

ETSI TS 122 105 V15.0.0 (2018-07)



**Digital cellular telecommunications system (Phase 2+) (GSM);
Universal Mobile Telecommunications System (UMTS);
LTE;
Services and service capabilities
(3GPP TS 22.105 version 15.0.0 Release 15)**



Reference

RTS/TSGS-0122105vf00

Keywords

GSM,LTE,UMTS

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Foreword

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1 Scope

Existing systems have largely standardised the complete sets of bearer services, teleservices and supplementary services which they provide. 3GPP specifications specify service capabilities rather than services, allowing service differentiation and system continuity. This Technical Specification (TS) describes how and what kind of services the user has access to.

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, edition number, version number, etc.) or non-specific.
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2.1 Normative references

- [1] 3GPP TS 22.001: "Principles of circuit telecommunication services supported by a Public Land Mobile Network (PLMN)".
- [2] 3GPP TS 02.002: "Circuit Bearer services supported by a Public Land Mobile Network (PLMN)".
- [3] 3GPP TS 22.003: "Circuit Teleservices supported by a Public Land Mobile Network (PLMN)".
- [4] 3GPP TS 22.004: "General on supplementary services".
- [5] 3GPP TS 22.038: "SIM toolkit, Stage 1".
- [6] 3GPP TS 22.057: "Mobile Execution Environment (MExE); Service description; Stage 1".
- [7] 3GPP TS 22.060: "General Packet Radio Service (GPRS) stage 1".
- [8] 3GPP TS 22.078: "Customised Applications for Mobile network Enhanced Logic (CAMEL); Service definition - Stage 1".
- [9] 3GPP TS 22.101: "Service principles".
- [10] Void
- [11] 3GPP TS 22.135: "Multicall, stage 1".
- [13] 3GPP TS 33.102: "3G Security, Security Architecture".
- [14] 3GPP TS 23.107: "QoS Concept and Architecture; Stage 2".
- [15] Open Mobile Alliance (OMA): OMA-RD-Parlay_Service_Access-V1_0-20100427-A
- [16] 3GPP TS 22.340: "IP Multimedia System (IMS) messaging; Stage 1".

2.2 Informative references

- [12] ITU-T Recommendation F.700 (11/2000): "Framework Recommendation for multimedia services".

- [17] ITU-T Recommendation E.105 (08/1992): "International telephone service"
- [18] ITU-T Recommendation E.800 (09/2008): "Definitions of terms related to quality of service"
- [19] ITU-T Recommendation G.114 (05/2003): "One-way transmission time"

3 Definitions and abbreviations

3.1 Definitions

For the purposes of this TS, the following definitions apply:

Basic telecommunication service : this term is used as a common reference to both bearer services and teleservices.

Bearer service : is a type of telecommunication service that provides the capability of transmission of signals between access points.

Call : a logical association between several users (this could be connection oriented or connection less).

Connection : is a communication channel between two or more end-points (e.g. terminal, server etc.).

Mobile termination : the mobile termination is the component of the user equipment which supports functions specific to management of the radio interface (Um).

Multimedia service : Multimedia services are services that handle several types of media. For some services, synchronisation between the media is necessary (e.g. synchronised audio and video). A multimedia service may involve multiple parties, multiple connections, and the addition or deletion of resources and users within a single call.

Nomadic Operating Mode : Mode of operation where the terminal is transportable but being operated while stationary and may in addition require user co-operation (e.g. close to open spaces, antenna setup...).

Quality of Service : the collective effect of service performances which determine the degree of satisfaction of a user of a service. It is characterised by the combined aspects of performance factors applicable to all services, such as;

service operability performance;

- service accessibility performance;
- service retention performance;
- service integrity performance; and
- other factors specific to each service.

Service Capabilities: Bearers defined by parameters, and/or mechanisms needed to realise services. These are within networks and under network control.

Service Capability Feature: Functionality offered by service capabilities that are accessible via the standardised application interface

Services: Services are made up of different service capability features.

Supplementary service : is a service which modifies or supplements a basic telecommunication service. Consequently, it cannot be offered to a user as a standalone service. It shall be offered together with or in association with a basic telecommunication service. The same supplementary service may be common to a number of basic telecommunication services.

Teleservice; is a type of telecommunication service that provides the complete capability, including terminal equipment functions, for communication between users according to standardised protocols and transmission capabilities established by agreement between operators.

3.2 Abbreviations

For the purposes of this TS, the following abbreviations apply;

BER	Bit Error Rate
CAMEL	Customised Application for Mobile network Enhanced Logic
DTMF	Dual Tone Multiple Frequency
TR	Technical Report
TS	Technical Specification
ETSI	European Telecommunications Standards Institute
FAX	Facsimile
FER	Frame Erasure Rate
GSM	Global System for Mobile Communications
GERAN	GSM / EDGE Radio Access Network.
HE	Home Environment
HSDPA	High Speed Downlink Packet Access
IN	Intelligent Network
ISDN	Integrated Services Digital Network
ITU	International Telecommunication Union
LCS	Location Services
MExE	Mobile Execution Environment
MMI	Man Machine Interface
MO	Mobile Origination
MT	Mobile Termination
PC	Personal Computer
PIN	Personal Identity Number
PNP	Private Numbering Plan
POTS	Plain Old Telephony Service
QoS	Quality of Service
USIM	User Service Identity Module
SMS	Short Message Service
SAT	SIM Application Toolkit
SN	Serving Network
SoLSA	Support of Localised Service Area
UE	User Equipment

4 Framework for the description of telecommunication services and applications

4.1 General

Telecommunication services defined by 3GPP specifications are the communication capabilities made available to users by home environment and serving network. A PLMN provides, in co-operation with other networks, a set of network capabilities which are defined by standardised protocols and functions and enable telecommunication services to be offered to users.

A service provision by a HE/SN to a user may cover the whole or only part of the means required to fully support the service.

The service classification and description which follow are independent of different possible arrangements for the ownership and provision to the user of the means required to support a service.

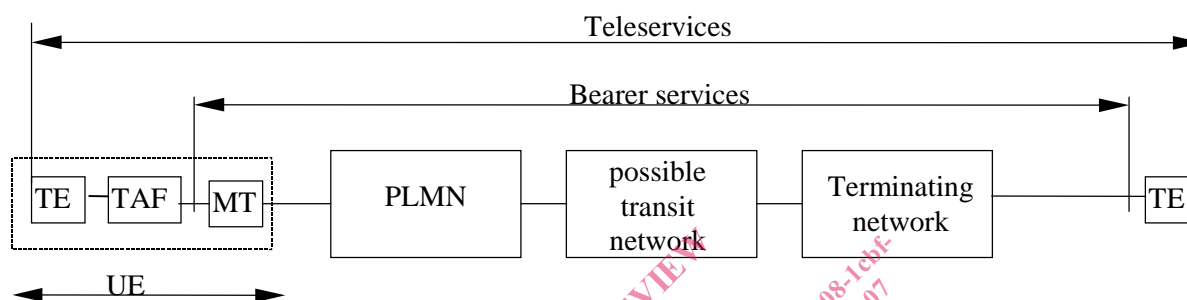
4.2 Basic telecommunication services

Basic telecommunication services are divided in two broad categories;

- bearer services, which are telecommunication services providing the capability of transmission of signals between access points;
- teleservices, which are telecommunication services providing the complete capability, including terminal equipment functions, for communication between users according to protocols established by agreement between network operators.

The communication link between the access points may consist of PLMN, one or more transit networks and a terminating network. The networks between the two access points typically use different means for bearer control.

Figure 1 illustrates these definitions.



UE: User Equipment
 MT: Mobile Termination
 TE: Terminal Equipment
 TAF: Terminal Adaption Function

NOTE 1: In order to limit the complexity of the figure, only one transit network is shown.

NOTE 2: The terminating network type may include a PLMN, either the originating one or another one.

NOTE 3: The bearer service terminates in the user equipment.

NOTE 4: The terminating network may be another network such as: PSTN, ISDN, IP networks/LANs and X.25

Figure 1: Basic telecommunication services supported by a PLMN

4.2.1 Bearer services

The characterisation of a bearer service is made by using a set of characteristics that distinguishes it from other bearer services. Particular values are assigned to each characteristic when a given bearer service is described and defined.

The service characteristics as they apply at a given reference point where the user accesses the bearer service.

In the general case networks between the two access points use different control mechanisms. In this case the bearer services of each network throughout the communication link have to be translated at the network interfaces to realize an end to end bearer service.

A list of definitions of attributes and values used for bearer services is contained in clause 5.

The bearer services are negotiable and can be used flexibly by applications.

4.2.2 Teleservices

Section 6 defines both standardised and non-standardised teleservices. Some teleservices are standardised because that interworking with other systems have been recognised as a requirement. Other teleservices will not be standardised. A decoupling between lower layer (i.e. bearer attributes) and higher layer capabilities will be necessary for the development of teleservices.

4.3 Supplementary services

A supplementary service modifies or supplements a basic telecommunication service. Consequently, it cannot be offered to a user as a stand alone service. It shall be offered together or in association with a basic telecommunication service. The same supplementary service may be applicable to a number of basic telecommunication services.

Two methods are used for the characterisation of supplementary services;

- The first method is used for the description of existing standardised supplementary services. These services are specified through the detailing of each of the operations involved in service provision and service usage (the provision/withdrawal, registration/erasure, activation/deactivation, invocation and interrogation operations). Clause 7 lists these services.
- The second method enables the provision of HE/SN specific supplementary services. To make this possible, services can be built using service capability features which are accessed via the standardised application interface.

A PLMN shall be able to handle multiple supplementary services within a call. Interactions shall be handled when several supplementary services are activated in the same call. When multiple supplementary services can be activated concurrently, some prioritisation of the services will be necessary. Certain services may override or deactivate other services.

Interactions between operator specific supplementary services are not defined.

The following issues need consideration when interactions between services occur;

- Different phases of a call.
- A service spanning on more than one network
- Service interactions that may occur between services offered to a single user, as well as between services offered to different interacting users.

NOTE: The methods defined for characterisation of services are description methods. They do not imply or restrict different implementations.

4.4 Service Capabilities

Service capabilities are based on functionality and mechanisms/toolkits such as provided by SAT [5], MExE [6], IN and CAMEL [8]. These service capabilities can be made visible to the applications through an application interface. See clause 8 for service capability features.