



SLOVENSKI STANDARD
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Integrated Services Digital Network (ISDN); Technical characteristics of telephony terminals; Part 2: PCM A-law handset telephony

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Foreword

This Interim European Telecommunication Standard (I-ETS) was prepared by the Terminal Equipment (TE) Technical Committee of the European Telecommunications Standards Institute (ETSI).

An ETSI standard may be given I-ETS status as it is regarded either 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, at first, to three years after which it can be converted into an European Telecommunication Standard (ETS), have its life extended for a further two years, be replaced by a new version of the I-ETS or, finally, be withdrawn.

This is the second part of an I-ETS which is currently intended to comprise eight parts.

This I-ETS specifies technical characteristics for Integrated Services Digital Network (ISDN) telephony terminals as described in the scope of this I-ETS. The characteristics are additional to type approval requirements to which the terminal equipment is subject. The additional characteristics are meant to give improved performance.

In the present version of this I-ETS the following parts are included:

Part 1: General (I-ETS 300 245-1 [1]).

Part 2: PCM A-law, handset telephony.

Part 3: PCM A-law, loudspeaking and handsfree telephony.

Part 4: Interface for additional equipment.

Part 5: Wideband (7 kHz) handset telephony.

Part 6: Wideband (7 kHz) handsfree telephony.

Part 7: Locally generated information tones.

Part 8: Terminal application of 16 kbit/s speech coding algorithms.

NOTE: Part 8 is still under study within ETSI.

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1 Scope

This Part of this Interim European Telecommunication Standard (I-ETS) specifies the technical characteristics for Pulse Code Modulation (PCM) A-law 3,1 kHz handset telephony terminals to be used at the basic access for the coincident S and T reference point of the Integrated Services Digital Network (ISDN).

This Part applies in conjunction with I-ETS 300 245-1 [1] and the characteristics specified in this Part are additional to those of I-ETS 300 245-1 [1].

The present version of this part does not cover measurements on receivers (in handsets) with low acoustic output impedance.

NOTE: The characteristics specified in this I-ETS are supplementary to the mandatory requirements given in ETS 300 085 [2].

2 Normative references

This I-ETS incorporates by dated or undated reference, provision 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 I-ETS only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referenced to applies.

- [1] I-ETS 300 245-1 (1994): "Integrated Services Digital Network (ISDN); Technical characteristics of telephony terminals, Part 1 - General".
- [2] ETS 300 085 (1990): "Integrated Services Digital Network (ISDN); 3,1 kHz telephony teleservice, Attachment requirements for handset terminals".
- [3] CCITT Recommendation P.10 (1988): "Vocabulary of terms on telephone transmission quality and telephone sets".
- [4] CCITT Recommendation G.701 (1988): "Vocabulary of digital transmission and multiplexing, and pulse code modulation (PCM) terms".
- [5] ETS 300 111 (1992): "Integrated Services Digital Network (ISDN); Telephony 3,1 kHz teleservice, Service description".
- [6] CCITT Recommendation G.122 (1988): "Influence of national systems on stability, talker echo and listener echo in international connections".
- [7] CCITT Recommendation G.711 (1988): "Pulse code modulation (PCM) of voice frequencies".
- [8] CCITT Recommendation G.101 (1988): "The transmission plan".
- [9] ITU-T Recommendation P.79 (1993): "Calculation of loudness ratings".
- [10] IEC 225: "Octave, half-octave and third-octave band filters intended for the analysis of sound and vibrations".
- [11] CCITT Recommendation P.64 (1988): "Determination of sensitivity/frequency characteristics of local telephone systems to permit calculation of their loudness ratings".
- [12] ISO 3 (1973): "Preferred numbers - Series of preferred numbers".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of this I-ETS, the relevant definitions given in CCITT Recommendations P.10 [3] and G.701 [4] apply along with the following.

Telephony 3,1 kHz teleservice: A description of the telephony 3,1 kHz teleservice is to be found in ETS 300 111 [5].

Loudspeaking telephony terminal: A handset telephony terminal using a loudspeaker associated with an amplifier as a telephone receiver. Defined in CCITT Recommendation P.10 [3].

Handsfree telephony terminal: A telephony terminal using a loudspeaker associated with an amplifier as a telephone receiver and which can be used without a handset. Defined in CCITT Recommendation P.10 [3].

Terminal Coupling Loss (TCL): The frequency dependent coupling loss between the receiving port and sending port of a terminal due to:

- acoustic coupling at the user interface;
- electrical coupling due to crosstalk in the handset cord or within the electrical circuits;
- seismic coupling through the mechanical parts of the terminal.

NOTE 1: The receiving port and the sending port of a digital voice terminal is a 0 dBr point.

NOTE 2: The coupling at the user interface will depend on the conditions of use.

Weighted Terminal Coupling Loss (TCLw): The weighted TCL using the weighting of CCITT Recommendation G.122 [6].

Digital interface: For the purposes of this I-ETS, the digital interface refers to the B-channels available at the coincident S and T reference point at an ISDN basic access.

3.2 Abbreviations

For the purposes of this I-ETS, the relevant abbreviations in CCITT Recommendations P.10 [3] and G.701 [4] apply.

ERP	Ear Reference Point, see CCITT Recommendation P.10 [3]
ETS	European Telecommunication Standard
ETSI	European Telecommunications Standards Institute
I-ETS	Interim European Telecommunication Standard
ISDN	Integrated Services Digital Network
LRGP	Loudness Rating Guard-ring Position
LSTR	Listener Side Tone Rating
MRP	Mouth Reference Point, see CCITT Recommendation P.10 [3]
PCM	Pulse Code Modulation
RLR	Receiving Loudness Rating
SLR	Sending Loudness Rating
STMR	Side Tone Masking Rating
TCL	Terminal Coupling Loss
TCLw	weighted Terminal Coupling Loss

4 Call control functions

The requirements of I-ETS 300 245-1 [1] shall be met.

5 Transmission aspects

5.1 General

Recommendations and requirements for PCM A-law terminals are given here and in ETS 300 085 [2]. When using other coding algorithms other parts of this I-ETS may apply.

5.1.1 Encoding

The default speech encoding algorithm for all telephony terminals shall be the A-law encoding at 64 kbit/s as defined in CCITT Recommendation G.711 [7]. Any other possible encoding algorithm will be additional. For some encoding algorithms recommendations are given in other parts of this I-ETS.

5.1.2 Relative level

The digital interface is defined as a 0 dBr point according to CCITT Recommendation G.101 [8].

5.1.3 Volume control

Unless stated otherwise, the requirements apply for all positions of the user-controlled receiving volume control, if provided.

5.2 Speech performance characteristics

5.2.1 Frequency response and sensitivity

The frequency responses and sensitivities shall be measured as described in ETS 300 085 [2].

5.2.1.1 Sending

Requirements for the sending sensitivity (Sending Loudness Rating (SLR)) are given in ETS 300 085 [2].

The frequency response (from Mouth Reference Point (MRP) to digital interface) shall be within the limits restricted by the fully drawn lines in figure 1.

In figure 1 a response is given which is considered to give good quality (naturalness and intelligibility).

The response is drawn on a logarithmic (frequency) - linear (dB sensitivity) scale.