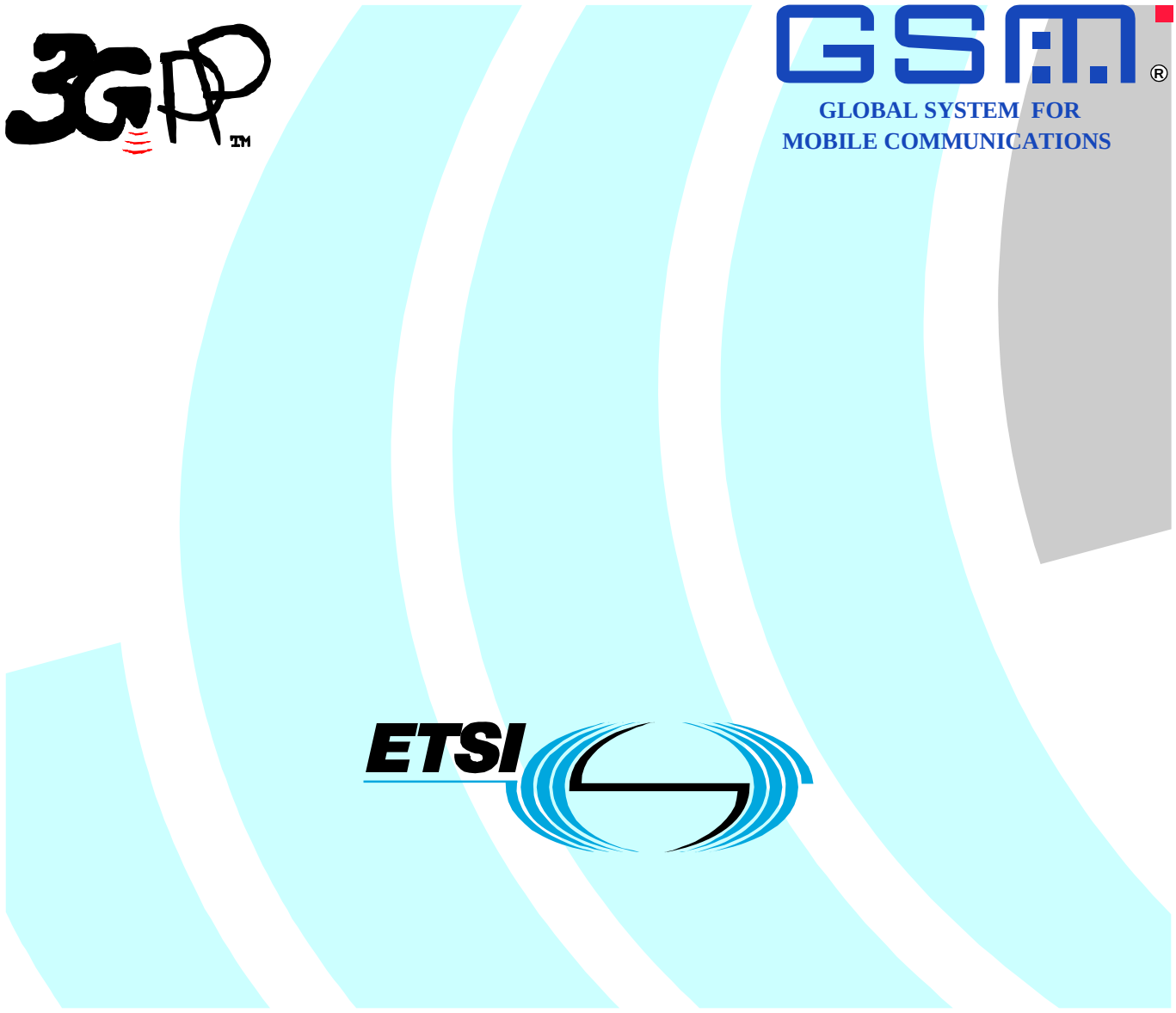
ETSI TS 148 054 V10.0.0 (2011-04)

Technical Specification

**Digital cellular telecommunications system (Phase 2+);
Base Station Controller
- Base Transceiver Station (BSC - BTS) interface;
Layer 1 structure of physical circuits
(3GPP TS 48.054 version 10.0.0 Release 10)**



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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 use and general aspects of the A-bis interface are given in 3GPP TS 48.051.

The present document defines the structure of the physical layer (layer 1) of the BSC - BTS/TRX interface for supporting traffic channels and control channels. Use of the physical layer for supporting link protocol is covered in 3GPP TS 48.056.

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.

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] 3GPP TS 48.020: "Rate adaption on the Base Station System - Mobile-services Switching Centre (BSS - MSC) interface".

[3] 3GPP TS 48.051: "Base Station Controller - Base Transceiver Station (BSC - BTS) interface; General aspects".

[4] 3GPP TS 48.056: "Base Station Controller - Base Transceiver Station (BSC - BTS) interface; Layer 2 specification".".

[5] 3GPP TS 48.060: "In-band control of remote transcoders and rate adaptors for full rate traffic channels".

[6] 3GPP TS 48.061: "In-band control of remote transcoders and rate adaptors for half rate traffic channels".

[7] ITU-T Recommendation G.703: "Physical/electrical characteristics of hierarchical digital interfaces".

[8] ITU-T Recommendation G.705: "Characteristics of plesiochronous digital hierarchy (PDH) equipment functional blocks".

[9] ITU-T Recommendation G.711: "Pulse Code Modulation (PCM) of voice frequencies".

[10] ITU-T Recommendation G.732: "Characteristics of primary PCM multiplex equipment operating at 2 048 kbit/s".

[11] ITU-T Recommendation I.460: "Multiplexing, rate adaption and support of existing interfaces".

3 Abbreviations

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

4 Layer 1 specification

All the ITU-T recommendations referred to are Blue Book.

Layer 1 shall utilize digital transmission at a rate of 2 048 kbit/s with a frame structure of 32 x 64 kbit/s time slots, as specified in ITU-T Recommendation G.705 clause 3 or at a rate of 64 kbit/s.

The physical/electrical characteristics are defined in ITU-T Recommendation G.703.

Synchronization at the BTS/TRX for the transmitted bit stream toward the BSC shall be derived from the received bit stream from the BSC.

For transmission rate at 64 kbit/sec it shall be an interface as defined in ITU-T Recommendation G.703.

For transmission rate at 2 048 kbit/s the functional characteristics are defined in ITU-T Recommendation G.732 clauses 2 and 3, and fault conditions should be treated in accordance with ITU-T Recommendation G.732 clause 4.

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 for a 64 kbit/s channel and the 2-bit pattern 01 for 16 kbit/s channels. For 8 kbit/s channels, the idle pattern shall be consecutive ones or zeros according to the corresponding idle pattern bit of a 16 kbit/s channel.

If transcoders are located in BTS speech encoding shall be the A-law as defined in ITU-T Recommendation G.711.

If speech transcoders are located in the BSC the speech, data and signalling channels will utilize transmission rates of 8 kbit/s, 16 kbit/s or 64 kbit/s according to 3GPP TS 48.060 and 3GPP TS 48.061. They shall be rate adapted or multiplexed according to ITU-T Recommendation I.460 with fixed format, to fit into the physical interface.

Data encoding is covered in 3GPP TS 48.020.

In the case of a 2 048 kbit/sec circuit, multidrop solutions should be possible. Dynamic sharing of terrestrial 64 kbit/sec channels between BTS:s on a per-call basis must not be used.

Annex A (informative): Change History

TSG #	TSG Doc.	CR	Rev	Subject/Comment	New
March 2011	-	-	-	Rel-10 version created based on v9.0.0	10.0.0

History

Document history		
V10.0.0	April 2011	Publication