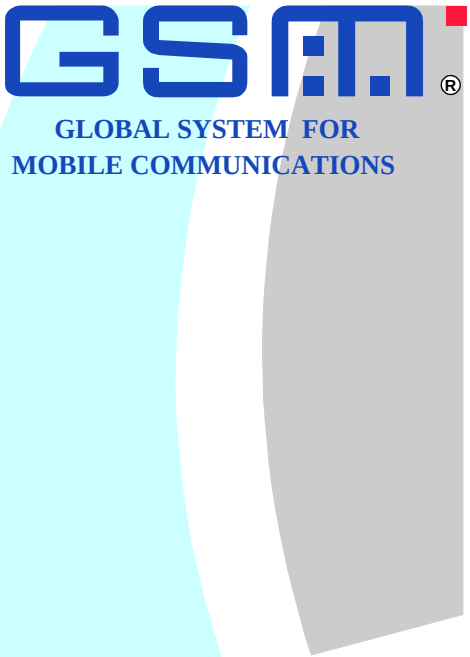
ETSI TS 100 588 V7.0.1 (1999-07)

Technical Specification

Digital cellular telecommunications system (Phase 2+);
Base Station System - Mobile-services Switching Centre
(BSS - MSC) interface
Layer 1 specification
(GSM 08.04 version 7.0.1 Release 1998)



Reference
RTS/SMG-030804Q7 (5g003i0r.PDF)

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

ETSI

Postal address
F-06921 Sophia Antipolis Cedex - FRANCE

Office address
650 Route des Lucioles - Sophia Antipolis
Valbonne - 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

Internet
secretariat@etsi.fr
Individual copies of this ETSI deliverable
can be downloaded from
http://www.etsi.org
If you find errors in the present document, send your
comment to: editor@etsi.fr

Copyright Notification

No part may be reproduced except as authorized by written permission.
The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 1999.
All rights reserved.

Contents

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 SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available **free of charge** 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 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 Technical Specification (TS) has been produced by the Special Mobile Group (SMG).

The present document defines the layer 1 specification for the Base Station System (BSS) to Mobile•services Switching Centre (MSC) interface within the digital cellular telecommunications system.

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

Version 7.x.y

where:

7 indicates GSM Phase 2+ Release 1998;

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

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

1 Scope

The present document defines the structure of the physical layer (layer 1) of the BSS-MSC interface for supporting traffic channels. Use of the physical layer for supporting Signalling System No.7 signalling links is covered in Technical Specification GSM 08.06.

The physical layer is the lowest layer in the OSI Reference Model and it supports all functions required for transmission of bit streams on the physical medium.

For the present document only digital transmission will be considered, the use of analogue transmission is a national concern.

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 1998 document, references to GSM documents are for Release 1998 versions (version 7.x.y).

[1] GSM 01.04: "Digital cellular telecommunications system (Phase 2+); Abbreviations and acronyms".

[2] CCITT Recommendation G.705: "Characteristics required to terminate digital links on a digital exchange".

[3] CCITT Recommendation G.709: "Synchronous multiplexing structure".

[4] CCITT Recommendation G.711: "Pulse code modulation (PCM) of voice frequencies".

[5] CCITT Recommendation G.732: "Characteristics of primary PCM multiplex equipment operating at 2048 kbit/s".

[6] GSM 08.06: "Digital cellular telecommunications system (Phase 2); Signalling transport mechanism specification for the Base Station System - Mobile-services Switching Centre (BSS - MSC) interface".

[7] ANSI T1.102-1993: "Digital Hierarchy Electrical Interface".

[8] ANSI T1.403-1995: "Carrier to Customer installation, DS1 metallic interface".

[9] ANSI T1.107-1995: "Digital Hierarchy Format specification".

3 Definitions and abbreviations

Abbreviations used in the present document are listed in GSM 01.04

4 Layer 1 Specification

All CCITT recommendations referred to are Blue Book.

Layer 1 shall utilise digital transmission

- at a rate of 2048 kbit/sec with a frame structure of 32 * 64kbit/sec time slots, as specified in CCITT Recommendation G.705 section 3 for E1 interface, or

- at a rate of 1544kbit/sec with a frame structure of 24*64 kbit/s time slots, as specified in T1.102 specification for T1 interface.

Therefore the physical/electrical characteristics are defined in CCITT Recommendation G.703 for E1 interface or ANSI T1.403 specification T1 interface.

The functional characteristics are defined in CCITT Recommendation G.732 section 2 and 3 for E1 interface or ANSI T1.10 specification for T1 interface.

Fault conditions should be treated in accordance with CCITT Recommendation G.732 section 4 for E1 interface or ANSI T1.403 specification for T1 interface.

Speech encoding shall be the A-law or Mu-law (for North America) as defined in CCITT Recommendation G.711.

The idle pattern must be transmitted on every timeslot that is not assigned to a channel, and to every timeslot of a channel that is not allocated to a call. The idle pattern shall be 01010100 in CCITT based systems and 01111111 in ANSI based systems.

Synchronisation at the BSS for the transmitted 2048/1544 kbit/sec bit stream shall be derived from the received 2048/1544 kbit/sec bit stream.

Data encoding is covered in Technical Specification GSM 08.20.

NOTE: A predetermined number of the 56/64kbit/sec time slots may be used for signalling, to one or more base station systems. 56kbit/sec is applicable to T1 interface only.

Annex A (Informative): Change History

Document history	
September 1994	First Edition
November 1995	Converted into Adobe Acrobat Portable Document Format (PDF)
November 1996	Creation of version 5.0.0 (Conversion to a new GTS)
February 1998	Inclusion of Harmonisation CR 08.04 A001

History

Document history		
V7.0.1	July 1999	Publication

ISBN 2-7437-3313-6
Dépôt légal : Juillet 1999