

REFERENCE F 12 T 6003 4	 
Company / organisation	UIC ERTMS/GSM-R Operators Group GSM-R Industry Group

FIS FOR

**PRESENTATION OF FUNCTIONAL NUMBERS TO CALLED
AND CALLING PARTIES**

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Confidential

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EVOLUTION SHEET

Version	Date	Author	MODIFICATION
A	20/09/1996	AMC	Creation
1	25/09/1996	AMC	First approved version
2	11/08/1996	AMC	Definition of an empty User-User IE (last page) Editorial changes
3	31/07/2000	MORANE	Specification review third issue
3.01	07/02/2006	FREQUENTIS	Working copy for MORANE update contract I/01/U189-GSM-R
3.02	21/02/2006	FREQUENTIS	RAC replaced by IC, clarification of use of international EIRENE numbers
3.03	01/03/2006	FREQUENTIS	Inclusion of comments by PFN update team
3.04	14/03/2006	FREQUENTIS	Clarification of cOTDI, inclusion of interface between mobile and fixed network, minor editorial changes
3.1	21/03/2006	FREQUENTIS	References adjusted
3.11	10/07/2006	FREQUENTIS	Inclusion of TIG comments
3.2	14/07/2006	FREQUENTIS	Presented to TIG for approval
3.3	24/07/2006	FREQUENTIS	Approved by TIG, presented to UIC
3.31	24/11/2006	FREQUENTIS	Inclusion of OG comments
3.32	5/12/2006	FREQUENTIS	Inclusion of TIG comments
3.4	12/12/2006	FREQUENTIS	Final approval by TIG
4	29/01/2007	OG & IG	Specification update fourth issue

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1. SCOPE

This Functional Interface Specification (FIS) specifies the GSM-R interface requirements involved in the realisation of the GSM-R feature *Presentation of functional numbers to called and calling parties*.

2. REFERENCES

2.1. Normative References

- [1] MORANE “Usage of the UUIE in the GSM-R environment”, Ref. H 22 T 0001
- [2] MORANE FFFS Functional Addressing E 10 T 6001
- [3] MORANE FFFS Presentation of Functional Numbers to Called and Calling Parties F 10 T 6003
- [4] 3GPP TS 24.087 3.0.0 User-to-User Signalling (UUS) - Stage 3
- [5] 3GPP TS 24.008 3.3.0 Mobile radio interface layer 3 specification, Core Network Protocols - Stage 3.

2.2. Informative References

- [6] MORANE SSRS A 04/02 T 6002
- [7] ETSI EN 301 515 Requirements for GSM operation on Railways V2.3.0
- [8] ETSI TR 102 281 Detailed requirements for GSM operation on Railways V2.0.0

3. ABBREVIATIONS

BSS	Base Station System
cOTDI	compressed Originator To Dispatcher Information
CTRLFN	Controller Functional Number
FNUT	Fixed Network User Terminal
GMSC	Gateway MSC
GSM	Global System for Mobile Communications
GSM-R	GSM Railways
IC	International Code
ISDN	Integrated Service Digital Network
MMI	Man Machine Interface
MOC	Mobile Originating Call
MSC	Mobile Switching Centre
MS	Mobile Station
MSISDN	Mobile Station International ISDN Number
MT	Mobile Termination
MTC	Mobile Terminating Call
OTDI	Originator To Dispatcher Information
PABX	Private Automatic Branch eXchange
SIM	Subscriber Identity Module
SM	Short Message
TFN	Train Functional Number
UUIE	User to User Information Element
UUS1	User to User Signalling Service 1
VBS	Voice Broadcast Service
VGCS	Voice Group Call Service
VLR	Visitor Location Register

4. INTERFACE DESCRIPTION

As described in [1] and [4] the User-to-User Signalling service 1 (UUS1) will be used to realize this GSM-R functionality.

This FIS describes the special requirements for this GSM-R functionality on the A and U_m interface, as well as functional requirements on the interface between the mobile network and the external network or PABX to which the fixed network user terminals are connected.

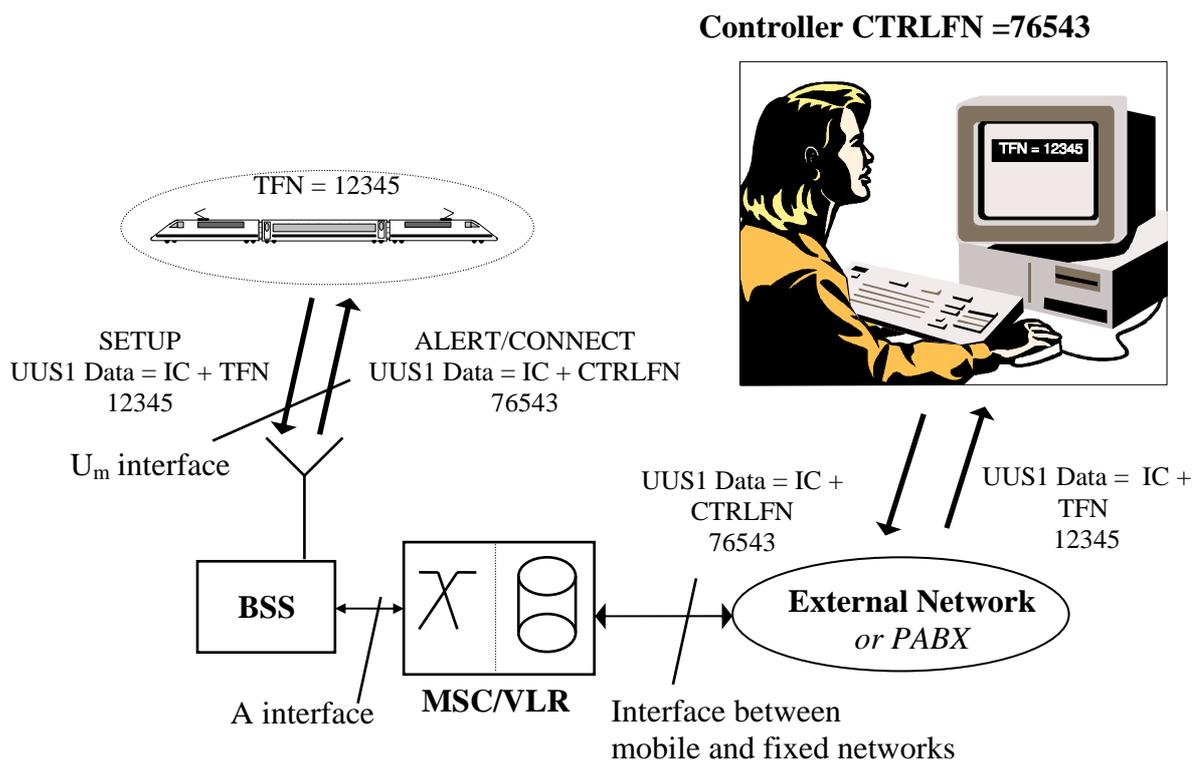


Figure 1: General architecture

Note: The controller may be connected as well to the MSC via a PABX.

The functional number to be transferred is the international EIRENE number and includes the IC

The international EIRENE number should be displayed to the user, unless the IC of the number to be displayed corresponds to the IC of the user's network. In this case it is permissible to display the national EIRENE number.

For the A and U_m interfaces, no special requirements are necessary for point to point calls because normal call set-up procedures are used to implement this feature.

The interface between the mobile network and the external fixed network must support the transport of UUIE in the SETUP, ALERT and CONNECT messages.

In the case of group and broadcast calls which invoke the VGCS service at railway emergency priority (Railway Emergency Calls), the mobile user may send Originator to Dispatcher Information (OTDI) to the dispatchers involved in the call. The transmission of

OTDI on the Um and A interfaces occurs in compressed form (cOTDI) according to [1]. . The MSC must convert the cOTDI to a decompressed UUIE for transmission to the dispatchers in the SETUP message.

Note: Due to limitations on the length of OTDI which are necessary to achieve the fast set-up times required in particular for Railway Emergency Calls, it is not in general possible to transmit the international EIRENE number as OTDI. See also [1]

5. MESSAGE FUNCTIONAL DEFINITION AND CONTENTS

In the scenario below the messages on the A and U_m interface are identified, that are used to carry the information necessary for presentation of the functional numbers. The external fixed network must transport these messages to and from the fixed network user terminals

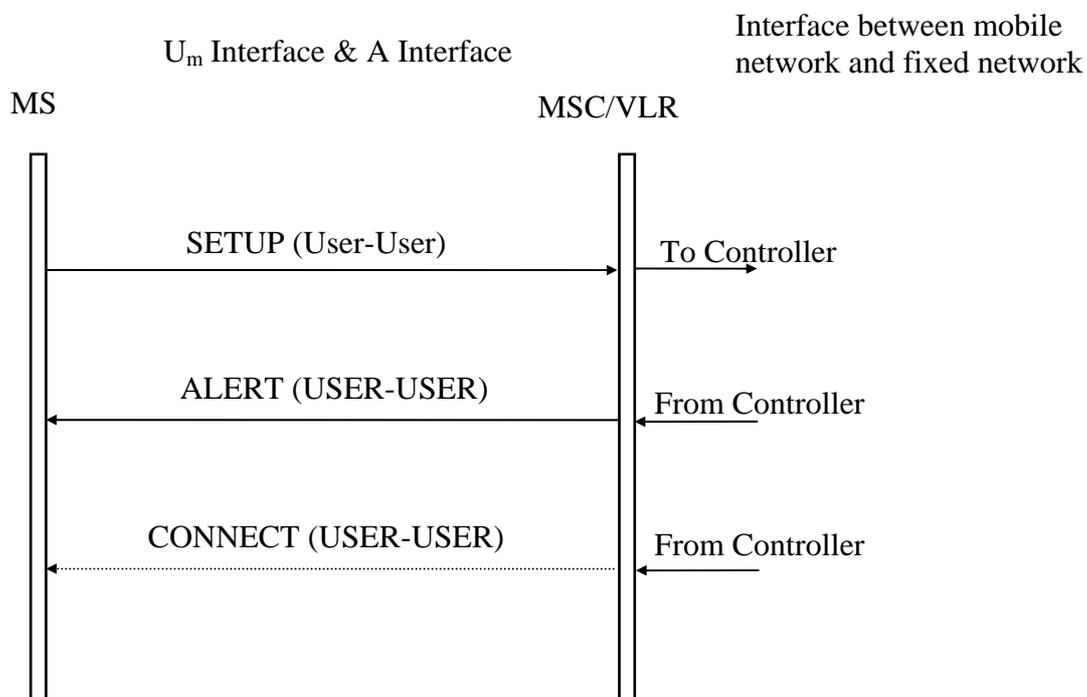


Figure 2: General Message Flow

NOTE: This message flow only shows as an example the transfer of messages from train to the controller (fixed network terminal user). From controller to train it is vice versa. Internal interfaces such as the Abis interface are transparent to call control messages and are not shown in this diagram

When initiating the call, the calling party has to provide the user-to-user information embedded in the SETUP message containing its international functional number. The networks involved in the connection must transfer this user-to-user information transparently embedded in the set-up signalling to the called party.

The called party might send an ALERT message or even a CONNECT message if no ALERT is to be sent due to an automatic answering mechanism. These messages are used to provide the international functional number of the connected party inside the user-to-user information. The networks involved in the connection must transfer this user-to-user information transparently embedded in the alert/connect procedure towards the calling party.

The SETUP, ALERT or CONNECT messages contain a User-User Information Element according to GSM 04.08 [5]. This User-User Information Element is used for the transfer of the terminal's own functional number towards the called party and vice versa. The structure of international functional numbers follows the EIRENE numbering plan.

For the format and encoding of the UUIE for Presentation of Functional Number see reference [1] MORANE Usage of the UUIE in the GSM-R environment.