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European digital cellular telecommunications system; Half rate speech; Part 4: Comfort noise aspects for the half rate speech traffic channels (GSM 06.22)

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**European digital cellular telecommunications system;  
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Part 4: Comfort noise aspects for the half rate  
speech traffic channels  
(GSM 06.22)**

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## Foreword

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

This ETS specifies the half rate speech traffic channels for the European digital cellular telecommunications system. This ETS corresponds to GSM technical specification, GSM 06.22, version 4.1.1 and is part 4 of a multi-part ETS covering the half rate speech traffic channels as described below:

GSM 06.02	ETS 300 581-1: "European digital cellular telecommunications system; Half rate speech Part 1: Half rate speech processing functions".
GSM 06.20	ETS 300 581-2: "European digital cellular telecommunications system; Half rate speech Part 2: Half rate speech transcoding".
GSM 06.21	ETS 300 581-3: "European digital cellular telecommunications system; Half rate speech Part 3: Substitution and muting of lost frames for half rate speech traffic channels".
<b>GSM 06.22</b>	<b>ETS 300 581-4: "European digital cellular telecommunications system; Half rate speech Part 4: Comfort noise aspects for half rate speech traffic channels".</b>
GSM 06.41	ETS 300 581-5: "European digital cellular telecommunications system; Half rate speech Part 5: Discontinuous Transmission (DTX) for half rate speech traffic channels".
GSM 06.42	ETS 300 581-6: "European digital cellular telecommunications system; Half rate speech Part 6: Voice Activity Detection (VAD) for half rate speech traffic channels".
GSM 06.06	ETS 300 581-7: "European digital cellular telecommunications system; Half rate speech Part 7: ANSI-C code for the GSM half rate speech codec".
GSM 06.07	ETS 300 581-8: "European digital cellular telecommunications system; Half rate speech Part 8: Test vectors for the GSM half rate speech codec".

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-TS). These TSs may have subsequently become Interim European Telecommunication Standards (I-ETSS), (Phase 1), or European Telecommunication Standards (ETSS), (Phase 2), whilst others may become ETSI Technical Reports (ETRs).

Transposition dates	
Date of adoption of this ETS:	27 October 1995
Date of latest announcement of this ETS (doa):	28 February 1996
Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	31 August 1996
Date of withdrawal of any conflicting National Standard (dow):	31 August 1996

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## 1 Scope

This European Telecommunication Standard (ETS) gives the detailed requirements for the correct operation of the background acoustic noise evaluation, noise parameter encoding/decoding and comfort noise generation in GSM Mobile Stations (MS)s and Base Station Systems (BSS)s during Discontinuous Transmission (DTX) on half rate speech traffic channels.

The requirements described in this ETS are mandatory for implementation in all GSM MSs capable of supporting the half rate speech traffic channel.

The receiver requirements are mandatory for implementation in all GSM BSSs capable of supporting the half rate speech traffic channel, the transmitter requirements are only for those where downlink DTX will be used.

## 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 06.20 (ETS 300 581-2): "European digital cellular telecommunications system; Half rate speech Part 2: Half rate speech transcoding".
- [3] GSM 06.41 (ETS 300 581-5): "European digital cellular telecommunications system; Half rate speech Part 5: Discontinuous transmission (DTX) for half rate speech traffic channels".
- [4] GSM 06.42 (ETS 300 581-6): "European digital cellular telecommunications system; Half rate speech Part 6: Voice Activity Detector (VAD) for half rate speech traffic channels".
- [5] GSM 06.06 (ETS 300 581-7): "European digital cellular telecommunications system; Half rate speech Part 7: ANSI-C code for the GSM half rate speech codec".

## 3 Definitions, symbols and abbreviations

### 3.1 Definitions

For the purpose of this ETS, the following definition apply.

**frame:** Time interval of 20 ms corresponding to the time segmentation of the half rate speech transcoder, also used as a short term for a traffic frame.

**SID frame:** Rame characterised by the SID (Silence Descriptor) codeword. It conveys information on the acoustic background noise.

**SID codeword:** Fixed bit pattern for labelling a traffic frame as a SID frame.

**SID field:** The bit positions of the SID codeword within a SID frame.

**speech frame:** Traffic frame that cannot be classified as a SID frame.

**VAD flag:** Voice Activity Detector flag.

**SP flag:** SPeech flag.