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1 Scope

This TS defines the stage one description of the General Packet Radio Service (GPRS). Stage one is an overall service description, primarily from the service subscriber's and user's points of view, but does not deal with the details of the human interface itself. This TS includes information applicable to network operators, service providers and terminal, switch and data base manufacturers.

This TS contains the core requirements for the packet switched networks specified by 3GPP which are sufficient to provide a complete service. It defines a set of bearer services that provide packet mode transmission within the PLMN and interwork with external networks.

The term GPRS shall be used in this document to refer the GPRS service offered via GERAN and UTRAN and the PS Domain of the 3G PLMN.

The GPRS shall not prevent the user's operation of other 3GPP services.

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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- 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 22.001: " Principles of telecommunication services supported by a Public Land Mobile Network (PLMN)".
- [2] 3GPP TS 24.002: " Public Land Mobile Network (PLMN) access reference configuration".
- [3] ISO 8348: "Information processing systems - data communications - network service definition".
- [4] Internet STD 5:RFC 791: Internet protocol, RFC 950: "Internet standard subnetting procedure", RFC 919: "Broadcasting internet datagrams", RFC 922: "Broadcasting internet datagrams in the presence of subnets", RFC 792: "Internet control message protocol", RFC 1112: "Host extensions for IP multicasting" RFC 1122:" Requirements for Internet hosts - communication layers". RFC 1920:" Internet official protocol standards", RFC 1458: "Requirements for multicast protocols", RFC 1301: "Multicast transport protocol".
- [5] 3GPP TS22.004: " General on supplementary services".
- [6] 3GPP TS 22.030: " Man-Machine Interface (MMI) of the User Equipment (UE)"
- [7] 3GPP TS 42.017 : "Subscriber Identity Modules (SIM) Functional characteristics".
- [8] 3GPP TS 22.041: "Operator Determined Barring (ODB)"
- [9] 3GPP TS 27.060: "General Packet Radio Service (GPRS); Mobile Station (MS) supporting GPRS".
- [10] 3GPP TS 43.055: Dual Transfer Mode; Stage 2"

3 Definitions and abbreviations

3.1 Definitions

For the purposes of this 3GPP TS the following definitions apply:

A

access delay: The value of elapsed time between an access request and a successful access (source: ITU-T X.140).

accuracy: A performance criterion that describes the degree of correctness with which a function is performed. (The function may or may not be performed with the desired speed.) (source: ITU-T I.350).

B

bearer service: A type of telecommunication service that provides the capability for the transmission of signals between user-network interfaces (source: ITU-T I.112).

C

conversational service: An interactive service which provides for bi-directional communication by means of real-time (no store-and-forward) end-to-end information transfer from user to user (source: ITU-T I.113).

D

destination user: Entity to which calls to the General Packet Radio Service (GPRS) are directed.

F

G

I

interactive service: A service which provides the means for bi-directional exchange of information between users. Interactive services are divided into three classes of services: conversational services, messaging services and retrieval services (source: ITU-T I.113).

interface: The common boundary between two associated systems (source: ITU-T I.112).

M

mean bit rate: A measure of throughput. The average (mean) bit rate available to the user for the given period of time (source: ITU-T I.210).

messaging service: An interactive service which offers user-to-user communication between individual users via storage units with store-and-forward, mailbox and/or message handling, (e.g., information editing, processing and conversion) functions (source: ITU-T I.113).

mobile termination: The part of the UE which terminates the radio transmission to and from the network and adapts terminal equipment capabilities to those of the radio transmission **multicast service:** A unidirectional PTM service in which a message is transmitted from a single source entity to multiple destinations.

multipoint: A value of the service attribute "communication configuration", which denotes that the communication involves more than two network terminations (source: ITU-T I.113).

N

network operator: Entity which provides the network operating elements and resources for the execution of the General Packet Radio Service (GPRS).

network service data unit (NSDU): A unit of data passed between the user and the GPRS network across a Network Service Access Point (NSAP).

network termination: A functional group on the network side of a user-network interface (source: ITU-T I.112).

O

P

packet: An information unit identified by a label at layer 3 of the OSI reference model (source: ITU-T I.113). A network protocol data unit (NPDU).

packet data protocol (PDP): Any protocol which transmits data as discrete units known as packets, e.g., IP.

packet transfer mode: Also known as packet mode. A transfer mode in which the transmission and switching functions are achieved by packet oriented techniques, so as to dynamically share network transmission and switching resources between a multiplicity of connections (source: ITU-T I.113).

PLMN Operator: Public Land Mobile Network operator. The entity which offers a GPRS.

point-to-multipoint (PTM) service: A service type in which data is sent to "all service subscribers or a pre-defined subset of all subscribers" within an area defined by the Service Requester.

point-to-point (PTP): A value of the service attribute "communication configuration", which denotes that the communication involves only two network terminations.

point-to-point (PTP) service: A service type in which data is sent from a single network termination to another network termination.

protocol: A formal set of procedures that are adopted to ensure communication between two or more functions within the within the same layer of a hierarchy of functions (source: ITU-T I.112).

protocol data unit (PDU): In the reference model for OSI, a unit of data specified in an (N)-protocol layer and consisting of (N)-protocol control information and possibly (N)-user data (source: ITU-T X.200 / ISO-IEC 7498-1).

push service: service type which delivers information (data/multimedia) initiated from a network (which may be external to the PLMN) to the UE. The service will cause a PDP context to be activated if needed.

Q

quality of service: The collective effect of service performances which determine the degree of satisfaction of a user of the service (ITU-T E.800). The set of performance parameters that can be directly observed and measured at the point at which the service is accessed by the user. There are three criteria by which performance is measured: speed, accuracy and dependability (source: ITU-T I.350).

R

reference configuration: A combination of functional groups and reference points that shows possible network arrangements (source: ITU-T I.112).

reference point: A conceptual point at the conjunction of two non-overlapping functional groups (source: ITU-T I.112).

retrieval service: An interactive service which provides the capability of accessing information stored in data base centres. The information will be sent to the user on demand only. The information is retrieved on an individual basis, i.e., the time at which an information sequence is to start is under the control of the user (source ITU-T I.113).

S

service attribute: A specified characteristic of a telecommunication service (source: ITU-T I.112).

NOTE: the value(s) assigned to one or more service attributes may be used to distinguish that telecommunications service from others.

service data unit (SDU): In the reference model for OSI, an amount of information whose identity is preserved when transferred between peer (N+1)-layer entities and which is not interpreted by the supporting (N)-layer entities (source: ITU-T X.200 / ISO-IEC 7498-1).

service delay: The time elapsed from the invocation of the service request, to the corresponding service request indication at the Service Receiver, indicating the arrival of application data.

service provider: Entity which offers the General Packet Radio Service (GPRS) for subscription. The network operator may be the service provider.

service receiver: The entity which receives the service request indication primitive, containing the SDU.

service request: This is defined as being one invocation of the service through a service request primitive.

service requester: The entity which requests the initiation of a GPRS operation, through a service request.

service subscriber: Entity which subscribes to the General Packet Radio Service (GPRS) service.

speed: A performance criterion that describes the time interval required to perform a function or the rate at which the function is performed. (The function may or may not be performed with the desired accuracy.) (source: ITU-T I.350).

T

throughput: A parameter describing service speed. The number of data bits successfully transferred in one direction between specified reference points per unit time (source: ITU-T I.113).

transit delay: A parameter describing service speed. The time difference between the instant at which the first bit of a protocol data unit (PDU) crosses one designated boundary (reference point), and the instant at which the last bit of the PDU crosses a second designated boundary (source: ITU-T I.113).

U

V

variable bit rate service: A type of telecommunication service characterised by a service bit rate specified by statistically expressed parameters which allow the bit rate to vary within defined limits (source: ITU-T I.113).

3.2 Abbreviations

For the purposes of this 3GPP TS the following definitions apply:

CLNP	Connectionless network protocol
CLNS	Connectionless network service
EGPRS	Enhanced GPRS
FFS	For further study
GPRS	General packet radio service
HSDPA	High Speed Downlink Packet Access
IP	Internet protocol
IP-M	Internet protocol multicast
NSDU	Network service data unit
PDP	Packet data protocol
PDU	Protocol data unit
PLMN	Public land mobile network
PTM	Point to multipoint
PTP	Point to point
QoS	Quality of service
SAP	Service access point
SVC	Switched virtual circuit
SDU	Service data unit
TBD	To be defined
TLLI	Temporary link level identity