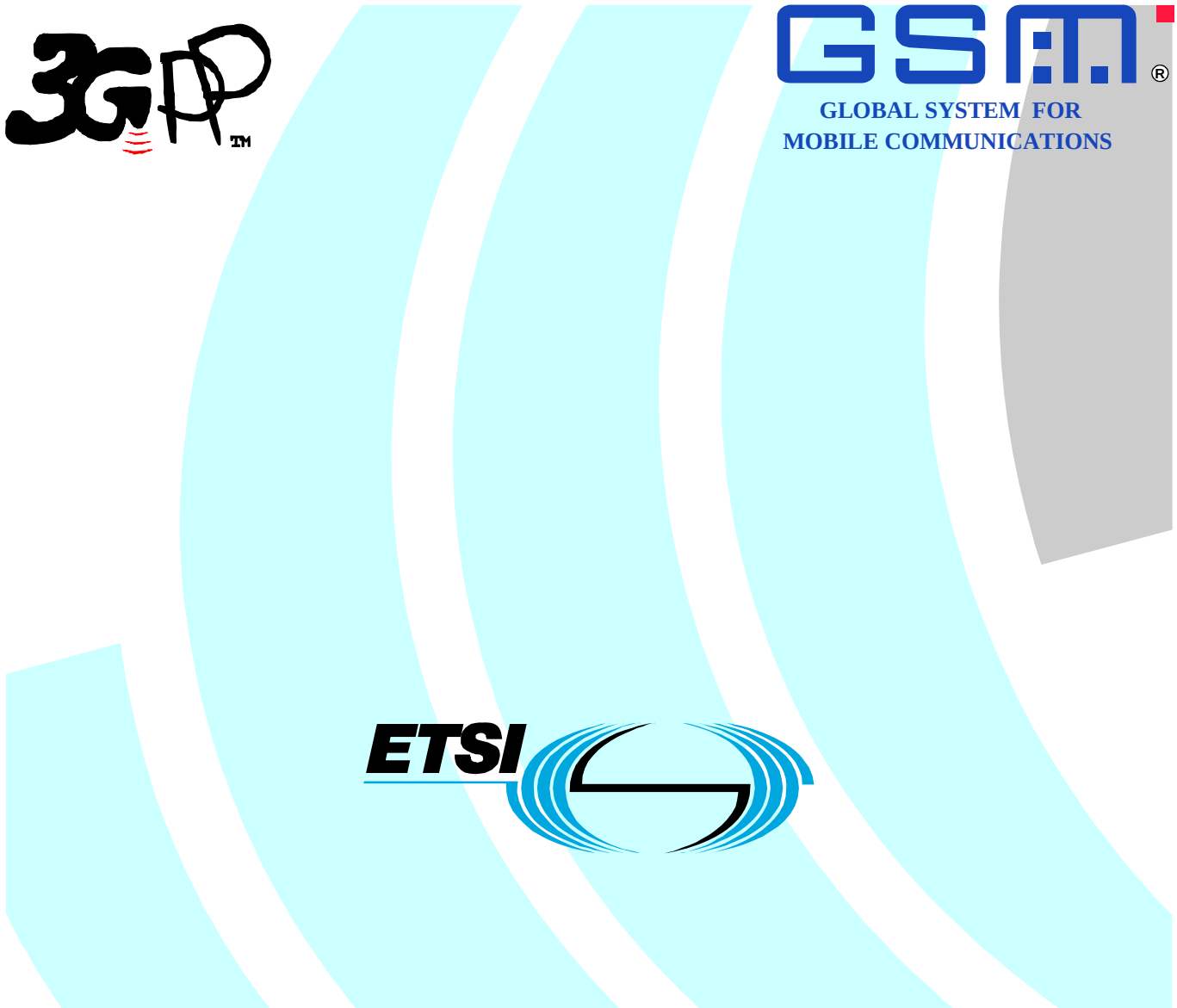
ETSI TS 148 004 V9.0.0 (2010-02)

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 9.0.0 Release 9)**



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Foreword

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Contents

Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

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Version x.y.z

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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 gieven 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 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 2009	-	-	-	Release 9 version created based on v8.0.0	9.0.0

History

Document history		
V9.0.0	February 2010	Publication