SLOVENSKI STANDARD
SIST EN 61094-1:2001

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Measurement microphones - Part 1: Specifications for laboratory standard microphnes (IEC 61094-1:2000)

Measurement microphones -- Part 1: Specifications for laboratory standard microphones

Messmikrofone -- Teil 1: Anforderungen an Laboratoriums-Normalmikrofone

Microphones de mesure -- Partie 1: Spécifications des microphones étalons de laboratoire

Ta slovenski standard je istoveten z: **EN 61094-1:2000**

ICS:

17.140.50	Elektroakustika	Electroacoustics
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English version

Measurement microphones
Part 1: Specifications for laboratory standard microphones
(IEC 61094-1:2000)

Microphones de mesure
Partie 1: Spécifications des microphones étalons de laboratoire
(CEI 61094-1:2000)

Messmikrofone
Teil 1: Anforderungen an Laboratoriums-Normalmikrofone
(IEC 61094-1:2000)

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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.

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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 29/452/FDIS, future edition 2 of IEC 61094-1, prepared by IEC TC 29, Electroacoustics, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61094-1 on 2000-09-01.

This European Standard supersedes EN 61094-1:1994.

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) 2001-06-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2003-09-01

Endorsement notice

The text of the International Standard IEC 61094-1:2000 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	-	-
ASME B1.1	1989	Unified inch screw threads (UN and UNR thread form)	-	-

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Microphones de mesure –

Partie 1: Spécifications des microphones étalons de laboratoire

Measurement microphones –

Part 1: Specifications for laboratory standard microphones

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

MEASUREMENT MICROPHONES –

Part 1: Specifications for laboratory standard microphones

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 specifications, 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.
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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 61094-1 has been prepared by IEC technical committee 29: Electroacoustics.

This second edition cancels and replaces the first edition and corrigendum published in 1992. This second edition constitutes a technical revision.

The text of this standard is based on the first edition, the corrigendum and the following documents:

FDIS	Report on voting
29/452/FDIS	29/461/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.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 3.

The committee has decided that this publication remains valid until 2005. At this date, in accordance with the committee's decision, the publication will be:

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

MEASUREMENT MICROPHONES –

Part 1: Specifications for laboratory standard microphones

1 Scope

This part of IEC 61094 specifies mechanical dimensions and certain electroacoustic characteristics for condenser microphones used as laboratory standards for the realization of the unit of sound pressure and for sound pressure measurements of the highest attainable accuracy. The specifications are intended to ensure that primary calibration by the reciprocity method can be readily carried out.

This part also establishes a system for classifying laboratory standard condenser microphones into a number of types according to their dimensions and properties in order to facilitate the specification of calibration methods, the conducting of inter-laboratory comparisons involving the calibration of the same microphones in different laboratories, and the interchangeability of microphones in a given calibration system.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 61094. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However parties to agreements based on this part of IEC 61094 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

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

ASME B1.1:1989, *Unified inch screw threads (UN and UNR thread form)* [1]

3 Terms and definitions

For the purposes of this part of IEC 61094, the following definitions apply.

Remark – The underlined symbols are complex quantities.

3.1
condenser microphones
microphone that operates by variation of electrical capacitance

[IEV 801-26-13].

NOTE Only condenser microphones operating by a virtually constant charge obtained from an external polarizing voltage applied from a source of suitably high internal resistance are considered.

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1 (American Society of Mechanical Engineers) Reference is given to ASME B1.1 in the absence of an equivalent international standard.

3.2
laboratory standard microphone
condenser microphone capable of being calibrated to a very high accuracy by a primary method such as the closed coupler reciprocity method, and meeting certain severe requirements on mechanical dimensions and electroacoustical characteristics, especially with respect to stability in time and dependence on environmental conditions

3.3
open-circuit voltage
alternating voltage appearing at the electrical output terminals of a microphone as measured by the insert voltage technique when the microphone is attached to the ground shield configuration specified in 7.2 but is otherwise unloaded

Unit: volt, V

NOTE Owing to the capacitive nature of the microphone, the voltage at the electrical terminals depends on the electrical load presented by the mechanical and electrical attachment of the microphone to a preamplifier. For this reason, preamplifiers used for measuring the open-circuit voltage of a microphone should fulfill the requirements of 7.2.

3.4
pressure sensitivity of a microphone
for a sinusoidal signal of given frequency and for given environmental conditions, the quotient of the open-circuit voltage of the microphone by the sound pressure acting over the exposed surface of the diaphragm (i.e. at the acoustical terminals of the microphone), the sound pressure being uniformly applied over the surface of the diaphragm. This quotient is a complex quantity, but when phase information is of no interest the pressure sensitivity may denote its modulus only

Unit: volt per pascal, V/Pa

3.5
pressure sensitivity level of a microphone
logarithm of the ratio of the modulus of the pressure sensitivity $|\underline{M}_p|$ to a reference sensitivity. The pressure sensitivity level in decibels is 20 lg ($|\underline{M}_p| / M_r$), where the reference sensitivity M_r is 1 V/Pa

Unit: decibel, dB

3.6
free-field sensitivity of a microphone
for a sinusoidal plane progressive sound wave of given frequency, for a specified direction of incidence, and for given environmental conditions, the quotient of the open-circuit voltage of the microphone by the sound pressure that would exist at the position of the acoustic centre of the microphone in the absence of the microphone. This quotient is a complex quantity, but when phase information is of no interest, the free-field sensitivity may denote its modulus only

Unit: volt per pascal, V/Pa

NOTE 1 At frequencies sufficiently low for the disturbance of the sound field by the microphone to be negligible, the free-field sensitivity approaches the pressure sensitivity (see 6.9 for practical limitations).

NOTE 2 The position of the acoustic centre is a function of frequency.

3.7
free-field sensitivity level of a microphone
logarithm of the ratio of the modulus of the free-field sensitivity $|\underline{M}_f|$ to a reference sensitivity. The free-field sensitivity level in decibels is 20 lg ($|\underline{M}_f| / M_r$), where the reference sensitivity M_r is 1 V/Pa

Unit: decibel, dB