



SLOVENSKI STANDARD SIST ETS 300 085 E1:2003

01-december-2003

8 [[]HJbc`ca fYy`Y`n`]bhY[f]fUb]a]`g]c]f]h]j Ua]`f]G8 B]L]E]8 U`]bg_ U]g]c]f]h]j]`h]Y]Z]b]Y`bU
' 2%_<n`E`Df]_`f]h] YbY`n]U`h]j Y`n]U]h]f]a]b]U]Y]j `dc[c]j cf_]`

Integrated Services Digital Network (ISDN); 3,1 kHz telephony teleservice; Attachment requirements for handset terminals (Candidate NET 33)

iteh STANDARD PREVIEW
(standards.iteh.ai)

Ta slovenski standard je istoveten z: **ETS 300 085 Edition 1**
<https://standards.iteh.ai/catalog/standards/sist/do78cc8c-c894-481c-bd3d-9c55669c274f/sist-ets-300-085-e1-2003>

ICS:

33.080	Digitalno omrežje z integriranimi storitvami (ISDN)	Integrated Services Digital Network (ISDN)
--------	---	--

SIST ETS 300 085 E1:2003

en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST ETS 300 085 E1:2003](#)

<https://standards.iteh.ai/catalog/standards/sist/d678cc8c-c894-48fe-bd3d-9c55669c274f/sist-ets-300-085-e1-2003>



EUROPEAN
TELECOMMUNICATION
STANDARD

ETS 300 085

December 1990

Source: ETSI TC-TE

Reference: T/TE 10-06

ICS: 33.080

Key words: Candidate NET 33, ISDN, 3,1 kHz telephony terminals

iTeh STANDARD PREVIEW
(standards.itih.ai)
Integrated Services Digital Network (ISDN);
3,1 kHz telephony teleservice
Attachment requirements for handset terminals

SIST ETS 300 085 E1:2003
http://standards.itih.ai/9c55669c274f/sist-ets-300-085-e1-2003

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

Copyright Notification: No part may be reproduced except as authorized by written permission. The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 1990. All rights reserved.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST ETS 300 085 E1:2003](https://standards.iteh.ai/catalog/standards/sist/d678cc8c-c894-48fe-bd3d-9c55669c274f/sist-ets-300-085-e1-2003)

<https://standards.iteh.ai/catalog/standards/sist/d678cc8c-c894-48fe-bd3d-9c55669c274f/sist-ets-300-085-e1-2003>

Contents

Foreword	9
1 Scope	11
2 Normative references	11
3 Definitions and abbreviations	13
3.1 Definitions	13
3.2 Abbreviations	13
4 Access channel selection	14
5 Call control functions	14
5.1 Outgoing calls	14
5.1.1 Overlap and en-bloc sending	14
5.1.2 Coding of Bearer Capability (BC) information element	14
5.1.3 Coding of High Layer Compatibility (HLC) information element	15
5.1.4 Coding of Low Layer Compatibility (LLC) information element	15
5.2 Incoming calls	16
5.2.1 Compatibility checking	16
5.2.1.1 Coding of Bearer Capability (BC) information element	17
5.2.1.2 Coding of High Layer Compatibility (HLC) information element	17
5.2.1.3 Coding of Low Layer Compatibility (LLC) information element	17
5.2.1.4 Terminal selection	17
5.2.1.4.1 Operation of the designated terminal under restricted power conditions	18
5.2.2 Incoming call indication	18
5.2.2.1 Terminal is not engaged in a telephone call	18
5.2.2.2 Terminal is busy	18
5.3 Information tones	18
5.4 Multi Frequency Push Button (MFPB) signalling	19
6 Transmission aspects	19
6.1 General	19
6.1.1 Encoding	19
6.1.2 Relative level	19
6.1.3 Volume control	19
6.2 Speech performance characteristics (Handset 3,1 kHz telephony)	19
6.2.1 Sensitivity - frequency response	19
6.2.1.1 Sending	19
6.2.1.2 Receiving	20
6.2.2 Sending and receiving loudness ratings (SLR and RLR)	20
6.2.2.1 Nominal values	20
6.2.2.2 Volume control	20
6.2.3 Sidetone	21
6.2.3.1 Talker sidetone	21
6.2.3.2 Listener sidetone	21
6.2.4 Terminal coupling loss (TCL)	21
6.2.4.1 Weighted Terminal Coupling Loss (TCLw)	21
6.2.4.2 Stability loss	21
6.2.5 Distortion	21
6.2.5.1 Sending	21

	6.2.5.1.1	Method 1 5 (Pseudo random noise stimulus)	21
	6.2.5.1.2	Method 2 (Sinusoidal test signal)	22
	6.2.5.2	Receiving	22
	6.2.5.2.1	Method 1	22
	6.2.5.2.2	Method 2	23
	6.2.5.3	Sidetone	23
6.2.6		Variation of gain with input level	23
	6.2.6.1	Sending	23
	6.2.6.2	Receiving	24
6.2.7		Out-of-band signals	24
	6.2.7.1	Discrimination against out-of-band input signals (sending) ..	24
	6.2.7.2	Spurious out-of-band (receiving).....	24
6.2.8		Noise	25
	6.2.8.1	Sending	25
	6.2.8.2	Receiving	25
	6.2.8.3	Level of sampling frequency (receiving)	25
6.2.9		Acoustic shock	25
	6.2.9.1	Continuous signal	25
	6.2.9.2	Peak signal	25
	6.2.10	Delay	25
6.3		Loudspeaking and handsfree telephony	25
6.4		Non-linear devices	26
7		Power feeding	26
	7.1	General conditions	26
	7.2	Operation under restricted power conditions	26
	7.2.1	Leakage current	26
	7.2.2	Designated terminal functions	26
	7.3	Method of designation	26
	7.4	Visibility of designation	26
		SIST ETS 300 085 E1:2003	
8		Physical modules	26
	8.1	Handset	26
	8.2	Audible alerting module	27
	8.2.1	Sound pressure level	27
	8.2.2	Alerting module control	27
	8.2.2.1	Starting	27
	8.2.2.2	Stopping	27
	8.2.3	Adjustment of loudness	28
	8.2.4	Adjustment of sound characteristics	28
9		Testing and approval methodology	28
	Annex A (normative):	Test specifications	29
	A.1	General conditions for testing	29
	A.1.1	Environment for tests	29
	A.1.2	Power supply limitations	29
	A.1.3	Test equipment interface	29
	A.1.4	Test equipment requirements	29
	A.1.4.1	Electro-acoustic equipment	29
	A.1.4.2	Test equipment for digital telephone sets	29
	A.1.4.2.1	Codec approach and specification	29
	A.1.4.2.2	Direct digital processing approach	30
	A.1.5	Alternative test methods	30
	A.1.6	Accuracy of test measurements	31
	A.1.7	Bandwidth	31
	A.2	Transmission requirements testing	31

A.2.1	Sensitivity/frequency response	31
A.2.1.1	Sending	31
A.2.1.2	Receiving	31
A.2.2	Loudness ratings	32
A.2.2.1	Sending Loudness Rating (SLR)	32
A.2.2.2	Receiving Loudness Rating (RLR)	32
A.2.3	Sidetone	32
A.2.3.1	Talker sidetone	32
A.2.3.2	Listener sidetone	33
A.2.4	Terminal coupling loss	33
A.2.4.1	Weighted terminal coupling loss	33
A.2.4.2	Stability Loss	33
A.2.5	Distortion	34
A.2.5.1	Sending	34
A.2.5.1.1	Method 1	34
A.2.5.1.2	Method 2	35
A.2.5.2	Receiving	35
A.2.5.2.1	Method 1	35
A.2.5.2.2	Method 2	35
A.2.5.3	Sidetone	35
A.2.6	Variation of gain with input level	35
A.2.6.1	Sending	35
A.2.6.2	Receiving	36
A.2.7	Out-of-band signals	36
A.2.7.1	Discrimination against out-of-band input signal	36
A.2.7.2	Spurious out-of-band signals	36
A.2.8	Noise	36
A.2.8.1	Sending	36
A.2.8.2	Receiving	36
A.2.8.3	Level of sampling frequency (receiving)	37
A.2.9	Acoustic shock	37
A.2.9.1	Continuous signal	37
A.2.10	Delay	37
A.3	Audible alerting module	38
A.3.1	Sound pressure level measurement	38
A.3.1.1	Measurement conditions	38
A.3.1.2	Measurement method	38
A.3.2	Alerting module control	39
A.3.2.1	Starting	39
A.3.2.2	Stopping	39
Annex A Appendix A (informative):	Test Report Format	40
A.A.1	Identification	40
A.A.1.1	Identification of the Document	40
A.A.1.2	Identification of the testing laboratory	40
A.A.1.3	Identification of the client	40
A.A.1.4	Identification of the test item	40
A.A.1.5	Use of subcontractors	41
A.A.2	Test conditions	41
A.A.3	Test equipment	41
A.A.4	Test results	41
A.A.4.1	Call control functions	41
A.A.4.2	Speech transmission characteristics	41
A.A.4.3	Loudspeaking or handsfree telephony	41
A.A.4.4	Power feeding	42

A.A.4.5	Physical modules.....	42
A.A.4.6	Acoustic shock.....	42
A.A.5	Summary and conclusion.....	42
Annex B (informative):	Availability of tone generation option.....	43
Annex B Appendix A:	Belgian requirements for tones locally generated by digital telephone.....	44
B.A.1	Introduction.....	44
B.A.2	Characteristics of the tones.....	44
B.A.2.1	Dial tone.....	44
B.A.2.2	Ringling tone.....	44
B.A.2.3	Busy tone.....	44
B.A.2.4	Congestion tone.....	44
Annex B Appendix B:	Finnish requirements for tones locally generated by a digital telephone.....	45
Annex B Appendix C:	French requirements for tones generated by an ISDN digital telephone.....	46
B.C.1	Introduction.....	46
B.C.2	Dial tone.....	46
B.C.2.1	En-bloc sending.....	46
B.C.2.2	Overlap sending.....	46
B.C.3	Call routing tone.....	46
B.C.4	Ring-back tone.....	47
B.C.5	Busy tone / congestion tone / hang-up tone.....	47
B.C.6	Characteristics of the tones.....	47
B.C.7	Additional option.....	47
Annex B Appendix D:	German requirements for tones locally generated by a digital telephone.....	48
B.D.1	General requirements.....	48
B.D.2	Dial tone.....	48
B.D.3	Special dial tone.....	49
B.D.4	Ringling tone.....	49
B.D.5	Busy tone.....	49
B.D.6	Congestion tone (path engaged indication).....	49
Annex B Appendix E:	Greek requirements for tones locally generated by a digital telephone.....	50
Annex B Appendix F:	Italian requirements for tones generated by an ISDN digital telephone.....	51
B.F.1	Introduction.....	51
B.F.2	Characteristics of the tones.....	51
B.F.2.1	Connection not admitted indication.....	51
B.F.2.2	Number engaged indication (Busy tone).....	51

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST ETS 300 085 E1:2003
<https://standards.iteh.ai/catalog/standards/sist/d678cc8c-c894-48fe-bd3d-9c55669c274f/sist-ets-300-085-e1-2003>

B.F.2.3	Proceed indication (Dial tone).....	51
B.F.2.4	Awaiting answer indication (Ring back tone).....	51
B.F.2.5	Call waiting tone.....	51
Annex B Appendix G:	Portuguese requirements for tones locally generated by a digital telephone	52
Annex B Appendix H:	Spanish requirements for tones generated by an ISDN telephony terminal in response to the receipt of messages on the D-channel	53
B.H.1	Introduction.....	53
B.H.2	Characteristics of the tones.....	53
B.H.2.1	Dial tone.....	53
B.H.2.2	Ringling tone.....	53
B.H.2.3	Busy tone	53
B.H.2.4	Congestion tone	53
B.H.2.5	Connexion not admitted indication (number unobtainable tone)	53
B.H.2.6	Call waiting tone.....	53
Annex B Appendix J:	Swedish requirements for tones locally generated by a digital telephone	54
Annex B Appendix K:	Swiss requirements for tones locally generated by a digital telephone	55
B.K.1	Introduction.....	55
B.K.2	Characteristics of the tones.....	55
B.K.3	Additional requirements.....	55
Annex B Appendix L:	United Kingdom (UK) requirements for tones generated by an ISDN digital telephony terminal in response to the receipt of messages on the D-channel ...	56
B.L.1	Introduction.....	56
B.L.2	Call set-up tones	56
B.L.2.1	Proceed indication (Dial tone).....	56
B.L.2.1.1	En-bloc sending.....	56
B.L.2.1.2	Overlap sending	56
B.L.2.2	Awaiting answer indication	57
B.L.3	Tones for unsuccessful calls.....	57
B.L.4	Characteristics of the tones.....	58
B.L.4.1	Connexion not admitted indication (Number unobtainable tone).....	58
B.L.4.2	Number engaged indication (Busy tone)	58
B.L.4.3	Path engaged indication (Congestion tone).....	58
B.L.4.4	Proceed indication (Dial tone).....	58
B.L.4.5	Awaiting answer indication (Ringling tone).....	58
History	59

iTech STANDARD PREVIEW
(standards.itech.ai)

[SIST ETS 300 085 E1:2003](https://standards.itech.ai/catalog/standards/sist/d678cc8c-c894-48fe-bd3d-9c55669c274f/sist-ets-300-085-e1-2003)

<https://standards.itech.ai/catalog/standards/sist/d678cc8c-c894-48fe-bd3d-9c55669c274f/sist-ets-300-085-e1-2003>

Blank page

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST ETS 300 085 E1:2003](https://standards.iteh.ai/catalog/standards/sist/d678cc8c-c894-48fe-bd3d-9c55669c274f/sist-ets-300-085-e1-2003)

<https://standards.iteh.ai/catalog/standards/sist/d678cc8c-c894-48fe-bd3d-9c55669c274f/sist-ets-300-085-e1-2003>

Foreword

This European Telecommunication Standard (ETS) was produced by the Terminal Equipment (TE) Technical Committee of the European Telecommunications Standards Institute (ETSI) and was adopted in November 1990.

Annex A to this ETS is normative but Annex A, Appendix A and Annex B are informative.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST ETS 300 085 E1:2003](https://standards.iteh.ai/catalog/standards/sist/d678cc8c-c894-48fe-bd3d-9c55669c274f/sist-ets-300-085-e1-2003)

<https://standards.iteh.ai/catalog/standards/sist/d678cc8c-c894-48fe-bd3d-9c55669c274f/sist-ets-300-085-e1-2003>

Blank page

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST ETS 300 085 E1:2003

<https://standards.iteh.ai/catalog/standards/sist/d678cc8c-c894-48fe-bd3d-9c55669c274f/sist-ets-300-085-e1-2003>

1 Scope

This standard specifies the technical characteristics (electrical, logical and acoustic) for terminal equipment for the 3,1 kHz telephony teleservice which can be connected to an ISDN basic access.

The requirements of this standard are additional to those of the standards for connection to the ISDN basic access, and of any other standards to which the terminal equipment is subject.

This standard is applicable to simple telephony terminals as well as to the telephony function of multi-function or multi-service terminals.

This standard is applicable to terminal equipment of the functional group defined as Terminal Equipment Type I (TEI) in CCITT Recommendation I.411 [10] which supports the 3,1 kHz telephony teleservice.

This standard applies to apparatus for household, office and similar general indoor use. The terminal includes all the functions necessary to provide real-time 2-way speech conversation. Where a function is indicated as optional, it need not be provided, but where such a function is provided, the terminal shall conform to the requirements and tests specified in this standard.

This standard is not applicable to:

- a) terminal equipment specially designed for the disabled (e.g., with amplification of received speech as an aid for the hard-of-hearing);
- b) terminal equipment using a radio link (e.g., cordless telephones);
- c) terminal equipment for hostile environments.

NOTE 1: This standard is applicable only to items of terminal equipment with an integral user-network interface for ISDN basic access. Where an adaptor is used, other standards may apply.

NOTE 2: In some countries, an interim ISDN service corresponding to, but not wholly compatible with, the ISDN basic access standards may be provided. For connection to such services, this standard is not applicable.

2 Normative references

This 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 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] NET 3 part 1 : "Approval Requirements for Terminal Equipment to Integrated Services Digital Network (ISDN) using ISDN Basic Access. Layers 1 and 2 Aspects." (First edition : 1988)
Part 2 : "Approval Requirements for Terminal Equipment to Integrated Services Digital Network (ISDN) using ISDN Basic Access. Layer 3 Aspects."
- [2] Draft prETS 300 012, "Integrated Services Digital Network (ISDN) ; Basic user-network interface, Layer 1 specification and test principles."
- [3] CCITT Recommendation G.101 (1988) "The transmission plan."
- [4] CCITT Recommendation G.122 (1988), "Influence of national systems on stability, talker echo, and listener echo in international connections."

- [5] CCITT Recommendation G.223 (1988), "Assumptions for the calculations of noise on hypothetical reference circuits for telephony."
- [6] CCITT Recommendation G.701 (1988), "Vocabulary of digital transmission and multiplexing, and Pulse Code Modulation (PCM) terms."
- [7] CCITT Recommendation G.711 (1988), "Pulse Code Modulation (PCM) of voice frequencies."
- [8] CCITT Recommendation G.714 (1988), "Separate performance characteristics for the send and receive sides of PCM channels applicable to 4-wire voice frequency interfaces."
- [9] CCITT Draft Recommendation I.241 (1988), "Teleservices supported by an ISDN."
- [10] CCITT Recommendation I.411 (1988) "ISDN user-network interfaces - reference configurations."
- [11] CCITT Recommendation O.131 (1988), "Specification for a quantizing distortion measuring apparatus using a pseudo-random noise stimulus."
- [12] CCITT Recommendation O.132 (1988), "Specification for a quantizing distortion measuring apparatus using a sinusoidal test signal."
- [13] CCITT Recommendation O.133 (1988), "Specification for equipment to measure the performance of PCM encoders and decoders."
- [14] CCITT Recommendation P.10 (1988), "Vocabulary of terms on telephone transmission quality and telephone sets."
- [15] CCITT Recommendation P.51 (1988), "Artificial mouths and artificial ears."
<https://standards.iteh.ai/catalog/standards/sist/d678cc8c-c894-48fe-bd3d-9c55669c2749/sist-ets-300-085-e1-2003>
- [16] CCITT Recommendation P.64 (1988), "Determination of sensitivity/frequency characteristics of local telephone systems to permit calculation of their loudness ratings."
- [17] CCITT Recommendation P.76 (1988), "Determination of loudness ratings; fundamental principles."
- [18] CCITT Recommendation P.79 (1988), "Calculation of loudness ratings."
- [19] CCITT Blue Book (1988), Volume V, Supplement 13, "Noise spectra."
- [20] IEC 318, "An artificial ear, of the wide band type, for the calibration of earphones used in audiometry."
- [21] IEC 651, "Sound level meters."
- [22] ISO 3 - 1973, "Preferred numbers - series of preferred numbers."

3 Definitions and abbreviations

3.1 Definitions

For the purposes of this ETS, the relevant definitions and abbreviations in CCITT Recommendations P.10 [14] and G.701 [6] shall apply.

Acoustic reference level (ARL): the acoustic level which gives -10 dBmO at the digital interface.

Designated terminal: refers to the terminal which is permitted to draw power from power source 1 under restricted power conditions as specified in draft prETS 300 012 [2].

Restricted Power Condition: the condition where the terminal has no other power source available than power source 1 supplying the restricted power condition as specified in draft prETS 300 012 [2].

3,1 kHz telephony teleservice: a definition for telephony service is to be found in CCITT Recommendation I.241 [9]. This definition corresponds to the term 3,1 kHz telephony teleservice used in this standard.

NOTE: Work is currently being undertaken by ETSI to produce a stage 1 description of the 3.1 kHz telephony teleservice in the ISDN.

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

- acoustical 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 depends on the conditions of use.

Weighted terminal coupling loss (TCLw) : the weighted TERMINAL COUPLING LOSS using the weighting of CCITT Recommendation G. 122 [4].

3.2 Abbreviations

ARL	Acoustic Reference Level
BC	Bearer Capability
ERP	Ear Reference Point
HLC	High Layer Compatibility
ISDN	Integrated Services Digital Network
LLC	Low Layer Compatibility
L _{meST}	Sidetone path loss
LRGP	Loudness Rating Guard-ring Position
MFPB	Multi Frequency Push Button
MRP	Mouth Reference Point
TCL	Terminal Coupling Loss
TCLw	Weighted Terminal Coupling Loss
RLR	Receiving Loudness Ratings
SLR	Sending Loudness Ratings