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**Digital cellular telecommunications system;
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(BSS - MSC) interface;
Layer 1 specification
(GSM 08.04)**

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Foreword

This Global System for Mobile communications Technical Specification (GTS) has been produced by the Special Mobile Group (SMG) Technical Committee (TC) of the European Telecommunications Standards Institute (ETSI).

This GTS defines the structure of the physical layer (layer 1) of the BSS-MSC interface within the digital cellular telecommunications system.

The contents of this GTS are subject to continuing work within TC-SMG and may change following formal TC-SMG approval. Should TC-SMG modify the contents of this GTS it will then be republished by ETSI with an identifying change of release date and an increase in version number as follows:

Version 5.x.y

where:

- y the third digit is incremented when editorial only changes have been incorporated in the specification;
- x the second digit is incremented for all other types of changes, i.e. technical enhancements, corrections, updates, etc.

The specification from which this GTS has been derived was originally based on CEPT documentation, hence the presentation of this GTS may not be entirely in accordance with the ETSI/PNE rules.

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1 Scope

This Global System for Mobile communications Technical Specification (GTS) 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 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 this Technical Specification only digital transmission will be considered, the use of analogue transmission is a national concern.

2 Normative references

This GTS incorporates by dated and undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this GTS only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies.

- [1] GSM 01.04 (ETR 350): "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 2 048 kbit/s".
- [6] GSM 08.06: "Digital cellular telecommunications system; Signalling transport mechanism specification for the Base Station System - Mobile-services Switching Centre (BSS - MSC) interface".

3 Abbreviations

Abbreviations used in this GTS are listed in GSM 01.04.

4 Layer 1 Specification

All CCITT recommendations referred to are Blue Book.

Layer 1 shall utilize digital transmission at a rate of 2 048 kbit/sec with a frame structure of 32 * 64 kbit/sec time slots, as specified in CCITT Recommendation G.705 section 3.

Therefore the physical/electrical characteristics are defined in CCITT Recommendation G.703.

The functional characteristics are defined in CCITT Recommendation G.732 section 2 and 3.

Fault conditions should be treated in accordance with CCITT Recommendation G.732 section 4.

Speech encoding shall be the A-law 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.

Synchronization at the BSS for the transmitted 2 048 kbit/sec bit stream shall be derived from the received 2 048 kbit/sec bit stream.

Data encoding is covered in GSM 08.20.

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

History

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December 1996	Publication of GSM 08.04 version 5.0.0