SLOVENSKI STANDARD
SIST EN 60942:1998

01-avgust-1998

Elektroakustika - Kalibratorji za zvokomere (IEC 60942:1997)

Electroacoustics - Sound calibrators

Elektroakustik - Schallkalibratoren

Electroacoustique - Calibreurs acoustiques

Ta slovenski standard je istoveten z: **EN 60942:1998**

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17.140.50 Elektroakustika Electroacoustics

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Electroacoustics - Sound calibrators (IEC 60942:1997)

Electroacoustique - Calibreurs acoustiques (CEI 60942:1997)

Elektroakustik - Schallkalibratoren (IEC 60942:1997)

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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.

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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

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Foreword

The text of document 29/371/FDIS, future edition 2 of IEC 60942, prepared by IEC TC 29, Electroacoustics, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60942 on 1998-01-01.

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) 1998-10-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1998-10-01

Annexes designated "normative" are part of the body of the standard.
In this standard, annexes A, B and ZA are normative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60942:1997 was approved by CENELEC as a European Standard without any modification.

Annex ZA (normative)

Normative references to international publications with their corresponding 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 (including amendments).

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

Publication	Year	Title	EN/HD	Year
IEC 60050(801)	1994	International Electrotechnical Vocabulary (IEV) - Chapter 801: Acoustics and electroacoustics	-	-
IEC 61094-1 + corr. Feb.	1992 1993	Measurement microphones Part 1: Specifications for laboratory standard microphones	EN 61094-1	1994
IEC 61094-2	1992	Part 2: Primary method for pressure calibration of laboratory standard microphones by the reciprocity technique	EN 61094-2	1993
IEC 61094-3	1995	Part 3: Primary method for free-field calibration of laboratory standard microphones by the reciprocity technique	EN 61094-3	1995
IEC 61094-4	1995	Part 4: Specifications for working standard microphones	EN 61094-4	1995
IEC 61672	- [1]	Electroacoustics - Sound level meters	-	-
ISO 266	1997	Acoustics - Preferred frequencies	-	-
ISO 14253-1	- [2]	Geometrical product specifications (GPS) Inspection by measurement of workpieces and measuring instruments Part 1: Decision rules for proving conformance or non-conformance with specifications	-	-
ISO Information Publication	1995	Guide to the expression of uncertainty in measurement ISBN 92-67-10188-9	-	-

1) To be published. This European Standard will supersede IEC 60651:1979 and its amendment 1:1993, which have been harmonized as EN 60651:1994 + A1:1994.

2) To be published.

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Electroacoustique – Calibreurs acoustiques

Electroacoustics – Sound calibrators

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTROACOUSTICS – SOUND CALIBRATORS

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 co-operation 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 express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
3) The documents produced have the form of recommendations for international use and are 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.
6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60942 has been prepared by IEC technical committee 29: Electroacoustics.

This second edition cancels and replaces the first edition published in 1988.

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

FDIS	Report on voting
29/371/FDIS	29/384/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

Annexes A and B form an integral part of this standard.

INTRODUCTION

Sound calibrators are designed to produce a known sound pressure level or levels at a specified frequency or frequencies when coupled to specified models of microphone in specified configurations, for example, with or without protective grid. In practice, the sound pressure level generated by a sound calibrator may depend on ambient parameters such as atmospheric pressure, temperature and humidity.

Sound calibrators have two principal uses:

a) in the determination of the electroacoustical pressure sensitivity of specified models of microphone in specified configurations;

b) in the checking or adjustment of the overall sensitivity of acoustical measuring devices or systems employing specified models of microphone in specified configurations.

Free-field and diffuse-field sensitivity of a microphone mounted on a sound level meter is likely to have characteristics specific to the combination. Information applicable to specific microphone configurations with specific sound level meters is given in IEC 61672.

Sound calibrators of a given class will realize their stated specifications and tolerances only if they are used carefully in accordance with the instructions given in the instruction manual and in an environment where the ambient sound level reaching the microphone is significantly lower than the sound pressure level generated by the sound calibrator.

ELECTROACOUSTICS – SOUND CALIBRATORS

1 Scope

1.1 This International Standard specifies the performance requirements for three classes of sound calibrator: class 0, class 1, and class 2 in decreasing order of accuracy under specified conditions. Class 0 calibrators are normally used in the laboratory, whilst classes 1 and 2 are considered as calibrators for field use.

1.2 The tolerances in this standard do not include the associated expanded uncertainty of measurement, due to the scarcity of reliable data, particularly for some combinations of sound calibrator and model of microphone. However, maximum permitted expanded uncertainties of measurement are quoted separately in annex A and annex B. The dependence of the expanded uncertainty both on the frequency of the sound calibrator and on the method used to calibrate the microphone used for the measurements is reflected in the maximum permitted expanded uncertainties quoted. Refinement of these maximum permitted expanded uncertainties is expected as further experience is gained and further data become available. This will eventually enable the specification tolerances and maximum permitted expanded uncertainties of measurement to be combined in the main body of the standard.

1.3 Conformance to the specifications of this standard is demonstrated only when the result of a measurement, extended by the expanded uncertainty of measurement, lies fully within the specification tolerances given in this standard extended by the expanded uncertainty of measurement.

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 indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60050(801):1994, *International Electrotechnical Vocabulary (IEV) – Chapter 801: Acoustics and electroacoustics*

IEC 61094-1:1992, *Measurement microphones – Part 1: Specifications for laboratory standard microphones*

IEC 61094-2:1992, *Measurement microphones – Part 2: Primary method for pressure calibration of laboratory standard microphones by the reciprocity technique*

IEC 61094-3:1995, *Measurement microphones – Part 3: Primary method for free-field calibration of laboratory standard microphones by the reciprocity technique*

IEC 61094-4:1995, *Measurement microphones – Part 4: Specifications for working standard microphones*

IEC 61672, *Electroacoustics – Sound level meters*[1)]

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1) To be published.

ISO 266: 1997, *Acoustics – Preferred frequencies*

ISO 14253-1,— *Geometrical product specifications (GPS) – Inspection by measurement of workpieces and measuring instruments – Part 1: Decision rules for proving conformance or non-conformance with specifications* [1)]

ISO Information Publication:1995, *ISBN 92-67-10188-9, Guide to the expression of uncertainty in measurement*

3 Definitions

For the purpose of this International Standard, the following definitions apply. Definitions for other relevant quantities are given in IEC 60050(801).

3.1
sound calibrator
device that generates a sinusoidal sound pressure of specified level and frequency when coupled to specified models of microphone in specified configurations

3.2
specified value of sound pressure level or frequency
sound pressure level or frequency specified in the instruction manual for characterizing a sound calibrator when used with a particular microphone model or configuration, valid for all sound calibrators of the same model under reference conditions

3.3
nominal frequency
a close approximation to the specified value of frequency, often rounded according to ISO 266

3.4
equivalent free-field sound pressure level
sound pressure level of a plane progressive wave having the same frequency as the sound calibrator which produces the same output voltage from a particular microphone configuration as the sound calibrator

3.5
equivalent diffuse-field sound pressure level
sound pressure level of a random incidence sound field having the same frequency as the sound calibrator which produces the same output voltage from a particular microphone configuration as the sound calibrator

3.6
principal sound pressure level
in a multi-level calibrator, a level specified in the instruction manual

3.7
principal frequency
in a multi-frequency calibrator, a frequency specified in the instruction manual

3.8
uncertainty of measurement
parameter, associated with the result of a measurement, that characterizes the dispersion of the values that could reasonably be attributed to a particular quantity subject to measurement, i.e. a measurand

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1) To be published.