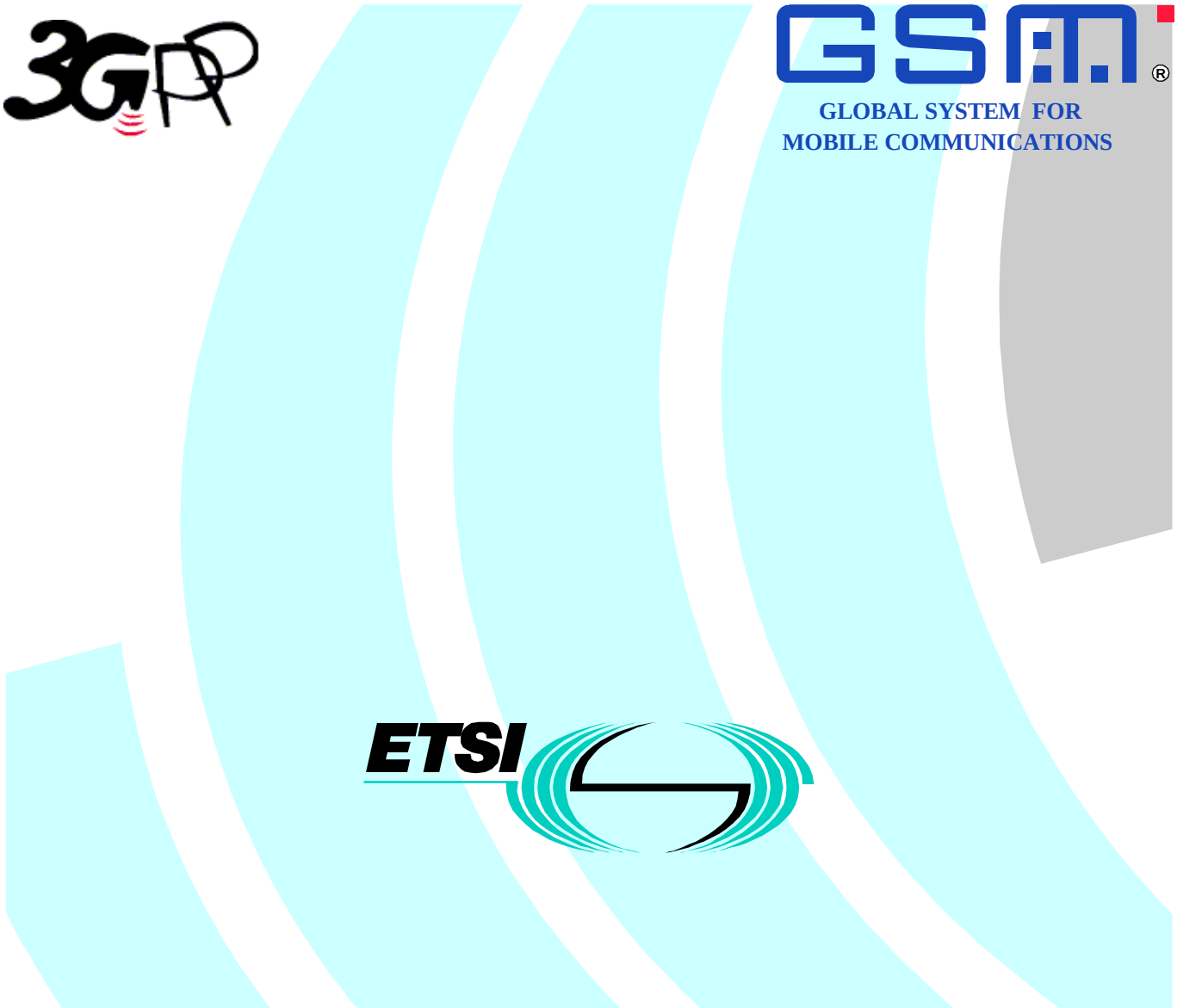
ETSI TS 148 004 V4.0.0 (2001-04)

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 4.0.0 Release 4)



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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 TS 21.905: "Vocabulary for 3GPP Specifications".

[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 2 048 kbit/s".

[6] 3GPP TS 48.006: "Signaling transport specification mechanism for the Base Station Subsystem – 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 this specification are listed in 3GPP TS 21.905.

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 2 048/1 544 kbit/s bit stream.

Data encoding is covered in Technical Specification GSM 08.20.

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 C (informative): Change History

Change history					
TSG #	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**New**
GP-04	-	-	-	April 2001. Conversion to 3GPP layout and number. References have been updated.	48.004 v4.0.0

History

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V4.0.0	April 2001	Publication