SLOVENSKI STANDARD
SIST EN 61252:2000

01-april-2000

Electroacoustics - Specifications for personal sound exposure meters (IEC 61252:1993)

Electroacoustics - Specifications for personal sound exposure meters

Elektroakustik - Anforderungen an Personenschallexposimeter

Electroacoustique - Spécifications des exposimètres acoustiques individuels

Ta slovenski standard je istoveten z: **EN 61252:1995**

ICS:

13.140	Vpliv hrupa na ljudi	Noise with respect to human beings
17.140.50	Elektroakustika	Electroacoustics

SIST EN 61252:2000 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61252

March 1995

ICS 17.140.50

Descriptors: Electroacoustic equipment, exposure meters, sound pressure, definitions, indicating instruments, specifications, characteristics, instrument sensitivity, marking, technical notices

English version

Electroacoustics
Specifications for personal sound exposure meters
(IEC 1252:1993)

Electroacoustique
Spécifications des exposimètres
acoustiques individuels
(CEI 1252:1993)

Elektroakustik
Anforderungen an
Personenschallexposimeter
(IEC 1252:1993)

This European Standard was approved by CENELEC on 1995-03-06. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of the International Standard IEC 1252:1993, prepared by IEC TC 29, Electroacoustics, was submitted to the formal vote and was approved by CENELEC as EN 61252 on 1995-03-06 without any modification.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 1995-12-15
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1995-12-15

Annexes designated "normative" are part of the body of the standard.
Annexes designated "informative" are given for information only.
In this standard, annex ZA is normative and annexes A and B are informative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 1252:1993 was approved by CENELEC as a European Standard without any modification.

ANNEX ZA (normative)

OTHER INTERNATIONAL PUBLICATIONS QUOTED IN THIS STANDARD WITH THE REFERENCES OF THE RELEVANT EUROPEAN PUBLICATIONS

This European Standard 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 European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

NOTE : When the international publication has been modified by CENELEC common modifications, indicated by (mod), the relevant EN/HD applies.

IEC Publication	Date	Title	EN/HD	Date
50(801)	1984	International Electrotechnical Vocabulary (IEV) - Chapter 801: Acoustics and electro-acoustics	-	-
651	1979	Sound level meters	EN 60651	1994
801-2	1984	Electromagnetic compatibility for industrial-process measurement and control equipment - Part 2: Electrostatic discharge requirements	EN 60801-2	1993
801-3	1984	Part 3: Radiated electromagnetic field requirements	HD 481.3 S1	1987
804	1985	Integrating-averaging sound level meters	EN 60804*	1994
942	1988	Sound calibrators	HD 556 S1	1991

Other publications:

ISO 266:1975 - Acoustics - Preferred frequencies for measurements

ISO 1683:1983 - Acoustics - Preferred reference quantities for acoustic levels

ISO 1999:1990 - Acoustics - Determination of occupational noise explosure and estimation of noise-induced hearing impairment

ISO 9612:199x - Acoustics - Guidelines for the measurement and assessment of exposure to noise in the working environment (in preparation)

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* EN 60804 includes A1:1989 to IEC 804

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Electroacoustique – Spécifications des exposimètres acoustiques individuels

Electroacoustics – Specifications for personal sound exposure meters

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CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTROACOUSTICS –

SPECIFICATIONS FOR PERSONAL SOUND EXPOSURE METERS

FOREWORD

1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international cooperation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.

2) The formal decisions or agreements of the IEC on technical matters, prepared by technical committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.

3) They have the form of recommendations for international use published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.

4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.

5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.

International Standard IEC 1252 has been prepared by IEC technical committee 29: Electroacoustics.

The text of this standard is based on the following documents:

DIS	Report on Voting
29(CO)162	29(CO)168

Full information on the voting for the approval of this Standard can be found in the Report on Voting indicated in the above table.

Specifications in this International Standard for personal sound exposure meters are consistent, insofar as practical, with comparable specifications in IEC 804 for integrating sound level meters. The four principal technical differences from the specifications in the 1985 issue of IEC 804 are:

a) sound exposure is measured and displayed rather than equivalent-continuous frequency-weighted sound pressure level or sound exposure level;

b) accuracy of squaring and integrating short-duration signals is specified by measurement of the sound exposure of a sequence of repeated constant-amplitude, 1 ms and 10 ms duration, 4 kHz tonebursts rather than by measurement of the response

to single 4 kHz tonebursts of varying amplitudes with durations ranging from 1 ms to 1 s, each single toneburst being accompanied by a continuous, in-phase, low-level, 4 kHz background signal;

c) specifications for a personal sound exposure meter include a limitation on the difference between the sound exposure indicated in response to positive-going and negative-going unipolar pulses; and

d) requirements are not specified for the directional response of the microphone of a personal sound exposure meter intended to be worn on a person.

This International Standard includes two informative annexes. Annex A provides a table of selected sound exposures and corresponding normalized 8-h-average sound levels. Annex B describes recommendations for tests to verify the performance of a personal sound exposure meter.

INTRODUCTION

According to this International Standard, a personal sound exposure meter is intended to measure sound exposure as the time integral of the square of the instantaneous A-frequency-weighted sound pressure. This operating principle underlies the measurement of sound exposure level according to IEC 804. It is the "equal-energy exchange rate" whereby a doubling (or halving) of the integration time of a constant sound level yields a two-fold increase (or decrease) of sound exposure. Similarly, an increase (or decrease) of 3 dB in a constant input sound level for a constant integration time yields a doubling (or halving) of the sound exposure.

Noise dose meters usually have been designed to indicate noise dose as a percentage of a legal limit. The limit and its definition vary from country to country and are subject to change. To facilitate international comparison of sound exposure records with numerical values of convenient magnitude, this International Standard specifies an instrument that indicates sound exposure in pascal-squared hours. An indication of sound exposure with a unit other than pascal-squared hours is permitted provided the manufacturer specifies a procedure for converting the indication to pascal-squared hours, for example, a display of "dose" as a fraction or a percentage of a specified sound exposure in pascal-squared hours.

The principal application for a personal sound exposure meter is the measurement of sound exposure in the vicinity of a person's head; e.g., for assessment of potential hearing impairment according to Standards such as ISO 1999. The microphone of a personal sound exposure meter may be worn on the shoulder, collar, or other location close to one ear. For many practical situations, such as in a factory where the sound-incidence angle may vary widely during the course of workday, the sound exposure indicated by an instrument worn on a person is likely to be different from that which would be measured in the absence of the person. The influence of the person wearing a personal sound exposure meter should be considered when estimating the sound exposure that would have been measured with the person absent.

ELECTROACOUSTICS –

SPECIFICATIONS FOR PERSONAL SOUND EXPOSURE METERS

1 Scope

1.1 Sound exposure is a physical measure that accounts for both the sound pressure and its duration, at a given location, through an integral-over-time of the square of instantaneous frequency-weighted sound pressure.

1.2 This International Standard is applicable to instruments for measurement of A-frequency-weighted sound exposure resulting from steady, intermittent, fluctuating, irregular, or impulsive sounds. Instruments complying with the specifications of this International Standard are intended to be worn on a person to measure sound exposure. Measurements of sound exposure in the workplace may be useful for determinations of occupational noise exposure, in accordance with ISO 1999 and ISO 9612.

1.3 This International Standard specifies acoustical and electrical performance requirements for personal sound exposure meters of one accuracy grade. The accuracy grade corresponds to that for an integrating sound level meter which complies with the Type 2 requirements of IEC 804 for an A-weighted sound pressure level range from 80 dB to 130 dB and a nominal frequency range from 63 Hz to 8 kHz.

1.4 Tolerances on deviations of an instrument's performance from specified design goals represent the performance capabilities of practical instruments. Personal sound exposure meters are required to operate within the tolerances of this International Standard over specified ranges of environmental conditions.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents listed below. Members of IEC and ISO maintain registers of currently valid normative documents.

IEC 50(801): 1984, *Advance edition of the International Electrotechnical Vocabulary, Chapter 801, Acoustics and electroacoustics*

IEC 651: 1979, *Sound level meters*

IEC 801-2: 1984, *Electromagnetic compatibility for industrial-process measurement and control equipment – Part 2: Electrostatic discharge requirements*