



**SLOVENSKI STANDARD**  
**SIST EN 300 966 V8.0.1:2003**

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Digital cellular telecommunications system (Phase 2+) (GSM); Half rate speech; Half rate speech processing functions (GSM 06.02 version 8.0.1 Release 1999)

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# ETSI EN 300 966 V8.0.1 (2000-11)

*European Standard (Telecommunications series)*

**Digital cellular telecommunications system (Phase 2+);  
Half rate speech;  
Half rate speech processing functions  
(GSM 06.02 version 8.0.1 Release 1999)**

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## Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Special Mobile Group (SMG).

The present document gives a general overview of the half rate speech traffic channels speech processing functions for the digital cellular telecommunications system. The present document is part of ENs' series covering the half rate speech traffic channels as described below:

- |                  |  |
|------------------|--|
| <b>GSM 06.02</b> | <b>"Digital cellular telecommunications system (Phase 2+); Half rate speech; Half rate speech processing functions".</b>                                 |
| GSM 06.20        | "Digital cellular telecommunications system (Phase 2+); Half rate speech; Half rate speech transcoding".   |
| GSM 06.21        | "Digital cellular telecommunications system (Phase 2+); Half rate speech; Substitution and muting of lost frames for half rate speech traffic channels". |
| GSM 06.22        | "Digital cellular telecommunications system (Phase 2+); Half rate speech; Comfort noise aspects for half rate speech traffic channels".                  |
| GSM 06.41        | "Digital cellular telecommunications system (Phase 2+); Half rate speech; Discontinuous Transmission (DTX) for half rate speech traffic channels".       |
| GSM 06.42        | "Digital cellular telecommunications system (Phase 2+); Half rate speech; Voice Activity Detector (VAD) for half rate speech traffic channels".          |
| GSM 06.06        | "Digital cellular telecommunications system (Phase 2+); Half rate speech; ANSI-C code for the GSM half rate speech codec".                               |
| GSM 06.07        | "Digital cellular telecommunications system (Phase 2+); Half rate speech; Test sequences for the GSM half rate speech codec".                            |

The contents of the present document is subject to continuing work within SMG and may change following formal SMG approval. Should SMG modify the contents of the present document it will be re-released with an identifying change of release date and an increase in version number as follows:

Version 8.x.y

where:

- 8 indicates Release 1999 of GSM Phase 2+
- x the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- y the third digit is incremented when editorial only changes have been incorporated in the specification.

<b>National transposition dates</b>	
Date of adoption of this EN:	3 November 2000
Date of latest announcement of this EN (doa):	28 February 2001
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 August 2001
Date of withdrawal of any conflicting National Standard (dow):	31 August 2001

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# 1 Scope

The present document is an introduction to GSM 06.20 [4], GSM 06.21 [5], GSM 06.22 [6], GSM 06.41 [7] and GSM 06.42 [8] TSs dealing with the speech processing functions in the half-rate channel of the GSM system. A general overview of the speech processing functions is given, with reference to the TSs where each function is specified in detail.

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# 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.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.
- For this Release 1999 document, references to GSM documents are for Release 1999 versions (version 8.x.y).

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- [1] GSM 01.04: "Digital cellular telecommunication system (Phase 2+); Abbreviations and acronyms".
- [2] GSM 03.50: "Digital cellular telecommunication system (Phase 2+); Transmission planning aspects of the speech services in the GSM Public Land Mobile Network (PLMN) system".
- [3] GSM 05.03: "Digital cellular telecommunications system (Phase 2+); Channel coding".
- [4] GSM 06.20: "Digital cellular telecommunications system (Phase 2+); Half rate speech: Half rate speech transcoding".
- [5] GSM 06.21: "Digital cellular telecommunications system (Phase 2+); Half rate speech; Substitution and muting of lost frame for half rate speech traffic channels".
- [6] GSM 06.22: "Digital cellular telecommunications system (Phase 2+); Half rate speech; Comfort noise aspects for half rate speech traffic channels".
- [7] GSM 06.41: "Digital cellular telecommunications system (Phase 2+); Half rate speech; Discontinuous transmission (DTX) for half rate speech traffic channels".
- [8] GSM 06.42: "Digital cellular telecommunications system (Phase 2+); Half rate speech; Voice Activity Detector (VAD) for half rate speech traffic channels".
- [9] ITU-T Recommendation G.711: "Pulse Code Modulation (PCM) of voice frequencies".
- [10] GSM 06.07: "Digital cellular telecommunications system (Phase 2+); Half rate speech; Test sequences for the GSM half rate speech codec".
- [11] GSM 06.06: "Digital cellular telecommunications system (Phase 2+); Half rate speech; ANSI-C code for the GSM half rate speech codec".



## 3 Definitions and abbreviations

### 3.1 Definitions

Definition of terms used in the present document can be found in GSM 06.20 [4], GSM 06.21 [5], GSM 06.22 [6], GSM 06.41 [7] and GSM 06.42 [8].

### 3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply.

BFI	Bad Frame Indication
BSS	Base Station System
DTX	Discontinuous Transmission
GSM	Global System for Mobile communications
MS	Mobile Station
PCM	Pulse Code Modulated
PLMN	Public Land Mobile Network
PSTN	Public Switched Telephone Network
RF	Radio Frequency
RSS	Radio SubSystem
RX	Receive
SACCH	Slow Associated Control CHannel
SID	Silence Descriptor
SP flag	SPeech flag
TAF	Time Alignment Flag
TX	Transmit
UFI	Unreliable Frame Indication
VSELP	Vector Sum Excited Linear Predictor

For abbreviations not given in this clause, see GSM 01.04 [1].

## 4 General

Figure 1 presents a reference configuration where the various speech processing functions are identified. In this figure, the relevant documents for each function are also indicated.

In figure 1, the audio parts including analogue to digital and digital to analogue conversion are included, to show the complete speech path between the audio input/output in the Mobile Station (MS) and the digital interface of the Public Switched Telephone Network (PSTN). The detailed specification of the audio parts are contained in GSM 03.50 [2]. These aspects are only considered to the extent that the performance of the audio parts affect the performance of the speech transcoder.