

ETSI TS 148 004 V8.0.0 (2009-01)

Technical Specification

**Digital cellular telecommunications system (Phase 2+);
Base Station System - Mobile-services
Switching Centre (BSS - MSC) interface;
Layer 1 specification
(3GPP TS 48.004 version 8.0.0 Release 8)**



ReferenceRTS/TSGG-0248004v800

KeywordsGSM

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

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://portal.etsi.org/tb/status/status.asp>

If you find errors in the present document, please send your comment to one of the following services:

http://portal.etsi.org/chaicor/ETSI_support.asp

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 2009.
All rights reserved.

DECT™, **PLUGTESTS™**, **UMTS™**, **TIPHON™**, the TIPHON logo and the ETSI logo are Trade Marks of ETSI registered for the benefit of its Members.

3GPP™ is a Trade Mark of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

LTE™ is a Trade Mark of ETSI currently being registered

for the benefit of its Members and of the 3GPP Organizational Partners.

GSM® and the GSM logo are Trade Marks registered and owned by the GSM Association.

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://webapp.etsi.org/IPR/home.asp>).

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 Technical Specification (TS) has been produced by ETSI 3rd Generation Partnership Project (3GPP).

The present document may refer to technical specifications or reports using their 3GPP identities, UMTS identities or GSM identities. These should be interpreted as being references to the corresponding ETSI deliverables.

The cross reference between GSM, UMTS, 3GPP and ETSI identities can be found under <http://webapp.etsi.org/key/queryform.asp>.

Contents

Intellectual Property Rights2

Foreword.....2

Foreword.....4

1 Scope5

2 References5

3 Abbreviations5

4 Layer 1 Specification.....6

Annex A (informative): Change History7

History8

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.

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 3GPP TS 48.006.

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. 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 TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] ITU-T Recommendation G.705: "Characteristics of plesiochronous digital hierarchy (PDH) equipment functional blocks".
- [3] ITU-T Recommendation G.709: "Interfaces for the Optical Transport Network (OTN)".
- [4] ITU-T Recommendation G.711: "Pulse Code Modulation (PCM) of voice frequencies".
- [5] ITU-T Recommendation G.732: "Characteristics of primary PCM multiplex equipment operating at 2 048 kbit/s".
- [6] 3GPP TS 48.006: "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 T1.403.01-1999: "Title: Network and Customer Installation Interfaces - (ISDN) Primary Rate Layer 1 Electrical Interfaces Specification (Includes revision of ANSI T1.408-1990 and partial revision of ANSI T1.403-1995)".
- [9] ANSI T1.107-1995: "Digital Hierarchy - Formats Specifications".
- [10] 3GPP TS 48.020: "Rate adaption on the Base Station System - Mobile-services Switching Centre (BSS - MSC) interface".

3 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] apply.

4 Layer 1 Specification

All ITU-T recommendations referred to are Blue Book.

Layer 1 shall utilise digital transmission:

- at a rate of 2 048 kbit/s with a frame structure of 32 x 64kbit/s time slots, as specified in ITU-T Recommendation G.705 clause 3 for E1 interface; or
- at a rate of 1 544 kbit/s with a frame structure of 24 x 64 kbit/s time slots, as specified in T1.102 specification for T1 interface.

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

The functional characteristics are defined in ITU-T Recommendation G.732 clauses 2 and 3 for E1 interface or ANSI T1.107 specification for T1 interface.

Fault conditions should be treated in accordance with ITU-T Recommendation G.732 clause 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 ITU-T 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 ITU-T based systems and 01111111 in ANSI based systems.

Synchronisation at the BSS for the transmitted 2 048/1544 kbit/s bit stream shall be derived from the received 2 048/1 544 kbit/s bit stream.

Data encoding is covered in Technical Specification 3GPP TS 48.020.

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

Annex A (informative): Change History

TSG #	TSG Doc.	CR	Rev	Subject/Comment	New version
Dec 2008	-	-	-	Release 8 version created based on v7.0.0	8.0.0

History

Document history		
V8.0.0	January 2009	Publication