves, rejoins and ends it.
			RINF_VGCS_4	SS enters into VGCS broadcast area with ongoing VGCS call and is notified of it
			RINF_VGCS_5	Controller joins ongoing VGCS call
			RINF_VGCS_6	Parallel group calls are possible in the same cell.
			RINF_VGCS_7	GID delivered correctly to terminating SS in SS originated VGCS call
			OTDI	SS originates VGCS call, terminating Controller receives the OTDI
			RINF_OTDI_2	SS originates VGCS Immediate Setup 2 call, terminating Controller receives the OTDI
2.2.2	All voice call services shall be able to operate between any combination of fixed and mobile equipment users (excluding specific data terminal equipment).	(MI)	RINF_GSM_4	Supplementary Service CLIP – MMC with Call Forwarding Unconditional
	Point-to-point voice calls	(1)	RINF_GSM_5	Supplementary Service MPTY
	·	.,	RINF_GSM_6	Establishment of several PTP calls with different priorities
			RINF_VGCS_1	SS originates VGCS call
			RINF_VGCS_2	Controller originates VGCS call and takes it down with the kill Sequence
			RINF_VGCS_3	SS originates VGCS call, leaves, rejoins and ends it.
			RINF_VGCS_4	SS enters into VGCS broadcast area with ongoing VGCS call and is notified of it
			RINF_VGCS_5	Controller joins ongoing VGCS call
			RINF_VGCS_6	Parallel group calls are possible in the same cell.
			RINF_VGCS_7	GID delivered correctly to terminating SS in SS originated VGCS call
			RINF_OTDI_1	SS originates VGCS call, terminating Controller receives the OTDI

			RINF_OTDI_2	SS originates VGCS Immediate Setup 2 call, terminating
2.2.3	The system shall support point-to-point voice calls between any two call parties.	(MI)	RINF_GSM_4	Controller receives the OTDI Supplementary Service CLIP – MMC with Call Forwarding Unconditional
			RINF GSM 5	Supplementary Service MPTY
			RINF_GSM_6	Establishment of several PTP calls with different priorities
			RINF_HO_1	Inter BTS handover of a point to point voice call
			RINF_FA_7	FA Call - Successful Call
			RINF_AM_1	National call: AM allows call
2.2.4	Such point-to-point calls shall allow both parties to talk simultaneously.	(MI)	RINF_GSM_4	Supplementary Service CLIP – MMC with Call Forwarding Unconditional
	Public emergency voice calls	(1)	RINF GSM 5	Supplementary Service MPTY
	Ç ,	()	RINF_GSM_6	Establishment of several PTP calls with different priorities
			RINF_HO_1	Inter BTS handover of a point to point voice call
			RINF_FA_7	FA Call - Successful Call
			RINF_AM_1	National call: AM allows call
2.2.12	The system shall support group voice calls.	(MI)	RINF_VGCS_1	SS originates VGCS call
			RINF_VGCS_2	Controller originates VGCS call and takes it down with the kill Sequence
			RINF_VGCS_3	SS originates VGCS call, leaves, rejoins and ends it.
			RINF_VGCS_4	SS enters into VGCS broadcast area with ongoing VGCS call
			RINF_VGCS_5	and is notified of it Controller joins ongoing VGCS
			RINF_VGCS_6	Parallel group calls are
			RINF_VGCS_7	possible in the same cell. GID delivered correctly to terminating SS in SS originated VGCS call
2.2.14	The composition of call groups shall be able to be modified within the network. A single user shall be able to be a member of one or more call groups.	(MI)	RINF_eMLPP_6	MS in VGCS call having the UL of the GCH, pre-emption on MS by higher prio VGCS call (REC)
2.2.16	It is acceptable that only one mobile user involved in the group call may talk at any time. In this case:	(1)	RINF_VGCS_1	SS originates VGCS call
	- It shall be possible for controllers to speak at any time during the call.	(MI)	RINF_VGCS_2	Controller originates VGCS call and takes it down with the kill Sequence
	 A mechanism shall be provided by the system to arbitrate between those users wishing to speak within the group call. 	(MI)	RINF_VGCS_3	SS originates VGCS call, leaves, rejoins and ends it.
	Multi-party voice calls	(1)	RINF_VGCS_4	SS enters into VGCS broadcast area with ongoing VGCS call and is notified of it
			RINF_VGCS_5	Controller joins ongoing VGCS call
			RINF_VGCS_6	Parallel group calls are possible in the same cell.
			RINF_VGCS_7	GID delivered correctly to terminating SS in SS originated VGCS call

2.2.17	The system shall support multi-party voice communications between up to six different parties.	(MI)	RINF_GSM_5	Supplementary Service MPTY
2.2.18	Any of the parties involved in a multi-party voice call shall be able to talk simultaneously.	(MI)	RINF_GSM_5	Supplementary Service MPTY
2.3.4	If the text message facility is implemented, it shall not interfere with the ability of users to make or receive calls with a	(MI)	RINF_GSM_8	Short and long SMS
	higher priority.	(1)		
2.3.12	General data applications Where fax functionality is provided, it shall	(I) (MI)	NoCov_1	FAX use questionable, no
2.3.12	be possible to interrupt the fax to make or receive calls with a higher priority.		NOCOV_1	known mobiles supporting this
	Train control applications	(1)		
2.3.13	Where ERTMS/ETCS level 2 or 3 is implemented, the network shall be capable of supporting data communications for that train control system with the required quality of service.	(MI)	RINF_eMLPP_8	MS in PtP call, pre-emption on Air IF by higher prio data call (4800 baud, transparent)
2.4.1	The EIRENE network shall/should support the following call related services:	(1)	RINF_GSM_1	Successful Location Update after MS Power On
	- display of identity of called/calling user;	(MI)	RINF_GSM_2	Supplementary Service Call Hold
	 restriction of display of called/calling user; 	(O)	RINF_GSM_3	Supplementary Service Call Waiting
	- priority and pre-emption;	(MI)	RINF_GSM_4	Supplementary Service CLIP – MMC with Call Forwarding Unconditional
	- closed user group;	(M)	RINF_GSM_5	Supplementary Service MPTY
	- call forwarding;	(M)	RINF_GSM_6	Establishment of several PTP calls with different priorities
	- call hold;	(MI)	RINF_GSM_7	Public Emergency Call – With SIM
	call waiting;charging information;	(MI) (O)	RINF_FA_1 RINF_FA_2	Registration of an FN Number Registration of an unknown FN fails
	- call barring.	(MI)	RINF_FA_3	Deregistration of an FN Number
	- explicit call transfer	(O)	RINF_FA_4	Deregistration of an FN fails
	Display of identity	(1)	RINF_FA_5	Interrogation of an FA Number
			RINF_FA_6	Interrogation of an FN fails
			RINF_FA_7	FA Call - Successful Call
			RINF_FA_8 RINF_FA_9	FA Call – Call is not completed Verification of Functional Numbers previously registered in HPLMN (CT2/3/4)
			RINF_FA_10	Deregistration of CT2 numbers while roaming
			RINF_FA_11	Forced Deregistration
			RINF_FA_14	Registration of an FN fails - remote party already registered
2.4.2	It shall be possible to display the identity of the called or calling party in the form of a standard telephone number.	(MI)	RINF_GSM_1	Successful Location Update after MS Power On
	,		RINF_GSM_2	Supplementary Service Call Hold
			RINF_GSM_3	Supplementary Service Call Waiting

2.4.3	It shall be possible to display the identity	(MI)	RINF_GSM_4 RINF_GSM_5 RINF_GSM_6 RINF_GSM_7 RINF_FA_9 RINF_FA_10	Supplementary Service CLIP – MMC with Call Forwarding Unconditional Supplementary Service MPTY Establishment of several PTP calls with different priorities Public Emergency Call – With SIM Verification of Functional Numbers previously registered in HPLMN (CT2/3/4) Deregistration of CT2 numbers while roaming Registration of an FN Number
	of the called or calling party as a textual description of their function. Restriction of display of identity	(1)	RINF_FA_2	Registration of an unknown FN fails
			RINF_FA_3	Deregistration of an FN Number Deregistration of an FN fails
			RINF_FA_5	Interrogation of an FA Number
			RINF_FA_6 RINF_FA_7	Interrogation of an FN fails FA Call - Successful Call
			RINF_FA_8 RINF_FA_9	FA Call – Call is not completed Verification of Functional Numbers previously registered in HPLMN (CT2/3/4)
			RINF_FA_10	Deregistration of CT2 numbers while roaming
			RINF_FA_11 RINF_FA_14	Forced Deregistration Registration of an FN fails - remote party already registered
2.4.5	The network shall provide a mechanism whereby calls may be assigned one of a number of different priority levels.	(MI)	RINF_GSM_4	Supplementary Service CLIP – MMC with Call Forwarding Unconditional
			RINF_eMLPP_1	MS in VGCS call on DCH, pre- emption on Air IF by higher prio PtP call
			RINF_eMLPP_2	MS in VBS call as listener, pre- emption on Air IF by higher prio VBS call.
			RINF_eMLPP_3	MS in VGCS call having the UL of the GCH, pre-emption on Air IF by higher prio VBS call.
			RINF_eMLPP_4	MS in PtP call, pre-emption on MS by higher prio VGCS call (REC)
			RINF_eMLPP_5	MS in VBS call as originator, pre-emption on Air IF by higher prio VGCS call (REC)
			RINF_eMLPP_7	MS in data call, pre-emption on Air IF by higher prio VGCS call (REC)
			RINF_eMLPP_8	MS in PtP call, pre-emption on Air IF by higher prio data call (4800 baud, transparent)

			RINF_LE_2	Orig. SS active in a VBS (P4) call move in a cell with
			RINF_LE_3	ongoing REC call Orig. SS active in a VGCS (P4)
			1000	call on GCH (talker) move in a cell with ongoing REC call
2.4.6	This mechanism shall allow calls with a higher assigned priority to override (preempt) existing calls of a lower priority.	(MI)	RINF_eMLPP_1	MS in VGCS call on DCH, pre- emption on Air IF by higher prio PtP call
	empt, emeting early of a rester priority.		RINF_eMLPP_2	MS in VBS call as listener, pre- emption on Air IF by higher prio VBS call.
			RINF_eMLPP_3	MS in VGCS call having the UL of the GCH, pre-emption on Air IF by higher prio VBS call.
			RINF_eMLPP_4	MS in PtP call, pre-emption on MS by higher prio VGCS call (REC)
			RINF_eMLPP_5	MS in VBS call as originator, pre-emption on Air IF by higher prio VGCS call (REC)
			RINF_eMLPP_7	MS in data call, pre-emption on Air IF by higher prio VGCS call (REC)
			RINF_eMLPP_8	MS in PtP call, pre-emption on Air IF by higher prio data call (4800 baud, transparent)
			RINF_LE_2	Orig. SS active in a VBS (P4) call move in a cell with ongoing REC call
			RINF_LE_3	Orig. SS active in a VGCS (P4) call on GCH (talker) move in a cell with ongoing REC call
2.4.7	Pre-empted calls will be discontinued and the new call of a higher priority shall be connected instead.	(MI)	RINF_eMLPP_1	MS in VGCS call on DCH, pre- emption on Air IF by higher prio PtP call
	Closed user group	(1)	RINF_eMLPP_2	MS in VBS call as listener, pre- emption on Air IF by higher prio VBS call.
			RINF_eMLPP_3	MS in VGCS call having the UL of the GCH, pre-emption on Air IF by higher prio VBS call.
			RINF_eMLPP_4	MS in PtP call, pre-emption on MS by higher prio VGCS call (REC)
			RINF_eMLPP_5	MS in VBS call as originator, pre-emption on Air IF by higher prio VGCS call (REC)
			RINF_eMLPP_7	MS in data call, pre-emption on Air IF by higher prio VGCS call (REC)
			RINF_eMLPP_8	MS in PtP call, pre-emption on Air IF by higher prio data call (4800 baud, transparent)
			RINF_LE_2	Orig. SS active in a VBS (P4) call move in a cell with ongoing REC call
			RINF_LE_3	Orig. SS active in a VGCS (P4) call on GCH (talker) move in a cell with ongoing REC call
2.4.13	The network shall allow the user to temporarily exit from an existing call by putting the call on hold.	(MI)	RINF_GSM_2	Supplementary Service Call Hold

2.4.14	It shall be possible for the user to re-join the call which is on hold at any time.	(MI)	RINF_GSM_2	Supplementary Service Call Hold
	Call waiting	(1)		
2.4.15	The network shall provide the ability to inform a user, who is involved in an existing call, of attempts by other users to contact them.	(MI)	RINF_GSM_3	Supplementary Service Call Waiting
	Charging information	(1)		
2.5.1	The EIRENE network shall also provide support for the following railway specific services:	(1)	RINF_FA_1	Registration of an FN Number
	 functional addressing including registration/deregistration (see section 11); 	(MI)	RINF_FA_2	Registration of an unknown FN fails
	 location dependent addressing (see section 11); 	(MI)	RINF_FA_3	Deregistration of an FN Number
	Deleted		RINF_FA_4	Deregistration of an FN fails
	- Railway emergency calls (see section 13).	(MI)	RINF_FA_5	Interrogation of an FA Number
	The EIRENE network should also provide support for shunting mode (see section 14).	(O)	RINF_FA_6	Interrogation of an FN fails
	,		RINF FA 7	FA Call - Successful Call
			RINF_FA_8	FA Call – Call is not completed
			RINF_FA_9	Verification of Functional Numbers previously registered in HPLMN (CT2/3/4)
			RINF_FA_10	Deregistration of CT2 numbers while roaming
			RINF_FA_11	Forced Deregistration
			RINF_FA_14	Registration of an FN fails - remote party already registered
			RINF_LDA_1	Successful LDA Call - Verify the cell format is correct
			RINF_LDA_2	Unsuccessful LDA Call - Call to invalid Short Code
			RINF_REC_1	SS originates a REC
			RINF_REC_2	Subscriber initiated REC (no talker change, normal clear down of call)
			RINF_REC_4	Controller originates a REC
			RINF_REC_6	REC in a GCA with a locked cell
			RINF_OTDI_1	SS originates VGCS call, terminating Controller receives the OTDI
			RINF_OTDI_2	SS originates VGCS Immediate Setup 2 call, terminating Controller receives the OTDI
2.6.2.1	A High Priority call shall be associated with an internationally harmonised value (such as Short Dialling Code, Group Identity or Functional Number).	(MI)	NoCov_30	Check Documentation of Equipement and Installation
3.2.4	The land-based part of the system shall provide communications for mobiles when stationary and when travelling at speeds up to the maximum allowable line speed or 500 km/h, whichever is the lower.	(MI)	NoCov_2	Drive Test Results to check
3.4.2	The required call set-up times shall be	(MI)	NoCov_3	Check Results from
	achieved in 95% of cases.			Measurement Campaign

2.4.2	C-II+ + f 000/ f I II+	(0.41)	N-C 2	Charle Bassilla forms
3.4.3	Call set-up times for 99% of cases shall not be more than 1.5 times the required call set-up time.	(MI)	NoCov_3	Check Results from Measurement Campaign
3.4.4	Set-up times shall include the time required for any translation of functional numbers internal to the EIRENE network.	(MI)	NoCov_3	Check Results from Measurement Campaign
3.5.2	The group or broadcast call area used will have the effect of determining which mobiles can participate in the call (ie those currently within the area defined). It shall be possible to determine the area over which the call takes place by one, or a combination, of the following:	(1)	RINF_VGCS_1	SS originates VGCS call
	 the location of the call initiator (if mobile-originated); 	(MI)	RINF_VGCS_2	Controller originates VGCS call and takes it down with the kill Sequence
	 the identity of the group being called (eg all users, all trains, etc); 	(MI)	RINF_VGCS_3	SS originates VGCS call, leaves, rejoins and ends it.
	 a prefix to the group identity specifying the call area (if fixed network-initiated). 	(MI)	RINF_VGCS_4	SS enters into VGCS broadcast area with ongoing VGCS call and is notified of it
			RINF_VGCS_5	Controller joins ongoing VGCS call
			RINF_VGCS_6	Parallel group calls are possible in the same cell.
			RINF_VGCS_7	GID delivered correctly to terminating SS in SS originated VGCS call
			RINF_VBS_1	SS originates VBS call
			RINF_VBS_2 RINF_VBS_3	SS originates prio0 VBS call Controller originates VBS call and takes down the call by disconnecting
			RINF_VBS_4	Controller originates VBS call and takes down the call with the kill sequence
			RINF_VBS_5	Controller joins ongoing VBS call
			RINF_VBS_6	SS enters into VBS broadcast area with ongoing VBS call and is notified of it, SS joins the VBS call
3.5.3	Any group or broadcast calls initiated in a given location shall be broadcast over an associated area based on the location of the call originator, and also to any fixed network numbers associated with the originating location.	(MI)	RINF_VGCS_1	SS originates VGCS call
			RINF_VGCS_2	Controller originates VGCS call and takes it down with the kill Sequence
			RINF_VGCS_3	SS originates VGCS call, leaves, rejoins and ends it.
			RINF_VGCS_4	SS enters into VGCS broadcast area with ongoing VGCS call and is notified of it
			RINF_VGCS_5	Controller joins ongoing VGCS call
			RINF_VGCS_6	Parallel group calls are possible in the same cell.
			RINF_VGCS_7	GID delivered correctly to terminating SS in SS originated VGCS call

RINE_VBS_3 Controller originates VBS call and takes down the call by disconnecting RINE_VBS_4 Controller originates VBS call and takes down the call with the kill sequence RINE_VBS_5 Controller originates VBS call and takes down the call with the kill sequence RINE_VBS_5 Controller originates VBS call and takes down the call with the kill sequence RINE_VBS_5 Controller originates VBS call and takes down the call with the kill sequence RINE_VBS_5 Controller originates VBS call and takes down the call with the kill sequence RINE_VBS_5 Senters into VBS broadcast area with onogoing VBS call and takes down the call with the kill sequence RINE_VBS_5 Senters into VBS broadcast area with onogoing VBS call and takes down the call with the kill sequence RINE_VBS_5 Senters into VBS broadcast area with onogoing VBS call and takes down the call with the kill sequence RINE_VBS_5 Senters into VBS broadcast area with onogoing VBS call and takes down the call with the kill sequence RINE_VBS_5 Senters into VBS broadcast area with onogoing VBS call and takes down the call with the kill sequence RINE_VBS_5 Senters into VBS broadcast area with onogoing VBS call and takes down the call with the kill sequence RINE_VBS_5				RINF_VBS_1	SS originates VBS call
and takes down the call by disconnecting RINF_VBS_4 Controller originates VBS call and takes down the call with the kill sequence RINF_VBS_5 RINF_VBS_6 RINF_				RINF_VBS_2	
RINF_VBS_4 Controller originates VBS call and takes down the call between the kill sequence RINF_VBS_5 Controller originates VBS call and takes down the call sequence RINF_VBS_6 Senters into VBS broadcast area with ongoing VBS call and is notified of it, SS joins the VBS call and is notified of it, SS joins the VBS call area where a railway emergency calls entering into a call area where a railway emergency call is ongoing shall automatically join this call. 4.1.31 It shall be possible to operate all EIRENE mobiles in the basic frequency band allocated for use by EIRENE Networks. 4.1.4 Mobile equipment operated in Frequency band allocated for use by EIRENE Networks. 4.1.4 Mobile equipment operated in Frequency band isted in clause 4.1.31, 4.1.38 and 4.1.38 shall function as specified when travelling at speeds from 0 km/h to 500 km/h. 4.2.1 The following voice telephony services, identified in section 2, shall/should be supported for each type of mobile radio: Cab radio Point-to-point voice calls Call S Cab radio Point-to-point voice call Call S Cab radio Point-to-po				RINF_VBS_3	and takes down the call by
RINF_VBS_6 Call RINF_VBS_6 SS enters into VBS broadcast area with ongoing VBS call and is notified of it, \$5 pisn is the VBS call All All RINF_VBS_6 SS enters into VBS broadcast area where a railway emergency call is ongoing shall automatically join this call. MoCov_4 Mobile/Cab requirement + RINF_LE_2, RINF_LE_2, RINF_LE_2, RINF_LE_2, RINF_LE_2, RINF_LE_3 Mobile on the basic frequency band allocated for use by EIRENE Networks. Mobile equipment operated in frequency band listed in clause 4.1.3i, 4.1.3il and 4.1.3ii shall function as specified when travelling at speeds from 0 km/h to 500 km/h. MoCov_10 Mobile/Cab requirement Mobile/Cab requirement Mobile on travelling at speeds from 0 km/h to 500 km/h. NoCov_10 Mobile/Cab requirement Mobile on travelling at speeds from 0 km/h to 500 km/h. NoCov_10 Mobile/Cab requirement Mobile on travelling at speeds from 0 km/h to 500 km/h. NoCov_10 Mobile/Cab requirement Mobile on travelling at speeds from 0 km/h to 500 km/h. NoCov_10 Mobile/Cab requirement Mobile/Cab require				RINF_VBS_4	Controller originates VBS call and takes down the call with
area with ongoing VBS call and is notified of it, SS joins the VBS call 3.5.6 Mobiles configured for reception of railway emergency calls entering into a call area where a railway emergency call is ongoing shall automatically join this call. 4.1.3i mobile in the basic frequency band allocated for use by EIRENE Networks. 4.1.4 Mobile equipment operated in Frequency band allocated for use by EIRENE Networks. 4.1.5 Mobile equipment operated in frequency band allocated for use by EIRENE Networks. 4.1.6 Mobile equipment operated in frequency band allocated for use by EIRENE Networks. 4.1.7 In Following voice telephony services, identified in section 2, shall/should be supported for each type of mobile radio: Cab radio Point-to-point voice calls Cab radio Forado voice calls Cab radio Group voice calls Cab radio Forado voice calls Cab radio Group voice calls Cab radio Forado voice calls Cab ra				RINF_VBS_5	Controller joins ongoing VBS
railway emergency calls entering into a call area where a railway emergency call is ongoing shall automatically join this call. 4.1.31 It shall be possible to operate all EIRENE mobiles in the basic frequency band allocated for use by EIRENE Networks. 4.1.4 Mobile equipment operated in frequency band allocated for use by EIRENE Networks. 4.1.53 In shall function as specified when travelling at speeds from 0 km/h to 500 km/h. 4.2.1 The following voice telephony services, identified in section 2, shall/should be supported for each type of mobile radio: Cab radio Point-to-point voice calls Cab radio Broadcast voice calls Cab radio Broadcast voice calls Cab radio Public emergency voice calls Cab radio Public emergency voice calls ETCS data only radio Point-to-point voice Calls ETCS data only radio Forapative calls Cab radio Public emergency voice calls Calls ETCS data only radio Point-to-point voice Calls Cab radio Point-to-point voice Calls Ca				RINF_VBS_6	area with ongoing VBS call and is notified of it, SS joins the
4.1.3i It shall be possible to operate all EIRENE mobiles in the basic frequency band allocated for use by EIRENE Networks. 4.1.4 Mobile equipment operated in frequency band listed in clause 4.1.3i, 4.1.3ii and 4.1.3ii shall function as specified when travelling at speeds from 0 km/h to 500 km/h. 4.2.1 The following voice telephony services, identified in section 2, shall/should be supported for each type of mobile radio: Cab radio Polint-to-point voice calls	3.5.6	railway emergency calls entering into a call area where a railway emergency call is	(MI)	NoCov_4	RINF_LE_1, RINF_LE_2,
4.1.4 Mobile equipment operated in frequency band listed in clause 4.1.3i, 4.1.3ii and 4.1.3ii shall function as specified when travelling at speeds from 0 km/h to 500 km/h. 4.2.1 The following voice telephony services, identified in section 2, shall/should be supported for each type of mobile radio: Cab radio Point-to-point voice calls Cab radio Public emergency voice (MI) Cab radio Broadcast voice calls (MI) Cab radio Broadcast voice calls (MI) Cab radio Group voice calls (MI) Cab radio Group voice calls (MI) Cab radio Public emergency voice (NA) calls ETCS data only radio Public emergency (NA) voice calls ETCS data only radio Public emergency (NA) voice calls ETCS data only radio Broadcast voice (NA) General purpose radio Public emergency (NA) (NA) General purpose radio Public emergency (NA) (NA) General purpose radio Broadcast voice (MI)	4.1.3i	It shall be possible to operate all EIRENE mobiles in the basic frequency band	(MI)	NoCov_10	Mobile/Cab requirement
A.2.1 The following voice telephony services, identified in section 2, shall/should be supported for each type of mobile radio: Cab radio	4.1.4	Mobile equipment operated in frequency band listed in clause 4.1.3i, 4.1.3ii and 4.1.3iii shall function as specified when travelling at speeds from 0 km/h to 500	(MI)	NoCov_10	Mobile/Cab requirement
Cab radio Point-to-point voice calls Cab radio Public emergency voice (M) Calls Cab radio Public emergency voice calls (MI) Cab radio Broadcast voice calls (MI) Cab radio Group voice calls (MI) Cab radio Uiti-party voice calls (MI) ETCS data only radio Point-to-point voice (NA) Calls ETCS data only radio Public emergency (NA) Voice calls ETCS data only radio Broadcast voice (NA) Calls ETCS data only radio Broadcast voice (NA) ETCS data only radio Group voice calls (NA) ETCS data only radio Group voice calls (NA) ETCS data only radio Uiti-party voice call (NA) General purpose radio Point-to-point (M) Voice calls General purpose radio Public emergency (M) Voice calls General purpose radio Broadcast voice (M) General purpose radio Group voice calls (M) General purpose radio Point-to-point voice (M) Calls General purpose radio Dent-to-point (M) Calls General purpose radio Point-to-point (M) Calls General purpose radio Point-to-point voice (M) General purpose radio P	4.2.1	The following voice telephony services, identified in section 2, shall/should be	(1)	NoCov_10	Mobile/Cab requirement
Cab radio Public emergency voice calls Cab radio Broadcast voice calls Cab radio Broadcast voice calls (MI) Cab radio Group voice calls (MI) Cab radio Ulti-party voice calls (MI) ETCS data only radio Point-to-point voice (NA) calls ETCS data only radio Public emergency (NA) voice calls ETCS data only radio Broadcast voice (NA) Calls ETCS data only radio Broadcast voice (NA) ETCS data only radio Group voice calls (NA) ETCS data only radio Group voice call (NA) General purpose radio Point-to-point (M) voice calls General purpose radio Public emergency (M) voice calls General purpose radio Broadcast voice (M) Calls General purpose radio Group voice calls (MI) General purpose radio Group voice calls (MI) General purpose radio Group voice calls (MI) General purpose radio Foint-to-point voice (MI) Calls (MI) General purpose radio Point-to-point voice (MI) Calls (MI) Operational radio Point-to-point voice (MI) Operational radio Group voice calls (MI) Operational radio Point-to-point voice (MI) Calls Cal		Cab radio Point-to-point voice	(MI)		
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	(1)		
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		Cab radio Deleted	NA		

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14)							
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communications within	()						
·							
the same train (section 5)							
Cab radio Railway emergency calls	(MI)						
(section 13)							
ETCS data only radio Functional	(NA)						
addressing (section 11)							
ETCS data only radio Location dependent	(M)						
·	(141)						
addressing (section 11)							
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(section 14)) N/A							
ETCS data only radio Multiple driver	(NA)						
communications within	(1.0.1)						
the same train (section 5)							
N/A							
ETCS data only radio Railway emergency	(NA)						
calls (section 13)							
General purpose radio Functional	(M)						
addressing (section 11)	` '						
General purpose radio Location	(O)						
	(0)						
dependent addressing (section 11)							
General purpose radio Deleted	(NA)						
N/A							
General purpose radio Shunting mode	(NA)						
(section 14)) N/A	` ,						
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	(IVA)						
communications within							
the same train (section 5)							
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calls (section 13)							
Shunting radio Functional addressing	(M)						
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(section 11)							
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	Table 4-4: EIRENE specific features to be supported	(1)		
5.2.2.3	Once an appropriate destination has been obtained, the radio shall attempt to establish a call to this destination. The functional identity shall be displayed to the controller.	(MI)	RINF_FA_7	FA Call - Successful Call
			RINF_LDA_1	Successful LDA Call - Verify the cell format is correct
			RINF_LDA_2	Unsuccessful LDA Call - Call to invalid Short Code
			RINF_OTDI_1	SS originates VGCS call, terminating Controller receives the OTDI
			RINF_OTDI_2	SS originates VGCS Immediate Setup 2 call, terminating Controller receives the OTDI
5.2.2.3i	The functional identity includes the following:	(1)	RINF_FA_7	FA Call - Successful Call
	- the train number, if available;	(MI)	RINF_LDA_1	Successful LDA Call - Verify the cell format is correct
	 the engine number, if no train number is available; 	(MI)	RINF_LDA_2	Unsuccessful LDA Call - Call to invalid Short Code
	 the coach number of the leading cab, if neither a train number nor an engine number is available. 	(O)	RINF_OTDI_1	SS originates VGCS call, terminating Controller receives the OTDI
			RINF_OTDI_2	SS originates VGCS Immediate Setup 2 call, terminating Controller receives the OTDI
5.2.2.4	An audible and visual indication shall be provided to the driver that the call is proceeding.	(MI)	RINF_FA_7	FA Call - Successful Call
			RINF_LDA_1	Successful LDA Call - Verify the cell format is correct
			RINF_LDA_2	Unsuccessful LDA Call - Call to invalid Short Code
			RINF_OTDI_1	SS originates VGCS call, terminating Controller receives the OTDI
			RINF_OTDI_2	SS originates VGCS Immediate Setup 2 call, terminating Controller receives the OTDI
5.2.2.6	The functional identity of the connected party, if available, shall be displayed to the driver.	(MI)	RINF_FA_7	FA Call - Successful Call
			RINF_LDA_1	Successful LDA Call - Verify the cell format is correct
			RINF_LDA_2	Unsuccessful LDA Call - Call to invalid Short Code
			RINF_OTDI_1	SS originates VGCS call, terminating Controller receives the OTDI
			RINF_OTDI_2	SS originates VGCS Immediate Setup 2 call, terminating Controller receives the OTDI
5.2.2.7	If the functional identity of the connected party contains an alphanumeric description, this shall also be displayed.	(MI)	RINF_FA_7	FA Call - Successful Call
			RINF_LDA_1	Successful LDA Call - Verify the cell format is correct
			RINF_LDA_2	Unsuccessful LDA Call - Call to invalid Short Code

i				1
			RINF_OTDI_1	SS originates VGCS call,
				terminating Controller
				receives the OTDI
			RINF_OTDI_2	SS originates VGCS Immediate
				Setup 2 call, terminating
				Controller receives the OTDI
5.2.2.9	It shall be possible for a driver to initiate	(MI)	RINF_eMLPP_1	MS in VGCS call on DCH, pre-
	and participate in group voice calls	,		emption on Air IF by higher
	between drivers in a pre-defined			prio PtP call
	geographical area.			prior tr can
	geograpmear area.		RINF_eMLPP_3	MS in VGCS call having the UL
			MINI _EIVILFF_3	of the GCH, pre-emption on
				The state of the s
			DINE AND A	Air IF by higher prio VBS call.
			RINF_eMLPP_4	MS in PtP call, pre-emption on
				MS by higher prio VGCS call
				(REC)
			RINF_VGCS_1	SS originates VGCS call
			RINF_VGCS_3	SS originates VGCS call, leaves,
				rejoins and ends it.
			RINF_VGCS_4	SS enters into VGCS broadcast
				area with ongoing VGCS call
				and is notified of it
			RINF_VGCS_7	GID delivered correctly to
				terminating SS in SS originated
				VGCS call
			RINF_REC_3	SS accepts an incoming REC
			RINF_REC_4	Controller originates a REC
			RINF_LE_1	SS active in a PTOP (P4) call
				move in a cell with ongoing
				REC call
			RINF_LE_3	Orig. SS active in a VGCS (P4)
			INITY _LL_3	
				I call on GCH (talker) move in a
				call on GCH (talker) move in a
E 2 2 1E	The call chall continue until terminated by	(841)	DINE AMIDD 1	cell with ongoing REC call
5.2.2.15	The call shall continue until terminated by	(MI)	RINF_eMLPP_1	cell with ongoing REC call MS in VGCS call on DCH, pre-
5.2.2.15	the calling driver, an authorised controller	(MI)	RINF_eMLPP_1	cell with ongoing REC call MS in VGCS call on DCH, pre- emption on Air IF by higher
5.2.2.15	The state of the s	(MI)		cell with ongoing REC call MS in VGCS call on DCH, pre- emption on Air IF by higher prio PtP call
5.2.2.15	the calling driver, an authorised controller	(MI)	RINF_eMLPP_1 RINF_eMLPP_3	cell with ongoing REC call MS in VGCS call on DCH, pre- emption on Air IF by higher prio PtP call MS in VGCS call having the UL
5.2.2.15	the calling driver, an authorised controller	(MI)		cell with ongoing REC call MS in VGCS call on DCH, pre- emption on Air IF by higher prio PtP call MS in VGCS call having the UL of the GCH, pre-emption on
5.2.2.15	the calling driver, an authorised controller	(MI)	RINF_eMLPP_3	cell with ongoing REC call MS in VGCS call on DCH, pre- emption on Air IF by higher prio PtP call MS in VGCS call having the UL of the GCH, pre-emption on Air IF by higher prio VBS call.
5.2.2.15	the calling driver, an authorised controller	(MI)		cell with ongoing REC call MS in VGCS call on DCH, pre- emption on Air IF by higher prio PtP call MS in VGCS call having the UL of the GCH, pre-emption on Air IF by higher prio VBS call. MS in PtP call, pre-emption on
5.2.2.15	the calling driver, an authorised controller	(MI)	RINF_eMLPP_3	cell with ongoing REC call MS in VGCS call on DCH, pre- emption on Air IF by higher prio PtP call MS in VGCS call having the UL of the GCH, pre-emption on Air IF by higher prio VBS call. MS in PtP call, pre-emption on MS by higher prio VGCS call
5.2.2.15	the calling driver, an authorised controller	(MI)	RINF_eMLPP_3 RINF_eMLPP_4	cell with ongoing REC call MS in VGCS call on DCH, pre- emption on Air IF by higher prio PtP call MS in VGCS call having the UL of the GCH, pre-emption on Air IF by higher prio VBS call. MS in PtP call, pre-emption on MS by higher prio VGCS call (REC)
5.2.2.15	the calling driver, an authorised controller	(MI)	RINF_eMLPP_4 RINF_VGCS_1	cell with ongoing REC call MS in VGCS call on DCH, preemption on Air IF by higher prio PtP call MS in VGCS call having the UL of the GCH, pre-emption on Air IF by higher prio VBS call. MS in PtP call, pre-emption on MS by higher prio VGCS call (REC) SS originates VGCS call
5.2.2.15	the calling driver, an authorised controller	(MI)	RINF_eMLPP_3 RINF_eMLPP_4	cell with ongoing REC call MS in VGCS call on DCH, pre- emption on Air IF by higher prio PtP call MS in VGCS call having the UL of the GCH, pre-emption on Air IF by higher prio VBS call. MS in PtP call, pre-emption on MS by higher prio VGCS call (REC)
5.2.2.15	the calling driver, an authorised controller	(MI)	RINF_eMLPP_4 RINF_VGCS_1	cell with ongoing REC call MS in VGCS call on DCH, preemption on Air IF by higher prio PtP call MS in VGCS call having the UL of the GCH, pre-emption on Air IF by higher prio VBS call. MS in PtP call, pre-emption on MS by higher prio VGCS call (REC) SS originates VGCS call
5.2.2.15	the calling driver, an authorised controller	(MI)	RINF_eMLPP_4 RINF_VGCS_1	cell with ongoing REC call MS in VGCS call on DCH, pre- emption on Air IF by higher prio PtP call MS in VGCS call having the UL of the GCH, pre-emption on Air IF by higher prio VBS call. MS in PtP call, pre-emption on MS by higher prio VGCS call (REC) SS originates VGCS call, leaves,
5.2.2.15	the calling driver, an authorised controller	(MI)	RINF_eMLPP_4 RINF_VGCS_1 RINF_VGCS_3	cell with ongoing REC call MS in VGCS call on DCH, pre- emption on Air IF by higher prio PtP call MS in VGCS call having the UL of the GCH, pre-emption on Air IF by higher prio VBS call. MS in PtP call, pre-emption on MS by higher prio VGCS call (REC) SS originates VGCS call, leaves, rejoins and ends it.
5.2.2.15	the calling driver, an authorised controller	(MI)	RINF_eMLPP_4 RINF_VGCS_1 RINF_VGCS_3	cell with ongoing REC call MS in VGCS call on DCH, pre- emption on Air IF by higher prio PtP call MS in VGCS call having the UL of the GCH, pre-emption on Air IF by higher prio VBS call. MS in PtP call, pre-emption on MS by higher prio VGCS call (REC) SS originates VGCS call SS originates VGCS call, leaves, rejoins and ends it. SS enters into VGCS broadcast
5.2.2.15	the calling driver, an authorised controller	(MI)	RINF_eMLPP_4 RINF_VGCS_1 RINF_VGCS_3	cell with ongoing REC call MS in VGCS call on DCH, pre- emption on Air IF by higher prio PtP call MS in VGCS call having the UL of the GCH, pre-emption on Air IF by higher prio VBS call. MS in PtP call, pre-emption on MS by higher prio VGCS call (REC) SS originates VGCS call SS originates VGCS call, leaves, rejoins and ends it. SS enters into VGCS broadcast area with ongoing VGCS call
5.2.2.15	the calling driver, an authorised controller	(MI)	RINF_eMLPP_4 RINF_VGCS_1 RINF_VGCS_3 RINF_VGCS_4	cell with ongoing REC call MS in VGCS call on DCH, pre- emption on Air IF by higher prio PtP call MS in VGCS call having the UL of the GCH, pre-emption on Air IF by higher prio VBS call. MS in PtP call, pre-emption on MS by higher prio VGCS call (REC) SS originates VGCS call SS originates VGCS call, leaves, rejoins and ends it. SS enters into VGCS broadcast area with ongoing VGCS call and is notified of it
5.2.2.15	the calling driver, an authorised controller	(MI)	RINF_eMLPP_4 RINF_VGCS_1 RINF_VGCS_3 RINF_VGCS_4	cell with ongoing REC call MS in VGCS call on DCH, pre- emption on Air IF by higher prio PtP call MS in VGCS call having the UL of the GCH, pre-emption on Air IF by higher prio VBS call. MS in PtP call, pre-emption on MS by higher prio VGCS call (REC) SS originates VGCS call SS originates VGCS call, leaves, rejoins and ends it. SS enters into VGCS broadcast area with ongoing VGCS call and is notified of it GID delivered correctly to
5.2.2.15	the calling driver, an authorised controller	(MI)	RINF_eMLPP_4 RINF_VGCS_1 RINF_VGCS_3 RINF_VGCS_4 RINF_VGCS_7	cell with ongoing REC call MS in VGCS call on DCH, pre- emption on Air IF by higher prio PtP call MS in VGCS call having the UL of the GCH, pre-emption on Air IF by higher prio VBS call. MS in PtP call, pre-emption on MS by higher prio VGCS call (REC) SS originates VGCS call SS originates VGCS call, leaves, rejoins and ends it. SS enters into VGCS broadcast area with ongoing VGCS call and is notified of it GID delivered correctly to terminating SS in SS originated VGCS call
5.2.2.15	the calling driver, an authorised controller	(MI)	RINF_eMLPP_3 RINF_eMLPP_4 RINF_VGCS_1 RINF_VGCS_3 RINF_VGCS_4 RINF_VGCS_7	cell with ongoing REC call MS in VGCS call on DCH, preemption on Air IF by higher prio PtP call MS in VGCS call having the UL of the GCH, pre-emption on Air IF by higher prio VBS call. MS in PtP call, pre-emption on MS by higher prio VGCS call (REC) SS originates VGCS call SS originates VGCS call, leaves, rejoins and ends it. SS enters into VGCS broadcast area with ongoing VGCS call and is notified of it GID delivered correctly to terminating SS in SS originated VGCS call SS accepts an incoming REC
5.2.2.15	the calling driver, an authorised controller	(MI)	RINF_eMLPP_3 RINF_eMLPP_4 RINF_VGCS_1 RINF_VGCS_3 RINF_VGCS_4 RINF_VGCS_7	cell with ongoing REC call MS in VGCS call on DCH, preemption on Air IF by higher prio PtP call MS in VGCS call having the UL of the GCH, pre-emption on Air IF by higher prio VBS call. MS in PtP call, pre-emption on MS by higher prio VGCS call (REC) SS originates VGCS call SS originates VGCS call, leaves, rejoins and ends it. SS enters into VGCS broadcast area with ongoing VGCS call and is notified of it GID delivered correctly to terminating SS in SS originated VGCS call SS accepts an incoming REC Controller originates a REC
5.2.2.15	the calling driver, an authorised controller	(MI)	RINF_eMLPP_3 RINF_eMLPP_4 RINF_VGCS_1 RINF_VGCS_3 RINF_VGCS_4 RINF_VGCS_7	cell with ongoing REC call MS in VGCS call on DCH, preemption on Air IF by higher prio PtP call MS in VGCS call having the UL of the GCH, pre-emption on Air IF by higher prio VBS call. MS in PtP call, pre-emption on MS by higher prio VGCS call (REC) SS originates VGCS call SS originates VGCS call, leaves, rejoins and ends it. SS enters into VGCS broadcast area with ongoing VGCS call and is notified of it GID delivered correctly to terminating SS in SS originated VGCS call SS accepts an incoming REC Controller originates a REC SS active in a PTOP (P4) call
5.2.2.15	the calling driver, an authorised controller	(MI)	RINF_eMLPP_3 RINF_eMLPP_4 RINF_VGCS_1 RINF_VGCS_3 RINF_VGCS_4 RINF_VGCS_7	cell with ongoing REC call MS in VGCS call on DCH, preemption on Air IF by higher prio PtP call MS in VGCS call having the UL of the GCH, pre-emption on Air IF by higher prio VBS call. MS in PtP call, pre-emption on MS by higher prio VGCS call (REC) SS originates VGCS call. SS originates VGCS call, leaves, rejoins and ends it. SS enters into VGCS broadcast area with ongoing VGCS call and is notified of it GID delivered correctly to terminating SS in SS originated VGCS call SS accepts an incoming REC Controller originates a REC SS active in a PTOP (P4) call move in a cell with ongoing
5.2.2.15	the calling driver, an authorised controller	(MI)	RINF_eMLPP_3 RINF_eMLPP_4 RINF_VGCS_1 RINF_VGCS_3 RINF_VGCS_4 RINF_VGCS_7 RINF_REC_3 RINF_REC_4 RINF_LE_1	cell with ongoing REC call MS in VGCS call on DCH, preemption on Air IF by higher prio PtP call MS in VGCS call having the UL of the GCH, pre-emption on Air IF by higher prio VBS call. MS in PtP call, pre-emption on MS by higher prio VGCS call (REC) SS originates VGCS call. SS originates VGCS call, leaves, rejoins and ends it. SS enters into VGCS broadcast area with ongoing VGCS call and is notified of it GID delivered correctly to terminating SS in SS originated VGCS call SS accepts an incoming REC Controller originates a REC SS active in a PTOP (P4) call move in a cell with ongoing REC call
5.2.2.15	the calling driver, an authorised controller	(MI)	RINF_eMLPP_3 RINF_eMLPP_4 RINF_VGCS_1 RINF_VGCS_3 RINF_VGCS_4 RINF_VGCS_7	cell with ongoing REC call MS in VGCS call on DCH, preemption on Air IF by higher prio PtP call MS in VGCS call having the UL of the GCH, pre-emption on Air IF by higher prio VBS call. MS in PtP call, pre-emption on MS by higher prio VGCS call (REC) SS originates VGCS call. SS originates VGCS call, leaves, rejoins and ends it. SS enters into VGCS broadcast area with ongoing VGCS call and is notified of it GID delivered correctly to terminating SS in SS originated VGCS call SS accepts an incoming REC Controller originates a REC SS active in a PTOP (P4) call move in a cell with ongoing REC call Orig. SS active in a VGCS (P4)
5.2.2.15	the calling driver, an authorised controller	(MI)	RINF_eMLPP_3 RINF_eMLPP_4 RINF_VGCS_1 RINF_VGCS_3 RINF_VGCS_4 RINF_VGCS_7 RINF_REC_3 RINF_REC_4 RINF_LE_1	cell with ongoing REC call MS in VGCS call on DCH, preemption on Air IF by higher prio PtP call MS in VGCS call having the UL of the GCH, pre-emption on Air IF by higher prio VBS call. MS in PtP call, pre-emption on MS by higher prio VGCS call (REC) SS originates VGCS call. SS originates VGCS call, leaves, rejoins and ends it. SS enters into VGCS broadcast area with ongoing VGCS call and is notified of it GID delivered correctly to terminating SS in SS originated VGCS call SS accepts an incoming REC Controller originates a REC SS active in a PTOP (P4) call move in a cell with ongoing REC call Orig. SS active in a VGCS (P4) call on GCH (talker) move in a
	the calling driver, an authorised controller or the network.		RINF_eMLPP_3 RINF_eMLPP_4 RINF_VGCS_1 RINF_VGCS_3 RINF_VGCS_7 RINF_REC_3 RINF_REC_4 RINF_LE_1 RINF_LE_3	cell with ongoing REC call MS in VGCS call on DCH, preemption on Air IF by higher prio PtP call MS in VGCS call having the UL of the GCH, pre-emption on Air IF by higher prio VBS call. MS in PtP call, pre-emption on MS by higher prio VGCS call (REC) SS originates VGCS call SS originates VGCS call, leaves, rejoins and ends it. SS enters into VGCS broadcast area with ongoing VGCS call and is notified of it GID delivered correctly to terminating SS in SS originated VGCS call SS accepts an incoming REC Controller originates a REC SS active in a PTOP (P4) call move in a cell with ongoing REC call Orig. SS active in a VGCS (P4) call on GCH (talker) move in a cell with ongoing REC call
5.2.2.15	the calling driver, an authorised controller	(MI)	RINF_eMLPP_3 RINF_eMLPP_4 RINF_VGCS_1 RINF_VGCS_3 RINF_VGCS_4 RINF_VGCS_7 RINF_REC_3 RINF_REC_4 RINF_LE_1	cell with ongoing REC call MS in VGCS call on DCH, preemption on Air IF by higher prio PtP call MS in VGCS call having the UL of the GCH, pre-emption on Air IF by higher prio VBS call. MS in PtP call, pre-emption on MS by higher prio VGCS call (REC) SS originates VGCS call. SS originates VGCS call, leaves, rejoins and ends it. SS enters into VGCS broadcast area with ongoing VGCS call and is notified of it GID delivered correctly to terminating SS in SS originated VGCS call SS accepts an incoming REC Controller originates a REC SS active in a PTOP (P4) call move in a cell with ongoing REC call Orig. SS active in a VGCS (P4) call on GCH (talker) move in a

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			RINF_REC_2	Subscriber initiated REC (no talker change, normal clear down of call)
			RINF_REC_4	Controller originates a REC
			RINF_REC_6	REC in a GCA with a locked cell
5.2.2.26	Many trains employ multiple active traction vehicles. Where these vehicles are not connected by on-train wire connections, it shall be possible for the lead driver to establish a permanent radio connection between each of the active cabs.	(MI)	RINF_GSM_5	Supplementary Service MPTY
5.2.2.29	The lead driver shall be notified if a member of the group has placed the call on hold, although this shall not affect communications between the remaining members of the group.	(MI)	RINF_GSM_5	Supplementary Service MPTY
5.2.2.30	At any time during the call, the lead driver shall be able to remove a member of the group.	(MI)	RINF_GSM_5	Supplementary Service MPTY
5.2.2.31	The lead driver shall be able to terminate the entire call.	(MI)	RINF_GSM_5	Supplementary Service MPTY
5.2.2.32	If a driver is disconnected from the multi- driver call, a clear indication shall be given.	(MI)	RINF_GSM_5	Supplementary Service MPTY
5.2.2.37	For calls between a controller and the lead cab, it shall be possible to add the controller to the multi-driver call. Either the lead driver calls the controller or the controller calls the lead driver. In the latter case, the controller is automatically added into the multi-driver call. Functional identity of the controller shall be displayed in the leading cab.	(MI)	RINF_GSM_5	Supplementary Service MPTY
	Call train staff	(I)		
5.2.2.38	It shall be possible for the driver to contact members of on-board train staff using a point-to-point voice call.	(MI)	RINF_GSM_5	Supplementary Service MPTY
5.2.2.42	The Cab radio shall be capable of being used as a standard telephone, such that the driver is able to call any valid number subject to pre-defined call restrictions. The call may be initiated by: - selection from a pre-defined list (up to 99 entries); - direct dialling a subscriber number;	(MI) (MI) (MI)	RINF_GSM_5	Supplementary Service MPTY
	- calling a functional number.	(MI)		
	Receive incoming point-to-point voice call	(I)		
5.2.2.43	An audible and visual indication of an incoming call shall be provided.	(MI)	RINF_VGCS_1	SS originates VGCS call
			RINF_VGCS_2	Controller originates VGCS call and takes it down with the kill Sequence
			RINF_VGCS_3	SS originates VGCS call, leaves, rejoins and ends it.
			RINF_VGCS_4	SS enters into VGCS broadcast area with ongoing VGCS call and is notified of it
			RINF_VGCS_5	Controller joins ongoing VGCS call
			RINF_VGCS_6	Parallel group calls are possible in the same cell.

Ī			DINE VICES 7	CID delivered correctly to
			RINF_VGCS_7	GID delivered correctly to terminating SS in SS originated
				VGCS call
			RINF_VBS_1	SS originates VBS call
			RINF_VBS_2	SS originates prio0 VBS call
			RINF_VBS_3	Controller originates VBS call and takes down the call by
			RINF_VBS_4	Controller originates VBS call
				and takes down the call with the kill sequence
			RINF_VBS_5	Controller joins ongoing VBS call
			RINF_VBS_6	SS enters into VBS broadcast area with ongoing VBS call and is notified of it, SS joins the VBS call
5.2.2.47	An audible and visual indication of the incoming call shall be provided when a Cab radio receives a group or broadcast call.	(MI)	RINF_VGCS_1	SS originates VGCS call
			RINF_VGCS_2	Controller originates VGCS call and takes it down with the kill Sequence
			RINF_VGCS_3	SS originates VGCS call, leaves, rejoins and ends it.
			RINF_VGCS_4	SS enters into VGCS broadcast area with ongoing VGCS call and is notified of it
			RINF_VGCS_5	Controller joins ongoing VGCS call
			RINF_VGCS_6	Parallel group calls are possible in the same cell.
			RINF_VGCS_7	GID delivered correctly to terminating SS in SS originated VGCS call
			RINF_VBS_1	SS originates VBS call
			RINF_VBS_2	SS originates prio0 VBS call
			RINF_VBS_3	Controller originates VBS call and takes down the call by disconnecting
			RINF_VBS_4	Controller originates VBS call and takes down the call with the kill sequence
			RINF_VBS_5	Controller joins ongoing VBS call
			RINF_VBS_6	SS enters into VBS broadcast area with ongoing VBS call and
				is notified of it, SS joins the VBS call
9.2.1.1	The EIRENE system shall enable users to originate and receive calls by functional number.	(MI)	RINF_FA_1	Registration of an FN Number
			RINF_FA_2	Registration of an unknown FN fails
			RINF_FA_3	Deregistration of an FN Number
			RINF_FA_4	Deregistration of an FN fails
			RINF_FA_5	Interrogation of an FA Number
			RINF_FA_6	Interrogation of an FN fails
			RINF_FA_7	FA Call - Successful Call
			RINF_FA_8	FA Call – Call is not completed

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			RINF_FA_9	Verification of Functional
				Numbers previously
				registered in HPLMN
				(CT2/3/4)
			RINF_FA_10	Deregistration of CT2 numbers
				while roaming
			RINF_FA_11	Forced Deregistration
			RINF_FA_14	Registration of an FN fails -
				remote party already
				registered
9.2.1.2	Each mobile shall be identified by a unique telephone number.	(MI)	NoCov_5	Network Konfiguration Topic + Basic Call + CLIP
9.2.2.2	Every on-train function shall be identified by a unique standard number.	(MI)	RINF_FA_1	Registration of an FN Number
			RINF_FA_2	Registration of an unknown FN fails
			RINF_FA_3	Deregistration of an FN Number
			RINF_FA_4	Deregistration of an FN fails
			RINF_FA_11	Forced Deregistration
			RINF_FA_14	Registration of an FN fails -
				remote party already
				registered
9.2.3.2	Every on-engine/coach function shall be identified by a unique standard number.	(MI)	RINF_FA_1	Registration of an FN Number
			RINF_FA_2	Registration of an unknown FN fails
			RINF_FA_3	Deregistration of an FN Number
			RINF_FA_4	Deregistration of an FN fails
			RINF_FA_11	Forced Deregistration
			RINF_FA_14	Registration of an FN fails -
				remote party already
				registered
9.2.4.1	Every shunting team number shall be based on an association of:	(MI)	RINF_FA_1	Registration of an FN Number
	- service area identifier;	(MI)	RINF_FA_2	Registration of an unknown FN fails
	- shunting team identifier.	(MI)	RINF_FA_3	Deregistration of an FN Number
			RINF_FA_4	Deregistration of an FN fails
			RINF_FA_5	Interrogation of an FA Number
			RINF_FA_6	Interrogation of an FN fails
			RINF_FA_7	FA Call - Successful Call
			RINF_FA_8	FA Call – Call is not completed
			RINF_FA_9	Verification of Functional Numbers previously
				registered in HPLMN (CT2/3/4)
			RINF_FA_10	Deregistration of CT2 numbers while roaming
			RINF_FA_11	Forced Deregistration
			RINF_FA_14	Registration of an FN fails - remote party already registered
9.2.4.2	Every maintenance team number shall be	(MI)	RINF_FA_1	Registration of an FN Number
	based on an association of:			
	- service area identifier;	(MI)	RINF_FA_2	Registration of an unknown FN fails
	 type of maintenance team (speciality code); 	(MI)	RINF_FA_3	Deregistration of an FN Number
İ	- maintenance team identifier.	(MI)	RINF_FA_4	Deregistration of an FN fails

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			RINF_FA_5	Interrogation of an FA Number
			RINF_FA_6	Interrogation of an FN fails
			RINF_FA_7	FA Call - Successful Call
			RINF_FA_8	FA Call – Call is not completed
			RINF_FA_9	Verification of Functional
				Numbers previously
				registered in HPLMN
				(CT2/3/4)
			RINF_FA_10	Deregistration of CT2 numbers while roaming
			RINF_FA_11	Forced Deregistration
			RINF_FA_14	Registration of an FN fails -
				remote party already registered
9.2.4.3	Every controller number shall be based on	(1)	RINF_FA_1	Registration of an FN Number
3.2.4.3	an association of:	(1)	NINI _I A_1	Registration of all 110 Number
	- controller location;	(MI)	RINF_FA_2	Registration of an unknown
	- controller location,	(IVII)	KINF_FA_2	FN fails
	- controller identifier.	(MI)	RINF_FA_3	Deregistration of an FN
		\····/		Number
			RINF_FA_4	Deregistration of an FN fails
			RINF FA 5	Interrogation of an FA
				Number
			RINF_FA_6	Interrogation of an FN fails
			RINF_FA_7	FA Call - Successful Call
			RINF_FA_8	FA Call – Call is not completed
			RINF_FA_9	Verification of Functional
			KINF_FA_9	Numbers previously
				registered in HPLMN
				(CT2/3/4)
			RINF_FA_10	Deregistration of CT2 numbers
			KINF_FA_10	while roaming
			RINF_FA_11	Forced Deregistration
				Registration of an FN fails -
			RINF_FA_14	remote party already
				registered
0 2 4 4	The acceptance for other teams shall be	/n 41\	DINIE EA 1	
9.2.4.4	The numbering for other teams shall be treated in the same way as maintenance teams in 9.2.4.2.	(MI)	RINF_FA_1	Registration of an FN Number
			RINF_FA_2	Registration of an unknown FN fails
			RINF_FA_3	Deregistration of an FN
				Number
			RINF_FA_4	Deregistration of an FN fails
			RINF_FA_5	Interrogation of an FA Number
			RINF_FA_6	Interrogation of an FN fails
			RINF FA 7	FA Call - Successful Call
			RINF_FA_7	FA Call – Call is not completed
			RINF_FA_6	Verification of Functional
			WINE_EA_9	Numbers previously
				registered in HPLMN
				(CT2/3/4)
			RINF_FA_10	Deregistration of CT2 numbers
				while roaming
			RINF_FA_11	Forced Deregistration
			RINF_FA_14	Registration of an FN fails -
				remote party already
				registered

9.3.1	Telephone numbers can be defined on a national basis, but codes for certain functions shall be used on an international basis in order to allow interoperability.	(MI)	NoCov_6	Network Konfiguration Topic + RINF_FA_15
9.3.2	For certain functions, standardised telephone numbers shall be implemented. These functions are:	(1)	RINF_GSM_7	Public Emergency Call – With SIM
	 Route call to most appropriate ERTMS/ETCS RBC; 	(MI)	RINF_LDA_1	Successful LDA Call - Verify the cell format is correct
	- Railway emergency call;	(MI)	RINF_LDA_2	Unsuccessful LDA Call - Call to invalid Short Code
	- Route call to primary controller;	(MI)	RINF_REC_1	SS originates a REC
	- Route call to secondary controller;	(MI)	RINF_REC_2	Subscriber initiated REC (no talker change, normal clear down of call)
	- Route call to power supply controller;	(MI)	RINF_REC_4	Controller originates a REC
	- Public emergency call.	(M)	RINF_REC_6	REC in a GCA with a locked cell
9.5.1	Authorised users within the EIRENE network shall be able to receive calls from calling parties outside the EIRENE network.	(MI)	RINF_AM_1	National call: AM allows call
10.2.1	A number of levels of priority shall be required in order to offer different grades of service to different users and calls. Five levels of priority shall be defined:	(1)	RINF_REC_1	SS originates a REC
	- Railway emergency;	(MI)	RINF_REC_2	Subscriber initiated REC (no talker change, normal clear down of call)
	- control-command (safety);	(MI)	RINF_REC_4	Controller originates a REC
	- public emergency and high priority calls;	(MI)	RINF_REC_6	REC in a GCA with a locked cell
	- railway operation;	(MI)		
	- railway information.	(MI)		
10.2.2	In order to provide interoperability, priorities shall be allocated consistently across all EIRENE networks, as shown in the following table.	(1)	RINF_HO_2	Ongoing point to point voice call in the destination cell preempted by a inter BTS handover inwards of a point to point voice call
	Automatic UIC Priority answering* Pre- emption (of)	(1)	RINF_eMLPP_1	MS in VGCS call on DCH, pre- emption on Air IF by higher prio PtP call
	Railway emergency Y * Control-command (safety) and below	(MI)	RINF_eMLPP_2	MS in VBS call as listener, pre- emption on Air IF by higher prio VBS call.
	Public emergency, and high- Control-command (safety) NA priority calls and below	(MI)	RINF_eMLPP_3	MS in VGCS call having the UL of the GCH, pre-emption on Air IF by higher prio VBS call.
	Public emergency, and high- Railway operation, priority calls	(MI)	RINF_eMLPP_4	MS in PtP call, pre-emption on MS by higher prio VGCS call (REC)
	Railway operation (eg calls from or for All low priority calls drivers and controllers Y** including group calls between drivers in the same area that have been initiated by a controller) and Control-command (information)	(MI)	RINF_eMLPP_5	MS in VBS call as originator, pre-emption on Air IF by higher prio VGCS call (REC)

	All low priority calls	(MI)	RINF_eMLPP_7	MS in data call, pre-emption on Air IF by higher prio VGCS
	* Y: Automatic call answering applies	(1)	RINF_eMLPP_8	call (REC) MS in PtP call, pre-emption or Air IF by higher prio data call
	Y**Mandatory for Cab radio, optional for other user equipment	(1)	RINF_REC_1	(4800 baud, transparent) SS originates a REC
	Table 10-1: Allocation of priorities	(1)	RINF_REC_2	Subscriber initiated REC (no talker change, normal clear down of call)
			RINF_REC_4 RINF_REC_6	Controller originates a REC REC in a GCA with a locked ce
			RINF_LE_2	Orig. SS active in a VBS (P4) call move in a cell with ongoing REC call
			RINF_LE_3	Orig. SS active in a VGCS (P4) call on GCH (talker) move in a cell with ongoing REC call
10.2.3	The lowest priority ongoing call shall be pre-empted before that of a higher priority.	(MI)	RINF_eMLPP_1	MS in VGCS call on DCH, pre- emption on Air IF by higher prio PtP call
			RINF_eMLPP_2	MS in VBS call as listener, pre emption on Air IF by higher prio VBS call.
			RINF_eMLPP_3	MS in VGCS call having the UL of the GCH, pre-emption on Air IF by higher prio VBS call.
			RINF_eMLPP_4	MS in PtP call, pre-emption o MS by higher prio VGCS call (REC)
			RINF_eMLPP_5	MS in VBS call as originator, pre-emption on Air IF by higher prio VGCS call (REC)
			RINF_eMLPP_7	MS in data call, pre-emption on Air IF by higher prio VGCS call (REC)
			RINF_eMLPP_8	MS in PtP call, pre-emption o Air IF by higher prio data call (4800 baud, transparent)
			RINF_LE_2	Orig. SS active in a VBS (P4) call move in a cell with ongoing REC call
			RINF_LE_3	Orig. SS active in a VGCS (P4) call on GCH (talker) move in a cell with ongoing REC call
10.3.2	Any implementation of such call restrictions shall not affect international interoperability.	(MI)	RINF_AM_1	National call: AM allows call
	interoperability.		RINF_AM_2	National call: AM denies call
10.4.1	A mobile may be a member of a number of groups. It shall be possible to 'activate' or 'deactivate' the mobile's subscription to these groups.	(MI)	RINF_eMLPP_5	MS in VBS call as originator, pre-emption on Air IF by higher prio VGCS call (REC)
10.4.2	Activating a group on the mobile shall allow a user to receive a call from that	(MI)	NoCov_10	Mobile/Cab requirement
10.4.3	group. Deactivating a group on the mobile shall prevent a user receiving calls from that	(MI)	NoCov_10	Mobile/Cab requirement
10.4.4	group. In order to provide interoperability, Cab radios shall/should be members of a number of standard groups:	(1)	NoCov_11	Mobile/Cab requirement + Configuration

	 Railway emergency call; High priority group call between drivers in the same area; shunting group call; 	(MI) (MI) (MI)		
	 Operational group call to drivers in the same area. 	(O)		
10.4.5	All mobiles with Railway emergency group call subscription(s) shall be prevented from deactivating the emergency group(s) whilst operational.	(MI)	NoCov_10	Mobile/Cab requirement
10.5.1	Authorised networks shall be listed in the following order:	(1)	NoCov_10	Mobile/Cab requirement
	- home EIRENE network;	(MI)		
	- 'foreign' EIRENE networks;- public networks.	(MI)		
10.5.2	Where EIRENE facilities are not available	(MI) (MI)	NoCov_10	Mobile/Cab requirement
10.3.2	within the currently selected network, the user shall be given a visible indication.	(1411)	10000_10	Woone, can requirement
10.6.2	Yes indicates that the network shall allow a call from the stated initiating party to the stated receiving party. "Yes*" indicates that the call shall be allowed at least for users on the same train. "Open" indicates that permissions for calls of this type are to be assigned by the implementing railway according to their specific communication requirements. Shaded cells on the access matrix mean that this call is outside the scope of the EIRENE specifications. The access matrix is shown in table 10-2.	(1)	RINF_AM_1	National call: AM allows call
	Initiating Party -> Receiving Party: Allow Call	(1)	RINF_AM_2	National call: AM denies call
	Primary Controller -> Primary Controller: Out of scope	(1)		
	Secondary Controller -> Primary Controller: Out of scope	(1)		
	Power Controller -> Primary Controller: Out of scope	(1)		
	Lead Driver -> Primary Controller: Yes	(MI)		
	Other Driver -> Primary Controller: Yes Chief Conductor -> Primary Controller:	(MI)		
	Open	(I)		
	Public Address -> Primary Controller : Out of scope Initiating Party -> Receiving Party:	(I) (I)		
	Allow Call Primary Controller -> Secondary	(1)		
	Controller: Out of scope Secondary Controller -> Secondary	(1)		
	Controller: Out of scope Power Controller -> Secondary	(1)		
	Controller: Out of scope Lead Driver -> Secondary Controller:	(I) (MI)		
	Yes Other Driver -> Secondary Controller:	(MI)		
	Yes Chief Conductor -> Secondary	(1)		
	Controller: Open Public Address -> Secondary Controller: Out of scope	(1)		

Initiating Party -> Receiving Party: Allow Call	(1)	
Primary Controller -> Power Controller: Out of scope	(1)	
Secondary Controller -> Power Controller: Out of scope	(1)	
Power Controller -> Power Controller: Out of scope	(1)	
Lead Driver -> Power Controller Yes	(MI)	
Other Driver -> Power Controller: Yes	(MI)	
Chief Conductor -> Power Controller: Open	(1)	
Public Address -> Power Controller: Out of scope	(1)	
Initiating Party -> Receiving Party: Allow Call	(1)	
Primary Controller -> Lead Driver:	(MI)	
Yes Secondary Controller -> Lead Driver:	(MI)	
Yes Power Controller -> Lead Driver:	(MI)	
Yes Lead Driver -> Lead Driver:	(1)	
Open Other Driver -> Lead Driver:	(MI)	
Yes* Chief Conductor -> Lead Driver:	(MI)	
Yes Public Address -> Lead Driver:	(1)	
Out of scope Initiating Party -> Receiving Party:	(1)	
Allow Call Primary Controller -> Other Driver:	(MI)	
Yes Secondary Controller -> Other Driver:	(1)	
Open Power Controller -> Other Driver:	(1)	
Open Lead Driver -> Other Driver:	(1)	
Open Other Driver -> Other Driver:	(MI)	
Yes* Chief Conductor -> Other Driver:	(MI)	
Yes* Public Address -> Other Driver:	(1)	
Out of scope Initiating Party -> Receiving Party:	(1)	
Allow Call Primary Controller -> Chief Conductor:	(1)	
Open Secondary Controller -> Chief Conductor:	(1)	
Open Power Controller -> Chief Conductor:	(1)	
Open Lead Driver -> Chief Conductor:	(MI)	
Yes* Other Driver -> Chief Conductor:	(MI)	
Yes* Chief Conductor -> Chief Conductor:	(MI)	
Yes*	(1711)	

	Public Address -> Chief Conductor: Out of scope	(1)		
	Initiating Party -> Receiving Party: Allow Call	(I)		
	Primary Controller -> Public Address:	(1)		
	Open Secondary Controller -> Public Address:	(1)		
	Open Power Controller -> Public Address: Open	(1)		
	Lead Driver -> Public Address: Yes*	(MI)		
	Other Driver -> Public Address: Yes*	(MI)		
	Chief Conductor -> Public Address: Yes*	(MI)		
	Public Address -> Public Address: Out of scope	(1)		
	* At least for persons on the same train Table 10-2: Access matrix	(I) (I)		
11.2.1.1	An addressing scheme shall be provided which permits users to be identified by numbers corresponding to their functional roles rather than by numbers tied to the terminal equipment that they are using.	(MI)	RINF_FA_1	Registration of an FN Number
			RINF_FA_2	Registration of an unknown FN fails
			RINF_FA_3	Deregistration of an FN Number
			RINF_FA_4 RINF_FA_5	Deregistration of an FN fails Interrogation of an FA Number
			RINF FA 6	Interrogation of an FN fails
			RINF_FA_7	FA Call - Successful Call
			RINF_FA_8	FA Call – Call is not completed
			RINF_FA_9	Verification of Functional Numbers previously registered in HPLMN (CT2/3/4)
			RINF_FA_10	Deregistration of CT2 numbers while roaming
			RINF_FA_11 RINF_FA_14	Forced Deregistration Registration of an FN fails - remote party already registered
11.2.1.4	It shall be possible to assign up to a minimum of 3 functional numbers to an EIRENE user at any one time.	(MI)	RINF_FA_13	Register 3 function numbers to one user (non-roaming case)
11.2.1.5	Only one EIRENE user shall be assigned to a given functional number at any one time.	(MI)	RINF_FA_2	Registration of an unknown FN fails
11.2.1.7	A user shall be able to set up a functional number on one network, and cancel the number from another network.	(MI)	NoCov_9	Mobile/Cab requirement + 2 NW needed + RINF_REC_16
11.2.1.8	The functional number shall remain valid as a user roams from one network to another.	(MI)	NoCov_9	Mobile/Cab requirement + 2 NW needed + RINF_REC_16
11.2.1.9	The functional addressing scheme shall be independent of specific configurations of mobile and terminal equipment. For example, the functional number of a conductor on board a particular train shall be the same irrespective of whether the	(MI)	NoCov_12	Mobile/Cab requirement + NW Configuration + RINF_FA_15

	conductor accesses the network through			
	the Cab radio or has a separate dedicated EIRENE mobile.			
11.2.1.10	It shall be possible to call EIRENE users by functional numbers from a wide range of terminals (EIRENE and non-EIRENE). Examples include EIRENE mobiles, controller terminals, railway fixed network telephones and public telephones. (All such calls will be subject to any access restrictions - see section 10.3.)	(MI)	NoCov_12	Mobile/Cab requirement + NW Configuration + RINF_FA_15
11.2.2.1	Functional numbers must be unique within the domain of operation. Since the number must be independent of networks, each number must be unique across all networks (including implementation of EIRENE facilities on public networks).	(MI)	RINF_FA_2	Registration of an unknown FN fails
11.2.2.2	The functional number shall consist of numeric characters only.	(MI)	NoCov_12	Mobile/Cab requirement + NW Configuration + RINF FA 15
11.2.3.1	The functional identity of the called user shall be presented to the user initiating a call and the functional identity of the initiator shall be presented to the user receiving a call.	(MI)	NoCov_13	Mobile/Cab requirement + RINF_GSM_4, RINF_GSM_6
11.2.3.2	For broadcast and group voice communications, the functional identity provided shall be that of the broadcast or group identity.	(MI)	RINF_VGCS_2	Controller originates VGCS cal and takes it down with the kill Sequence
	Stoup dentity.		RINF_VGCS_3	SS originates VGCS call, leaves rejoins and ends it.
			RINF_VGCS_4	SS enters into VGCS broadcast area with ongoing VGCS call and is notified of it
			RINF_VGCS_5	Controller joins ongoing VGCS call
			RINF_VGCS_6	Parallel group calls are possible in the same cell.
			RINF_VGCS_7	GID delivered correctly to terminating SS in SS originates VGCS call
			RINF_VBS_1	SS originates VBS call
			RINF_VBS_2	SS originates prio0 VBS call
			RINF_VBS_3	Controller originates VBS call and takes down the call by disconnecting
			RINF_VBS_4	Controller originates VBS call and takes down the call with the kill sequence
			RINF_VBS_5	Controller joins ongoing VBS call
			RINF_VBS_6	SS enters into VBS broadcast area with ongoing VBS call an is notified of it, SS joins the VBS call
11.2.3.3	If the user initiating the call has more than one functional identity, the user shall be able to select, prior to call establishment, which functional identity is presented to the receiving user.	(MI)	NoCov_13	Mobile/Cab requirement + RINF_GSM_4, RINF_GSM_6
11.2.3.4	In the case of Cab radio, when a train number is assigned as a functional	(MI)	NoCov_13	Mobile/Cab requirement + RINF_GSM_4, RINF_GSM_6

	identity, this shall take priority over other Cab radio functional identities, and shall be the functional identity for the Cab radio to be displayed to other users.			
11.2.3.5	The functional identity shall be presented to the user in a form which can be readily understood (eg 'driver of train abcd' rather than 'abcd01' or 'xyz shunting team 3' rather than 'xyz03').	(MI)	NoCov_13	Mobile/Cab requirement + RINF_GSM_4, RINF_GSM_6
11.3.2.1	The functional addressing scheme shall be supported by a straightforward procedure for registration of functional numbers. This procedure shall be carried out by the user on commencement of the functional role.	(MI)	NoCov_14	Mobile/Cab requirement + RINF_FA_1, RINF_FA_3
11.3.2.2	The functional number registration facility shall be supported by all EIRENE user equipment.	(MI)	NoCov_14	Mobile/Cab requirement + RINF_FA_1, RINF_FA_3
11.3.2.3	It shall be possible to register up to five functional numbers to items of equipment physically connected to the Cab radio within 30 seconds.	(MI)	RINF_FA_1	Registration of an FN Number
			RINF_FA_2	Registration of an unknown FN fails
			RINF_FA_3	Deregistration of an FN Number
			RINF_FA_4	Deregistration of an FN fails
			RINF_FA_5	Interrogation of an FA Number
			RINF_FA_6	Interrogation of an FN fails
			RINF_FA_7	FA Call - Successful Call
			RINF_FA_8	FA Call – Call is not completed
			RINF_FA_9	Verification of Functional Numbers previously registered in HPLMN (CT2/3/4)
			RINF_FA_10	Deregistration of CT2 numbers while roaming
			RINF_FA_11	Forced Deregistration
			RINF_FA_14	Registration of an FN fails - remote party already registered
11.3.2.4i	In the event of a failure during the registration of functional numbers, an indication shall be provided.	(MI)	NoCov_16	Mobile/Cab requirement + RINF_FA_2, RINF_FA_14
11.3.2.5	Duplicate functional numbers (eg two trains with the same train number) shall be prevented.	(MI)	RINF_FA_12	Unsuccessful registration with Lead driver number (CT2 FC 01) because of wrong CoR (CT2 FC10 works)
11.3.2.6	The system shall provide a means to recover consistent data sets following a system failure during which functional addressing facilities are lost. During this recovery period, the system shall not permit the use of unverified functional numbers.	(MI)	NoCov_15	Backup/Restore Procedures for FN-Node to check
11.3.3.1	The functional addressing scheme shall be supported by a straightforward procedure for deregistration of functional numbers. This procedure shall be carried out by the user at the end of the functional role.	(MI)	RINF_FA_1	Registration of an FN Number
			RINF_FA_2	Registration of an unknown FN fails

			RINF_FA_3	Deregistration of an FN Number
			RINF_FA_4	Deregistration of an FN fails
			RINF_FA_5	Interrogation of an FA Number
			RINF_FA_6	Interrogation of an FN fails
			RINF FA 7	FA Call - Successful Call
			RINF_FA_8	FA Call – Call is not completed
			RINF_FA_9	Verification of Functional
				Numbers previously
				registered in HPLMN (CT2/3/4)
			RINF_FA_10	Deregistration of CT2 numbers while roaming
			RINF_FA_11	Forced Deregistration
			RINF_FA_14	Registration of an FN fails - remote party already registered
11.3.3.2	The functional number deregistration	(MI)	NoCov_14	Mobile/Cab requirement +
11.3.3.2	facility shall be supported by all EIRENE user equipment.	(1411)	NOCOV_14	RINF_FA_1, RINF_FA_3
11.3.3.3	It shall be possible to deregister up to five functional numbers to items of equipment physically connected to the Cab radio within 30 seconds.	(MI)	RINF_FA_1	Registration of an FN Number
	Within 30 seconds.		RINF_FA_2	Registration of an unknown FN fails
			RINF_FA_3	Deregistration of an FN Number
			RINF_FA_4	Deregistration of an FN fails
			RINF_FA_5	Interrogation of an FA Number
			RINF_FA_6	Interrogation of an FN fails
			RINF_FA_7	FA Call - Successful Call
			RINF_FA_8	FA Call – Call is not completed
			RINF_FA_9	Verification of Functional
				Numbers previously registered in HPLMN (CT2/3/4)
			RINF_FA_10	Deregistration of CT2 numbers while roaming
			RINF_FA_11	Forced Deregistration
			RINF_FA_14	Registration of an FN fails - remote party already registered
11.3.3.4	In addition, a given set of users shall also be allowed to:	(1)	RINF_FA_3	Deregistration of an FN Number
	 deregister a functional number which is no longer valid but which has not been deregistered by the user; 	(MI)	RINF_FA_4	Deregistration of an FN fails
	 deregister, by overriding, another user of the same type (eg a driver can deregister a train number that another driver has forgotten to deregister); 	(MI)	RINF_FA_11	Forced Deregistration
	 deregister, with one action, all functional numbers associated with the same mobile (eg the driver deregisters all functions at the end of the journey). 	(MI)		
11.3.3.5	An EIRENE mobile shall remove the displayed functional number and provide an indication to the user that deregistration has taken place.	(MI)	RINF_FA_1	Registration of an FN Number

I			RINF_FA_2	Registration of an unknown
				FN fails Deregistration of an FN
			RINF_FA_3	Number
			RINF_FA_4	Deregistration of an FN fails
			RINF_FA_5	Interrogation of an FA Number
			RINF_FA_6	Interrogation of an FN fails
			RINF_FA_7	FA Call - Successful Call
			RINF_FA_8	FA Call – Call is not completed
			RINF_FA_9	Verification of Functional
				Numbers previously
				registered in HPLMN (CT2/3/4)
			RINF_FA_10	Deregistration of CT2 numbers while roaming
			RINF_FA_11	Forced Deregistration
			RINF_FA_14	Registration of an FN fails -
				remote party already
				registered
11.3.4.1	To allow roaming between EIRENE	(MI)	NoCov_17	Cab/mobile Requirement +
	networks, the system shall support a			Two NW Required +
	procedure for the re-registration of functional numbers after selection of a			RINF_FA_1
	new network.			
11.3.4.2	This procedure initiated by the Cab Radio	(MI)	NoCov_17	Cab/mobile Requirement +
	shall be carried out without manual	(,	110001_17	Two Networks Required
	intervention.			·
11.3.4.3	After automatic re-registration is	(MI)	NoCov_18	Cab/mobile Requirement +
	performed, the new registration details			Two Networks Required
	shall be displayed to the user.			
11.4.1	Location dependent addressing shall be	(MI)	RINF_LDA_1	Successful LDA Call - Verify the
	provided to route calls for a given function			cell format is correct
	to a destination number that is dependent upon the user's location.			
	upon the user's location.		RINF_LDA_2	Unsuccessful LDA Call - Call to
			ININI_LDA_2	invalid Short Code
11.4.2	The functions to which calls shall be	(1)	NoCov_19	NW Configuration +
	routed based upon the location of the	(-)		RINF_FA_15
	mobile shall include:			
	- Primary controller;	(MI)		
	- Secondary controller;	(MI)		
	 Power supply controller; 	(MI)		
	- Train management centre (eg RBC, CTS).	(MI)		
11.4.4	When operating with location dependent	(MI)	RINF_LDA_1	Successful LDA Call - Verify the
	addressing, no manual action shall be			cell format is correct
	required to update the system when a			
	mobile moves between locations except at border crossing.			
	border crossing.		RINF_LDA_2	Unsuccessful LDA Call - Call to
				invalid Short Code
11.4.5	The location dependent addressing	(MI)	RINF_LDA_1	Successful LDA Call - Verify the
	scheme shall be available to all mobiles.		BINIT 13: 5	cell format is correct
			RINF_LDA_2	Unsuccessful LDA Call - Call to invalid Short Code
12.2.2	In order to ensure interoperability, the	(MI)	NoCov_10	Mobile/Cab requirement
	service is optional for the ground and			
10.5.5	mandatory for the Cab radio.	/··		2011/0
12.3.3	The text message facility shall not	(MI)	NoCov_10	Mobile/Cab requirement
	interfere with the ability of users to use the radio.			
L	the ratio.			

13.1.4	The type of call initiated shall be determined automatically, based upon the mode of operation of the radio.	(MI)	NoCov_10	Mobile/Cab requirement
13.1.5	If the mobile is in shunting mode, the emergency call button shall initiate a shunting emergency call, otherwise the call shall be a Train emergency call.	(MI)	NoCov_10	Mobile/Cab requirement
	Train emergency call	(I)		
13.1.6	The Train emergency call shall be sent to all drivers and controller(s) within an area, which is pre-defined to meet operational requirements. The predefined areas for emergency calls shall include, where necessary, parts of one or more network(s).	(MI)	RINF_REC_1	SS originates a REC
			RINF_REC_2 RINF_REC_4	Subscriber initiated REC (no talker change, normal clear down of call) Controller originates a REC
			RINF REC 6	REC in a GCA with a locked cell
13.1.7	The Shunting emergency call shall be sent to all users involved in shunting operations in the shunting area.	(MI)	NoCov_8	Network Konfiguration + RINF_VGCS_1
13.1.8	The Shunting emergency call shall automatically take priority over the link assurance signal.	(MI)	NoCov_10	Mobile/Cab requirement
12.1.0	Railway emergency call area	(8.41)	Na Carro	Nietowali Kanfierostian
13.1.9	The predefined areas for emergency calls shall include, where necessary, parts of one or more network(s).	(MI)	NoCov_8	Network Konfiguration + RINF_VGCS_1
13.2.2.1	A Railway emergency call shall be able to be initiated by using a simple MMI action (eg a single MMI action for the Cab and Operational radios).	(MI)	NoCov_10	Mobile/Cab requirement
13.2.2.2	A connection of Railway emergency priority (see section 10.2) shall be established to a pre-determined set of receiving mobiles and controller(s).	(MI)	RINF_REC_1	SS originates a REC
			RINF_REC_2	Subscriber initiated REC (no talker change, normal clear down of call)
			RINF_REC_4	Controller originates a REC
			RINF_REC_6	REC in a GCA with a locked cell
13.2.2.3	If the system is not able to connect the call, the originating terminal shall automatically keep trying to connect the call for 30 seconds.	(MI)	RINF_REC_1	SS originates a REC
			RINF_REC_2	Subscriber initiated REC (no talker change, normal clear down of call)
			RINF_REC_4 RINF_REC_6	Controller originates a REC
13.2.2.3i	During this period the user shall be provided with an audible and visual indication that the system is trying to connect the call.	(MI)	NoCov_10	REC in a GCA with a locked cell Mobile/Cab requirement
13.2.2.4	An audible indication of 5 seconds shall be provided to originating and receiving users that the emergency function has been activated.	(MI)	NoCov_10	Mobile/Cab requirement
13.2.2.6	A continuous visual indication that the emergency function has been activated	(MI)	NoCov_10	Mobile/Cab requirement

	shall be provided at the originating and all			
	receiving terminals.			
13.2.2.7	In the event that a train enters the affected area after the warning stage is complete, the same audible and visual indications shall be provided.	(MI)	RINF_LE_1	SS active in a PTOP (P4) call move in a cell with ongoing REC call
			RINF_LE_2	Orig. SS active in a VBS (P4) call move in a cell with ongoing REC call
			RINF_LE_3	Orig. SS active in a VGCS (P4) call on GCH (talker) move in a cell with ongoing REC call
13.2.2.3ii	After the 30 second period, if the connection was unsuccessful, the originating terminal shall provide another audible and visual indication that it was unable to connect the call.	(MI)	NoCov_10	Mobile/Cab requirement
13.2.3.1	A speech connection shall be established immediately following the warning tone, to allow the originator of the emergency call, to give information concerning the nature of the emergency.	(MI)	RINF_REC_1	SS originates a REC
	ς ,		RINF_REC_2	Subscriber initiated REC (no talker change, normal clear down of call)
			RINF_REC_4	Controller originates a REC
			RINF_REC_6	REC in a GCA with a locked cell
			RINF_LE_1	SS active in a PTOP (P4) call move in a cell with ongoing REC call
			RINF_LE_2	Orig. SS active in a VBS (P4) call move in a cell with ongoing REC call
			RINF_LE_3	Orig. SS active in a VGCS (P4) call on GCH (talker) move in a cell with ongoing REC call
13.2.3.3	The information shall be received by the same set of users who received the warning tone.	(MI)	RINF_REC_1	SS originates a REC
			RINF_REC_2	Subscriber initiated REC (no talker change, normal clear down of call)
			RINF_REC_4	Controller originates a REC
			RINF_REC_6	REC in a GCA with a locked cell
			RINF_LE_1	SS active in a PTOP (P4) call move in a cell with ongoing REC call
			RINF_LE_2	Orig. SS active in a VBS (P4) call move in a cell with ongoing REC call
			RINF_LE_3	Orig. SS active in a VGCS (P4) call on GCH (talker) move in a cell with ongoing REC call
13.2.4.1	A Railway emergency call may only be	(1)	RINF_REC_1	SS originates a REC
	terminated by:	/h 41\	DINE DEC 3	Cubsoribos initiata d DEC /-
	- the originator of the call;	(MI)	RINF_REC_2	Subscriber initiated REC (no talker change, normal clear down of call)
	- a controller participating in the call;	(MI)	RINF_REC_4	Controller originates a REC
	- the network following a (nationally determined) period of no speech.	(MI)	RINF_REC_6	REC in a GCA with a locked cell
13.2.4.2	If the radio moves out of the area whilst the emergency call is in progress, an	(MI)	NoCov_10	Mobile/Cab requirement

	audible and visual indication of the loss of			
10.5	the call shall be provided to the user.	/*		<u> </u>
13.3.1	Authorised EIRENE mobiles shall be able to receive a Railway emergency call at any time while the mobile is powered up.	(MI)	RINF_REC_1	SS originates a REC
	time while the mosne is powered up.		RINF_REC_2	Subscriber initiated REC (no talker change, normal clear
				down of call)
			RINF_REC_4	Controller originates a REC
			RINF_REC_6	REC in a GCA with a locked cell
13.3.2	For Railway emergency calls initiated by a mobile, the controller's display will indicate:	(1)	RINF_OTDI_1	SS originates VGCS call, terminating Controller receives the OTDI
	- location;	(O)	RINF_OTDI_2	SS originates VGCS Immediate Setup 2 call, terminating Controller receives the OTDI
	 the functional identity of the originating mobile, which includes the following: 	(1)		
	- the train number, if allocated;	(MI)		
	 the engine number, if no train number is available; 	(MI)		
	 the coach number of the leading cab, if neither a train number nor an engine number is available. 	(O)		
13.4.2	The confirmation shall be generated automatically without input from the user.	(MI)	NoCov_20	Mobile/Cab requirement + RINF_REC_5
13.4.3	The confirmation message shall commence at the end of the call or if the radio moves out of the call area.	(MI)	NoCov_20	Mobile/Cab requirement + RINF_REC_5
13.4.4	If the radio loses contact with the network, the mechanism shall commence as soon as possible on regaining communications, for up to a maximum of 5 minutes without achieving contact.	(MI)	NoCov_20	Mobile/Cab requirement + RINF_REC_5
13.4.5	For Railway emergency calls initiated by a mobile, the automatic confirmation message of the initiating mobile shall contain:	(1)	RINF_REC_1	SS originates a REC
	- the time at call establishment;	(MI)	RINF_REC_2	Subscriber initiated REC (no talker change, normal clear down of call)
	- the time at clear down;	(MI)	RINF_OTDI_2	SS originates VGCS Immediate Setup 2 call, terminating Controller receives the OTDI
	 the functional number of the call originator; 	(MI)		
	 the train number and engine number of the call originator, if a train. 	(MI)		
13.4.6	For Railway emergency calls received by a mobile, the automatic confirmation message of the receiving mobile shall contain:	(1)	RINF_eMLPP_4	MS in PtP call, pre-emption on MS by higher prio VGCS call (REC)
	 the time at which the call was first received; 	(MI)	RINF_eMLPP_5	MS in VBS call as originator, pre-emption on Air IF by higher prio VGCS call (REC)
	the time at which the call was lost (or terminated);	(MI)	RINF_eMLPP_7	MS in data call, pre-emption on Air IF by higher prio VGCS call (REC)
	- the group identity of the sender;	(MI)	RINF_REC_2	Subscriber initiated REC (no talker change, normal clear down of call)
	- the functional number of the recipient;	(MI)	RINF_REC_4	Controller originates a REC

	 the train number and engine number of the recipient, if a train. 	(MI)	RINF_REC_6	REC in a GCA with a locked cell
			RINF_OTDI_2	SS originates VGCS Immediate Setup 2 call, terminating Controller receives the OTDI
			RINF_LE_1	SS active in a PTOP (P4) call move in a cell with ongoing REC call
			RINF_LE_2	Orig. SS active in a VBS (P4) call move in a cell with ongoing REC call
			RINF_LE_3	Orig. SS active in a VGCS (P4) call on GCH (talker) move in a cell with ongoing REC call
13.4.9	The data used for confirmation of Railway emergency calls shall be protected from modification by the user.	(MI)	NoCov_30	Check Documentation of Equipement and Installation

A-2 Cross reference for EIRENE SRS [1]

Section	RequirementText	Requirement Status	TestcaseID	TestcaseHeading
2.2.1	The GSM teleservices [EN 301 515, Index [24]] to be supported are indicated in table 2-1.		RINF_GSM_1	Successful Location Update after MS Power On
			RINF_GSM_2	Supplementary Service Call Hold
	11 Telephony	(MI)	RINF_GSM_3	Supplementary Service Call Waiting
	12 Emergency calls	(M)	RINF_GSM_4	Supplementary Service CLIP – MMC with Call Forwarding Unconditional
	21 Short mes.MT/PP.	(O)	RINF_GSM_5	Supplementary Service MPTY
	22 Short mes.MO/PP	(O)	RINF_GSM_6	Establishment of several PTP calls with different priorities
	23 Short mes.cell broadcast	(O)	RINF_GSM_7	Public Emergency Call – With SIM
	61 Alternate speech and fax group 3	(O)	RINF_VGCS_1	SS originates VGCS call
	62 Automatic fax group 3	(O)	RINF_VGCS_2	Controller originates VGCS call and takes it down with the kill Sequence
	91 Voice Group Call Service (VGCS)	(MI)	RINF_VGCS_3	SS originates VGCS call, leaves, rejoins and ends it.
	92 Voice Broadcast Service (VBS)	(M)	RINF_VGCS_4	SS enters into VGCS broadcast area with ongoing VGCS call and is notified of it
			RINF_OTDI_1	SS originates VGCS call, terminating Controller receives the OTDI
			RINF_OTDI_2	SS originates VGCS Immediate Setup 2 call, terminating Controller receives the OTDI
2.3.1	The bearer services [EN 301 515, Index [23]] to be supported are listed in table 2-2.		RINF_eMLPP_7	MS in data call, pre-emption on Air IF by higher prio VGCS call (REC)
			RINF_eMLPP_8	MS in PtP call, pre-emption on Air IF by higher prio data call (4800 baud, transparent)
	20. Asynchronous General Bearer Service	(O)		(1000 adda) transparent,
	21. Asynchronous 300 bps T	(0)		
	21. Asynchronous 300 bps NT	(O)		
	22. Asynchronous 1.2 kbps T	(0)		
	22. Asynchronous 1.2 kbps NT	(O)		
	23. Asynchronous 1200/75 bps T	(O)		
	23. Asynchronous 1200/75 bps NT	(O)		
	24. Asynchronous 2.4 kbps T	(MI)		
	24. Asynchronous 2.4 kbps NT	(O)		
	25. Asynchronous 4.8 kbps T	(MI)		
	25. Asynchronous 4.8 kbps NT	(O)		
	26. Asynchronous 9.6 kbps T	(MI)		
	26. Asynchronous 9.6 kbps NT	(O)		
	30. Synchronous General Bearer Service	(0)		
	31. Synchronous 1.2 kbps T	(0)		
	31. Synchronous 1.2 kbps NT	(O)		1
	32. Synchronous 2.4 kbps T	(O)		
	32. Synchronous 2.4 kbps NT	(O)		
	33. Synchronous 4.8 kbps T	(O)		
	33. Synchronous 4.8 kbps NT	(O)		
	34. Synchronous 9.6 kbps T 34. Synchronous 9.6 kbps NT	(O) (O)		
	40. General PAD Access Bearer Service	(O) (O)		
	40. Delietal PAD ACCESS BEGTET SETVICE	(0)		

41. PAD access 3.00 bps NT 42. PAD access 1.2 kbps T (O) 42. PAD access 1.2 kbps T (O) 43. PAD access 1.2 kbps NT (O) 43. PAD access 1.2 kbps NT (O) 44. PAD access 1.2 kbps NT (O) 44. PAD access 2.2 kbps NT (O) 45. PAD access 2.4 kbps NT (O) 45. PAD access 2.4 kbps NT (O) 46. PAD access 3.6 kbps NT (O) 46. PAD access 3.6 kbps NT (O) 61. Alternate speech/data (O) 70. GpRS (O) 71. EGPRS (O) 81. Speech followed by data T. Transparent, NT - Non-transparent Table 2.2 Bearer services to be supported 2.4.1 The GSM supplementary services [EN 301 515] and [SupP SERVICES] to be supported and their applicability are listed in table 2-3. Calling Line identification Presentation (CLIP) (MI) Connected Line identification Restriction (CLIR) (O) Connected Line identification Restriction (CLIR) (O) Connected Line identification Restriction (CLIR) (O) Coll Forwarding on Mobile Subscriber Busy (CFB) Call Forwarding on Mobile Subscriber Busy (CFB) Call Forwarding on Mobile Subscriber (O) Northeachable(CFMRC) Call waiting (CW) Multi Party Service (MPTY) Multi Party Service (MPTY) Advice of Charge (Information) (AoCI) Barring of All Outgoing Calls (BAOC) Barring of All Outgoing Calls (BAOC) Barring of All Outgoing International Calls (BOIC) Barring of Outgoing International Calls (BOIC) Boil Cexept those to Home PLMN Country (MI) Boil Cexept those to Home PLMN Country (MI) RINF_EMLPP_7 Min in VSS call as originator, pre-emption on Air if by higher prio VSS call. Min VSS call as originator, pre-emption on Air if by higher prio VSCS call (REC) Min VSS call as originator, pre-emption on Air if by higher prio VSCS call (REC) Min VSS call as originator, pre-emption on Air if by higher prio VSCS call (REC) Min VSS call as originator, pre-emption on Air if by higher prio VSCS call (REC) Min VSS call as originator, pre-emption on Air if by higher prio VSCS call (REC)			(-)	1	
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42. PAD access 12 kbps NT 43. PAD access 1200/75 bps T 44. PAD access 1200/75 bps NT 44. PAD access 24 kbps NT 45. PAD access 24 kbps NT 45. PAD access 24 kbps NT 46. PAD access 24 kbps NT 46. PAD access 26 kbps NT 46. PAD access 36 kbps NT (0) 61. Alternate speech/data 70. GPRS 71. EGPRS 71. EGPRS 81. Speech followed by data 17. Transparent; NT - Non-transparent Table 2-2. Bearer services to be supported 24.4.1 The GSM supplementary services [RN 301 515] and [SUPP SERVICES] to be supported and their applicability are listed in table 2-3. RINF_GSM_3 Supplementary Service CulP— Mind with Call Forwarding Calling Line Identification Presentation (CLIP) Connected Line Identification Restriction (CLIR) Connected Line Identification Restriction (CLIR) Condected Line Identification Restriction (CLIR) Condected Line Identification Restriction (CLIR) Coll Forwarding on Mobile Subscriber Busy (CFB) Call Forwarding on Mobile Subscriber Busy (CFB) Call Forwarding on Mobile Subscriber Busy CIFB) Call Forwarding on Mobile Subscriber (O) RINF_FA_3 RINF_FA_5 Interrogation of an FN falls RINF_FA_6 RINF_FA_7 FA Call - Call is not completed Norteachable(CFNR) Call waiting (CW) Multi Party Service (MPTY) Min Numbers Closed User Group (CUG) Coll Forwarding (Mosc) Min Pipe All Multiper Pin Devention on Air IF by higher prio VBS call in MF Pipe Piper Over Scall in MF Piper Piper Over Scall Rescill Piper Piper Over Scall Rescill Piper Piper Over Scall Rescill Piper		•			
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	/M			Air IF by higher prio data call
	, 1			(4800 baud, transparent)
	Parring of Incoming Calle when Boaming	(5.4)	DINE OMIDD O	
	Barring of Incoming Calls when Roaming	(M)	RINF_eMLPP_9	eMLPP priority is preserved
	Outside the Home PLMN Country (BIC-Roam)			during CFU (Call Forwarding
				Unconditionally)
	Unstructured Supplementary Service Data	(MI)	RINF_eMLPP_10	eMLPP prio. is preserved
	(USSD)	, ,		during CFB (Call Forwarding
	(033D)			
				Busy)
	Follow me	(MI)	RINF_REC_1	SS originates a REC
	Sub-addressing*	(MI)	RINF_REC_3	SS accepts an incoming REC
	Enhanced Multi-Level Precedence and Pre-	(MI)	RINF_REC_4	Controller originates a REC
		(1411)	MINI_NEC_4	Controller originates a NEC
	emption (eMLPP)			
	Explicit Call Transfer (ECT)	(O)	RINF_OTDI_2	SS originates VGCS Immediate
				Setup 2 call, terminating
				Controller receives the OTDI
	Completion of Calls to Busy Subscribers (CCBS)	(O)		
	User-to-User Signalling 1 (UUS1)	(MI)		
	Note 4			
2.5.1	The railway specific services to be supported		RINF_GSM_5	Supplementary Service MPTY
	are listed in table 2-4.		····· ···	, and the second
	are nated in table 2-4.		DINE COLA C	Fatablish was a 1 1 2 2 2
			RINF_GSM_6	Establishment of several PTP
				calls with different priorities
	Functional addressing (section 11)	(MI)	RINF_FA_1	Registration of an FN Number
	Location dependent addressing (section 11)	(MI)	RINF_FA_14	Registration of an FN fails -
	Location dependent addressing (section 11)	(1411)	WIN _1 A_14	_
				remote party already
				registered
	Shunting mode (section 14)	(MI)	RINF_LDA_1	Successful LDA Call - Verify the
	,			cell format is correct
	Multiple driver communications (section E)	(841)	DINE LDA 2	Unsuccessful LDA Call - Call to
	Multiple driver communications (section 5)	(MI)	RINF_LDA_2	
				invalid Short Code
	Emergency calls (section 13)	(MI)	RINF_VGCS_1	SS originates VGCS call
	enhanced Railway Emergency Calls (section	(O)	RINF_VGCS_2	Controller originates VGCS call
	13A)	(0)	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	and takes it down with the kill
	13A)			
				Sequence
			RINF_VGCS_3	SS originates VGCS call, leaves,
				rejoins and ends it.
			RINF_VGCS_4	SS enters into VGCS broadcast
			\(\)	
				area with ongoing VGCS call
				and is notified of it
			RINF REC 1	SS originates a REC
			RINF_REC_3	SS accepts an incoming REC
			RINF_REC_4	Controller originates a REC
			RINF_OTDI_1	SS originates VGCS call,
				terminating Controller
				receives the OTDI
			DINE OTDI 3	
			RINF_OTDI_2	SS originates VGCS Immediate
				Setup 2 call, terminating
				Controller receives the OTDI
2.7.3	"Uplink Reply" and "Notification Response"	(MI)	RINF_URNR_1 (*)	SS active in a VGCS call moves
1	procedures shall not be applied in an EIRENE	····/	_== \ /	in empty cell
	·			in empty cell
	network for any function required for			
	interoperability (e.g. REC and call to drivers in			
	the area).			
	·		RINF_URNR_2 (*)	SS active in a VBS call moves in
			BINE 000 : = (*)	empty cell
			RINF_GSM_5 (*)	SS active in a REC call moves in
			<u> </u>	empty cell
2.11.2	Where ERTMS/ETCS level 2 or 3 is	(MI)	NoCov 12	Mobile/Cab requirement for
		(,		ERTMS
	implemented, the Interface requirements as			LNIIVIO
	specified in document [MORANE EURO FFFIS]			
	are applicable.			

2.11.3	Where ERTMS/ETCS level 2 or 3 is operated in PS-mode using GPRS/EGPRS bearer services, the network shall comply with ETSI specification [ETSI TS 103 328].	(MI)	RINF_GPRS_3 (*)	QOS and priority test between ETCS and Background traffic
3.2.2	The following minimum values shall apply:	(MI)	NoCov_2	Check Results from Measurement Campaign
	 coverage probability of 95% based on a coverage level of 38.5 dBµV/m (-98 dBm) for voice and non-safety critical data; 			
	 coverage probability of 95% based on a coverage level of 41.5 dBμV/m (-95 dBm) on lines with ETCS levels 2/3 for speeds lower than 			
	or equal to 220km/h.			
3.2.3	The following minimum values shall apply:	(MI)	NoCov_2	Check Results from Measurement Campaign
	- coverage probability of 95% based on a coverage level of 44.5 dBμV/m (-92 dBm) on lines with ETCS levels 2/3 for speeds above 280km/h;			
	- coverage probability of 95% based on a coverage level between 41.5 dBμV/m and 44.5 dBμV/m (-95 dBm and -92 dBm) on lines with ETCS levels 2/3 for			
	speeds above 220km/h and lower than or			
3.2.4	equal to 280km/h. The EIRENE mobile installation shall be designed to operate in a network meeting the	(MI)	NoCov_2	Check Results from Measurement Campaign
2.4.2	criteria in 3.2.2 and 3.2.3.	(8.41)	Na Carra 2	NetCoursel
3.4.2	Call setup times as defined in the EIRENE FRS shall be achieved with authentication and ciphering procedures enabled.	(MI)	NoCov_2	NotCovered
3.4.5	The requirements for Railway Emergency Call and 'All drivers in area' set-up performance are indicated in table 3-0 according to the measurement method defined in [QoS VOICE TEST SPEC]. System Element Call Processing time (REC)	(1)	NoCov_10	Mobile/Cab requirement
	Call Processing time (All drivers in area)			
	Network <2.5 s < 3 s	(M)		
	Cab radio <750ms < 1 s	(MI)		
	Controller <500ms < 500 ms	(M)		
3.5.1	For applications of EIRENE Systems which are relevant to interoperability of the rail system within the European Community, in particular according to the Directive 2008/57/EC, the network shall operate in a sub-band, or combination of sub-bands, of the R-GSM band as defined in [EN 301 515, Index [35]] according	(1)	NoCov_30	Check Documentation of Equipement and Installation
	to the table 3-A below: Sub-Band			
	Frequencies (MHz) R - GSM band UIC frequency band 876-880 / 921-925	(MI)		
	Extended GSM (E-GSM) band 880-915 / 925-960	(M)		
	Primary GSM (P-GSM) band 890-915 / 935-960	(M)		

3.5.5	For applications of EIRENE Systems which are relevant to interoperability of the rail system within the European Community, in particular according to the Directive 2008/57/EC, the System Information in the BCCH shall be broadcast in the UIC frequency band to enable EIRENE mobiles not supporting the ER-GSM band the access to the GSM-R network.	(MI)	RINF_ER-GSM (*)	Establishment of a PTP call in a ER-GSM network
4.1.3.1	GSM-MT air interface is mandatory for interoperability and shall conform with GSM specifications;	(MI)	NoCov_10	Mobile/Cab requirement
4.1.3.7	Bearer services are mandatory for CS-mode and PS-mode of ETCS data only radio operation.	(MI)	NoCov_10	Mobile/Cab requirement
4.1.5	All SIM cards used in EIRENE mobiles shall comply with the requirements of the MORANE FFFIS for GSM-R SIM Cards [MORANE SIM].	(MI)	NoCov_31	SIM Card / Mobile Requirement
4.2.1	For applications of EIRENE Systems which are relevant to interoperability of the rail system within the European Community, in particular according to the Directive 2008/57/EC, all mobiles, except ETCS data only radio for which 16.3.5 and 16.3.6 apply, shall be capable of operation in any sub-band, or combination of sub-bands, of the R-GSM band which includes the frequency bands listed in Table 4-1		NoCov_10	Mobile/Cab requirement
4.2.2	The mobile radio antenna installation on vehicles shall be designed so as to ensure that mobiles operate correctly in networks which conform to the design criteria defined in section 3.	(MI)	NoCov_10	Mobile/Cab requirement
4.2.3	For frequency bands listed in Table 4-1, mobile radios shall be of the following power classes:		NoCov_10	Mobile/Cab requirement
4.2.2ii	The mobile radio referred as Cab radio and EDOR within Chapter 5 and 16 shall be capable of receiving a GSM-R wanted signal together with interfering signals according to the conditions specified in [TS 102 933]	(MI)	NoCov_10	Mobile/Cab requirement
4.3.1	The following GSM teleservices, identified in section 2, are to be supported for each type of mobile radio:		RINF_eMLPP_1	MS in VGCS call on DCH, pre- emption on Air IF by higher prio PtP call
	Cab radio		RINF_eMLPP_2	MS in VBS call as listener, pre- emption on Air IF by higher prio VBS call.
	11 Telephony	(MI)	RINF_eMLPP_3	MS in VGCS call having the UL of the GCH, pre-emption on Air IF by higher prio VBS call.
	12 Emergency calls	(M)	RINF_eMLPP_4	MS in PtP call, pre-emption on MS by higher prio VGCS call (REC)
	21 Short message MT/PP	(MI)	RINF_eMLPP_5	MS in VBS call as originator, pre-emption on Air IF by higher prio VGCS call (REC)
	22 Short messsage MO/PP	(MI)	RINF_eMLPP_7	MS in data call, pre-emption on Air IF by higher prio VGCS call (REC)
	23 Short message cell broadcast	(MI)	RINF_eMLPP_8	MS in PtP call, pre-emption on Air IF by higher prio data call (4800 baud, transparent)
	61 Alternate speech and fax group 3	(O)	RINF_VGCS_1	SS originates VGCS call
	62 Automatic fax group 3	(0)	RINF_VGCS_2	Controller originates VGCS call and takes it down with the kill Sequence

91 Voice Group Call Service (VGCS)	(MI)	RINF_VGCS_3	SS originates VGCS call, leaves,
	(2.41)		rejoins and ends it.
92 Voice Broadcast Service (VBS)	(MI)	RINF_VGCS_4	SS enters into VGCS broadcast
			area with ongoing VGCS call
			and is notified of it
General purpose radio		RINF_VGCS_5	Controller joins ongoing VGCS
			call
		RINF_VGCS_6	Parallel group calls are
			possible in the same cell.
11 Telephony	(M)	RINF_VGCS_7	GID delivered correctly to
			terminating SS in SS originated
			VGCS call
12 Emergency calls	(M)	RINF_VBS_1	SS originates VBS call
21 Short message MT/PP	(M)	RINF_VBS_2	SS originates prio0 VBS call
22 Short messsage MO/PP	(M)	RINF_VBS_3	Controller originates VBS call
			and takes down the call by
			disconnecting
23 Short message cell broadcast	(M)	RINF_VBS_4	Controller originates VBS call
_			and takes down the call with
			the kill sequence
61 Alternate speech and fax group 3	(O)	RINF VBS 5	Controller joins ongoing VBS
, , , , , , , , , , , , , , , , , , , ,	` ,		call
62 Automatic fax group 3	(O)	RINF_VBS_6	SS enters into VBS broadcast
0 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	(- 7		area with ongoing VBS call and
			is notified of it, SS joins the
			VBS call
91 Voice Group Call Service (VGCS)	(M)	RINF_LE_2	Orig. SS active in a VBS (P4)
	()		call move in a cell with
			ongoing REC call
92 Voice Broadcast Service (VBS)	(M)	RINF_LE_3	Orig. SS active in a VGCS (P4)
32 voice broadcast service (vbs)	()		call on GCH (talker) move in a
			cell with ongoing REC call
Operational radio			cen with ongoing NEC can
operational radio			
11 Telephony	(M)		
12 Emergency calls	(M)		
21 Short message MT/PP	(M)		
22 Short messsage MO/PP			
- ' '	(M)		
23 Short message cell broadcast	(M)		
61 Alternate speech and fax group 3	(0)		
62 Automatic fax group 3	(O)		
91 Voice Group Call Service (VGCS)	(M)		
92 Voice Broadcast Service (VBS)	(M)		
Charatina radi -			
Shunting radio	/r = 1		
11 Telephony	(M)		
12 Emergency calls	(M)		
21 Short message MT/PP	(M)		
22 Short messsage MO/PP	(M)		
23 Short message cell broadcast	(M)		
61 Alternate speech and fax group 3	(O)		
62 Automatic fax group 3	(O)		
91 Voice Group Call Service (VGCS)	(M)		
92 Voice Broadcast Service (VBS)	(M)		
ETCS data only radio			
11 Telephony	(N/A)		
12 Emergency calls	(N/A)		
21 Short message MT/PP	(N/A)		
22 Short messsage MO/PP	(N/A)		
	(,,,		
23 Short message cell broadcast	(N/A)		
23 Short message cell broadcast61 Alternate speech and fax group 3			

	62 Automatic fax group 3	(N/A)		
	91 Voice Group Call Service (VGCS)	(N/A)		
	92 Voice Broadcast Service (VBS)	(N/A)		
4.3.2	The following bearer services, identified in		NoCov_10	Mobile/Cab requirement
	section 2, are to be supported for each type of			
	mobile radio:			
4.3.3	The following supplementary services,		NoCov_10	Mobile/Cab requirement
	identified in section 2, are to be supported for			
424	each type of mobile radio:		NaCau 10	Mahila/Cah naguinagaant
4.3.4	The following EIRENE features are to be supported for each type of mobile radio:		NoCov_10	Mobile/Cab requirement
4.3.5	If a Railway emergency call set up from an	(MI)	NoCov 10	Mobile/Cab requirement
4.5.5	EIRENE radio is unsuccessful, the radio shall	(1411)	140001_10	Wiobiic/ Cab requirement
	automatically re-attempt the call setup until the			
	call setup is successful, a retry timer expires			
	(duration 30 seconds, as specified in the			
	[EIRENE FRS]) or the user abandons the call.			
4.3.6	In compliance with the related layer 3	(MI)	NoCov_10	Mobile/Cab requirement
	procedures, the EIRENE radio shall			
	automatically repeat setup requests to the			
	layer 3 GCC or BCC entity as soon as an indication is given from the layer 3 GCC or BCC			
	entity on an abort of the establishment			
	procedure without the service being explicitly			
	rejected by the network.			
4.4.1	A service availability indication shall be	(MI)	NoCov_10	Mobile/Cab requirement
	provided to radio users, as defined in [EN 301			
	515, Index [26]].			
4.4.3	If the attempt to establish a Railway emergency	(MI)	NoCov_10	Mobile/Cab requirement
	call is not successful after 2 seconds, an			
	indication shall be provided to the user of the			
4.8.1	status of the establishment request procedure. When operating outside the home country,	(MI)	NoCov_10	Mobile/Cab requirement
4.0.1	national functions that use non- internationally	(IVII)	NOCOV_10	Wiobile/ Cab requirement
	harmonised national values shall be disabled.			
5.4.4	Upon registration, the mobile shall be	(MI)	RINF_GSM_6	Establishment of several PTP
	accessible by calling the MSISDN or the Engine			calls with different priorities
	or Coach number with which it is associated.			
	This shall require the home network database			
	to maintain this correlation.		DINE EA 7	FA Call Consension Call
9.2.2	Every On Train Eunstion shall be identified by a	(NAI)	RINF_FA_7	FA Call - Successful Call FA Call - Successful Call
9.2.2	Every On-Train Function shall be identified by a standard code and shall conform to the list of	(MI)	RINF_FA_15	FA Call - Successful Call
	functions given in Appendix 9A of this section.			
9.2.3	All Train Function Numbers and their associated	(MI)	RINF FA 15	FA Call - Successful Call
	MSISDN numbers shall be stored in the same	(····)		
	routing database, which is the database of the			
	GSM-R network in which the train is currently			
	operating.			
9.2.4	Use of Engine Number		RINF_FA_15	FA Call - Successful Call
	Every On-Engine Function shall be identified by	(MI)		
	a standard code and shall conform to the list of			
9.2.5	functions given in Appendix 9A of this section.	/N.A.I.\	DINIE EA 1F	FA Call - Successful Call
9.2.5	The Engine Function Number(s) and associated MSISDN numbers shall at any time be stored as	(MI)	RINF_FA_15	ra Caii - Successful Call
	an entry in the routing database of the home			
	GSM-R network (*6) of the engine.			
	Note (*6) The home GSM-R network is the			
	mobile network to which the mobile on the			
	engine is subscribed.			
9.2.6	Use of Coach Number		RINF_FA_15	FA Call - Successful Call
	The Coach Function Number(s) and associated	(MI)		
<u> </u>	MSISDN number(s) shall at any time be stored		<u> </u>	<u> </u>
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	as an entry in the routing database of the home GSM-R network of the coach.			
9.2.7	Use of Shunting Team, Maintenance Team or Train Controller Number		RINF_FA_15	FA Call - Successful Call
	Every Function shall be identified by a standard	(MI)		
	code and shall conform to the list of functions	(1411)		
	given in Appendix 9A of this section.			
9.2.8	The functional numbers of the Shunting Team	(MI)	RINF_FA_15	FA Call - Successful Call
	Members, Maintenance Team Members and			
	Train Controller (and any associated MSISDN			
	numbers) shall be stored as entries in the			
9.2.9	routing database of the home GSM-R network. Use of MSISDN number		RINF_FA_15	FA Call - Successful Call
9.2.9	Implementation of the EIRENE numbering plan	(MI)	KINF_FA_15	FA Call - Successful Call
	shall not prohibit any authorised caller from	(1411)		
	using the MSISDN number where known, thus			
	enabling mobiles to be assigned to particular			
	personnel where this is appropriate.			
9.2.10	Use of group call Service Areas		RINF_FA_15	FA Call - Successful Call
	Service areas shall be defined within each	(MI)		
	railway network.			
9.2.11	The numbering of Service Areas for group calls	(MI)	RINF_FA_15	FA Call - Successful Call
	and broadcast calls shall be made in accordance with GSM Technical Specifications [EN 301 515,			
	Index [21] & [4]] and [EN 301 515, Index [22] &			
	[5]] respectively.			
	Use of Maintenance and shunting group ID's			
9.4.1	Within the GSM-R network, the user shall be	(MI)	NoCov_31	Network Configuration Topic
	able to dial the following types of numbers:		_	RINF_GSM_6, RINF_FA_15, RINF_LDA_1
	- National EIRENE Number (NEN):			
	this number is used to route a call from the			
	calling party to a called party registered within			
	the same GSM-R network;			
	- International EIRENE Number (IEN):			
	this number is used to route a call from the			
	calling party to a called party registered within another GSM-R network;			
	- MSISDN numbers:			
	the number used by a subscriber of a public			
	fixed (or mobile) network for calling a mobile			
	station of a GSM PLMN;			
	- Short Dialling Code (SDC):			
	this number is used to allow 'speed dialling'			
	functionality.			
9.4.2	In addition, Breakout Codes (BCs) shall be used	(MI)	NoCov_31	Network Configuration Topic
	to allow users within the GSM-R network to			RINF_GSM_6, RINF_FA_15,
9.4.3	access external numbers. Access from the GSM-R network to external	/N.41\	NoCov. 22	RINF_LDA_1 See referenced Section
9.4.3	networks shall be as detailed in section 9.10.	(MI)	NoCov_32	See referenced Section
9.5.2	Every railway network shall consider a number	(MI)	RINF_FA_7	FA Call - Successful Call
3.3.2	as a National EIRENE Number (NEN) unless the	(1411)	IIIII _1 / _ /	Tri can Saccessiai can
	number is preceded by an International Code,			
	identifying another GSM-R network.			
9.5.3	Structure of National EIRENE Number		RINF_FA_7	FA Call - Successful Call
	The National EIRENE Number shall consist of	(MI)		
	three distinct parts, as shown in figure 9-1:			
	1 07 11			
	CT UIN _FC			
	< User Number>			
	< National EIRENE Number>			
	CT Call Type			
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UIN User Identifier Number FC Function Code		
Figure 9-1: National EIRENE Number structure 1) Call Type:		
The Call Type (CT) prefix is used to distinguish	(I)	
between the different types of User Numbers	(1)	
that are allowed within the national EIRENE		
numbering plan. It is an indication to the		
network of how to interpret the number		
dialled.		
2) User Identifier Number:		
The User Identifier Number (UIN) shall be one	(MI)	
of the following numbers (as identified by the		
CT):		
- Train Number (TN):		
a number given to a train by operational staff		
for a particular journey. This number shall be		
unique for the duration of the journey.		
- Note. For certain Train Numbers (e.g. 1234 and 123), a risk exists when dialling a number		
by keying in individual digits e.g. by the		
controller. In this circumstance the risk of		
connecting to an un-intended train exists if		
there is a delay between keyed-in digits. There		
is no risk of ambiguity if block dialling is		
employed.		
- Engine Number (EN):		
a unique number given to a tractive unit to		
identify it permanently. The UIC has introduced		
a uniform identification marking system for		
tractive stock crossing frontiers [UIC 438-3]. In		
order to call a particular locomotive, it shall be		
possible to call a number associated with the		
tractive unit's stock number. The actual number		
of the unit, which shall be used as the EN, is based on the complete identification number.		
- Coach Number (CN):		
a unique number given to a coach (which is not		
a tractive unit) to identify it permanently. The		
UIC has introduced a uniform identification		
marking for passenger rolling stock [UIC 438-1].		
In order to call a particular coach it shall be		
possible to call a number associated with the		
vehicle marking. The total vehicle marking		
consists of 12 digits. The actual number of the		
coach is denoted by seven digits (positions 5 to		
11 of the complete vehicle marking), which		
shall be used as the CN (*7).		
Note (*7): In order to prevent duplication of		
numbering, as each railway is free to allocate		
the coach number leading to number uniqueness per country only, the Owning or		
registering Railway code should be added as		
the first digits.		
- Shunting Team Location Number (STLN)		
- Maintenance Team Location Number (MTLN)		
- Train Controller Location Number (TCLN)		
- Group Location Number (GLN)		
- Mobile Subscriber Number (MSN)		
3) Function Code:		
The Function Code (FC) is used as an	(1)	
identification of, for example, the person or		

team within a given area. National EIRENE Numbering Plan		RINF_FA_7	FA Call - Successful Cal
The contents of the fields of a National EIRENE	(8.41)	KINF_FA_/	FA Call - Successful Call
Number shall be as defined below:	(MI)		
1) Call Type (CT)			
This prefix defines how to interpret the User Number that follows. It shall consist of one or			
two digits as defined in table 9-1.			
_			
Digit Use 1 Reserved for short codes (see section 9.8)			
·			
2 Train Function Number (ie TN + FC)			
3 Engine Function Number (ie EN + FC)			
4 Coach Number (ie CN + FC)			
50 Group calls			
51 Broadcast calls			
52-55 Reserved for international use			
56-57 Reserved for national use			
58 Reserved for system use (Group call			
signalling)			
59 Reserved for system use (Broadcast call			
signalling)			
6 aintenance and shunting team members			
7 Train controllers			
8 obile Subscriber Number			
9 Reserved for breakout codes			
(see section 9.10) and national use			
0 Reserved for access to public or			
to other GSM-R networks (see section 9.10)			
Table 9-1: Call Type field format			
2) User Number (UN)			
The UN is variable in length and depends on the			
information on which it is based. The following			
formats are defined:			
- Train Function Numbers (TFN) shall take one			
of the forms as defined intable 9-2.			
Leading zeros shall be used in those situations			
where the trainnumber is less than five			
digits.			
Train Number Use			
0000XFF train number with one significant			
digit			
000YXFF train number with two significant			
digits			
00YXXFF train number with three significant			
digits			
OYXXXFF train number with four significant			
digits			
YXXXXFF train number with five significant			
digits			
XXXXXXFF train number with six significant			
digits			
XXXXXXFF train number with seven			
significant digits			
XXXXXXXXFF train number with eight			
significant digits			
FF - Function Code as defined in			
Appendix A table 9A-1			
Y not equal to 0			
Table 9-2: UN - Train Function Number field			
Table 3-2. ON - Hall Fullcholl Nulliber Held		I	1

- Engine Function Numbers (EFN) shall take the		
format as defined in table 9 3.		
Engine Number Use		
XXXXXXXFF XXXXXXXX : number of		
powered unit		
allocated by each Railway		
FF: Function Code as defined in		
Appendix A table 9A-1		
Table 9-3: UN - Engine Function Number field format		
- Coach Function Numbers (CFN) shall take the		
format as defined in table 9-4.		
Coach Number Use		
XXXXXXXXFF		
XXXXXXXXX : vehicle number allocated		
by each Railway		
FF : Function Code as defined in		
Appendix A table 9A-1		
Table 9-4: UN - Coach Function Number field		
format		
- Maintenance and Shunting Team Members.		
The UIN field format for calls to shunting teams		
and maintenance teams shall consist of a Location Number (LN), which identifies the		
location where the called party is registered,		
followed by a Function Code (FC). The Location		
Number shall consist of 5 digits and shall be		
assigned on a national basis. The Function Code		
shall consist of 4 digits. The first digit of the FC		
is related to the Team Type (TT) and is specified $% \left(T\right) =\left(T\right) \left(T\right) =\left(T\right) \left(T\right) $		
by table 9-5.		
Team Type Description		
1 – 3 Reserved for international use		
4 Reserved for national use		
5 Shunting Team		
6-9 Reserved for national use0 Reserved for international use		
Table 9-5: UIN – Team Type field format		
The composition of the Function Code field for		
calls to shunting teams and maintenance teams		
shall be as defined in table 9-6.		
FC Function description		
TT,Y,XX Team type, team member function		
and team number		
TT : team type		
Y: team member function		
XX : team number		
As defined in Appendix 9A table 9A-2		
Table 9-6: Function Code field format for CT=6		
- Train Controllers. The UIN field for calls to		
train controllers shall be a Location Number (LN) which identifies the location where the		
called party is registered. The Location Number		
shall consist of 5 digits and shall be assigned on		
a national basis.		
The FC field for calls to train controllers shall		
consist of two digits and be as defined in table		
9-7.		
FC Function description		
01 Primary controller		
02 Secondary controller		
03 Power supply controller		
04 Switchman	127 6164	
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05 Platform inspector		1
06 Railway Undertaking controller		
07 Technical Inspector		
08 Trein preparation		
09 Emergency manager		
10 Reserved for international use		
11-99 Reserved for internationally		
harmonised national use		
Table 9-7: Function Code field format for CT=7		
- Mobile Subscriber Number (MSN). The UN of		
the MSN shall consist of the Subscriber		
Number.		
- Group and broadcast calls. The UIN field		
format for group and broadcast calls shall be a		
Service Area (SA) indicator, which identifies the		
area in which the group or broadcast call is to be active. Each Service Area shall be allocated		
on a national basis. In network boundary areas,		
the Service Area shall be allocated on a bilateral		
basis. (See also subsection 9.9.)		
The group ID field format for group and		
broadcast calls shall consist of three digits and		
be as defined in table 9-8 and table 9-8i.		
Group IDs required for national applications	(M)	
shall be harmonised.		
Group ID Function Description		
(VGCS)		
1xx Reserved for national use		
200 High priority group call in the context of		
group calls		
between drivers in the same area (section		
5.3.3)/		
involving drivers and controllers in the same area		
201 - 249 Reserved for internationally		
harmonised national use		
250 - 269 Local Operational Communication		
270 - 279 Train Preparation		
280 - 298 Reserved for internationally		
harmonised national use		
299 Train groups: Emergency call		
3xx Reserved for internationally harmonised		
national use		
4xx Reserved for internationally harmonised		
national use		
500 Shunting groups: Default group		
501–529 Shunting groups: Dedicated shunting		
groups		
500 60 11 12 13 14 15 15 15 15 15 15 15		
530 Station and security staff: Default group		
531 - 538 Station and security staff: Reserved		
for international use		
		-
539 Station and security staff: High-priority		-
call		
54x Reserved for international use		
550-554 Reserved for international use		
555 perational group call to drivers in the same		
area1		
involving drivers and controllers in the		
same area		
FEC FEO Decembed for intermediated and		†

556-559 | Reserved for international use

I	560 Trackside maintenance groups:			
	Default group			
	561 - 568 Trackside maintenance groups:			
	Reserved for international use			
	569 Trackside maintenance groups: High-			
	priority call			
	570 Controller groups: Default group			
	571 - 578 Controller groups:			
	Reserved for international use			
	579 Controller groups: High-priority call			
	58x Reserved for international use			
	590 - 598 Reserved for international use			
	599 Shunting groups: Emergency call			
	6xx Reserved for internationally harmonised national use			
	7xx Reserved for internationally harmonised national use			
	8xx Reserved for internationally harmonised			
	national use			
	9xx Reserved for internationally harmonised			
	national use			
	Oxx Reserved for national use			
	Notes:			
	Internationally specified eMLPP priorities will			
	be allocated to group IDs belonging to the class			
	"Reserved for international use" as and when			
	functional requirements are defined.			
	Nationally specified eMLPP priorities allocated			
	to group IDs belonging to the class "Reserved			
	for national use", if used, shall have no impact			
	on interoperability and on Railway emergency			
	calls 299 and 599 including the handling on all			
	terminals.			
	Table 9-8: Group ID field format for CT=5	()		
9.6.2	GSM-R networks shall recognise International	(MI)	NoCov_34	Network Konfiguration Topic +
	EIRENE Numbers starting with the IC of the			RINF_GSM_6, RINF_GSM_4
	GSM-R network in which the calling party is			
	currently operating as National EIRENE			
0.6.2	Numbers.		N-CC	Note and Konfiguration Tourist
9.6.3	Structure of International EIRENE Number		NoCov_6	Network Konfiguration Topic +
	The lateractic and EIDENE Nearly and all accepts	(8.41)		RINF_FA_15
	The International EIRENE Number shall consist	(MI)		
	of three distinct parts, as shown in figure 9-2:			
	1.10.11.07.11			
	IC _CT_ U N			
	< National EIRENE Number>			
	< International EIRENE Number>			
	IC International Code			
	CT Call Type			
	UN User Number			
	Figure 9-2: International EIRENE Number			
	structure			
	- International Code (IC), which shall be used to			
	route calls to the appropriate			
	GSM R network;			
	- National EIRENE Number (NEN), which			
	consists of the combination of Call Type			
	and User Number and which is used to			
1	identify the called party.		1	
	Figure 9-3: Number structure of MSISDN			

9.6.4	International EIRENE Numbering plan		NoCov_6	Network Konfiguration Topic +
9.0.4			NOCOV_6	RINF_FA_15
	The fields of an International Functional Number shall be defined as follows:	(MI)		
	International Code (IC)			
	The International Code field shall consist of			
	three digits and shall be based on the [ITU-T			
	E.164] country code (XCC or CCC), allocated by			
	the UIC on a network-by-network basis.			
	2) National EIRENE Number (NEN)			
	The format of the National EIRENE Number field shall be as defined in subsection 9.5.			
9.7.1	At least one MSISDN number shall be allocated	(MI)	RINF_GSM_6	Establishment of several PTP
	to each mobile station.			calls with different priorities
9.7.2	The structure of the MSISDN numbers shall	(MI)	RINF_GSM_6	Establishment of several PTP
	comply with GSM Technical Specification [GSM NUMBERING].			calls with different priorities
	NOMBERINGJ.			
	CC _NDC_ S N			
	<pre> < National (significant)mobile Number> </pre>			
	< Mobile station international ISDN Number -			
	->			
	CC Country Code			
	CC Country Code			
	NDC National destination codeCall Type SN Subscriber number			
9.7.3.1	The MSISDN Subscriber Number shall be equal	(MI)	NoCov_7	Network Konfiguration Topic +
3.7.3.1	to the National EIRENE Number for	(1411)	140004_7	RINF_GSM_4 with properly
	Call Type = 8.			selected A Party
9.7.4	It shall be possible for authorised subscribers of	(MI)	RINF_GSM_9	Mobile subscriber receives a
	fixed and mobile networks to call mobiles using			call from Subscriber on other
	the appropriate MSISDN number.	()		Network
9.8.1	For certain functions, standardised short codes	(MI)	NoCov_10	Mobile/Cab requirement
	shall be implemented for mobile originated calls.			
9.8.2	Each short dialling code shall consist of four	(MI)	RINF LDA 1	Successful LDA Call - Verify the
	digits.	` ,		cell format is correct
9.8.3	Short dialling codes shall start with the first	(MI)	RINF_LDA_1	Successful LDA Call - Verify the
	digit equal to 1 (ie CT=1).			cell format is correct
9.8.4	The short dialling codes can be defined on a	(MI)	RINF_LDA_1	Successful LDA Call - Verify the
	national basis, but it is essential that certain codes be used on an international basis			cell format is correct
	in order to achieve interoperability.			
	These codes, when used, shall be as given in			
	table 9-10.			
	Code Description		RINF_LDA_2	Unsuccessful LDA Call - Call to invalid Short Code
	10(00-99) Reserved for internationally			vana snore code
	harmonised national use			
	11(00-19) Reserved for internationally			
	harmonised national use			
	112X Not used			
	(note: 112 reserved for public emergency) 11(30-98) Reserved for internationally			
	harmonised national use			
	1199 Emergency Manager			
	12XX* Route to most appropriate			
	primary controller			
	13XX* Route to most appropriate			
	secondary controller			
	14XX* Route to most appropriate			

power supply controller 15X* Route to most appropriate ERTMS/ETCS RBC (CS-mode only) 1600 Rallway Security Staff 16(0-1.11) Reserved for international use 1612 Confirmation call for high priority calls and railway emergency calls (see section 13) 16(13-19) Reserved for international use 16(12-19) Reserved for international use 16(12-19) Reserved for international use 1700 Toriver Safety Device 17(01-20) Controller originated VGCS 17(11-16) Reserved for international use 1777 Train Ready 1778-99) Reserved for international use 1778 Reserved for international use 18(00-99) Reserved for international use 18(00-99) Reserved for international use 19(00-99) Reserved for internationally harmonised national use 19(00-99) Reserved for international part 19(00-99) 19(00-99) 19(00-99) 19(00-99) 19(00-99) 19(00-99) 19(00-99) 19(00-99) 19(00-99) 19(00-99) 19(00-99) 19(00-99) 19(00-99	_				
ERTMS/ETCS.RBC (CS-mode only) 1600 Railway Security Staff					
1600 Railway Security Staff 16(01-11) Reserved for international use 1612 Confirmation call for high priority calls and railway emergency calls (see section 13) 16(13-19) Reserved for international use 16(20-29) Technical Inspector 16(30-39) Train Preparation 16(40-99) Reserved for international use 1700 Driver Safety Device 1701-100 Controller originated VGCS 17(11-76) Reserved for international use 1707 Train Ready 17(78-99) Reserved for international use 1707 Train Ready 17(78-99) Reserved for international use 18(00-99) Reserved for international use 18(00-99) Reserved for internationally harmonised national use 19(00-99) Reserved for internationally harmonised for all railways in the use of the same use of the same use of the same use of the same use of the sa					
16(01-11) Reserved for international use 16(13-19) Reserved for international use 16(13-19) Reserved for international use 16(20-29) Technical Inspector 16(30-39) Train Preparation 16(40-99) Reserved for international use 1700 Driver Safety Device 17(01-20) Controller originated VGCS 17(11-76) Reserved for international use 1777 Train Ready 17(78-99) Reserved for international use 18(00-99) Reserved for international use 18(00-99) Reserved for international use 18(00-99) Reserved for internationally harmonised national use 19(00-99) Reserved for internationally 19(10-19) Reserved for internationally harmonised national use 19(10-99) Reserved for internationally 19(10-19) Reserved for internationally harmonised national use 19(10-99) Reserved for internationally 19(10-19) Reserved for internationally 19(10-19)					
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calls and railway emergency calls (see section 13) 16(13-19) Reserved for international use 16(20-29) Technical Inspector 16(30-39) Train Preparation 16(40-99) Reserved for international use 1700 Driver Safety Device 17(01-20) Controller originated VGCS 17(11-76) Reserved for international use 1777 Train Ready 17(78-99) Reserved for international use 18(00-99) Reserved for international use 18(00-99) Reserved for internationally harmonised national use 18(00-99) Reserved for international list harmonised national use 18(00-99) Network Configuration + RINF_VGCS_1 harmonised national use 18(00-999) Network Configuration + RINF					
and railway emergency calls (see section 13) 16(13-19) Reserved for international use 16(20-29) Technical Inspector 16(30-39) Train Preparation 16(30-39) Train Preparation 16(30-39) Reserved for international use 1700 Driver Safety Device 17(11-20) Controller originated VGCS 17(11-76) Reserved for international use 17(71-76) Reserved for international use 18(00-99) Reserved for international use 18(00-99) Reserved for international use 18(00-99) Reserved for internationally harmonised national use 19(00-99) Reserved for international use 19(00-99) Reserved for internationally harmonised national use 19(00-99) Reserved for international use 19(00-99					
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1700 Driver Safety Device 17(01-20) Controller originated VGCS 17(11-76) Reserved for international use 1777 Train Ready 17(78-99) Reserved for international use 18(00-99) Reserved for internationally harmonised national use 19(00-99) Reserved for internationally harmonised national use 19(00-99) Reserved for internationally harmonised national use *XX may be used only in CS-mode to provide supplementary location information within a cell. Where no additional information is available the default value shall be 00. ***This use is optional. The SDC number is harmonized for all railways in EU Table 9-10: Internationally defined short codes 9.9.1 Standardisation of UIC group addresses is required to provide interoperability between the fixed railway networks within the GSM-R network. 9.9.2 The group address consists of a Service Area (5 digits) and has a Call Type 5 (see table 9-1). 9.9.3 The Service Area shall be defined on a national basis. 9.9.4 In network boundary areas, the Service Area (MI) NoCov_39 Network Configuration + RINF_VGCS_1 9.9.5 Function Codes shall be defined within the famework given in table 9-8 on an international basis. 9.9.6 Function Codes shall be defined within the famework given in table 9-8 on an international EIRENE number of the called party. 17.8 Packs to other GSM-R networks shall be possible by using a Breakout Code (BC) as part of the dialled number. 9.10.11 The BC for access to other GSM-R networks is defined in table 9-12a, and is followed by the full international EIRENE number of the called party. 18. Packs to other GSM-R networks shall be performed by using a BC, defined in table 9-12c. 18. Reserved Roy International EIRENE numbering plan as Gefined in subsection 9.6) 18. Table 9-12a: Breakout Code (BC) as part of the dialled number. 19. Reserved Roy International EIRENE number of the called party. 19. Reserved Roy International EIRENE number of the called party. 19. Reserved Roy International EIRENE Numbering plan as Gefined in table 9-12a, and i		16(30-39) Train Preparation			
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full international EIRENE number of the called party. Breakout Code Network (CT2 FC10 works) Breakout Code Network (CT2 FC10 works) Breakout Code Network (CT2 FC10 works) O1) because of wrong CoR (CT2 FC10 works) O2) because of wrong CoR (CT2 FC10 works) O3) because of wrong CoR (CT2 FC10 works) O4) because of wrong CoR (CT2 FC10 works) O5) because of wrong CoR (CT2 FC10 works) O6) because of wrong CoR (CT2 FC10 works) O6) because of wrong CoR (CT2 FC10 works) O7) because of wrong CoR (CT2 FC10 works) O8) because of wro	9.10.111		(IVII)	KIINF_FA_12	_
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900 International EIRENE Numbering plan					
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Networks) 9.10.1v Access to private networks shall be performed (MI) NoCov_6 Network Konfiguration Topic + By using a BC, defined in table 9-12c. Breakout Code Network RINF_FA_15 Breakout Code Network Defined in table 9-12c. Bre					
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by using a BC, defined in table 9-12c. Breakout Code Network 901 Gateway to private railway network	0.60.5	,	/n a-1	N-C C	Note and R. C. C. T.
Breakout Code Network 901 Gateway to private railway network	9.10.1v		(MI)	NoCov_6	
901 Gateway to private railway network					KINF_FA_15
(private numbering plan)					
		(private numbering plan)			

	902 – 909 Reserved for national breakout			
	codes			
	Table 9-12c: Breakout Codes (private networks)			
9.13.3	The APN structure to be used for the dedicated	(MI)	RINF_GPRS_1 (*)	GPRS Connection Setup
	operation of ETCS in PS-mode shall be of the			
	format { <network id="">.<operator id="">.gprs} (MI)</operator></network>			
	where:			
	§ network id = "etcs"			
	§ operator id = "mncXXX.mccYYY" whereas: · XXX=MNC Mobile Network Code 3 digits*			
	· YYY=MCC Mobile Country Code 3 digits			
	Example : "etcs.mncXXX.mccYYY.gprs"			
	* MNC can have 2 or 3 digits. In case of 2 digits			
	MNC the format used in the APN operator id			
	shall be OXX.			
9.13.4	The APN used for the operation of ETCS in PS-	(MI)	RINF_GPRS_1 (*)	GPRS Connection Setup
	mode shall be linked to the QoS-Profile "ETCS	, ,	,	·
	application" according to chapter 10.8.5.2.			
9.13.8	The subscription of the APN used for ETCS shall	(MI)	NoCov_21	Border Crossing (ENIR)
	grant access to the GGSN of the Home-EIRENE		_	
	network and/or to the Visited-EIRENE network			
	(VPLMN=Yes).			
9.13.9	The APN structure to be used for the dedicated	(MI)	RINF_GPRS_1 (*)	GPRS Connection Setup
	operation of online key management in PS-			
	mode shall be of the format { <network< td=""><td></td><td></td><td></td></network<>			
	id>. <operator id="">.gprs} where:</operator>			
	§ network id = "kms"			
	§ operator id = "mncXXX.mccYYY" whereas:			
	· XXX=MNC Mobile Network Code 3 digits*			
	· YYY=MCC Mobile Country Code 3 digits Example: "kms.mncXXX.mccYYY.gprs"			
	* MNC can have 2 or 3 digits. In case of 2 digits			
	MNC the format used in the APN operator id			
	shall be 0XX.			
9.13.10	The APN used for the operation of online key	(MI)	RINF_GPRS_1 (*)	GPRS Connection Setup
	management in PS-mode shall be linked to			
	QoS-Profile "non-ETCS application" according			
0 12 12	to chapter 10.8.5.1.	/N.41\	DINE CDDC 1 /*\	CDDC Compostion Setup
9.13.12	The subscription of the APN used for online key	(MI)	RINF_GPRS_1 (*)	GPRS Connection Setup
	management shall grant access to the GGSN of the Home-EIRENE network (VPLMN=No).			
	the Home-Likelite network (VFLIVIII-NO).			
9.14.3	The top level domain "etcs" shall only be used	(MI)	RINF_GPRS_1 (*)	GPRS Connection Setup
	for the operation of following ERTMS			
	applications:			
	o ETCS			
	o KMC as part of KMS			
9.14.4	The FQDN, used to identify RBC (ETCS trackside)		RINF_GPRS_1 (*)	GPRS Connection Setup
	equipment, shall comply with the following			
	format:	(N.A1)		
	o "id <etcs-id>.ty<etcs-id type="">.etcs"</etcs-id></etcs-id>	(MI)		
	o ETCS ID shall be according to [Subset-037]	(MI)		
	o ETCS ID Type shall be according to [Subset-	(MI)		
	037] o e.g. "id031123. ty01.etcs"	(1)		
9.14.5	The FQDN, used to identify the online key	(1)	RINF_GPRS_2 (*)	Contact an RBC in the ETCS
J.14.J	management centre, shall comply with the		MINE_GPR3_2 (*)	domain
				Gorifalli
	following format:	(NAI)		
	following format: o "id <etcs-id>.ty<etcs-id type="">.etcs" (MI)</etcs-id></etcs-id>	(MI)		
	following format: o "id <etcs-id>.ty<etcs-id type="">.etcs" (MI) o ETCS ID shall be according to [Subset-037]</etcs-id></etcs-id>	(MI) (MI)		
	following format: o "id <etcs-id>.ty<etcs-id type="">.etcs" (MI)</etcs-id></etcs-id>	. ,		

ı	": d024422 t- 05 -t" (I)	(1)		ı
	o e.g. "id031123. ty05.etcs" (I)	(1)		
	Note: Registration Authority-RA FQDN and the			
	Certification Authority-CA FQDN are not part of the "etcs" top level domain.			
0.15.4		(8.41)	DINE CDDC 1 (*)	CDDC Compostion Cotum
9.15.4	For the operation of ETCS as well as other	(MI)	RINF_GPRS_1 (*)	GPRS Connection Setup
	ERTMS applications in PS-mode, IPv4 address			
	space according to [RFC 791] shall be used to			
0.45.5	allocate IP addresses to an OBU or RBC.	(2.41)	DINE CDDC 4 (*)	CDDC C C .
9.15.5	The allocation of the OBU IP address shall be	(MI)	RINF_GPRS_1 (*)	GPRS Connection Setup
	temporary during the active communication			
	session/primary PDP context.			
9A.2	The Function Codes used in association with the	(MI)	NoCov_6	Network Konfiguration Topic +
	Train Function Number (CT=2), Engine Function			RINF_FA_15
	Number (CT=3) and Coach Function Number			
	(CT=4) shall conform to table 9A-1.			
	Function Function description			
	Code			
	00 Spare alarm			
	01 Leading driver			
	02 Driver 2			
	03 Driver 3			
	04 Driver 4			
	05 Driver 5 – reserved for Banking			
	06 Fax			
	07 Intercom			
	08 Public address			
	09 Reserved for international use			
	10 Chief conductor			
	11 Second conductor			
	12 Third conductor			
	13 Fourth conductor			
	14 – 19 Train crew international use			
	20 Catering staff chief			
	21 – 29 Reserved for international use			
	(catering staff)			
	30 Railway security services chief			
	31 – 39 Reserved for international use			
	(security services)			
	40 ERTMS/ETCS			
	41 - 49 Reserved for international use			
	(ERTMS/ETCS)			
	50 Train-borne recorder			
	51 Diagnostics			
	52 Train data bus			
	•			
	53 Train location system			
	54 - 59 Reserved for international applications			
	for on train equipment		-	
	60 Pre-recorded passenger info			
	61 Displayed passenger information unit			
	62 – 69 Reserved for international use			
	(passenger services)			
	70 – 79 Reserved for international use			
	80 – 99 Reserved for internationally			
	harmonised national use			
	Note: Function Codes are reserved for			
	international applications except when shown			
	as "Reserved for internationally harmonised			
	national use".			
	Table 9A-1: Function Code field for CT=2, 3 and			
			Ì	i e

9A.3	The Function Codes used in association with Maintenance and Shunting Services Team	(MI)	NoCov_6	Network Konfiguration Topic + RINF_FA_15
	Numbers (CT=6) shall conform to table 9A-2.			MW_17_13
	Function			
	Code Function description			
	TT,y,xx			
	TT=1-3 Reserved for international use			
	TT,y,xx			
	TT=4 Reserved for national use			
	TT,y,xx			
	TT=5 y = 0 Shunting leader			
	1 – 3 Shunting team member			
	4 Train driver			
	5 – 9 Reserved for national use			
	xx = 00 Default shunting group			
	01 – 29 Dedicated shunting groups (*)			
	30 – 99 Reserved			
	TT,y,xx			
	TT=6-9 Reserved for national use			
	TT,y,xx			
	TT=0 Reserved for international use			
	(*): As defined in table 9-8, FCs 5y01 – 5y29			
	provide dedicated shunting groups 01 – 29			
	Table 9A-2: Function Code field for CT=6	4>		
10.2.1	In order to provide a consistent international	(MI)	RINF_GSM_6	Establishment of several PTP
	service, it is necessary to ensure that priorities are allocated consistently across all railways.			calls with different priorities
	The following allocation of UIC priority levels to			
	eMLPP priority codes is mandatory:			
	See: EIRENE SRS Table 10-1: Allocation of			
	priorities			
	F		RINF_GSM_7	Public Emergency Call – With
				SIM
			RINF_FA_7	FA Call - Successful Call
			RINF_eMLPP_1	MS in VGCS call on DCH, pre-
				emption on Air IF by higher
				prio PtP call
			RINF_eMLPP_2	MS in VBS call as listener, pre-
				emption on Air IF by higher
				prio VBS call.
			RINF_eMLPP_3	MS in VGCS call having the UL
				of the GCH, pre-emption on
			DINE AND A	Air IF by higher prio VBS call. MS in PtP call, pre-emption on
			RINF_eMLPP_4	MS by higher prio VGCS call
				(REC)
			RINF_eMLPP_5	MS in VBS call as originator,
				pre-emption on Air IF by
				higher prio VGCS call (REC)
			RINF_eMLPP_7	MS in data call, pre-emption
				on Air IF by higher prio VGCS
				call (REC)
			RINF_eMLPP_8	MS in PtP call, pre-emption on
				Air IF by higher prio data call
				(4800 baud, transparent)
			RINF_VGCS_2	Controller originates VGCS call
				and takes it down with the kill
				Sequence
			RINF_VGCS_5	Controller joins ongoing VGCS call
			DINE DEC 1	
			RINF_REC_1	SS originates a REC SS accepts an incoming REC
			RINF_REC_3	I 22 accepts an incoming kec
			RINF_REC_4	Controller originates a REC

			RINF_OTDI_2	SS originates VGCS Immediate Setup 2 call, terminating
			RINF_LE_2	Controller receives the OTDI Orig. SS active in a VBS (P4)
				call move in a cell with ongoing REC call
			RINF_LE_3	Orig. SS active in a VGCS (P4) call on GCH (talker) move in a cell with ongoing REC call
10.5.1	SIM cards shall contain a list of authorised networks so that networks shall be displayed (or automatically selected if automatic network selection has been enabled) in the following order of priority (see [MORANE SIM] for more	(MI)	RINF_GSM_1	Successful Location Update after MS Power On
	details): - home EIRENE network;		RINF_GSM_2	Supplementary Service Call Hold
	- 'foreign' EIRENE networks;		RINF_GSM_3	Supplementary Service Call Waiting
	- non-EIRENE networks		RINF_GSM_4	Supplementary Service CLIP – MMC with Call Forwarding Unconditional
	(with order of priority predetermined by virtue of international subscriptions and roaming agreements).		RINF_GSM_5	Supplementary Service MPTY
			RINF_GSM_6	Establishment of several PTP calls with different priorities
			RINF_GSM_7	Public Emergency Call – With SIM
10.5.1i	In order to shorten the duration of the network selection procedure, Mobile Stations designed for use in EIRENE networks shall give preference to the GSM frequency band allocated for railway use (see 3.5.2).	(MI)	NoCov_10	Mobile/Cab requirement
10.7.1i	In case of encryption, ciphering/deciphering algorithms referenced in [EN 301 515, Index [3]] shall be used.	(MI)	NoCov_10	Mobile/Cab requirement
11.2.3	The numbering plan to be used with functional addressing shall be in accordance with the numbering plan given in section 9.	(MI)	NoCov_6	Network Konfiguration Topic + RINF_FA_15
11.3.2	Mobile access to the functional numbering scheme for registration, deregistration and reregistration shall apply the USSD messages and protocols over the air interface as specified in the GSM Follow-me service.	(MI)	RINF_FA_1	Registration of an FN Number
			RINF_FA_2	Registration of an unknown FN fails
			RINF_FA_3	Deregistration of an FN Number
			RINF_FA_4	Deregistration of an FN fails
			RINF_FA_5	Interrogation of an FA Number
			RINF_FA_6	Interrogation of an FN fails
			RINF_FA_7 RINF_FA_8	FA Call - Successful Call FA Call - Call is not completed
			RINF_FA_9	Verification of Functional Numbers previously registered in HPLMN (CT2/3/4)
			RINF_FA_10	Deregistration of CT2 numbers while roaming
			RINF_FA_11	Forced Deregistration
			RINF_FA_13	Register 3 function numbers to one user (non-roaming

			RINF_FA_14	Registration of an FN fails - remote party already registered
11.3.5	Functional number management For communication over the (Um) air interface, the USSD messages and protocols as specified in the GSM Follow-me service shall be used to manage the following types of functional numbers:	(MI)	RINF_FA_1 RINF_FA_2	Registration of an FN Number Registration of an unknown FN fails
	- Train number;		RINF_FA_3	Deregistration of an FN Number
	- Engine number;		RINF_FA_4	Deregistration of an FN fails
	- Coach number;		RINF_FA_5	Interrogation of an FA Numbe
	Shunting team number;Maintenance team number.		RINF_FA_6 RINF_FA_7	Interrogation of an FN fails FA Call - Successful Call
	- Mantenance team number.		RINF_FA_7	FA Call – Call is not completed
			RINF_FA_9	Verification of Functional Numbers previously registered in HPLMN (CT2/3/4)
			RINF_FA_10	Deregistration of CT2 numbers while roaming
			RINF_FA_11	Forced Deregistration
			RINF_FA_14	Registration of an FN fails - remote party already registered
11.3.6	It shall be possible to limit user access to functional number registration and deregistration facilities based on each of the	(MI)	RINF_FA_12	Unsuccessful registration with Lead driver number (CT2 FC 01) because of wrong CoR
	types of functional number identified in 11.3.5.		DINE ANA 1	(CT2 FC10 works)
			RINF_AM_1 RINF_AM_2	National call: AM allows call National call: AM denies call
11.3.7	Mobile stations shall use the following sequences for the control of the functional number management:	(MI)	RINF_FA_1	Registration of an FN Number
	number munugement.		RINF_FA_2	Registration of an unknown FI fails
	Procedure Sequence		RINF_FA_3	Deregistration of an FN Number
	Interrogation *#214*SI***#		RINF_FA_4	Deregistration of an FN fails
	Registration **214*SI***#		RINF_FA_5	Interrogation of an FA Number
	Deregistration ##214*SI***# Re-registration **214*SI***# followed by ##214*SI***#		RINF_FA_6 RINF_FA_7	Interrogation of an FN fails FA Call - Successful Call
	Definition in		RINF_FA_8	FA Call – Call is not completed
	section 11.3.14		RINF_FA_11	Forced Deregistration
	Forced De-registration ##214*SI*88*MSISDN*#		RINF_FA_14	Registration of an FN fails - remote party already registered
	Where SI Supplementary Information represents the International Functional Number (also called the International EIRENE Number), as defined in section 9.6.3. Note: This table is for information only. The Follow Me service control sequences are based on the USSD specified in [EN 301 515, Index [15]].			
11.3.7i	The Sub-System Number (SSN) to be used and set for Follow-Me Functional Number management shall be SSN=6.	(MI)	NoCov_41	Network Setup documentatio + RINF_FA_15
11.3.9	Registration		RINF_FA_1	Registration of an FN Number
	The result of the registration procedure shall be sent back to the mobile. In the event of a failure, an indication of the cause shall be	(MI)	RINF_FA_2	Registration of an unknown FI fails

	provided. Information on the outcome shall be provided to the mobile according to [EN 301 515, Index [17]] and [EN 301 515, Index [34]].		RINF_FA_3 RINF_FA_4 RINF_FA_5 RINF_FA_6 RINF_FA_7 RINF_FA_8 RINF_FA_9 RINF_FA_10 RINF_FA_11 RINF_FA_14	Deregistration of an FN Number Deregistration of an FN fails Interrogation of an FA Number Interrogation of an FN fails FA Call - Successful Call FA Call - Call is not completed Verification of Functional Numbers previously registered in HPLMN (CT2/3/4) Deregistration of CT2 numbers while roaming Forced Deregistration Registration of an FN fails - remote party already registered
11.3.9i	In the event of a registration procedure failing owing to the functional number already being registered to another mobile, the Cab radio shall be capable of providing the user with the ability to perform automatically the forced de registration of the previously registered mobile and the registration of this functional number to the user's mobile. This shall result in the following sequence of actions being performed by the user's Cab radio (see 11.3.7 for details of message structure):	(MI)	RINF_FA_1	Registration of an FN Number
	 Send interrogation message (from mobile to network). Receive MSISDN (from network to mobile). 		RINF_FA_2 RINF_FA_9	Registration of an unknown FN fails Verification of Functional
	3. Send a forced de-registration message		RINF_FA_10	Numbers previously registered in HPLMN (CT2/3/4) Deregistration of CT2 numbers
	(from mobile to network). 4. Receive the answer (from network to		RINF_FA_14	while roaming Registration of an FN fails -
	mobile).			remote party already registered
	5. Send a registration message (from mobile to network).			
	6. Receive the answer (from network to mobile).			
	7. Inform the user whether the registration of the functional number to the user's mobile was successful (performed by the mobile).			
11.3.10	Deregistration		RINF_FA_3	Deregistration of an FN Number
	Deregistration shall only be performed by the subscription identified by the MSISDN number which is associated with the functional number.	(MI)	RINF_FA_4	Deregistration of an FN fails
			RINF_FA_9	Verification of Functional Numbers previously registered in HPLMN (CT2/3/4)
			RINF_FA_10	Deregistration of CT2 numbers while roaming
			RINF_FA_11	Forced Deregistration
11.3.12	The result of the deregistration procedure shall be sent back to the mobile. In the event of a failure, an indication of the cause shall be provided. Information on the outcome shall be	(MI)	RINF_FA_3	Deregistration of an FN Number

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	provided to the mobile according to [EN 301			
	515, Index [17]] and [EN 301 515, Index [34]].			
	, , , , , , , , , , , , , , , , , , , ,		RINF_FA_4	Deregistration of an FN fails
			RINF_FA_9	Verification of Functional
				Numbers previously registered in HPLMN (CT2/3/4)
			RINF_FA_10	Deregistration of CT2 numbers
			DINE EA 11	while roaming
11.3.14	Po registration of an train functional numbers	(MI)	RINF_FA_11 NoCov_14	Forced Deregistration Mobile/Cab requirement +
11.5.14	Re-registration of on-train functional numbers based on the train number shall be performed every time a train leaves one EIRENE network and enters into another EIRENE network.	(IVII)	NOCOV_14	RINF_FA_1, RINF_FA_3
11.3.15	Deregistration of a functional number shall not be carried out until registration of the functional number has been carried out and confirmed as being successful.	(MI)	NoCov_14	Mobile/Cab requirement + RINF_FA_1, RINF_FA_3
11.5.1	The called party functional identity shall be presented to the user initiating a call and the calling party functional identity shall be presented to the user receiving a call.	(MI)	NoCov_19	NW Configuration + RINF_FA_15
11.5.2	The calling party functional number shall be passed to the receiving mobile using the User to User Signalling supplementary service (UUS1) during call setup.	(MI)	NoCov_19	NW Configuration + RINF_FA_15
11.5.3	If the calling party functional number is not available or if the calling party is not registered then the CLI of the calling party shall be displayed on the receiving mobile's display.	(MI)	NoCov_19	NW Configuration + RINF_FA_15
11.5.4	The user-to-user information element in the SETUP, ALERT or CONNECT messages, as defined in [EN 301 515, Index [16]], shall be used to transfer the functional number of the calling party to the called party.	(MI)	NoCov_19	NW Configuration + RINF_FA_15
11.5.5	The user-to-user information element shall use the following format:	(MI)	NoCov_19	NW Configuration + RINF_FA_15
	8 7 6 5 4 3 2 1 ctet			
	User-User protocol discriminator 3 Binary 0 0 0 0 0 0 0 0 Tag defines presentation of Functional Identity			
	4 0 0 0 0 1 0 1			
	Length of Numeric FN 5 Numeric FN 6			
	Digit 2 Digit 1 BCD Digit m Digit m-1 n			
11.5.6	If no valid functional number is available, a fixed length User-to-User Information Element shall be used with the following format:	(MI)	NoCov_45	NW Configuration + RINF_GSM_6
	8 7 6 5 4 3 2 1 ctet User-User Information Element Identifier 1 Length of User-User contents 2			
I	Economic Osci Osci Contellis 2			

	0 0 0 0 0 0 1 1			
	User-User protocol discriminator 3			
	Binary			
	0 0 0 0 0 0 0 0			
	Tag defines presentation of Functional Identity			
	4			
	0 0 0 0 0 1 0 1			
	Functional number 5 BCD			
	0 0 0 0 0 0 0 0 5			
11.7.2	Cell dependent routing		RINF_LDA_1	Successful LDA Call - Verify the
				cell format is correct
	As a minimum, call routing using location	(MI)	RINF_LDA_2	Unsuccessful LDA Call - Call to
	dependent addressing shall be based on the			invalid Short Code
	use of short codes in conjunction with cell			
	dependent routing.	()		
11.8.1	Facilities shall be provided to prevent	(MI)	RINF_AM_2	National call: AM denies call
	unauthorised calls to mobiles either by			
	functional number or MSISDN number from			
12.2.1	outside the EIRENE network.	/N /II\	DINE COM O	Chart and lane CNAC
12.2.1	Where text messaging is implemented in the network, the Short Message Service (SMS) shall	(MI)	RINF_GSM_8	Short and long SMS
12.2.2	be used. The maximum length of an un-concatenated	(MI)	RINF_GSM_8	FAX use questionable, no
12.2.2	message segment shall be 160 characters. A	(IVII)	KIINF_G3IVI_6	known mobiles supporting this
	message can include several segments, in which			known mobiles supporting this
	case the maximum limit is 153 characters per			
	segment(*9).			
	Note (*9): Message length assumes	(1)		
	uncompressed GSM default 7 bit alphabet is	(-)		
	used. See 3GPP 23.040 section 9.2.3.24.1 and			
	3GPP 23.038 section 4.			
13.2.2	All Railway emergency calls shall be	(MI)	RINF_REC_1	SS originates a REC
	implemented and shall be considered			
	established as specified in GSM VGCS			
	(Specifications [EN 301 515, Index [21] & [4]]).			
			RINF_REC_2	Subscriber initiated REC (no
				talker change, normal clear
				down of call)
			RINF_REC_4	Controller originates a REC
			RINF_REC_6	REC in a GCA with a locked cell
13.3.1	A Railway emergency call shall be initiated by	(MI)	RINF_REC_1	SS originates a REC
	using the appropriate function code for the			
	required type of Railway emergency call (see			
	Table 9-8).			
			RINF_REC_2	Subscriber initiated REC (no
				talker change, normal clear
			DINIE 250 1	down of call)
			RINF_REC_4	Controller originates a REC
12.2.2	The Delivery engages and the Lorentz Co.	/B 41\	RINF_REC_6	REC in a GCA with a locked cell
13.3.3	The Railway emergency group IDs required for	(MI)	RINF_REC_1	SS originates a REC
	interoperability are defined in section 9.5. The			
I	composition of each group is a matter for national implementation, although all areas			
	shall have a group defined for all mandated			
			RINE REC 2	Subscriber initiated RFC (no
	shall have a group defined for all mandated		RINF_REC_2	Subscriber initiated REC (no talker change, normal clear
	shall have a group defined for all mandated		RINF_REC_2	Subscriber initiated REC (no talker change, normal clear down of call)
	shall have a group defined for all mandated		RINF_REC_2 RINF_REC_4	talker change, normal clear

13.4.1	Each mobile shall store a list of emergency Group IDs in the SIM appropriate to its function (the Cab radio will store Group ID 299 and 599 -	(MI)	NoCov_10	Mobile/Cab requirement
	see table 9-8).			
13.4.2	All Railway emergency group IDs required for interoperability and appropriate to the operation of the mobile shall maintain active status whilst the mobile is powered up.	(MI)	NoCov_10	Mobile/Cab requirement
13.4.7	If the GSM Release 99 capability and the Immediate Setup 2 feature defined in [EN 301 515, Index [6], Release 4] are supported by the network, the network shall set the MSC Release bit in the "Control Channel Description" information element to "1". Otherwise, the MSC Release bit in the "Control Channel Description" information element shall be set to "0" (zero) [EN 301 515, Index [41]].	(MI)	RINF_REC_1	SS originates a REC
			RINF_REC_2	Subscriber initiated REC (no talker change, normal clear down of call)
			RINF_REC_4	Controller originates a REC
			RINF_REC_6	REC in a GCA with a locked cell
			RINF_OTDI_1	SS originates VGCS call, terminating Controller receives the OTDI
			RINF_OTDI_2	SS originates VGCS Immediate Setup 2 call, terminating Controller receives the OTDI
13.5.2	The application shall be able to deduce that a confirmation is necessary from the call priority, as all calls of 'Railway emergency' priority must be confirmed.	(MI)	NoCov_10	Mobile/Cab requirement
13.5.3	Confirmation of Railway emergency calls shall be implemented using the User to User Signalling supplementary service (UUS1).	(MI)	RINF_REC_5	SS originates Acknowledgement Call
13.5.4	After clear down of the Railway Emergency call, the mobile application shall start the confirmation process by automatically originating a call. In order to avoid network congestion the call set up shall be delayed by a random offset.	(MI)	NoCov_10	Mobile/Cab requirement
13.5.5	Railway Emergency call confirmation messages shall be of eMLPP priority 4 - "Railway information and all other calls" (see section 10.2).	(MI)	NoCov_10	Mobile/Cab requirement
13.5.6	The user information contained in the confirmation message shall be: - Cab radio: the engine number or train number (if registered); - other mobiles: the user's functional number (if registered).	(MI)	NoCov_10	Mobile/Cab requirement
13.5.7	Confirmation messages shall be sent to a confirmation centre using a defined short code (see table 9-10), which shall be associated with the GSM network.	(MI)	RINF_REC_5	SS originates Acknowledgement Call
13.5.8	In the case of Cab radio, details of the confirmation shall be passed to the train borne recorder if a train borne recorder is connected to the Cab radio.	(MI)	NoCov_10	Mobile/Cab requirement
13.5.9	The user-to-user information elements in the following messages, as defined in [EN 301 515, Index [16]], shall be used for the confirmation of Railway Emergency calls:	(MI)	NoCov_10	Mobile/Cab requirement

13.5.10	- SETUP: transfer of confirmation message to confirmation centre; - RELEASE COMPLETE: acknowledgement of the confirmation message. The SETUP and RELEASE COMPLETE user-to-	(MI)	NoCov_10	Mobile/Cab requirement
	user information element shall be as specified in the [TS 102 610].			
13.5.10i	Confirmation centres shall be capable of decoding messages in either format A or B.	(MI)	RINF_REC_5	SS originates Acknowledgement Call
13A.2.1	An eREC capable network shall be able to simultaneously provide service to eREC and non-eREC capable mobiles.	(MI)	RINF_eREC_1 (*)	eREC call with correct SID – eREC MS with same SID are joining, eREC MS with different SID will not be alerted
			RINF_eREC_2 (*)	eREC call which involve with eREC capable and non eREC capable terminals
13A.2.2	An eREC capable mobile shall be able to operate in either eREC or non-eREC capable network.	(MI)	RINF_eREC_1 (*)	eREC call with correct SID – eREC MS with same SID are joining, eREC MS with different SID will not be alerted
			RINF_eREC_2 (*)	eREC call which involve with eREC capable and non eREC capable terminals
17.1.1	To enable interoperable international train traffic, the respective EIRENE networks shall be interconnected.	(MI)	NoCov_21	Border Crossing (ENIR)
17.2.1	To enable interoperable international train traffic, the respective EIRENE networks shall support Roaming.	(MI)	NoCov_21	Border Crossing (ENIR)
17.3.1	To enable interoperable international train traffic, the respective EIRENE networks shall be able to be configured to support Border Crossing.	(MI)	NoCov_21	Border Crossing (ENIR)

A-3 Cross reference Test Cases to Requirements

TCID	TCTitle	EireneDoc	Section
RINF_GSM_1	Successful Location Update after MS Power On	FRS	2.4.1
_		FRS	2.4.2
		SRS	2.2.1
		SRS	10.5.1
RINF_GSM_2	Supplementary Service Call Hold	FRS	2.4.1
	,	FRS	2.4.2
		FRS	2.4.13
		FRS	2.4.14
		SRS	2.2.1
		SRS	2.4.1
		SRS	10.5.1
RINF_GSM_3	Supplementary Service Call Waiting	FRS	2.4.1
	oupprementary service can reach be	FRS	2.4.2
		FRS	2.4.15
		SRS	2.2.1
		SRS	2.4.1
		SRS	10.5.1
DINE CCM 4	Cumplementary Coming CLID MANC with Call Forwarding Unconditional		+
RINF_GSM_4	Supplementary Service CLIP – MMC with Call Forwarding Unconditional	FRS	2.2.1
		FRS	2.2.2
		FRS	2.2.3
		FRS	2.2.4
		FRS	2.4.1
		FRS	2.4.2
		FRS	2.4.5
		SRS	2.2.1
		SRS	2.4.1
		SRS	10.5.1
RINF_GSM_5	Supplementary Service MPTY	FRS	2.2.1
		FRS	2.2.2
		FRS	2.2.3
		FRS	2.2.4
		FRS	2.2.17
		FRS	2.2.18
		FRS	2.4.1
		FRS	2.4.2
		FRS	5.2.2.26
		FRS	5.2.2.29
		FRS	5.2.2.30
		FRS	5.2.2.31
		FRS	5.2.2.32
		FRS	5.2.2.37
		FRS	5.2.2.38
		FRS	5.2.2.42
		SRS	2.2.1
		SRS	2.4.1
		SRS	2.5.1
		SRS	10.5.1
RINF_GSM_6	Establishment of several PTP calls with different priorities	FRS	2.2.1
	'	FRS	2.2.2
		FRS	2.2.3
		FRS	2.2.4
		FRS	2.4.1
		FRS	2.4.2
		SRS	2.2.1
		SRS	2.5.1
		SRS	5.4.4
		SRS	9.7.1
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I		SRS	10.2.1
		SRS	10.5.1
RINF_GSM_7	Public Emergency Call – With SIM	FRS	2.4.1
\(\(\)\(\)	Table Effected can With Silvi	FRS	2.4.2
		FRS	9.3.2
		SRS	2.2.1
		SRS	10.2.1
		SRS	10.5.1
RINF_GSM_8	Short and long SMS	FRS	2.3.4
		SRS	12.2.1
			12.2.2
RINF_GSM_9	Mobile subscriber receives a call from Subscriber on other Network	SRS	9.7.4
RINF_ER-GSM	Establishment of a PTP call in a ER-GSM network	SRS	3.5.5
RINF_HO_1	Inter BTS handover of a point to point voice call	FRS	2.2.3
		FRS	2.2.4
RINF_HO_2	Ongoing point to point voice call in the destination cell preempted by a inter BTS handover inwards of a point to point voice call	FRS	10.2.2
RINF_FA_1	Registration of an FN Number	FRS	2.4.1
		FRS	2.4.3
		FRS	2.5.1
		FRS	9.2.1.1
		FRS	9.2.2.2
		FRS	9.2.3.2
		FRS	9.2.4.1
		FRS	9.2.4.2
		FRS	9.2.4.3
		FRS	9.2.4.4
		FRS	11.2.1.1
		FRS	11.3.2.3
		FRS	11.3.3.1
		FRS	11.3.3.3
		FRS	11.3.3.5
		SRS	2.5.1
		SRS	11.3.2
		SRS SRS	11.3.5 11.3.7
		SRS	11.3.7
		SRS	11.3.9i
RINF_FA_2	Registration of an unknown FN fails	FRS	2.4.1
KINF_FA_Z	RESISTIBLION OF BUILDING WILLIAMS	FRS	2.4.1
		FRS	2.5.1
		FRS	9.2.1.1
		FRS	9.2.2.2
		FRS	9.2.3.2
		FRS	9.2.4.1
		FRS	9.2.4.2
		FRS	9.2.4.3
		FRS	9.2.4.4
		FRS	11.2.1.1
		FRS	11.2.1.5
		FRS	11.2.2.1
		FRS	11.3.2.3
		FRS	11.3.3.1
		FRS	11.3.3.3
		FRS	11.3.3.5
		SRS	11.3.2
		SRS	11.3.5
		SRS	11.3.7
		SRS	11.3.9
		SRS	11.3.9i

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RINF_FA_3	Deregistration of an FN Number	FRS	2.4.1
		FRS	2.4.3
		FRS	2.5.1
		FRS	9.2.1.1
		FRS	9.2.2.2
		FRS	9.2.3.2
		FRS	9.2.4.1
		FRS	9.2.4.2
		FRS	9.2.4.3
		FRS	9.2.4.4
		FRS	11.2.1.1
		FRS	11.3.2.3
		FRS	11.3.3.1
		FRS	11.3.3.3
		FRS	
			11.3.3.4
		FRS	11.3.3.5
		SRS	2.4.1
		SRS	11.3.2
		SRS	11.3.5
		SRS	11.3.7
		SRS	11.3.9
		SRS	11.3.10
		SRS	11.3.12
RINF_FA_4	Deregistration of an FN fails	FRS	2.4.1
	-	FRS	2.4.3
		FRS	2.5.1
		FRS	9.2.1.1
		FRS	9.2.2.2
		FRS	9.2.3.2
		FRS	9.2.4.1
		FRS	9.2.4.2
		FRS	9.2.4.3
		FRS	9.2.4.4
		FRS	11.2.1.1
		FRS	11.3.2.3
		FRS	11.3.3.1
		FRS	11.3.3.3
		FRS	11.3.3.4
		FRS	11.3.3.5
		SRS	2.4.1
		SRS	11.3.2
		SRS	11.3.5
		SRS	11.3.7
		SRS	11.3.9
		SRS	11.3.10
		SRS	11.3.12
RINF_FA_5	Interrogation of an FA Number	FRS	2.4.1
			2.4.3
		LERS	2.4.3
		FRS FRS	
		FRS	2.5.1
		FRS FRS	2.5.1 9.2.1.1
		FRS FRS FRS	2.5.1 9.2.1.1 9.2.4.1
		FRS FRS FRS FRS	2.5.1 9.2.1.1 9.2.4.1 9.2.4.2
		FRS FRS FRS FRS FRS	2.5.1 9.2.1.1 9.2.4.1 9.2.4.2 9.2.4.3
		FRS FRS FRS FRS FRS FRS FRS	2.5.1 9.2.1.1 9.2.4.1 9.2.4.2 9.2.4.3 9.2.4.4
		FRS FRS FRS FRS FRS FRS FRS FRS	2.5.1 9.2.1.1 9.2.4.1 9.2.4.2 9.2.4.3 9.2.4.4 11.2.1.1
		FRS	2.5.1 9.2.1.1 9.2.4.1 9.2.4.2 9.2.4.3 9.2.4.4 11.2.1.1 11.3.2.3
		FRS	2.5.1 9.2.1.1 9.2.4.1 9.2.4.2 9.2.4.3 9.2.4.4 11.2.1.1 11.3.2.3 11.3.3.1
		FRS	2.5.1 9.2.1.1 9.2.4.1 9.2.4.2 9.2.4.3 9.2.4.4 11.2.1.1 11.3.2.3 11.3.3.1 11.3.3.3
		FRS	2.5.1 9.2.1.1 9.2.4.1 9.2.4.2 9.2.4.3 9.2.4.4 11.2.1.1 11.3.2.3 11.3.3.1
		FRS	2.5.1 9.2.1.1 9.2.4.1 9.2.4.2 9.2.4.3 9.2.4.4 11.2.1.1 11.3.2.3 11.3.3.1 11.3.3.3

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		SRS	
		SRS	
DINE EA C	Interrogetion of an EN fails		
RINF_FA_6	Interrogation of an FN fails	FRS	
		SRS	11.3.9
RINF_FA_7	FA Call - Successful Call	FRS	2.2.3
		FRS	5 2.2.4
		FRS	2.4.1
		FRS	2.4.3
		FRS	2.5.1
		FRS	5.2.2.3
		FRS	5.2.2.3i
		FRS	
		FRS	
		FRS	
		FRS	
		FRS	
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		FRS	
		FRS	
		FRS	
		FRS	
		FRS	
		SRS	
RINF_FA_8	FA Call – Call is not completed	FRS	
NINF_FA_8	FA Call – Call is not completed	FRS	
		FRS	
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1		FRS	11.3.2.3

FRS 11.3.3.5 FRS 11.3.3.5 FRS 11.3.3.5 FRS 11.3.3.5 FRS 11.3.3.5 FRS 11.3.5 FRS 11.3.5 FRS 11.3.5 FRS 11.3.5 FRS 11.3.5 FRS 11.3.7 FRS 11.3.7 FRS 2.4.1 FRS 11.3.3 FRS 2.4.1 FRS 2.4.1 FRS 2.4.2 FRS 2.4.2 FRS 2.4.2 FRS 2.4.2 FRS 2.4.3 FRS 2.4.3 FRS 2.4.1 FRS 2.4.2 FRS 2.4.2 FRS 2.4.3 FRS 11.3.3 FRS 11.3.3 FRS 11.3.3 FRS 2.4.1 FRS 2.4.2 FRS 2.4.3 FRS 11.3.3 F	l		FRS	11 2 2 1
RINF_FA_9 Verification of Functional Numbers previously registered in HPLMN (CT2/3/4) FRS 11.3.7 FRS 11.3.9 FRS 11.3.9 FRS 24.1 FRS 24.2 FRS 24.1 FRS 24.2 FRS 92.4.1 FRS 92.2.1 FRS 92.2.3 FRS 11.3.3 FRS 11.3.9			11.3.3.1	
RINF_FA_10 Peregistration of CT2 numbers while roaming RINF_FA_10 Deregistration of CT2 numbers while roaming RINF_FA_11 RINF_FA_11 Forced Deregistration First 1.13.25 SRS 11.3.55 SRS 11.3.15 SRS 11.3.25 SRS 1.13.25 FRS 2.4.1 FRS 2.4.1 FRS 9.2.4.3 FRS 9.2.4.3 FRS 9.2.4.3 FRS 9.2.4.3 FRS 11.3.3.1 FRS 11.3.3.3 FRS 11.3.3.3 FRS 11.3.3.5 SRS 11.3.9 SRS 11.3.9 SRS 11.3.9 SRS 11.3.9 SRS 11.3.10 SRS 11.3.3 FRS 9.2.4				
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RINF_FA_10 Deregistration of CT2 numbers while roaming			FRS	9.2.1.1
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		FRS	11.3.3.1
		FRS	11.3.3.3
		FRS	11.3.3.4
		FRS	11.3.3.5
		SRS	11.3.2
		SRS	11.3.5
		SRS	11.3.7
		SRS	11.3.9
		SRS	11.3.10
		SRS	11.3.12
RINF_FA_12	Unsuccessful registration with Lead driver number (CT2 FC 01) because of wrong CoR (CT2 FC10 works)	FRS	11.3.2.5
		SRS	9.10.1ii
		SRS	11.3.6
RINF_FA_13	Register 3 function numbers to one user (non-roaming case)	FRS	11.2.1.4
		SRS	2.4.1
		SRS	11.3.2
RINF_FA_14	Registration of an FN fails - remote party already registered	FRS	2.4.1
		FRS	2.4.3
		FRS	2.5.1
		FRS	9.2.1.1
		FRS	9.2.2.2
		FRS	9.2.3.2
		FRS	9.2.4.1
		FRS	9.2.4.2
		FRS	9.2.4.3
		FRS	9.2.4.4
		FRS	11.2.1.1
		FRS	11.3.2.3
		FRS	11.3.3.1
		FRS	11.3.3.3
		FRS	11.3.3.5
		SRS	2.5.1
		SRS	11.3.2
		SRS	11.3.5
		SRS	11.3.7
		SRS	11.3.7
		SRS	11.3.9i
DINE EA 1E	FA Call - Successful Call		9.2.2
RINF_FA_15	FA Call - Successful Call	SRS	
		SRS SRS	9.2.3 9.2.4
		SRS	9.2.5
		SRS	9.2.6
		SRS	9.2.7
		SRS	9.2.8
		SRS	9.2.9
		SRS	9.2.10
DINE 151 :	C. Chipagolli M. M. H. H. C. C.	SRS	9.2.11
RINF_LDA_1	Successful LDA Call - Verify the cell format is correct	FRS	2.5.1
		FRS	5.2.2.3
		FRS	5.2.2.3i
		FRS	5.2.2.4
		FRS	5.2.2.6
		FRS	5.2.2.7
		FRS	9.3.2
		FRS	11.4.1
		FRS	11.4.4
		FRS	11.4.5
		SRS	2.5.1
		SRS	9.8.2

ı		CDC	000
		SRS	9.8.3
		SRS	9.8.4
DINE LDA 2	Harvaran full DA Call Call to Small d Chart Carls	SRS	11.7.2
RINF_LDA_2	Unsuccessful LDA Call - Call to invalid Short Code	FRS	2.5.1
		FRS	5.2.2.3
		FRS	5.2.2.3i
		FRS	5.2.2.4
		FRS	5.2.2.6
		FRS	5.2.2.7
		FRS	9.3.2
		FRS FRS	11.4.1
		FRS	11.4.4 11.4.5
		SRS	2.5.1
		SRS	9.8.4
		SRS	11.7.2
DINE ONLINE 1	MC in VCCC call on DCII are amortion on Air IF by higher aris DtD call		
RINF_eMLPP_1	MS in VGCS call on DCH, pre-emption on Air IF by higher prio PtP call	FRS	2.4.5
		FRS	2.4.6
		FRS FRS	2.4.7 5.2.2.9
		FRS	5.2.2.9
		FRS	_
1		FRS	10.2.2
		SRS	2.4.1
		SRS	4.3.1
		SRS	10.2.1
RINF_eMLPP_2	MS in VBS call as listener, pre-emption on Air IF by higher prio VBS call.	FRS	2.4.5
KINF_EIVILFF_2	wis in vbs can as listener, pre-emption on Air ir by nigher prio vbs can.	FRS	2.4.6
		FRS	2.4.7
		FRS	10.2.2
		FRS	10.2.2
		SRS	2.4.1
		SRS	4.3.1
		SRS	10.2.1
RINF_eMLPP_3	MS in VGCS call having the UL of the GCH, pre-emption on Air IF by higher	FRS	2.4.5
	prio VBS call.	11.0	2. 1.5
		FRS	2.4.6
		FRS	2.4.7
		FRS	5.2.2.9
		FRS	5.2.2.15
		FRS	10.2.2
		FRS	10.2.3
		SRS	2.4.1
		SRS	4.3.1
		SRS	10.2.1
RINF_eMLPP_4	MS in PtP call, pre-emption on MS by higher prio VGCS call (REC)	FRS	2.4.5
		FRS	2.4.6
		FRS	2.4.7
1		FRS	5.2.2.9
		FRS	5.2.2.15
		FRS	10.2.2
		FRS	10.2.3
		FRS	13.4.6
		SRS	2.4.1
		SRS	4.3.1
DINE AND 5	MO to MDC cell as autotraces and the second control of the second	SRS	10.2.1
RINF_eMLPP_5	MS in VBS call as originator, pre-emption on Air IF by higher prio VGCS call (REC)	FRS	2.4.5
	(ILLO)	FRS	2.4.6
		FRS	2.4.7
1		FRS	10.2.2
I		11/2	10.2.2

		FRS	10.2.3
		FRS	10.2.3
		FRS	13.4.6
		SRS	2.4.1
			4.3.1
		SRS SRS	
DINE AMIDD C	NAC in VICCO and having the LU afthe CCU and appeting an NAC by higher ani-		10.2.1
RINF_eMLPP_6	MS in VGCS call having the UL of the GCH, pre-emption on MS by higher prio VGCS call (REC)	FRS	2.2.14
RINF_eMLPP_7	MS in data call, pre-emption on Air IF by higher prio VGCS call (REC)	FRS	2.4.5
		FRS	2.4.6
		FRS	2.4.7
		FRS	10.2.2
		FRS	10.2.3
		FRS	13.4.6
		SRS	2.3.1
		SRS	2.4.1
		SRS	4.3.1
		SRS	10.2.1
RINF_eMLPP_8	MS in PtP call, pre-emption on Air IF by higher prio data call (4800 baud, transparent)	FRS	2.3.13
	and the second	FRS	2.4.5
		FRS	2.4.6
		FRS	2.4.7
		FRS	10.2.2
		FRS	10.2.3
		SRS	2.3.1
		SRS	2.4.1
		SRS	4.3.1
		SRS	10.2.1
RINF_eMLPP_9	eMLPP priority is preserved during CFU (Call Forwarding Unconditionally)	SRS	2.4.1
RINF_eMLPP_10		SRS	2.4.1
RINF_VGCS_1	SS originates VGCS call	FRS	2.2.1
MINI_VGC3_1	33 Originates voca can	FRS	2.2.2
		FRS	2.2.12
		FRS	2.2.16
		FRS	3.5.2
		FRS	3.5.3
		FRS	5.2.2.9
		FRS	5.2.2.15
		FRS	5.2.2.43
		FRS	5.2.2.47
		SRS	2.2.1
		SRS	2.5.1
		SRS	4.3.1
RINF_VGCS_2	Controller originates VGCS call and takes it down with the kill Sequence	FRS	2.2.1
		FRS	2.2.2
		FRS	2.2.12
		FRS	2.2.16
		FRS	3.5.2
		FRS	3.5.3
		FRS	5.2.2.43
		FRS	5.2.2.47
		FRS	11.2.3.2
		SRS	2.2.1
		SRS	2.5.1
		SRS	4.3.1
		SRS	10.2.1
RINF_VGCS_3	SS originates VGCS call, leaves, rejoins and ends it.	FRS	2.2.1
	• · · · · · · · · · · · · · · · · · · ·	FRS	2.2.2
		FRS	2.2.12
		FRS FRS	2.2.12

1			1
		FRS	3.5.2
		FRS	3.5.3
		FRS	5.2.2.9
		FRS	5.2.2.15
		FRS	5.2.2.43
		FRS	5.2.2.47
		FRS	11.2.3.2
		SRS	2.2.1
		SRS	2.5.1
		SRS	4.3.1
RINF_VGCS_4	SS enters into VGCS broadcast area with ongoing VGCS call and is notified of it	FRS	2.2.1
		FRS	2.2.2
		FRS	2.2.12
		FRS	2.2.16
		FRS	3.5.2
		FRS	3.5.3
		FRS	5.2.2.9
		FRS	5.2.2.15
		FRS	5.2.2.43
		FRS	5.2.2.47
		FRS	11.2.3.2
		SRS	2.2.1
		SRS	2.5.1
		SRS	4.3.1
DINE VCCC F	Controller joins ongoing VGCS call		2.2.1
RINF_VGCS_5	Controller Joins ongoing vGCs call	FRS	
		FRS	2.2.2
		FRS	2.2.12
		FRS	2.2.16
		FRS	3.5.2
		FRS	3.5.3
		FRS	5.2.2.43
		FRS	5.2.2.47
		FRS	11.2.3.2
		SRS	4.3.1
		SRS	10.2.1
RINF_VGCS_6	Parallel group calls are possible in the same cell.	FRS	2.2.1
		FRS	2.2.2
		FRS	2.2.12
		FRS	2.2.16
		FRS	3.5.2
		FRS	3.5.3
		FRS	5.2.2.43
		FRS	5.2.2.47
		FRS	11.2.3.2
		SRS	4.3.1
RINF_VGCS_7	GID delivered correctly to terminating SS in SS originated VGCS call	FRS	2.2.1
		FRS	2.2.2
		FRS	2.2.12
		FRS	2.2.16
		FRS	3.5.2
		FRS	3.5.3
		FRS	5.2.2.9
		FRS	5.2.2.15
		FRS	5.2.2.43
		FRS	5.2.2.47
		FRS	
			11.2.3.2
DINE VDC 4	CC aviginates VDC cell	SRS	4.3.1
RINF_VBS_1	SS originates VBS call	FRS	3.5.2
		FRS	3.5.3
		FRS	5.2.2.43

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		FRS	5.2.2.47
		FRS	11.2.3.2
DINE VOC 2	CC additionter add OVIDC and	SRS	4.3.1
RINF_VBS_2	SS originates prio0 VBS call	FRS	3.5.2
		FRS FRS	3.5.3 5.2.2.43
		FRS	5.2.2.43
		FRS	11.2.3.2
		SRS	4.3.1
RINF_VBS_3	Controller originates VBS call and takes down the call by disconnecting	FRS	3.5.2
	Controller originates vas can and takes down the can by disconnecting	FRS	3.5.3
		FRS	5.2.2.43
		FRS	5.2.2.47
		FRS	11.2.3.2
		SRS	4.3.1
RINF_VBS_4	Controller originates VBS call and takes down the call with the kill sequence	FRS	3.5.2
		FRS	3.5.3
		FRS	5.2.2.43
		FRS	5.2.2.47
		FRS	11.2.3.2
		SRS	4.3.1
RINF_VBS_5	Controller joins ongoing VBS call	FRS	3.5.2
		FRS	3.5.3
		FRS	5.2.2.43
		FRS	5.2.2.47
		FRS	11.2.3.2
		SRS	4.3.1
RINF_VBS_6	SS enters into VBS broadcast area with ongoing VBS call and is notified of it, SS joins the VBS call	FRS	3.5.2
		FRS	3.5.3
		FRS	5.2.2.43
		FRS	5.2.2.47
		FRS	11.2.3.2
	00 11 1 270	SRS	4.3.1
RINF_REC_1	SS originates a REC	FRS	2.5.1
		FRS FRS	5.2.2.18 9.3.2
		FRS	10.2.1
		FRS	10.2.2
		FRS	13.1.6
		FRS	13.2.2.2
		FRS	13.2.2.3
		FRS	13.2.3.1
		FRS	13.2.3.3
		FRS	13.2.4.1
		FRS	13.3.1
		FRS	13.4.5
		SRS	2.4.1
		SRS	2.5.1
		SRS	10.2.1
		SRS	13.2.2
		SRS	13.3.1
		SRS	13.3.3
RINF_REC_2	Subscriber initiated REC (no talker change, normal clear down of call)	SRS	13.4.7
KIINF_KEC_Z	Subscriber initiated NEC (no talker change, normal clear down of call)	FRS FRS	2.5.1 5.2.2.18
		FRS	9.3.2
		FRS	10.2.1
		FRS	10.2.1
		FRS	13.1.6
1		FRS	13.2.2.2
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		FRS	13.2.2.3
		FRS	13.2.3.1
		FRS	13.2.3.3
		FRS	13.2.4.1
		FRS	13.3.1
		FRS	13.4.5
		FRS	13.4.6
		SRS	13.2.2
		SRS	13.3.1
		SRS	13.3.3
		SRS	13.4.7
RINF_REC_3	SS accepts an incoming REC	FRS	5.2.2.9
		FRS	5.2.2.15
		SRS	2.4.1
		SRS	2.5.1
		SRS	10.2.1
RINF_REC_4	Controller originates a REC	FRS	2.5.1
		FRS	5.2.2.9
		FRS	5.2.2.15
		FRS	5.2.2.18
		FRS	9.3.2
		FRS	10.2.1
		FRS	10.2.2
		FRS	13.1.6
		FRS	13.2.2.2
		FRS	13.2.2.3
		FRS	13.2.3.1
		FRS	13.2.3.3
		FRS	13.2.4.1
		FRS	13.3.1
		FRS	13.4.6
		SRS	2.4.1
		SRS	2.5.1
		SRS	10.2.1
		SRS	13.2.2
		SRS	13.3.1
		SRS	13.3.3
		SRS	13.4.7
RINF_REC_5	SS originates Acknowledgement Call	SRS	13.5.3
	33 ongmates / tellio wiedgement edil	SRS	13.5.7
		SRS	13.5.10i
RINF_REC_6	REC in a GCA with a locked cell	FRS	2.5.1
KIIVI _KLC_0	NEC III a GCA WILII a locked cell	FRS	5.2.2.18
		FRS	9.3.2
		FRS	10.2.1
		FRS	10.2.2
		FRS	13.1.6
		FRS	13.2.2.2
		FRS	13.2.2.3
		FRS	13.2.3.1
		FRS	13.2.3.3
		FRS	13.2.4.1
		FRS	13.3.1
		FRS	13.4.6
		SRS	13.2.2
		SRS	_
		SRS	13.3.1
		SRS	13.3.3
DINE OTD: 1	SS originator VCCS call terminating Controller receives the CTD!		13.4.7
RINF_OTDI_1	SS originates VGCS call, terminating Controller receives the OTDI	FRS	2.2.1
		FRS	2.2.2
i		FRS	2.5.1

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		FRS	5.2.2.3
		FRS	5.2.2.3i
		FRS	5.2.2.4
		FRS	5.2.2.6
		FRS	5.2.2.7
		FRS	13.3.2
		SRS	2.2.1
		SRS	2.5.1
		SRS	13.4.7
RINF_OTDI_2	SS originates VGCS Immediate Setup 2 call, terminating Controller receives the OTDI	FRS	2.2.1
		FRS	2.2.2
		FRS	2.5.1
		FRS	5.2.2.3
		FRS	5.2.2.3i
		FRS	5.2.2.4
		FRS	5.2.2.6
		FRS	5.2.2.7
		FRS	13.3.2
		FRS	13.4.5
		FRS	13.4.6
		SRS	2.2.1
		SRS	2.4.1
		SRS	2.5.1
		SRS	10.2.1
		SRS	13.4.7
RINF_LE_1	SS active in a PTOP (P4) call move in a cell with ongoing REC call	FRS	5.2.2.9
WINI _LL_I	33 active in a FTOF (F4) can move in a cen with ongoing REC can	FRS	5.2.2.15
		FRS	13.2.2.7
			13.2.3.1
		FRS FRS	
			13.2.3.3
DINE LE 2	Onic CC active in a VPC (DA) call record in a call with a recipe DEC call	FRS	13.4.6
RINF_LE_2	Orig. SS active in a VBS (P4) call move in a cell with ongoing REC call	FRS	2.4.5
		FRS FRS	2.4.6
		FRS	10.2.2
		FRS	10.2.3
		FRS	13.2.2.7
		FRS	13.2.3.1
		FRS	13.2.3.3
		FRS	13.4.6
		SRS	4.3.1
		SRS	10.2.1
RINF_LE_3	Orig. SS active in a VGCS (P4) call on GCH (talker) move in a cell with ongoing REC call	FRS	2.4.5
		FRS	2.4.6
		FRS	2.4.7
		FRS	5.2.2.9
		FRS	5.2.2.15
		FRS	10.2.2
		FRS	10.2.3
		FRS	13.2.2.7
		FRS	13.2.3.1
		FRS	13.2.3.3
		FRS	13.4.6
		SRS	4.3.1
		SRS	10.2.1
RINF_AM_1	National call: AM allows call	FRS	2.2.3
_ _		FRS	2.2.4
		FRS	9.5.1
		FRS	10.3.2

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		FRS	10.6.2
		SRS	11.3.6
RINF_AM_2	National call: AM denies call	FRS	10.3.2
		FRS	10.6.2
		SRS	11.3.6
		SRS	11.8.1
RINF_URNR_1 1)	SS active in a VGCS call moves in empty cell	SRS	2.7.3
RINF_URNR_2 1)	SS active in a VBS call moves in empty cell	SRS	2.7.3
RINF_URNR_3 1)	SS active in a REC call moves in empty cell	SRS	2.7.3
RINF_eREC_1 2)	eREC call with correct SID – eREC MS with same SID are joining, eREC MS with different SID will not be alerted	SRS	13A.2.1
		SRS	13A.2.2
RINF_eREC_2 2)	eREC call which involve with eREC capable and non eREC capable terminals	SRS	13A.2.1
		SRS	13A.2.2
RINF_GPRS_1 3)	GPRS Connection Setup	SRS	9.13.3
		SRS	9.13.4
		SRS	9.13.9
		SRS	9.13.10
		SRS	9.13.12
		SRS	9.14.3
		SRS	9.14.4
		SRS	9.15.4
		SRS	9.15.5
RINF_GPRS_2 3)	Contact an RBC in the ETCS domain	SRS	9.14.5
RINF_GPRS_3 3)	QOS and priority test between ETCS and Background traffic	SRS	2.11.3

¹⁾ Testcase requires OPTIONAL functionallity 'URNR' deployed in Network
2) Testcase requires OPTIONAL functionallity 'eREC' deployed in Network
3) Testcase requires OPTIONAL functionallity 'GPRS' deployed in Network