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Digital cellular telecommunications system (Phase 2+) (GSM); Numbering, addressing and identification (GSM 03.03 version 5.0.2)

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ICS:

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**Digital cellular telecommunications system (Phase 2+);
Numbering, addressing and identification
(GSM 03.03 version 5.0.2)**

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Contents

Foreword	5
1 Scope	7
1.1 Normative references	7
1.2 Abbreviations	8
1.3 General comments to references	8
1.4 Conventions on bitordering	8
2 Identification of mobile subscribers	8
2.1 General	8
2.2 Composition of IMSI	8
2.3 Allocation principles	9
2.4 Structure of TMSI	9
2.5 Structure of LMSI	10
3 Numbering plan for mobile stations	10
3.1 General	10
3.2 Numbering plan requirements	10
3.3 Structure of MS international PSTN/ISDN number (MSISDN)	10
3.4 Mobile Station Roaming Number (MSRN) for PSTN/ISDN routing	11
3.5 Structure of Mobile Station International Data Number	11
3.6 Handover Number	11
4 Identification of location areas and base stations	11
4.1 Composition of the Location Area Identification (LAI)	11
4.2 Base station identification	12
4.2.1 Cell Identity (CI) and Cell Global Identification (CGI)	12
4.2.2 Base Station Identity Code (BSIC)	12
4.3 Regional Subscription Zone Identity (RSZI)	13
4.4 Location Number	13
5 Identification of MSCs and location registers	14
5.1 Identification for routing purpose	14
5.2 Identification of HLR for HLR restoration application	14
6 International Mobile Station Equipment Identity and Software Version Number	14
6.1 General	14
6.2 Composition of IMEI and IMEISV	14
6.2.1 Composition of IMEI	14
6.2.2 Composition of IMEISV	15
6.3 Allocation principles	15
7 Identification of Voice Group Call and Voice Broadcast Call Entities	15
7.1 Group Identities	15
7.2 Group Call Area Identification	16
7.3 Voice Group Call and Voice Broadcast Call References	16
Annex A (informative): Colour Codes	17
A.1 Utilization of the BSIC	17
A.2 Guidance for planning	17
A.3 Example of PLMN Colour Codes (NCCs) for the European region	18
History	19

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Foreword

This European Telecommunication Standard (ETS) has been produced by the Special Mobile Group (SMG) Technical Committee (TC) of the European Telecommunications Standards Institute (ETSI).

This ETS defines the plans and principles of numbering, addressing and identification within the digital cellular telecommunications system (Phase 2+).

This ETS is a GSM Technical Specification version 5 which incorporates GSM Phase 2+ enhancements/features to the version 4 GSM Technical Specifications. The ETS from which this Phase 2+ ETS has evolved is Phase 2 GSM ETS 300 523 Edition 2 (GSM 03.03 version 4.9.0).

The contents of this ETS is subject to continuing work within TC-SMG and may change following formal TC-SMG approval. Should TC-SMG modify the contents of this ETS, it will be resubmitted for OAP by ETSI with an identifying change of release date and an increase in version number as follows:

Version 5.x.y

where:

- y the third digit is incremented when editorial only changes have been incorporated in the specification;
- x the second digit is incremented for all other types of changes, i.e. technical enhancements, corrections, updates, etc.

The specification from which this ETS has been derived was originally based on CEPT documentation, hence the presentation of this ETS may not be entirely in accordance with the ETSI drafting rules.

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(standard by iTeh) Transposition dates

Date of adoption:	28 March 1997
Date of latest announcement of this ETS (doa):	31 July 1997
Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	31 January 1998
Date of withdrawal of any conflicting National Standard (dow):	31 January 1998

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1 Scope

This European Telecommunication Standard (ETS) defines:

- a) an identification plan for mobile subscribers in the GSM system;
- b) principles of assigning telephone and ISDN numbers to MSs in the country of registration of the MS;
- c) principles of assigning Mobile Station (MS) roaming numbers to visiting MSs;
- d) an identification plan for location areas and base stations in the GSM system;
- e) an identification plan for MSCs and location registers in the GSM system;
- f) principles of assigning international mobile equipment identities;
- g) principles of assigning zones for regional subscription;
- h) an identification plan for groups of subscribers to the Voice Group Call Service (VGCS) and to the Voice Broadcast Service (VBS); and identification plan for voice group calls and voice broadcast calls; an identification plan for group call areas.

1.1 Normative references

This ETS incorporates by dated and undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this ETS only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies.

- | | |
|------|--|
| [1] | GSM 01.04 (ETR 350): "Digital cellular telecommunications system (Phase 2+); Abbreviations and acronyms". |
| [2] | GSM 03.08: "Digital cellular telecommunications system (Phase 2+); Organisation of subscriber data". |
| [3] | GSM 03.20 (ETS 300 929): "Digital cellular telecommunications system (Phase 2+); Security related network functions". |
| [4] | GSM 03.70: "Digital cellular telecommunications system; Routeing of calls to/from Public Data Networks (PDN) and the GSM Public Land Mobile Network (PLMN)". |
| [5] | GSM 04.08 (ETS 300 940): "Digital cellular telecommunications system (Phase 2+); Mobile radio interface layer 3 specification". |
| [6] | GSM 09.03: "Digital cellular telecommunications system; Signalling requirements on interworking between the Integrated Services Digital Network (ISDN) or Public Switched Telephone Network (PSTN) and the Public Land Mobile Network (PLMN)". |
| [7] | GSM 11.11 (ETS 300 977): "Digital cellular telecommunications system (Phase 2+); Specification of the Subscriber Identity Module - Mobile Equipment (SIM - ME) interface". |
| [8] | CCITT Recommendation E.164: "Numbering plan for the ISDN era". |
| [9] | CCITT Recommendation E.212: "Identification plan for land mobile stations". |
| [10] | CCITT Recommendation E.213: "Telephone and ISDN numbering plan for land mobile stations in public land mobile networks (PLMN)". |

[11] CCITT Recommendation X.121: "International numbering plan for public data networks".

1.2 Abbreviations

Abbreviations used in this ETS are listed in GSM 01.04.

1.3 General comments to references

The identification plan for mobile subscribers defined below is that defined in CCITT Recommendation E.212.

The ISDN numbering plan for MSs and the allocation of mobile station roaming numbers is that defined in CCITT Recommendation E.213. Only one of the principles for allocating ISDN numbers is proposed for GSM PLMNs. Only the method for allocating MS roaming numbers contained in the main text of CCITT Recommendation E.213 is recommended for use in GSM PLMNs. If there is any difference between this Technical Specification and the CCITT Recommendations, the former shall prevail.

For terminology, see also CCITT Recommendations E.164 and X.121.

1.4 Conventions on bitordering

The following conventions hold for the coding of the different identities appearing in this ETS and in other GSM Technical Specifications if not indicated otherwise:

- the different parts of an identity are shown in the figures in order of significance;
- the most significant part of an identity is on the left part of the figure and the least significant on the right.

When an identity appears in other Technical Specifications, the following conventions hold if not indicated otherwise:

- digits are numbered by order of significance, with digit 1 being the most significant;
- bits are numbered by order of significance, with the lowest bit number corresponding to the least significant bit.

2 Identification of mobile subscribers

2.1 General

A unique International Mobile Subscriber Identity (IMSI) shall be allocated to each mobile subscriber in the GSM system.

NOTE: This IMSI is the concept referred to by CCITT as "International Mobile Station Identity".

In order to support the subscriber identity confidentiality service the VLRs may allocate a unique Temporary Mobile Subscriber Identity (TMSI) to visiting mobile subscribers. The VLR must be capable of correlating the IMSI of an MS and the current TMSI for that MS.

In order to speed up the search for subscriber data in the VLR a supplementary Local Mobile Station Identity (LMSI) is defined.

The LMSI may be allocated by the VLR at location updating and is sent to the HLR together with the IMSI. The HLR makes no use of it but includes it together with the IMSI in all messages sent to the VLR concerning that MS.

2.2 Composition of IMSI

IMSI is composed as shown in figure 1.

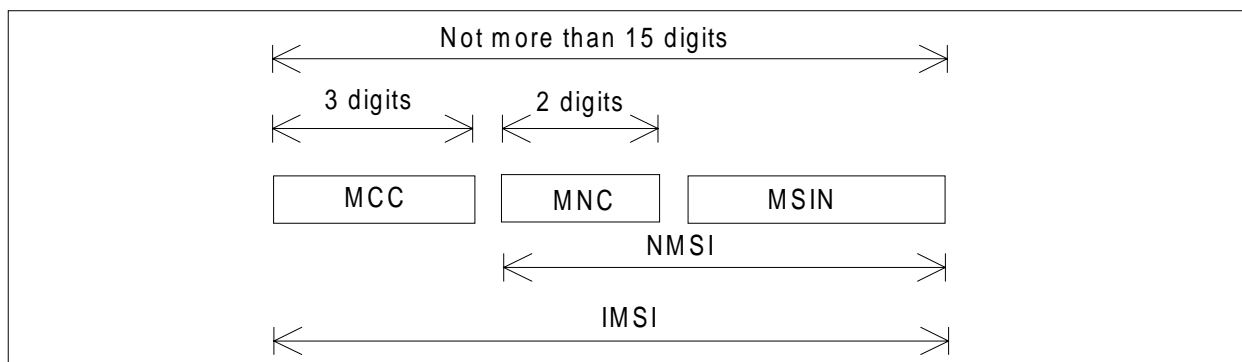


Figure 1: Structure of IMSI

IMSI is composed of three parts:

- i) Mobile Country Code (MCC) consisting of three digits. The MCC identifies uniquely the country of domicile of the mobile subscriber.
- ii) Mobile Network Code (MNC) consisting of two digits for GSM applications. The MNC identifies the home GSM PLMN of the mobile subscriber.
- iii) Mobile Subscriber Identification Number (MSIN) identifying the mobile subscriber within a GSM PLMN.

The National Mobile Subscriber Identity (NMSI) consists of the Mobile Network Code and the Mobile Subscriber Identification Number.

2.3 Allocation principles

IMSI shall consist of numerical characters (0 through 9) only.

The overall number of digits in IMSI shall not exceed 15 digits.

The allocation of Mobile Country Codes (MCCs) is administered by the CCITT and is given in annex A to CCITT Blue Book Recommendation E.212.

The allocation of National Mobile Subscriber Identity (NMSI) is the responsibility of each administration.

If more than one GSM PLMN exist in a country, a unique Mobile Network Code should be assigned to each of them.

The allocation of IMSIs should be such that not more than the digits MCC + MNC of the IMSI have to be analysed in a foreign GSM PLMN for information transfer.

2.4 Structure of TMSI

Since the TMSI has only local significance (i.e. within the VLR and the area controlled by the VLR), the structure and coding of it can be chosen by agreement between operator and manufacturer in order to meet local needs.

The TMSI consists of 4 octets. It can be coded using a full hexadecimal representation.

In order to avoid double allocation of TMSIs after a restart of a VLR, some part of the TMSI may be related to the time when it was allocated or contain a bit field which is changed when the VLR has recovered from the restart.

The TMSI shall only be allocated in ciphered form. See also GSM 03.20.

The network shall not allocate a TMSI with all 32 bits equal to 1 (this is because the TMSI must be stored in the SIM, and the SIM uses 4 octets with all bits equal to 1 for indicating that no valid TMSI is available).