![SIST logo]

SLOVENSKI STANDARD
SIST EN 301 113 V6.3.1:2003

01-december-2003

8][ ]HU b]´WY´] b]´hY´Y_ca i b]_UY]ʼg_]´g]ghYa ´fÐUhU´&ŽŁ´Ë´Gd`cýbU´fUX]ʼg_U´ghcf]hY´j ´g dU_Yh]fUb]a ]´dcXUh]´f¦ DFGŁ´Ë´Cd]g´ghcf]hj YˊË´Ghcdb^U´%f¦ GA ´$&¯*´$žfUn`]]WU´*´"´'%ž]nXU´U´%-+Ł

Digital cellular telecommunications system (Phase 2+) (GSM); General Packet Radio Service (GPRS); Service description; Stage 1 (GSM 02.60 version 6.3.1 Release 1997)

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Ta slovenski standard je istoveten z: EN 301 113 Version 6.3.1

ICS:

33.070.50	Globalni sistem za mobilno telekomunikacijo (GSM)	Global System for Mobile Communication (GSM)

SIST EN 301 113 V6.3.1:2003   **en**

iTeh STANDARD PREVIEW
(standards.iteh.ai)

ETSI EN 301 113 V6.3.1 (2000-11)

European Standard (Telecommunications series)

Digital cellular telecommunications system (Phase 2+);
General Packet Radio Service (GPRS);
Service description;
Stage 1
(GSM 02.60 version 6.3.1 Release 1997)

iTeh STANDARD PREVIEW

(standards.iteh.ai)

GLOBAL SYSTEM FOR
MOBILE COMMUNICATIONS

Reference
REN/TSGS-010260Q6R2

Keywords
Digital cellular telecommunications system,
Global System for Mobile communications (GSM)

ETSI

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

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

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Important notice

Individual copies of the present document can be downloaded from:
http://www.etsi.org

The present document may be made available in more than one electronic version or in print. In any case of existing or
perceived difference in contents between such versions, the reference version is the Portable Document Format (PDF).
In case of dispute, the reference shall be the printing on ETSI printers of the PDF version kept on a specific network drive
within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status.
Information on the current status of this and other ETSI documents is available at http://www.etsi.org/tb/status/

If you find errors in the present document, send your comment to:
editor@etsi.fr

Copyright Notification

ETSI

Contents

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (http://www.etsi.org/ipr).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Special Mobile Group (SMG).

In analogy with CCITT Recommendations I.130, the first stage of the following three level structure is used to describe the telecommunications services as provided by European public telecommunications operators:

Stage 1 is an overall service description, from the service subscriber's and user's standpoint;

Stage 2 identifies the functional capabilities and information flows needed to support the service described in stage 1; and

Stage 3 defines the signalling system protocols and switching functions needed to implement the service described in stage 1.

The present document details the stage 1 aspects (overall service description) for the General Packet Radio Service (GPRS) on Global System for Mobile communications (GSM) networks.

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

Version 6.x.y

where:

6 indicates GSM Release 1997 of Phase 2+.

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

y the third digit is incremented when editorial only changes have been incorporated in the specification.

National transposition dates	
Date of adoption of this EN:	17 November 2000
Date of latest announcement of this EN (doa):	28 February 2001
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 August 2001
Date of withdrawal of any conflicting National Standard (dow):	31 August 2001

1 Scope

The present document defines the stage one description of the General Packet Radio Service (GPRS) on Global System for Mobile communications (GSM) networks. 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. The present document includes information applicable to network operators, service providers and terminal, switch and data base manufacturers.

The present document contains the core requirements for the GPRS on GSM, which are sufficient to provide a complete service.

The present document also documents some additional requirements which may be implemented (but do not have to be implemented).

In addition, additional functionality's not documented in the present document may be implemented. The requirements of which are considered outside the scope of the present document and consequently outside the scope of the corresponding stage 2 and stage 3 specifications. This additional functionality may be on a network-wide basis, or particular to one or a group of users. Such additional functionality shall not compromise conformance to the core requirements of the service.

The interface between the Mobile Station (MS) and any external applications are outside the scope of the present document.

Charging principles are outside the scope of the present document, unless specific service requirements are stated. These requirements deal with the allocation of certain call charges to particular users.

A later phase of GPRS may include interworking with circuit switched networks (e.g. PSTN, ISDN) and may emulate certain circuit switched services. These aspects are outside the scope of this version of the present document.

NOTE: The present document includes requirements for GPRS phase 1 (Rel '97). The first phase of standards specified will provide a basic functional GPRS service.

Phase 1 GPRS supports:

- PTP

- User Interworking for PTP TCP/IP.

- X.28 from MS to GGSN; X.25 from GGSN to external PDNs.

Internal Network Interfaces:

- **Gn** - GSN backbone network

- **Gb** - BSS to SGSN

- **Gr** - SGSN to HLR

- **Gp** - PLMN to PLMN (ie roaming)

- **Gs** - SGSN to MSC

- External Reference point **Gi** for connecting via **TCP/IP** and **X.25**

- Identities

- Security Issues - for PTP and roaming

- Charging Issues

- Operator Call Barring and Termination, Operator Call Screening

- PTM radio interface in preparation for phase 2.

- Anonymous access

- Support of SMS-MO and -MT via GPRS (note: SMS-CB not supported in phase 1).

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.

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

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

- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

- For this Release 1997 document, references to GSM documents are for Release 1997 versions (version 6.x.y).

[1]　　　　GSM 02.01: "Digital cellular telecommunications system (Phase 2+); Principles of telecommunication services supported by a GSM Public Land Mobile Network (PLMN)".

[2]　　　　GSM 04.02: "Digital cellular telecommunications system (Phase 2+); GSM Public Land Mobile Network (PLMN) access reference configuration".

[3]　　　　ITU-T Recommendation X.25: "Interface between data terminal equipment (DTE) and data circuit-terminating equipment (DCE) for terminals operating in the packet mode and connected to public data networks by dedicated circuit".

[4]　　　　ISO 8208: "Information processing systems - data communications - X.25 packet level protocol for data terminal equipment".

[5]　　　　ISO 8348: "Information processing systems - data communications - network service definition".

[6]　　　　ISO 8473: "Information technology - protocol for providing the connectionless mode network service".

[7]　　　　ISO 8878: "Information processing systems - data communications - use of X.25 to provide the OSI connection-mode network service".

[8]　　　　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".

[9]　　　　ITU-T Recommendation X.3: "Packet Assembly/Disassembly facility (PAD) in a public data network".

[10]　　　　ITU-T Recommendation X.28: "DTE/DCE interface for a start-stop mode Data Terminal Equipment accessing the Packet Assembly/Disassembly facility (PAD) in a public data network situated in the same country".
X.28 Add. 1 (7/94) Addendum 1 to Recommendation X.28 to enable MAP support in accordance with Recommendation X.8.

[11]　　　　ITU-T Recommendation X.29: "Procedures for the exchange of control information and user data between a Packet Assembly/Disassembly (PAD) facility and a packet mode DTE or another PAD".

[12]　　　　ITU-T Recommendation X.75: "Packet-switched signalling system between public networks providing data transmission services".

[13]   *Bellcore GR-000301 Issue 2, 1997: "Public Packet Switched Network Generic Requirements (PPSNGR)".*

[14]   ITU-T Recommendation X.121: "International numbering plan for public data networks".

[15]   ITU-T Recommendation X.136: "Accuracy and dependability performance values for public data networks when providing international packet-switched services".

[16]   ITU-T Recommendation X.137: "Availability performance values for public data networks when providing international packet-switched services".

[17]   GSM 02.68: "Digital cellular telecommunications system (Phase 2+); Voice Group Call Service (VGCS) - Stage 1".

[18]   GSM 02.06: "Digital cellular telecommunications system (Phase 2+); Types of Mobile Stations (MS)".

[19]   GSM 02.04: "Digital cellular telecommunications system (Phase 2+); General on supplementary services".

[20]   GSM 02.30: "Digital cellular telecommunications system (Phase 2+); Man-Machine Interface (MMI) of the Mobile Station (MS)".

[21]   GSM 02.17: "Digital cellular telecommunications system (Phase 2+); Subscriber Identity Modules (SIM) Functional characteristics".

[22]   GSM 03.68: "Digital cellular telecommunications system (Phase 2+); Voice Group Call Service (VGCS) - Stage 2".

[23]   GSM 04.68: "Digital cellular telecommunications system (Phase 2+); Group Call Control (GCC) protocol".

3   Definitions and abbreviations

3.1   Definitions

For the purposes of the present document, the following terms and definitions apply.

A

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

access protocol: Defined set of procedures that is adopted at an interface at a specified reference point between a user and a network to enable the user to employ the services and/or facilities of that network (source: ITU-T I.112).

accuracy: 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

basic service: Telecommunication services excluding the supplementary services (source: GSM 01.04).

bearer service: Type of telecommunication service that provides the capability for the transmission of signals between user-network interfaces (source: GSM 01.04, ITU-T I.112).

best effort service: Service model which provides minimal performance guarantees, allowing an unspecified variance in the measured performance criteria.

C

calling user: Entity which originates a call to the General Packet Radio Service (GPRS).

connectionless service: Service which allows the transfer of information among service users without the need for end-to-end call establishment procedures (source: ITU-T I.113).

connectionless-mode transfer:

"The terms 'message', 'datagram', 'transaction mode' and 'connection-free' have been used in the literature to describe variations on the same basic theme: the transmission of a unit of data in a single, self-contained operation without establishing, maintaining, and releasing a connection."

"(Connectionless-mode transmission) is the transmission of a single unit of data from a source service-access-point to one or more destination service-access-point(s) without establishing a connection. A connectionless-mode service allows an entity to initiate such a transmission by the performance of a single service access.

In contrast to a connection, an instance of the use of a connectionless-mode service does not have a clearly distinguishable lifetime. In addition, the connectionless-mode service, unless otherwise explicitly determined, has the following fundamental characteristics:

a) no dynamic peer-to-peer agreement is involved in an instance of the service;

b) all of the information required to deliver a unit of data (destination address, quality of service selection, options, etc.) is presented to the layer providing the connectionless-mode service, together with the user data to be transmitted, in a single service access. The layer providing the connectionless-mode service is not required to relate this access to any other service access.

As a result of these fundamental characteristics it may also be true that

c) each unit of data transmitted is entirely self-contained and can be routed independently;

d) copies of a unit of data can be transmitted to a number of destination addresses."

NOTE: **Connectionless-mode transfer** normally implies that the service a) does not provide confirmed delivery of SDUs, b) does not guarantee delivery of SDUs, c) does not guarantee maintenance of SDU sequencing and d) does not guarantee elimination of SDUs.

connection-mode transfer:

"A connection is an association established for the transfer of data between two or more peer-entities. This association is established between the peer-entities themselves and between each entity and the next lower layer. The ability to establish a connection and to transfer data over it is provided to the entities in a given layer by the next lower layer as a connection-mode service. An instance of the use of a connection-mode service by peer-entities proceeds through three distinct phases of operation:

a) connection establishment;

b) data transfer; and

c) connection release."

NOTE: **Connection-mode transfer** normally implies that the service a) provides confirmed delivery of SDUs, b) provides ordered, in-sequence delivery of SDUs and c) will not duplicate SDUs.

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

demand service: Type of telecommunication service in which the communication path is established almost immediately, in response to a user request effected by means of user-network signalling (source: GSM 01.04, ITU-T I.112).

dependability: Performance criterion that describes the degree of certainty (or surety) with which a function is performed regardless of speed or accuracy, but within a given observational interval (source: ITU-T I.350).

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

E

extra SDU delivery probability: Ratio of total (unrequested) extra service data units (SDUs) to total service data units received by a destination user in a specified sample (source: ITU-T X.140).

    NOTE: the term "user information unit" has been replaced by the term "service data unit".

F

functional group: Set of functions that may be performed by a single equipment (source: ITU-T I.112).

G

guaranteed service: Service model which provides highly reliable performance, with little or no variance in the measured performance criteria.

I

interactive service: 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: Common boundary between two associated systems (source: GSM 01.04, ITU-T I.112).

M

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

mean transit delay: Average transit delay experienced by a (typically) large sample of PDUs within the same service category.

messaging service: 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 station: Equipment intended to access a set of GSM PLMN telecommunication services. Services may be accessed while the equipment capable of surface movement within the GSM system area is in motion or during halts at unspecified points (source: GSM 01.04).

mobile termination: Part of the mobile station which terminates the radio transmission to and from the network and adapts terminal equipment capabilities to those of the radio transmission (source GSM 01.04).

N

network connection: Association established by a network layer between two users for the transfer of data, which provides explicit identification of a set of network data transmissions and agreement concerning the services to be provided by the set (source: ITU-T X.213 / ISO-IEC 8348).

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

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

P

packet: 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, or X.25.

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).