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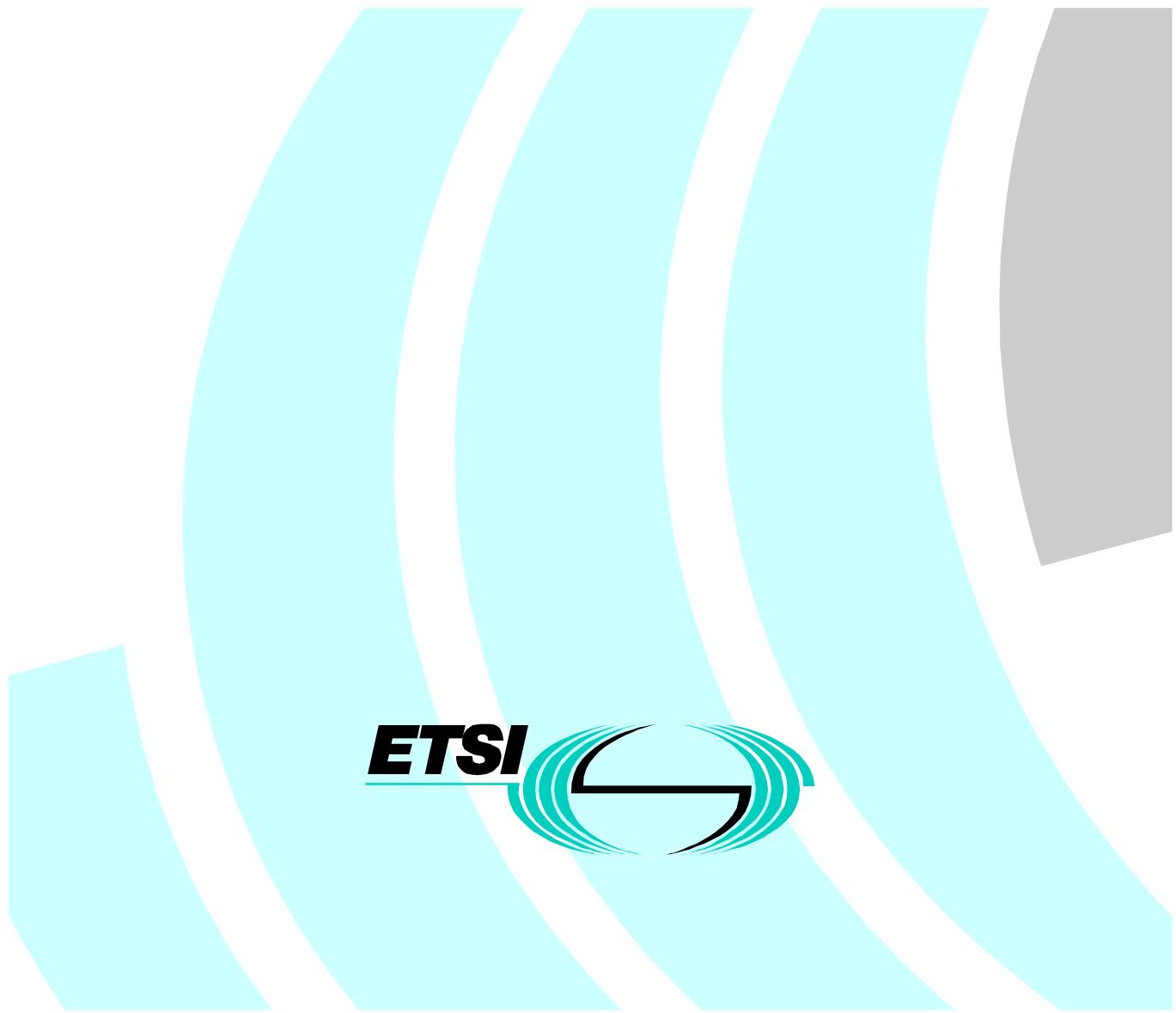
Technical Specification

GEO-Mobile Radio Interface Specifications;
Part 3: Network specifications;
Sub-part 4: Organization of Subscriber Data;
GMR-1 03.008

ETSI

Reference
DTS/SES-001-03008

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Contents

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IPRs:

Project	Company	Title	Country of Origin	Patent n°	Countries Applicable
TS 101 376 V1.1.1	Digital Voice Systems Inc		US	US 5,226,084	US
TS 101 376 V1.1.1	Digital Voice Systems Inc		US	US 5,715,365	US
TS 101 376 V1.1.1	Digital Voice Systems Inc		US	US 5,826,222	US
TS 101 376 V1.1.1	Digital Voice Systems Inc		US	US 5,754,974	US
TS 101 376 V1.1.1	Digital Voice Systems Inc		US	US 5,701,390	US

IPR Owner: Digital Voice Systems Inc
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Project	Company	Title	Country of Origin	Patent n°	Countries Applicable
TS 101 376 V1.1.1	Ericsson Mobile Communication	Improvements in, or in relation to, equalisers	GB	GB 2 215 567	GB
TS 101 376 V1.1.1	Ericsson Mobile Communication	Power Booster	GB	GB 2 251 768	GB
TS 101 376 V1.1.1	Ericsson Mobile Communication	Receiver Gain	GB	GB 2 233 846	GB
TS 101 376 V1.1.1	Ericsson Mobile Communication	Transmitter Power Control for Radio Telephone System	GB	GB 2 233 517	GB

IPR Owner: Ericsson Mobile Communications (UK) Limited
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Project	Company	Title	Country of Origin	Patent n°	Countries Applicable
TS 101 376 V1.1.1	Hughes Network Systems		US	Pending	US

IPR Owner: Hughes Network Systems
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               Germantown, Maryland 20876
               USA

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               Tel: +1 301 428 7172
               Fax: +1 301 428 2802

Project	Company	Title	Country of Origin	Patent n°	Countries Applicable
TS 101 376 V1.1.1	Lockheed Martin Global Telecommunic. Inc	2.4-to-3 KBPS Rate Adaptation Apparatus for Use in Narrowband Data and Facsimile Communication Systems	US	US 6,108,348	US
TS 101 376 V1.1.1	Lockheed Martin Global Telecommunic. Inc	Cellular Spacecraft TDMA Communications System with Call Interrupt Coding System for Maximizing Traffic ThroughputCellular Spacecraft TDMA Communications System with Call Interrupt Coding System for Maximizing Traffic Throughput	US	US 5,717,686	US
TS 101 376 V1.1.1	Lockheed Martin Global Telecommunic. Inc	Enhanced Access Burst for Random Access Channels in TDMA Mobile Satellite System	US	US 5,875,182	
TS 101 376 V1.1.1	Lockheed Martin Global Telecommunic. Inc	Spacecraft Cellular Communication System	US	US 5,974,314	US
TS 101 376 V1.1.1	Lockheed Martin Global Telecommunic. Inc	Spacecraft Cellular Communication System	US	US 5,974,315	US
TS 101 376 V1.1.1	Lockheed Martin Global Telecommunic. Inc	Spacecraft Cellular Communication System with Mutual Offset High-argin Forward Control Signals	US	US 6,072,985	US
TS 101 376 V1.1.1	Lockheed Martin Global Telecommunic. Inc	Spacecraft Cellular Communication System with Spot Beam Pairing for Reduced Updates	US	US 6,118,998	US

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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Satellite Earth Stations and Systems (SES).

The contents of the present document are subject to continuing work within TC-SES and may change following formal TC-SES approval. Should TC-SES modify the contents of the present document it will then be republished by ETSI with an identifying change of release date and an increase in version number as follows:

Version 1.m.n

    where:

        -   the third digit (n) is incremented when editorial only changes have been incorporated in the specification;

        -   the second digit (m) is incremented for all other types of changes, i.e. technical enhancements, corrections, updates, etc.

The present document is part 3, sub-part 4 of a multi-part deliverable covering the GEO-Mobile Radio Interface Specifications, as identified below:

Part 1:   "General specifications";

Part 2:   "Service specifications";

Part 3:   "Network specifications";

Sub-part 1:   "Network Functions; GMR-1 03.001";

Sub-part 2:   "Network Architecture; GMR-1 03.002";

Sub-part 3:   "Numbering, Addressing and identification; GMR-1 03.003";

Sub-part 4:   "Organization of Subscriber Data; GMR-1 03.008";

Sub-part 5:   "Technical realization of Supplementary Services; GMR-1 03.011";

Sub-part 6:   "Location Registration and Position Identification Procedures; GMR-1 03.012";

Sub-part 7:   "Discontinuous Reception (DRX); GMR-1 03.013";

Sub-part 8:   "Support of Dual-Tone Multifrequency Signalling (DTMF); GMR-1 03.014";

Sub-part 9:   "Security related Network Functions; GMR-1 03.020";

Sub-part 10:   "Functions related to Mobile Earth station (MES) in idle mode; GMR-1 03.022";

Sub-part 11:   "Technical realization of the Short Message Service (SMS) Point-to-Point (PP); GMR-1 03.040";

Sub-part 12:   "Technical realization of the Short Message Service Cell Broadcast (SMSCB); GMR-1 03.041";

Sub-part 13:   "Technical realization of group 3 facsimile using transparent mode of transmission; GMR-1 03.045";

Sub-part 14:   Transmission Planning Aspects of the Speech Service in the GMR-1 system; GMR-1 03.050";

Sub-part 15:   "Line Identification supplementary service - Stage 2; GMR-1 03.081";

Sub-part 16:   "Call Barring (CB) supplementary services - Stage 2; GMR-1 03.088";

Sub-part 17:   "Unstructured Supplementary Service Data (USSD) - Stage 2; GMR-1 03.290";

Sub-part 18:   "Terminal-to-Terminal Call (TtT); GMR-1 03.296";

Sub-part 19: "Optimal Routing technical realization; GMR-1 03.297";

Sub-part 20: "Technical realization of High-Penetration Alerting; GMR-1 03.298";

Sub-part 21: "Position Reporting services; Stage 2 Service description; GMR-1 03.299";

Part 4: "Radio interface protocol specifications";

Part 5: "Radio interface physical layer specifications";

Part 6: "Speech coding specifications";

Part 7: "Terminal adaptor specifications".

Introduction

GMR stands for GEO (Geostationary Earth Orbit) Mobile Radio interface, which is used for mobile satellite services (MSS) utilizing geostationary satellite(s). GMR is derived from the terrestrial digital cellular standard GSM and supports access to GSM core networks.

Due to the differences between terrestrial and satellite channels, some modifications to the GSM standard are necessary. Some GSM specifications are directly applicable, whereas others are applicable with modifications. Similarly, some GSM specifications do not apply, while some GMR specifications have no corresponding GSM specification.

Since GMR is derived from GSM, the organization of the GMR specifications closely follows that of GSM. The GMR numbers have been designed to correspond to the GSM numbering system. All GMR specifications are allocated a unique GMR number as follows:

GMR-n xx.zyy

where:

- xx.0yy (z = 0) is used for GMR specifications that have a corresponding GSM specification. In this case, the numbers xx and yy correspond to the GSM numbering scheme.

- xx.2yy (z = 2) is used for GMR specifications that do not correspond to a GSM specification. In this case, only the number xx corresponds to the GSM numbering scheme and the number yy is allocated by GMR.

- N denotes the first (n = 1) or second (n = 2) family of GMR specifications.

A GMR system is defined by the combination of a family of GMR specifications and GSM specifications as follows:

• If a GMR specification exists it takes precedence over the corresponding GSM specification (if any). This precedence rule applies to any references in the corresponding GSM specifications.

NOTE: Any references to GSM specifications within the GMR specifications are not subject to this precedence rule. For example, a GMR specification may contain specific references to the corresponding GSM specification.

• If a GMR specification does not exist, the corresponding GSM specification may or may not apply. The applicability of the GSM specifications is defined in GMR-1 01.201 [2].

1   Scope

The present document defines detailed information for the GMR-1 Mobile Satellite System that is to be stored in home location registers and visitor location registers concerning mobile subscribers.

Clause 4 contains all details concerning the definition of the parameters, often given by reference to other specifications, and where the parameter is to be stored.

Table 6.1 gives a summary overview and clause 6 identifies the reference information required for accessing the information.

The present document is based on GSM 03.08 [9].

2   References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication and/or edition number or version number) or non-specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies.

[1]   GMR-1 01.004 (ETSI TS 101 376-1-1): "GEO-Mobile Radio Interface Specifications;
             Part 1: General specifications; Sub-part 1: Abbreviations and acronyms; GMR-1 01.004".

[2]   GMR-1 01.201 (ETSI TS 101 376-1-2): "GEO-Mobile Radio Interface Specifications;
             Part 1: General specifications; Sub-part 2: Introduction to the GMR-1 Family; GMR-1 01.201".

[3]   GMR-1 03.003 (ETSI TS 101 376-3-3): "GEO-Mobile Radio Interface Specifications;
             Part 3: Network specifications; Sub-part 3: Numbering, Addressing and identification;
             GMR-1 03.003".

[4]   GMR-1 03.012 (ETSI TS 101 376-3-6): "GEO-Mobile Radio Interface Specifications;
             Part 3: Network specifications; Sub-part 6: Location Registration and Position Identification
             Procedures; GMR-1 03.012".

[5]   GMR-1 03.020 (ETSI TS 101 376-3-9): "GEO-Mobile Radio Interface Specifications;
             Part 3: Network specifications; Sub-part 9: Security related Network Functions; GMR-1 03.020".

[6]   GMR-1 03.040 (ETSI TS 101 376-3-11): "GEO-Mobile Radio Interface Specifications;
             Part 3: Network specifications; Sub-part 11: Technical realization of the Short Message Service
             (SMS) Point-to-Point (PP); GMR-1 03.040".

[7]   GMR-1 04.008 (ETSI TS 101 376-4-8): "GEO-Mobile Radio Interface Specifications;
             Part 4: Radio interface protocol specifications; Sub-part 8: Mobile Radio Interface Layer 3
             Specifications; GMR-1 04.008".

[8]   GSM 03.07 (ETSI ETS 300 525): "European digital cellular telecommunications system (Phase 2);
             Restoration procedures (GSM 03.07 V4.3.1)".

[9]   GSM 03.08 (ETSI ETS 300 526): "Digital cellular telecommunications system (Phase 2);
             Organization of subscriber data (GSM 03.08 V4.8.0)".

[10]   GSM 12.08 (ETSI ETS 300 627): "Digital cellular telecommunications system (Phase 2);
             Subscriber and equipment trace (GSM 12.08 version 4.5.1)".

3 Abbreviations

Abbreviations used in this specification are listed in GMR-1 01.004 [1].

4 Introduction

4.1 Definition

Same as clause 1.1 of GSM 03.08 [9].

4.2 Storage facilities

Same as clause 1.2 of GSM 03.08 [9].

4.3 Subscriber data in functional units other than the HLR and the VLR

Same as clause 1.3 of GSM 03.08 [9].

5 Definition of subscriber data

5.1 Data related to identification and numbering

5.1.1 International mobile subscriber identity (IMSI)

Same as clause 2.1.1 of GSM 03.08 [9].

International mobile subscriber identity (IMSI) is defined in GMR-1 03.003 [3].

5.1.2 Mobile Station International ISDN Number (MSISDN)

Same as clause 2.1.2 of GSM 03.08 [9].

Mobile Station International ISDN Number (MSISDN) is defined in GMR-1 03.003 [3].

5.1.3 MSISDNs for multinumbering option

Same as clause 2.1.3 of GSM 03.08 [9].

5.1.3.1 The basic MSISDN indicator

Same as clause 2.1.3.1 of GSM 03.08 [9].

The Basic MSISDN is defined in GMR-1 03.012 [4].

5.1.3.2 The MSISDN-Alert indicator

Same as clause 2.1.3.2 of GSM 03.08 [9].

The MSISDN-Alert is defined in GMR-1 03.040 [6].

5.1.4   Temporary mobile subscriber identity (TMSI)

Same as clause 2.1.4 of GSM 03.08 [9].

Temporary mobile subscriber identity (TMSI) is defined in GMR-1 03.003 [3].

5.1.5   Local Mobile Station Identity (LMSI)

Same as clause 2.1.5 of GSM 03.08 [9].

Local Mobile Station Identity (LMSI) is defined in GMR-1 03.003 [3].

5.2   Data related to mobile earth station types

5.2.1   Mobile earth station category

Same as clause 2.2.1 of GSM 03.08 [9].

5.3   Data related to authentication and ciphering

5.3.1   Random Number (RAND), Signed Response (SRES) and Ciphering Key (Kc)

Random Number (RAND), Signed Response (SRES) and Ciphering Key (Kc) form a triplet of vectors used for authentication and encryption as defined in GMR-1 03.020 [5].

Same as clause 2.3.1 of GSM 03.08 [9].

5.3.2   The ciphering key sequence number (CKSN)

CKSN and its handling are defined in GMR-1 04.008 [7] and GMR-1 03.020 [5].

Same as clause 2.3.2 of GSM 03.08 [9].

5.4   Data related to roaming

5.4.1   Mobile station roaming number (MSRN)

Mobile Station Roaming Number (MSRN) is defined in GMR-1 03.003 [3].

Same as clause 2.4.1 of GSM 03.08 [9].

5.4.2   Location area identification (LAI)

Location Area Identification (LAI) is defined in GMR-1 03.003 [3].

Same as clause 2.4.2 of GSM 03.08 [9].

5.4.3   VLR number

VLR number is defined in GMR-1 03.003 [3].

Same as clause 2.4.3 of GSM 03.08 [9].

5.4.4   MSC number

MSC number is defined in GMR-1 03.003 [3].

Same as clause 2.4.4 of GSM 03.08 [9].

5.4.5   HLR number

HLR number is defined in GMR-1 03.003 [3].

Same as clause 2.4.5 of GSM 03.08 [9].

5.4.6   Subscription restriction

Same as clause 2.4.6 of GSM 03.08 [9].

5.4.7   Regional Subscription Information

The structure of RSZI is defined in GMR-1 03.003 [3].

Same as clause 2.4.7 of GSM 03.08 [9].

5.4.7.1   RSZI lists

Same as clause 2.4.7.1 of GSM 03.08 [9].

5.4.7.2   Zone Code List

Same as clause 2.4.7.2 of GSM 03.08 [9].

5.4.8   MSC area restricted flag

Same as clause 2.4.8 of GSM 03.08 [9].

5.4.9   LA not allowed flag

Same as clause 2.4.9 of GSM 03.08 [9].

5.4.10   Service restriction data induced by roaming

Same as clause 2.4.10 of GSM 03.08 [9].

5.4.10.1   ODB-induced barring data

Same as clause 2.4.10.1 of GSM 03.08 [9].

5.4.10.2   Roaming restriction due to unsupported feature

Same as clause 2.4.10.2 of GSM 03.08 [9].

5.5   Data related to basic services

5.5.1   Provision of bearer service

Same as clause 2.5.1 of GSM 03.08 [9].

5.5.2 Provision of teleservice

Same as clause 2.5.2 of GSM 03.08 [9].

5.5.3 Bearer capability allocation

Same as clause 2.5.3 of GSM 03.08 [9].

5.6 Data related to supplementary services

Same as clause 2.6 of GSM 03.08 [9].

5.7 Mobile Earth Station status data

5.7.1 IMSI detached flag

Same as clause 2.7.1 of GSM 03.08 [9].

5.7.2 Restoration flags

Same as clause 2.7.2 of GSM 03.08 [9].

5.7.2.1 Radio Confirmation Indicator

Radio Confirmation Indicator is a restoration indicator defined in GSM 03.07 [8].

Same as clause 2.7.2.1 of GSM 03.08 [9].

5.7.2.2 Subscriber Data Confirmed by HLR indicator

Subscriber Data Confirmed by HLR indicator is a restoration indicator defined in GSM 03.07 [8].

Same as clause 2.7.2.2 of GSM 03.08 [9].

5.7.2.3 Location Information Confirmed in HLR Indicator

Location Information Confirmed in HLR Indicator is a restoration indicator defined in GSM 03.07 [8].

Same as clause 2.7.2.3 of GSM 03.08 [9].

5.7.2.4 Check supplementary services Indicator

Check supplementary services Indicator is a restoration indicator defined in GSM 03.07 [8].

Same as clause 2.7.2.4 of GSM 03.08 [9].

5.7.3 Mobile Earth Station (MES) purged flag

Same as clause 2.7.3 of GSM 03.08 [9].

5.8 Data related to operator determined barring

5.8.1 Subscriber status

Same as clause 2.8.1 of GSM 03.08 [9].

5.8.2   Operator determined barring general data

5.8.2.1   Barring of outgoing calls

Same as clause 2.8.2.1 of GSM 03.08 [9].

5.8.2.2   Barring of incoming calls

Same as clause 2.8.2.2 of GSM 03.08 [9].

5.8.2.3   Barring of roaming

Same as clause 2.8.2.3 of GSM 03.08 [9].

5.8.2.4   Barring of premium rate calls

Same as clause 2.8.2.4 of GSM 03.08 [9].

5.8.2.5   Barring of supplementary services management

Same as clause 2.8.2.5 of GSM 03.08 [9].

5.8.3   Operator determined barring Satellite Network-specific data

Same as clause 2.8.3 of GSM 03.08 [9].

5.9   Data related to handover

5.9.1   Handover number

Void.

5.10   Data related to short message support

5.10.1   Messages Waiting Data (MWD)

Messages Waiting Data (MWD) is defined in GMR-1 03.040 [6].

Same as clause 2.10.1 of GSM 03.08 [9].

5.10.2   Mobile Station Not Reachable Flag (MNRF)

Mobile Station Not Reachable Flag (MNRF) is defined in GMR-1 03.040 [6].

Same as clause 2.10.2 of GSM 03.08 [9].

5.10.3   Memory Capacity Exceeded Flag (MCEF)

Memory Capacity Exceeded Flag (MCEF) is defined in GMR-1 03.040 [6].

Same as clause 2.10.3 of GSM 03.08 [9].

5.11   Data related to subscriber trace

5.11.1   Trace Reference

The Trace Reference is defined in GSM 12.08 [10].

Same as clause 2.11.1 of GSM 03.08 [9].

5.11.2   Trace Type

The Trace Type is defined in GSM 12.08 [10].

Same as clause 2.11.2 of GSM 03.08 [9].

5.11.3   Operations Systems Identity

The Operations Systems Identity is defined in GSM 12.08 [10].

Same as clause 2.11.3 of GSM 03.08 [9].

5.11.4   HLR Trace Type

The HLR Trace Type is defined in GSM 12.08 [10].

Same as clause 2.11.4 of GSM 03.08 [9].

5.11.5   MAP Error On Trace

The MAP Error On Trace is defined in GSM 12.08 [10].

Same as clause 2.11.5 of GSM 03.08 [9].

5.11.6   Trace Activated in VLR

The Trace Activated in VLR flag is defined in GSM 12.08 [10].

Same as clause 2.11.6 of GSM 03.08 [9].

5.11.7   Foreign Subscriber Registered in VLR

The Foreign Subscriber Registered in VLR flag is handled by operation and maintenance means in the VLR and is defined in GSM 12.08 [10].

Same as clause 2.11.7 of GSM 03.08 [9].

6   Summary of data stored in location registers

Table 6.1 gives an overview of data that may be stored in location registers. In the table M = mandatory means that this parameter is stored for all subscribers and C = conditional means that the parameter is subject to some condition (e.g. subscription, reception of optional message or short-lived data). The type indication indicates whether the subscriber data is temporary (T) or permanent (P) data, where permanent data can be set and modified but by the operator, whereas the temporary data are set and changed automatically by network functions.

Table 6.1: Overview of data stored in location registers

PARAMETER	CLAUSE	HLR	VLR	TYPE	
IMSI	5.1.1	M	M	P	
International MS ISDN number	5.1.2	M	M	P	
Multinumbering MSISDNs	5.1.3	C	-	P	
Basic MSISDN indicator	5.1.3.1	C	-	P	
MSISDN-Alert indicator	5.1.3.2	C	-	P	
TMSI	5.1.4	-	C	T	
LMSI	5.1.5	C	C	T	Note
Mobile Earth Station Category	5.2.1	M	M	P	
RAND/SRES and Kc	5.3.2	M	M	T	
Ciphering Key Sequence Number	5.3.3	-	M	T	
MSRN	5.4.1	-	C	T	Note
Location Area Identity	5.4.2	-	M	T	
VLR number	5.4.3	M	-	T	Note
MSC number	5.4.4	M	C	T	
HLR number	5.4.5	-	C	T	
Subscription restriction	5.4.6	C	-	P	
RSZI lists	5.4.7.1	C	-	P	
Zone Code List	5.4.7.2	-	C	P	
MSC area restricted flag	5.4.8	M	-	T	
LA not allowed flag	5.4.9	-	M	T	
ODB-induced barring data	5.4.10.1	C	-	T	
Roam. Restr. Due to unsupported feature	5.4.10.2	M	M	T	
Provision of bearer service	5.5.1	M	M	P	
Provision of teleservice	5.5.2	M	M	P	
BC allocation	5.5.3	C	C	P	
IMSI detached flag	5.7.1	-	C	T	
Radio Confirmation Indicator	5.7.2.1	-	M	T	
Subscriber Data Cnf by HLR Indicator	5.7.2.2	-	M	T	
Location Info Cnf in HLR Indicator	5.7.2.3	-	M	T	
Check Suppl. Services Indicator	5.7.2.4	M	-	T	
MES purged flag	5.7.3	M	-	T	
Subscriber Status	5.8.1	C	C	P	
Barring of outgoing calls	5.8.2.1	C	C	P	
Barring of incoming calls	5.8.2.2	C	-	P	
Barring of roaming	5.8.2.3	C	-	P	
Barring of premium rate calls	5.8.2.4	C	C	P	
Barring of supplementary service Management	5.8.2.5	C	C	P	
Operator determined barring PLMN-specific data	5.8.3	C	C	P	
Messages Waiting Data	5.10.1	C	-	T	
Mobile Station Not Reachable Flag	5.10.2	C	M	T	
Memory Capacity Exceeded Flag	5.10.3	C	-	T	
Trace Reference	5.11.1	C	C	P	
Trace Type	5.11.2	C	C	P	
Operations Systems Identity	5.11.3	C	C	P	
HLR Trace Type	5.11.4	C	-	P	
MAP Error On Trace	5.11.5	C	-	T	
Trace Activated in VLR	5.11.6	C	C	T	
Foreign Subscriber Registered in VLR	5.11.7	-	C	P	Note
See clause 6 for explanation of M, C, T and P in table 6.1.					
NOTE: For special conditions of storage, see in the indicated clause.					

7 Accessing subscriber data

Same as clause 4 of GSM 03.08 [9].

Annex A (informative):
Bibliography

ITU-T Recommendation Q.763: "Signalling system No. 7 - ISDN user part formats and codes".

GMR-1 03.081 (ETSI TS 101 376-3-15): "GEO-Mobile Radio Interface Specifications; Part 3: Network specifications; Sub-part 15: Line Identification supplementary service - Stage 2; GMR-1 03.081".

GMR-1 03.090 (ETSI TS 101 376-3-17): "GEO-Mobile Radio Interface Specifications; Part 3: Network specifications; Sub-part 17: Unstructured Supplementary Service Data (USSD) - Stage 2; GMR-1 03.290".

GSM 02.02 (ETSI ETS 300 501): "European digital cellular telecommunications system (Phase 2); Bearer Services (BS) supported by a GSM Public Land Mobile Network (PLMN) (GSM 02.02 V4.2.2)".

GSM 02.03 (ETSI ETS 300 502): "European digital cellular telecommunications system (Phase 2); Teleservices supported by a GSM Public Land Mobile Network (PLMN) (GSM 02.03 V4.3.1)".

GSM 02.04 (ETSI ETS 300 503): "Digital cellular telecommunications system (Phase 2); General on supplementary services (GSM 02.04 V4.9.1)".

GSM 03.15 (ETSI ETS 300 533): "European digital cellular telecommunications system (Phase 2); Technical realization of operator determined barring (GSM 03.15 V4.3.1)".

GSM 03.82 (ETSI ETS 300 543): "Digital cellular telecommunications system (Phase 2); Call Forwarding (CF) supplementary services; Stage 2 (GSM 03.82 V4.8.1)".

GSM 03.83 (ETSI ETS 300 544): "European digital cellular telecommunications system (Phase 2); Call Waiting (CW) and Call Hold (HOLD) supplementary services; Stage 2 (GSM 03.83 V4.4.1)".

GSM 03.84 (ETSI ETS 300 545): "European digital cellular telecommunications system (Phase 2); Multi Party (MPTY) supplementary services; Stage 2 (GSM 03.84 V4.4.1)".

GSM 03.85 (ETSI ETS 300 546): "Digital cellular telecommunications system (Phase 2); Closed User Group (CUG) supplementary services; Stage 2 (GSM 03.85 V4.2.0)".

GSM 03.86 (ETSI ETS 300 547): "European digital cellular telecommunications system (Phase 2); Advice of Charge (AoC) supplementary services; Stage 2 (GSM 03.86 V4.6.1)".

GSM 03.88 (ETSI ETS 300 548): "European digital cellular telecommunications system (Phase 2); Call Barring (CB) supplementary services; Stage 2 (GSM 03.88 V4.6.1)".

GSM 09.02 (ETSI ETS 300 599): "Digital cellular telecommunications system (Phase 2); Mobile Application Part (MAP) specification (GSM 09.02 version 4.19.0)".

GSM 09.07 (ETSI ETS 300 604): "Digital cellular telecommunications system (Phase 2); General requirements on interworking between the Public Land Mobile Network (PLMN) and the Integrated Services Digital Network (ISDN) or Public Switched Telephone Network (PSTN) (GSM 09.07 V4.12.1)".

GSM 12.03 (ETSI ETS 300 614): "Digital cellular telecommunications system (Phase 2); Security management (GSM 12.03 V4.2.1)".

History

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