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FIS FOR

LOCATION DEPENDENT ADDRESSING

ACCESS : ☑Public ❒ Restricted ❒ Confidential

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EVOLUTION SHEET

Version	Date	Author	MODIFICATION
A	27/08/1996	AMC	Creation
B	09/09/1996	AMC	Editorial changes
1	25/09/1996	AMC	First approved version
2	31/07/2000	MORANE	Specification update second issue

TABLE OF CONTENTS

1. Scope ***4***

2. Normative references ***4***

3. Definitions and abbreviations ***4***

4. Interface description ***5***

5. Message functional definition and contents ***6***

5.1. Cell specific routing **6**

5.1.1. COMPLETE LAYER 3 INFORMATION 7

5.1.2. SETUP (mobile originated call establishment) 7

1. SCOPE

This Functional Interface Specification (FIS) specifies the GSM-R interface requirements involved in the realisation of the GSM-R feature *Location dependent addressing*.

The called party on the fixed network side is an ISDN party or a non-ISDN party and is called by a functional number, which identifies its function (for instance primary train controller, electricity supply controller, secondary controller.

2. NORMATIVE REFERENCES

[1] MORANE FFFS for Location Dependent Addressing, F 10 T 6001
[2] MORANE SSRS, A 04/02 T 6002
[4] GSM 05.08 8.2.1 Digital cellular telecommunications system (Phase 2+); Radio subsystem link control
[5] 3GPP TS 24.087 3.0.0 User-to-User Signalling (UUS) - Stage 3
[6] 3GPP TS 24.008 3.3.0 Mobile radio interface layer 3 specification, Core Network Protocols - Stage 3
[7] GSM 08.08 v8.3.0 BSS - MSC interface Layer 3 specification
[8] EIRENE SRS version 12.0
[9] 3GPP TS 24.008 3.3.0 Mobile radio interface layer 3 specification, Core Network Protocols - Stage 3

3. DEFINITIONS AND ABBREVIATIONS

BCD	Binary Coded Decimal
BSC	Base Station Controller
BSS	Base Station System
FN	Functional Number
FNUT	Fixed Network User Terminal
CGI	Cell Global Identification
GCR	Group Call Register
GMSC	Gateway MSC
GPS	Global Positioning System
GSM	Global System for Mobile Communications
GSM-R	GSM Rail
IAM	Initial Address Message
ISDN	Integrated Service Digital Network
LDA	Location Dependent Addressing
MOC	Mobile Originating Call
MS	Mobile Station
MSC	Mobile Switching Centre
MT	Mobile Termination
MTC	Mobile Terminating Call
OMC	Operation and Maintenance Centre
PABX	Private Automatic Branch eXchange
UUS1	User to User Signalling
VGCS	Voice Group Call Service
VLR	Visitor Location Register

4. INTERFACE DESCRIPTION

Like described in [1] the way adopted to realise the functionality of Location Dependent Addressing is

- Mobile originated call setup by applying cell specific routing triggered by Short Codes

This FIS describes the special requirements for the GSM-R functionality *Location Dependent Addressing* on the A and U_m interfaces for the mobile originated cal set up.

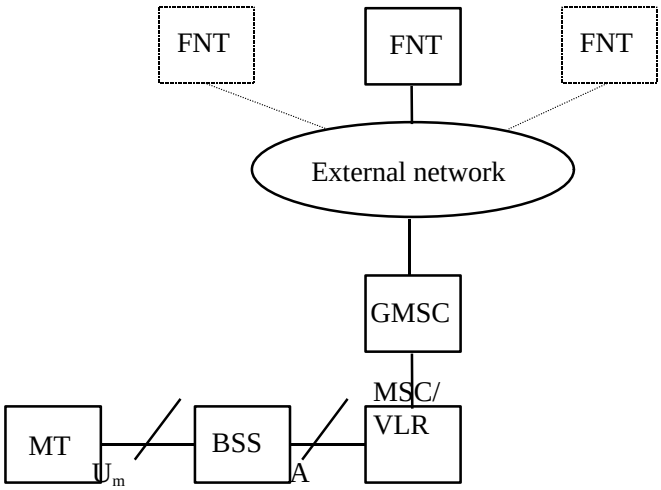

Figure 1: General architecture

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 the location dependent addressing. These messages are printed in bold letters.

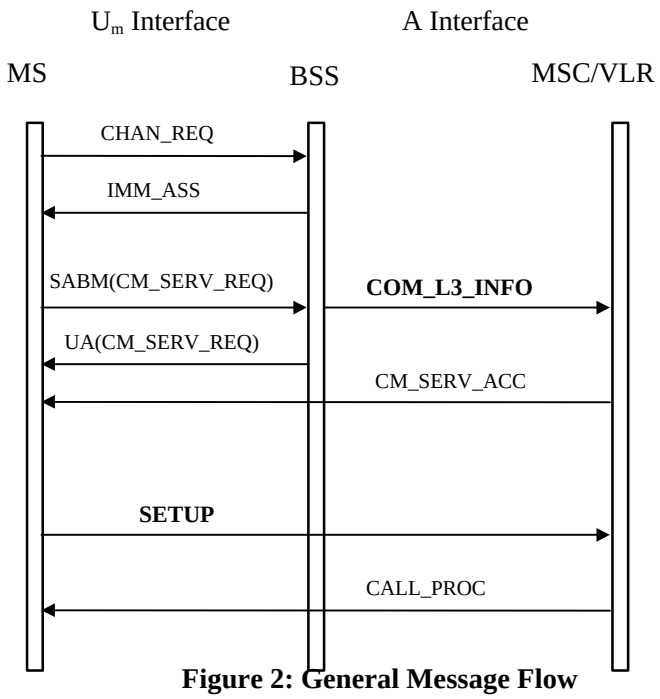

Figure 2: General Message Flow

5.1. Cell specific routing

The messages used to provide the necessary information for the GSM-R feature *Cell specific routing* are COMPLETE LAYER 3 INFORMATION (ref.: [7]) and SETUP (ref.: [9]). All other messages will not be described here.

5.1.1. COMPLETE LAYER 3 INFORMATION

The COMPLETE LAYER 3 INFORMATION message contains the mandatory information element *Cell Identification* according [7]. This cell identification will be used by the MSC to identify the correct controller. In order to avoid ambiguities in case of different network configurations always the usage of the Cell Global Identification (CGI) is recommended.

8	7	6	5	4	3	2	1	
Element identifier								octet 1
Length								octet 2
Spare				Cell identification discriminator				octet 3
				0	0	0	0	
Cell identification								octet 4 - n

Table 1: Complete Layer 3 information element

<Cell identification discriminator>

0000 The whole Cell Global Identifier (MCC,MNC,LAC,CI) is used to identify the cell

5.1.2. SETUP (mobile originated call establishment)

To trigger the MSC to perform cell specific routing a 4 digit functional short code corresponding to chapter *Numbering* in [8] has to be used.

The standard SETUP message is used to carry this functional Short Code instead of an ISDN address towards the MSC using the mandatory information element Called Party BCD Number according [9].

8	7	6	5	4	3	2	1	
	Called party BCD number IEI							octet 1
Length of called party BCD number contents								octet 2
0	0	0	0	0	0	1	1	
	Type of number			Numbering plan identification				octet 3
1	0	0	0	0	0	0	1	
Short Code digit 2				Short Code digit 1				octet 4
Short Code digit 4				Short Code digit 3				octet 5

Table 2: Layout of Called Party Address

For the realization of the location dependent addressing the usage of the following values is required:

<Length of called party BCD number contents>
00000100

<Type of number>
000 unknown

<numbering plan identification>
0001 ISDN/telephony numbering plan (Rec. E.164/E.163)
<Number digit 1>
Short Code digit 1

<Number digit 2>
Short Code digit 2

<Number digit 3>
Short Code digit 3

<Number digit 4>
Short Code digit 4