

# ETSI TS 123 003 V17.8.0 (2023-01)



**Digital cellular telecommunications system (Phase 2+) (GSM);  
Universal Mobile Telecommunications System (UMTS);  
LTE;  
5G;  
Numbering, addressing and identification  
(3GPP TS 23.003 version 17.8.0 Release 17)**



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**Reference**RTS/TSGC-0423003vh80

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**Keywords**5G,GSM,LTE,UMTS

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**ETSI**

650 Route des Lucioles  
F-06921 Sophia Antipolis Cedex - FRANCE

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Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - APE 7112B  
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# Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

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

Version x.y.z

where:

- x the first digit:
  - 1 presented to TSG for information;
  - 2 presented to TSG for approval;
  - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

In the present document, modal verbs have the following meanings:

- shall** indicates a mandatory requirement to do something
- shall not** indicates an interdiction (prohibition) to do something

The constructions "shall" and "shall not" are confined to the context of normative provisions, and do not appear in Technical Reports.

The constructions "must" and "must not" are not used as substitutes for "shall" and "shall not". Their use is avoided insofar as possible, and they are not used in a normative context except in a direct citation from an external, referenced, non-3GPP document, or so as to maintain continuity of style when extending or modifying the provisions of such a referenced document.

- should** indicates a recommendation to do something
- should not** indicates a recommendation not to do something
- may** indicates permission to do something
- need not** indicates permission not to do something

The construction "may not" is ambiguous and is not used in normative elements. The unambiguous constructions "might not" or "shall not" are used instead, depending upon the meaning intended.

- can** indicates that something is possible
- cannot** indicates that something is impossible

The constructions "can" and "cannot" are not substitutes for "may" and "need not".

- will** indicates that something is certain or expected to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document
- will not** indicates that something is certain or expected not to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document
- might** indicates a likelihood that something will happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

**might not** indicates a likelihood that something will not happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

In addition:

**is** (or any other verb in the indicative mood) indicates a statement of fact

**is not** (or any other negative verb in the indicative mood) indicates a statement of fact

The constructions "is" and "is not" do not indicate requirements.

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# 1 Scope

The present document defines the principal purpose and use of different naming, numbering, addressing and identification resources (i.e. Identifiers (ID)) within the digital cellular telecommunications system and the 3GPP system.

IDs that are covered by this specification includes both public IDs, private IDs and IDs that are assigned to MSs/UEs. Many of the IDs are used temporary in the networks and are allocated and assigned by the operators and some other IDs are allocated and assigned on either global, regional and national level by an administrator. See ITU-T Recommendation E.101 [122].

**NOTE:** Allocation means the process of opening a numbering, naming or addressing resource in a plan for the purpose of its use by a telecommunication service under specified conditions. The allocation in itself does not yet give rights for any user, whether an operator, service provider, user or someone else, to use the resource. Assignment means authorization given to an applicant for the right of use of number, naming or addressing resources under specified conditions.

The present document defines:

- o) the principal purpose and use of International Mobile station Equipment Identities (IMEI) within the digital cellular telecommunications system and the 3GPP system
- a) an identification plan for public networks and subscriptions in the 3GPP systems;
- b) principles of assigning telephone 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, routing areas, and base stations in the GSM system;
- e) an identification plan for MSCs, SGSNs, GGSNs, and location registers in the GSM/UMTS 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;
- i) principles for assigning Packet Data Protocol (PDP) addresses to mobile stations;
- j) an identification plan for point-to-multipoint data transmission groups;
- k) an identification plan for CN domain, RNC and service area in the UTRAN system.
- l) an identification plan for mobile subscribers in the WLAN system.
- m) addressing and identification for IMS Service Continuity
- n) an identification plan together with principles of assignment and mapping of identities for the Evolved Packet System; and
- o) addressing and identification for Proximity-based (ProSe) Services.
- p) an identification for Online Charging System (OCS).
- q) an identification plan together with principles of assignment and mapping of identities for the 5G System.

The present document specifies functions, procedures and information which apply to GERAN Iu mode. However, functionality related to GERAN Iu mode is neither maintained nor enhanced.

## 1.1 References

### 1.1.1 Normative 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, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] 3GPP TS 21.905: "Vocabulary for 3GPP Specifications".
- [2] 3GPP TS 23.008: "Organization of subscriber data".
- [3] 3GPP TS 23.060: "General Packet Radio Service (GPRS); Service description; Stage 2"
- [4] 3GPP TS 23.070: "Routeing of calls to/from Public Data Networks (PDN)".
- [5] 3GPP TS 24.008: "Mobile Radio Interface Layer 3 specification; Core Network Protocols; Stage 3".
- [6] 3GPP TS 29.060: "GPRS Tunnelling protocol (GTP) across the Gn and Gp interface".
- [7] 3GPP TS 43.020: "Digital cellular telecommunications system (Phase 2+); Security related network functions".
- [8] void
- [9] 3GPP TS 51.011: " Specification of the Subscriber Identity Module - Mobile Equipment (SIM - ME) interface".
- [10] ITU-T Recommendation E.164: "The international public telecommunication numbering plan".
- [11] ITU-T Recommendation E.212: "The international identification plan for public networks and subscriptions".
- [12] ITU-T Recommendation E.213: "Telephone and ISDN numbering plan for land Mobile Stations in public land mobile networks (PLMN)".
- [13] ITU-T Recommendation X.121: "International numbering plan for public data networks".
- [14] IETF RFC 791: "Internet Protocol".
- [15] IETF RFC 2373: "IP Version 6 Addressing Architecture".
- [16] 3GPP TS 25.401: "UTRAN Overall Description".
- [17] 3GPP TS 25.413: "UTRAN Iu Interface RANAP Signalling".
- [18] IETF RFC 2181: "Clarifications to the DNS Specification".
- [19] IETF RFC 1035: "Domain Names - Implementation and Specification".
- [20] IETF RFC 1123: "Requirements for Internet Hosts -- Application and Support".
- [21] IETF RFC 2462: "IPv6 Stateless Address Autoconfiguration".
- [22] IETF RFC 3041: "Privacy Extensions for Stateless Address Autoconfiguration in IPv6".
- [23] 3GPP TS 23.236: "Intra Domain Connection of RAN Nodes to Multiple CN Nodes".