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Integrated Services Digital Network (ISDN); Technical characteristics of telephony terminals; Part 5: Wideband (7 kHz) handset telephony

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**ICS:**

33.080	Digitalno omrežje z integriranimi storitvami (ISDN)	Integrated Services Digital Network (ISDN)
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Technical characteristics for telephony terminals;  
Part 5: Wideband (7 kHz) handset telephony**

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## Contents

Foreword .....		7
Introduction .....		7
1 Scope .....		9
2 Normative references .....		9
3 Definitions and abbreviations .....		10
3.1 Definitions .....		10
3.2 Abbreviations .....		11
4 D-channel characteristics .....		12
4.1 General .....		12
4.2 Outgoing calls .....		12
4.3 Incoming calls .....		13
4.3.1 Telephony 7 kHz call request .....		13
4.3.2 Telephony 3,1 kHz call request .....		13
4.4 Support of supplementary services .....		13
4.4.1 Terminal selection using the Multiple Subscriber Number or Subaddressing supplementary services .....		13
4.4.2 Inband signalling when invoking supplementary services .....		13
4.5 Interim procedures .....		13
4.5.1 General .....		13
4.5.2 Outgoing calls .....		14
4.5.3 Incoming calls .....		14
4.6 Call clearing .....		14
5 B-channel characteristics .....		14
5.1 Relative level .....		14
5.2 Signal encoding .....		14
5.2.1 CCITT Recommendation G.711 .....		14
5.2.1.1 A-law .....		14
5.2.1.2 m-law .....		15
5.2.2 CCITT Recommendation G.722 encoding .....		15
5.3 Signal decoding .....		15
5.3.1 CCITT Recommendation G.711 .....		15
5.3.1.1 A-law .....		15
5.3.1.2 m-law .....		16
5.3.2 CCITT Recommendation G.722 .....		16
5.3.2.1 General .....		16
5.3.2.2 Mode 1 .....		16
5.3.2.3 Mode 2 .....		16
5.3.2.4 Mode 3 .....		16
5.3.2.5 Fallback to the telephony 3,1 kHz teleservice .....		16
5.3.2.6 Interworking with the Public Switched Telephone Network .....		16
5.4 Speech transmission characteristics (handset mode) .....		17
5.4.1 Volume control .....		17
5.4.2 Sensitivity-frequency response .....		17
5.4.2.1 Sending .....		17
5.4.2.2 Receiving .....		17
5.4.3 Loudness rating .....		18
5.4.3.1 Sending Loudness Rating .....		18
5.4.3.2 Receiving Loudness Rating .....		18
5.4.4 Talker sidetone .....		18
5.4.5 Terminal Coupling Loss .....		19
5.4.5.1 Weighted Terminal Coupling Loss .....		19

	5.4.5.2	Stability loss .....	19	
5.4.6	Distortion.....		19	
	5.4.6.1	Sending .....	19	
	5.4.6.2	Receiving .....	19	
	5.4.6.3	Sidetone .....	20	
5.4.7	Out-of-band signals .....		20	
	5.4.7.1	Discrimination against out-of-band input signals (sending) .....	20	
	5.4.7.2	Spurious out-of-band (Receiving) .....	20	
5.4.8	Noise.....		20	
	5.4.8.1	Sending .....	20	
	5.4.8.2	Receiving .....	20	
5.4.9	Acoustic shock.....		21	
	5.4.9.1	Continuous Signal .....	21	
	5.4.9.2	Peak signal.....	21	
5.4.10	Delay.....		21	
6	Inband signalling.....		21	
6.1	Frame structure.....		21	
	6.1.1	General .....	21	
	6.1.2	Frame search .....	21	
	6.1.3	Frame alignment.....	21	
	6.1.4	Multiframe alignment .....	21	
6.2	Telephony 7 kHz BAS attributes .....		22	
	6.2.1	General .....	22	
	6.2.2	Audio coding command .....	22	
	6.2.3	Audio capability.....	23	
6.3	Sequences .....		23	
6.4	Procedures.....		23	
Annex A (normative):	Test methods.....		24	
A.1	General conditions for testing.....		24	
A.1.1	Environment for tests .....		24	
A.1.2	Power supply limitations .....		24	
A.1.3	Test equipment interface.....		24	
A.1.4	Test equipment requirements .....		24	
	A.1.4.1	Electro-acoustic equipment .....	24	
	A.1.4.2	Test equipment for the digital interface .....	24	
		A.1.4.2.1	Codec specification.....	24
		A.1.4.2.2	Analogue interface .....	24
		A.1.4.2.3	Definition of 0 dBr point.....	25
A.1.5	Accuracy of calibrations .....		25	
A.2	Speech transmission requirements testing.....		25	
A.2.1	Sensitivity-frequency response .....		25	
	A.2.1.1	Sending.....	25	
	A.2.1.2	Receiving .....	26	
A.2.2	Loudness rating.....		26	
	A.2.2.1	Sending Loudness Rating.....	26	
	A.2.2.2	Receiving Loudness Rating .....	26	
A.2.3	Sidetone .....		26	
	A.2.3.1	Talker sidetone .....	26	
A.2.4	Terminal Coupling Loss .....		27	
	A.2.4.1	Weighted Terminal Coupling Loss.....	27	
	A.2.4.2	Stability loss .....	27	
A.2.5	Distortion .....		28	
	A.2.5.1	Sending.....	28	
	A.2.5.2	Receiving .....	28	
	A.2.5.3	Sidetone.....	28	
A.2.6	Out-of-band signals.....		28	
	A.2.6.1	Discrimination against out-of-band input signals (sending) .....	28	
	A.2.6.2	Spurious out-of-band (receiving) .....	29	
A.2.7	Noise .....		29	

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<https://standards.iteh.ai/catalog/standards/sist/8866427-5b47-4a57-a774-91c5d7b9a58/sist-i-ets-300-245-5-e1-2003>

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A.2.7.1	Sending .....	29
A.2.7.2	Receiving.....	30
A.2.8	Acoustic shock.....	30
A.2.8.1	Continuous signal.....	30
A.2.9	Delay.....	30
Annex B (informative):	Bibliography.....	32
History.....		33

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[SIST I-ETS 300 245-5 E1:2003](https://standards.iteh.ai/catalog/standards/sist/f6866427-5b47-4a57-a774-e9fc5d7b9a58/sist-i-ets-300-245-5-e1-2003)

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## Foreword

Part 5 of this Interim European Telecommunication Standard (I-ETS) was produced by the Terminal Equipment (TE) Technical Committee of the European Telecommunications Standards Institute (ETSI).

An ETSI standard may be given I-ETS status either because it is regarded as a provisional solution ahead of a more advanced standard, or because it is immature and requires a "trial period". The life of an I-ETS is limited to three years after which it can be converted into an ETS, have its life extended for a further two years, be replaced by a new version, or be withdrawn.

This is the fifth Part of an I-ETS which is currently intended to comprise eight Parts.

Part 1: General.

Part 2: PCM A-law, Handset telephony.

Part 3: Pulse Code Modulation (PCM) A-law, loudspeaking and handsfree telephony.

Part 4: Interface for additional equipment to an ISDN telephony terminal.

**Part 5: Wideband (7 kHz) handset telephony.**

Part 6: Wideband (7 kHz) handsfree telephony.

Part 7: Locally generated information tones.

Part 8: Speech transmission characteristics when using low-delay code-excited linear prediction coding at 16 kbit/s.

Part 5 of this I-ETS provides the technical characteristics of Integrated Services Digital Network (ISDN) handset telephones terminals suitable to support the telephony 7 kHz teleservice.

SIST I-ETS 300 245-5 E1:2003

Proposed announcement date	
Date of adoption of this I-ETS:	1 December 1995
Date of latest announcement of this I-ETS (doa):	31 March 1996

## Introduction

This I-ETS presents the terminal of handset terminals supporting the telephony 7 kHz teleservice in the ISDN. It covers the following aspects:

- 1) D-channel signalling;
- 2) inband signalling;
- 3) speech transmission characteristics.

The D-channel and inband signalling procedures are based on existing standards, and references are made to these.

A 7 kHz bandwidth handset usually requires the use of low acoustic impedance receivers. To test these receivers, a type 3.2 artificial ear as specified in ITU-T Recommendation P.57 is needed. Although this ear is specified by ITU-TS, commercially available devices have only recently appeared on the market. The requirements presented are then primarily based on test results using prototypes developed by individual test laboratories. The results need to be checked on the commercially available devices to secure reproducibility.

A terminal that supports the telephony 7 kHz teleservice also supports the telephony 3,1 kHz teleservice. The terminal requirements for supporting this teleservice can be found in Parts 1 and 2 of this I-ETS. The receive characteristics requirements and test methods specified therein are not valid when low acoustic impedance receivers are used.

There is an urgent need for a standard on the speech transmission characteristics of telephony 7 kHz terminals. ETSI has, therefore, decided to publish this I-ETS in order to provide manufacturers and test laboratories with a set of agreed requirements and test procedures based on the state of the art. ETSI will continue the work on requirements and test methods and the results of this work will be included in a revised version to be issued when the period of validity of this I-ETS has expired. Findings and comments to this I-ETS are welcomed and should be sent to ETSI at the address indicated on the title page.

In the present version, no requirements to Listener Sidetone Rating (LSTR) have been included because the test methods require further study. The users of this I-ETS should note that requirements to all characteristics where the receiver is included may be altered when more experience has been gained.

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## 1 Scope

Part 5 of this I-ETS specifies the technical characteristics (logical and electroacoustic) that are necessary to provide end-to-end compatibility of terminal equipment that support the telephony 7 kHz teleservice as defined in ETS 300 263 which is intended for connection to the basic rate interface at the coincident S and T reference point or S reference point of the pan-European Integrated Services Digital Network (ISDN), as provided by European public telecommunications operators.

The requirements of this I-ETS are in addition to those of standards for connection to the ISDN basic rate interface.

The requirements of this Part of the I-ETS describe the logical characteristics of the user-network signalling and inband signalling relevant to this teleservice.

The requirements of this Part of the I-ETS provide real-time two-way speech communication of an improved quality when compared with the telephony 3,1 kHz teleservice.

The speech transmission requirements of this Part of the I-ETS define only those characteristics relevant to telephony terminals equipped with a handset.

Part 5 of this I-ETS is applicable to terminal equipment, and other equipment (e.g. interworking units, conference bridges), equipped with a handset and supporting the telephony 7 kHz teleservice.

In this I-ETS, the speech transmission requirements are not applicable to:

- handsfree or loudspeaking telephony;
- telephony for disabled people (e.g. with amplification of received speech as an aid for the hard of hearing);
- telephony in hostile environments.

NOTE 1: The characteristics of the ISDN user-network interface are specified in ETS 300 012 [1] and ETS 300 102-1 [2]. Attachment requirements for ISDN telephony terminals are specified in TBR 3 regarding the basic access and furthermore specified in TBR 8 regarding the telephony 3,1 kHz teleservice in the ISDN.

NOTE 2: The telephony 7 kHz teleservice as defined in ETS 300 263, does not include a data communication facility. The inband signalling codes for such a facility are, therefore, not a Part of this I-ETS. Relevant information can be found in ETS 300 143 [3] and ETS 300 144 [4].

## 2 Normative references

Part 5 of this I-ETS incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to Part 5 of this I-ETS only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

- [1] ETS 300 012 (1992): "Integrated Services Digital Network (ISDN); Basic user-network interface, Layer 1 specification and test principles".
- [2] ETS 300 102-1 (1990): "Integrated Services Digital Network (ISDN); User-network interface layer 3, Specifications for basic control".
- [3] ETS 300 143: "Integrated Services Digital Network (ISDN); Audiovisual Services, Inband signalling procedures for audiovisual terminals using digital channels up to 2 048 kbit/s".

- [4] ETS 300 144: "Integrated Services Digital Network (ISDN); Audiovisual Services, Frame structure for a 64 to 1 920 kbit/s channel and associated syntax for inband signalling".
- [5] CCITT Recommendation G.701 (1988): "Vocabulary of digital transmission and multiplexing, and pulse code modulation (PCM) terms".
- [6] ITU-T Recommendation P.10 (1993): "Vocabulary of terms on telephone transmission quality and telephone sets".
- [7] ITU-T Recommendation P.51 (1993): "Artificial mouth".
- [8] ITU-T Recommendation P.57 (1993): "Artificial ears".
- [9] CCITT Recommendation G.711 (1988): "Pulse Code Modulation (PCM) of voice frequencies".
- [10] CCITT Recommendation G.722 (1988): "7 kHz audio coding within 64 kbit/s".
- [11] ETS 300 267: "Integrated Services Digital Network (ISDN); Telephony 7 kHz and videotelephony teleservices, Digital Subscriber Signalling System No. one (DSS1) protocol".
- [12] CCITT Recommendation G.101 (1988): "The transmission plan".
- [13] CCITT Recommendation G.725 (1988): "System aspects for the use of the 7 kHz audio codec within 64 kbit/s".
- [14] I-ETS 300 245-2: "Integrated Services Digital Network (ISDN); Technical characteristics for telephony terminals; PCM-A law, Handset telephony".
- [15] ITU-T Recommendation P.31 (1993): "Transmission characteristics for digital telephones". <https://standards.iteh.ai/catalog/standards/sist/6866427-5b47-4a57-a774-065d76a58/sp.79s/1993-01-01/3003>
- [16] ITU-T Recommendation P.79 (1993): "Calculation of loudness ratings for telephone sets".
- [17] ISO 3 (1973): "Preferred numbers - series of preferred numbers".
- [18] ITU-T Recommendation P.64 (1993): "Determination of sensitivity/frequency characteristics of local telephone systems".
- [19] IEC Publication 651: "Sound level meters".
- [20] CCITT Recommendation G.122 (1988): "Influence of national systems on stability, talker echo, and listener echo in international connections".
- [21] IEC Publication 225: "Octave, half-octave and third-octave band filters intended for the analysis of sounds and vibrations".

### 3 Definitions and abbreviations

#### 3.1 Definitions

For the purposes of this Part of the I-ETS, the relevant definitions used in ETS 300 143 [3], ETS 300 144 [4], CCITT Recommendations G.701 [5], I.112, I.230, I.240, and ITU-T Recommendations P.10 [6], P.51 [7] and P.57 [8] apply with the following.

**Acoustic Reference Level (ARL):** The acoustic level which gives - 10 dBm<sub>0</sub> at the digital interface.