SLOVENSKI STANDARD
SIST ETS 300 488 E1:2003

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Terminalska oprema (TE) – Telefonija za slušno prizadete ljudi – Karakteristike telefonskih aparatov z dodatnim sprejemnim ojačevalnikom za pomoč slušno prizadetim

Terminal Equipment (TE); Telephony for hearing impaired people; Characteristics of telephone sets that provide additional receiving amplification for the benefit of the hearing impaired

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33.050.10	Telefonska oprema	Telephone equipment

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Terminal Equipment (TE); Telephony for hearing impaired people; Characteristics of telephone sets that provide additional receiving amplification for the benefit of the hearing impaired

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Foreword

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

Transposition dates	
Date of adoption of this ETS:	12 January 1996
Date of latest announcement of this ETS (doa):	30 April 1996
Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	31 October 1996
Date of withdrawal of any conflicting National Standard (dow):	31 October 1996

Introduction

This ETS specifies the requirements for telephones with receive amplification intended to aid the hearing impaired. A significant proportion of the population is disabled by varying degrees of hearing loss, often associated with a reduction of speech discrimination ability. Amplification can only replace the lost sensitivity.

The group most likely to receive the greatest benefit from the use of a telephone with additional receive amplification are those with moderate to severe hearing losses in the range of 35 dB to 80 dB.

In setting the numerical values in this ETS, consideration has been given to the fact that the sound pressure levels at the ear during a telephone conversation can be up to 30 dB above those occurring in normal face-to-face conversation (at 1 metre distance). As hearing impaired people do not necessarily have elevated thresholds of loudness discomfort, some form of output limitation will be required. Recent work has indicated that Automatic Gain Control (AGC) may provide a better means of limitation than peak clipping. In addition, it is recognized that in order to give maximum intelligibility to some hearing impaired people, the frequency response may require shaping.

Two types of application are envisaged. Firstly, where the telephone is to be used in the main by a hearing impaired person, secondly where it will be used by persons with a range of hearing acuity. In the first case it will be advantageous to maintain the receive amplification (the level of which is selected by means of a volume control set by the hearing impaired user) when the handset is replaced. In the second, it may be preferable to arrange that the additional amplification is brought into use by the operation of a latching switch that automatically resets the gain to nominal level when the handset is replaced in its rest position. The use of voice switched attenuation, perhaps 10 dB to 12 dB, may be necessary to provide protection against instability, in particular for the first case, and could also improve the discrimination against the ambient noise received through the sidetone path.

It is estimated that with the provision of additional amplification to the levels recommended below, possibly up to 80 % of hearing impaired users would benefit even when not using their hearing aids to couple to the telephone set. If a hearing aid is worn in addition and inductive coupling is also provided, then the proportion of hearing impaired users who will be able to have satisfactory telephone conversations will increase further. It is, however, pointed out that with a high gain setting selected, the sound level and/or inductive field at the earphone may be considerably higher than normally experienced by hearing aid microphones and/or inductive pick-up coils and, on short telephone connections in particular, there is a very real possibility of overloading the input stages of the hearing aid. For this reason, this ETS permits the Receiving Loudness Rating (RLR) to be adjusted to be quieter than the requirements of the relevant terminal standard.

The inclusion of additional receiving amplification does not reduce or replace existing technical standards that apply to a handset. Additional receiving amplification may be combined with other additional functionality, such as inductive coupling or additional earpieces, provided specifically for people with special needs.

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1 Scope

This ETS specifies the electro-acoustic performance characteristics of telephony terminals which are intended for direct application to the ear (e.g. traditional handsets, operators' headsets) and which provide, at the earphone, additional amplification in the receiving direction compared with the Receiving Loudness Rating (RLR) specified in the relevant terminal standard.

This ETS applies to telephony terminals that can be connected to the Public Switched Telephone Network (PSTN) or the coincident S and T reference point of the basic access of the Integrated Services Digital Network (ISDN).

Hands free or loudspeaking devices and extra amplification in sending for the benefit of people having speech impairments are outside the scope of this ETS.

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] I-ETS 300 245-2: "Integrated Services Digital Network (ISDN); Technical characteristics of telephony terminals; Part 2: PCM A-law, handset telephony".

[2] I-ETS 300 480: "Public Switched Telephone Network (PSTN); Testing specification for analogue handset telephony".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of this ETS, the following definitions apply:

additional receiving amplification: A facility provided in a terminal whereby the gain in the receiving direction from telephone line to ear may be increased (or decreased), relative to that required by the relevant terminal standard, for the purpose of enabling the user to select, within certain limits, his/her preferred receiving loudness.

relevant terminal standard: A standard which would apply if the terminal concerned did not provide additional receiving amplification for the benefit of hearing impaired users.

voice switching: A process of automatically inserting attenuation into either the send or receive path (e.g. in order to maintain stability) controlled by the receive or send signal.

3.2 Abbreviations

For the purposes of this ETS, the following abbreviations apply:

AGC	Automatic Gain Control
ERL	Echo Return Loss
ISDN	Integrated Services Digital Network
LSTR	Listener Sidetone Rating
LRGP	Loudness Rating Guardring Position
MRP	Mouth Reference point
PSTN	Public Switched Telephone Network
RLR	Receiving Loudness Rating
SLR	Sending Loudness Rating
STMR	Sidetone Masking Rating
TCLw	Weighted Terminal Coupling Loss
TE	Terminal Equipment