IEC 61094-3

Edition 2.0 2016-06

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Electroacoustics – Measurement microphones – Part 3: Primary method for free-field calibration of laboratory standard microphones by the reciprocity technique

Électroacoustique – Microphones de mesure – Partie 3: Méthode primaire pour l'étalonnage en champ libre des microphones étalons de laboratoire par la méthode de réciprocité

IEC 61094-3:2016-06(en-fr)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

ICS 17.140.50; 33.160.50

ISBN 978-2-8322-3478-5

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FOREWORD

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International Standard IEC 61094-3 has been prepared by IEC technical committee 29: Electroacoustics.

This second edition cancels and replaces the first edition published in 1995. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) a new informative annex describing the use of time-selective techniques to minimize the influence of acoustic reflections from the measurement setup;
b) provision for the calibration of microphones in driven shield configuration.

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

CDV	Report on voting
29/873/CDV	29/892A/RVC

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 2.

A list of all parts in the IEC 61094 series, published under the general title *Electroacoustics – Measurement microphones*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

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- withdrawn,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

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ELECTROACOUSTICS – MEASUREMENT MICROPHONES –

Part 3: Primary method for free-field calibration of laboratory standard microphones by the reciprocity technique

1 Scope

This part of IEC 61094

- specifies a primary method of determining the complex free-field sensitivity of laboratory standard microphones so as to establish a reproducible and accurate basis for the measurement of sound pressure under free-field conditions,
- is applicable to laboratory standard microphones meeting the requirements of IEC 61094-1,
- is intended for use by laboratories with highly experienced staff and specialized equipment.

NOTE The calibration principle described in this part of IEC 61094 is also applicable to working standard microphones, preferably used without their protection grid.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61094-1:2000, *Measurement microphones – Part 1: Specifications for laboratory standard microphones*

IEC 61094-2:2009, *Electroacoustics – Measurement microphones – Part 2: Primary method for pressure calibration of laboratory standard microphones by the reciprocity technique*

IEC TS 61094-7:2006, *Measurement microphones – Part 7: Values for the difference between free-field and pressure sensitivity levels of laboratory standard microphones*

ISO 9613-1, *Acoustics – Attenuation of sound during propagation outdoors – Part 1: Calculation of the absorption of sound by the atmosphere*

ISO/IEC Guide 98-3, *Uncertainty of measurement – Part 3: Guide to the expression of uncertainty in measurement* (GUM:1995)

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 61094-1, IEC 61094-2, ISO/IEC Guide 98-3 and the following apply.

3.1
phase
<free-field sensitivity of a microphone> phase angle between the open-circuit voltage and the sound pressure that would exist at the position of the acoustic centre of the microphone in the absence of the microphone, for a sinusoidal plane progressive wave of given frequency and direction of sound incidence, and for given environmental conditions