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Evropski digitalni celiļ ni telekomunikacijski sistem (faza 2) ï Sinhronizacija radijskega podsistema (GSM 05.10)

European digital cellular telecommunications system (Phase 2); Radio subsystem synchronization (GSM 05.10)

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ETSI

European Telecommunications Standards Institute

ETSI Secretariat

Postal address: F-06921 Sophia Antipolis CEDEX - FRANCE
Office address: 650 Route des Lucioles - Sophia Antipolis - Valbonne - FRANCE
X.400: c=fr, a=atlas, p=etsi, s=secretariat - **Internet:** secretariat@etsi.fr

Tel.: +33 92 94 42 00 - Fax: +33 93 65 47 16

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Foreword

This European Telecommunication Standard (ETS) has been produced by the Special Mobile Group (SMG) Technical Committee (TC) of the European Telecommunications Standards Institute (ETSI).

This ETS defines the requirements for synchronisation of the Radio sub-system within the European digital cellular telecommunications system (Phase 2). This ETS does not define the synchronisation algorithms implemented in the Mobile Station (MS) and Base Station System (BSS).

This third edition of the ETS is a result of further work carried out by TC-SMG and correspond to GSM technical specification, GSM 05.10 version 4.6.0.

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

Reference is made within this ETS to GSM Technical Specifications (GSM-TSs) (NOTE).

NOTE: TC-SMG has produced documents which give the technical specifications for the implementation of the European digital cellular telecommunications system. Historically, these documents have been identified as GSM Technical Specifications (GSM-TSs). These TSs may have subsequently become I-ETSs (Phase 1), or ETSs (Phase 2), whilst others may become ETSI Technical Reports (ETRs). GSM-TSs are, for editorial reasons, still referred to in GSM ETSs.

Transposition dates	
Date of adoption of this ETS:	30 September 1995
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1.1 Scope

This European Telecommunications Standard (ETS) defines the requirements for synchronization on the GSM radio sub-system. (However, it does not define the synchronization algorithms to be used in the Base Station (BS) and Mobile Station (MS). These are up to the manufacturer to specify.)

1.2 Normative references

This ETS 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 ETS 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 100): "European digital cellular telecommunication system (Phase 2); Abbreviations and acronyms".

[2] GSM 04.08 (ETS 300 557): "European digital cellular telecommunication system (Phase 2); Mobile radio interface layer 3 specification".

[3] GSM 05.02 (ETS 300 574): "European digital cellular telecommunication system (Phase 2); Multiplexing and multiple access on the radio path".

[4] GSM 05.05 (ETS 300 577): "European digital cellular telecommunication system (Phase 2); Radio transmission and reception".

[5] GSM 05.08 (ETS 300 578): "European digital cellular telecommunication system (Phase 2); Radio subsystem link control".

[6] GSM 03.30 (ETR 103): "European digital cellular telecommunication system (Phase 2); Radio network planning aspects".

1.3 Definitions and abbreviations

In addition to those below, Abbreviations used in this ETS are listed in GSM 01.04.

BS Base Station

Timing Advance: A signal sent by the BS to the MS which the MS uses to advance its timings of transmissions to the BS so as to compensate for propagation delay

Quarter bit number: The timing of quarter bit periods (12/13 μs) within a timeslot

Timeslot number: The timing of timeslots within a TDMA frame

TDMA frame number: The count of TDMA frames relative to an arbitrary start point

Current Serving BS: The BS on one of whose channels (TCH, DCCH or CCCH) the MS is currently operating

Timebase counters: A set of counters which determine the timing state of signals transmitted by a BS or MS

MS timing offset: The delay of the received signal relative to the expected signal from an MS at zero distance under static channel conditions with zero timing advance. This is accurate to ± 1 bit, and reported once per SACCH or after a RACH as. required (ie at the same rate as timing advance). For example, for an MS with a round trip propagation delay of P bits, but with a timing advance of T bits, the reported timing offset will be P-T quantized to the nearest bit.