



SLOVENSKI STANDARD SIST ETS 300 912 E1:2003

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Digital cellular telecommunications system (Phase 2+) (GSM); Radio subsystem
synchronization (GSM 05.10 version 5.1.1)

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ICS:

33.070.50	Globalni sistem za mobilno telekomunikacijo (GSM)	Global System for Mobile Communication (GSM)
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**Digital cellular telecommunications system (Phase 2+);
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(GSM 05.10 version 5.1.1)**

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 4 92 94 42 00 - Fax: +33 4 93 65 47 16

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Contents

Foreword	5
1 Scope	7
1.2 Normative references	7
1.3 Definitions and abbreviations	7
2 General description of synchronization system	8
3 Timebase counters	8
3.1 Timing state of the signals	8
3.2 Relationship between counters	8
4 Timing of transmitted signals	8
5 BTS Requirements for Synchronization	9
5.1 Frequency source	9
5.2 Timebase counters	9
5.3 Internal BTS carrier timing	9
5.4 Timing advance estimation	9
5.5 Maximum timing advance value	9
5.6 Delay tracking	9
5.7 Timeslot length	9
5.8 Range of Timing advance	10
6 MS Requirements for Synchronization	10
6.1 MS carrier frequency	10
6.2 Internal timebase	10
6.3 Assessment of BTS timing	10
6.4 Timing of transmission	10
6.5 Application of Timing Advance	10
6.6 Access to a new BTS	11
6.7 Temporary loss of signal	11
6.8 Timing of intracell channel change	11
6.9 Application of new Timing Advance value	11
6.10 Definition of "ready to transmit within x ms"	11
Annex A (normative): Additional requirements for pseudo-synchronization, synchronized handovers and pseudo-synchronized handovers	12
A.1 General descriptions and definitions	12
A.1.1 Conventions	12
A.1.2 Definitions	12
A.1.3 Details of operations	12
A.2 BTS requirements	13
A.2.1 The pseudo-synchronization scheme	13
A.2.1.1 BTS a time difference estimate	13
A.2.1.2 The reception epoch criterion	13
A.2.1.3 Pseudo-synchronized handover	13
A.2.2 The synchronization requirement	13
A.3 MS requirements	13
A.3.1 Provision of time difference information	13
A.3.2 After each successful handover	13
A.3.3 Synchronized or a pseudo synchronized handover	14
History	15

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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 synchronization on the GSM radio sub-system of the digital mobile cellular and personal communication systems operating in the 900 MHz and 1 800 MHz band (GSM 900 and DCS 1 800).

This ETS is a GSM technical specification version 5, which incorporates GSM Phase 2+ enhancements/features to the version 4 GSM technical specification. The ETS from which this Phase 2+ ETS has evolved is Phase 2 GSM ETS 300 579 Edition 6 (GSM 05.10 version 4.9.0).

The contents of this ETS is subject to continuing work within TC-SMG and may change following formal TC-SMG approval. Should TC-SMG modify the contents of this ETS, it will be resubmitted for OAP 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 ETS has been derived was originally based on CEPT documentation, hence the presentation of this ETS may not be entirely in accordance with the ETSI rules.

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1 Scope

This European Telecommunication 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 Transceiver Station (BTS) 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 350): "Digital cellular telecommunications system (Phase 2+); Abbreviations and acronyms".
- [2] GSM 04.08 (ETS 300 940): "Digital cellular telecommunications system (Phase 2+); Mobile radio interface layer 3 specification".
- [3] GSM 05.02 (ETS 300 908): "Digital cellular telecommunications system (Phase 2+); Multiplexing and multiple access on the radio path".
- [4] GSM 05.05 (ETS 300 910): "Digital cellular telecommunications system (Phase 2+); Radio transmission and reception".
- [5] GSM 05.08 (ETS 300 911): "Digital cellular telecommunications system (Phase 2+); Radio subsystem link control".
- [6] GSM 03.30 (ETR 364): "Digital cellular telecommunications system; Radio network planning aspects".

1.3 Definitions and abbreviations

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For the purposes of this ETS, the following definitions apply:

BTS: Base Transceiver Station.

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

Quarter bit number: The timing of quarter bit periods (12/13 μ s) 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 BTS: The BTS 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 BTS 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 (i.e. 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.

Abbreviations used in this ETS are listed in GSM 01.04.