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

**Électroacoustique – Microphones de mesure –
Partie 2: Méthode primaire pour l'étalonnage en pression des microphones
étalons de laboratoire par la méthode de la réciprocité**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTROACOUSTICS –
MEASUREMENT MICROPHONES –**

**Part 2: Primary method for pressure calibration of laboratory
standard microphones by the reciprocity technique**

FOREWORD

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This consolidated version of the official IEC Standard and its amendment has been prepared for user convenience.

IEC 61094-2 edition 2.1 contains the second edition (2009-02) [documents 29/671/FDIS and 29/676/RVD] and its amendment 1 (2022-02) [documents 29/1108/FDIS and 29/1112/RVD].

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.

International Standard IEC 61094-2 has been prepared by IEC technical committee 29: Electroacoustics.

This second edition constitutes a technical revision.

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

- an update of Clause 6 to fulfil the requirements of ISO/IEC Guide 98-3;
- an improvement of the heat conduction theory in Annex A;
- a revision of Annex F: Physical properties of humid air.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of 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 the base publication and its amendment will remain unchanged until the stability date indicated on the IEC web site under webstore.iec.ch in the data related to the specific publication. At this date, the publication will be

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ELECTROACOUSTICS – MEASUREMENT MICROPHONES –

Part 2: Primary method for pressure calibration of laboratory standard microphones by the reciprocity technique

1 Scope

This part of International Standard IEC 61094

- is applicable to laboratory standard microphones meeting the requirements of IEC 61094-1 and other types of condenser microphone having the same mechanical dimensions;
- specifies a primary method of determining the complex pressure sensitivity so as to establish a reproducible and accurate basis for the measurement of sound pressure.

All quantities are expressed in SI units.

2 Normative references

The following referenced documents are indispensable for the application of this document. 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*

ISO/IEC Guide 98-3, *Uncertainty of measurement – Part 3: Guide to the expression of uncertainty in measurement (GUM:1995)*¹

3 Terms and definitions

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

3.1

reciprocal microphone

linear passive microphone for which the open circuit reverse and forward transfer impedances are equal in magnitude

3.2

phase angle of pressure sensitivity of a microphone

for a given frequency, the phase angle between the open-circuit voltage and a uniform sound pressure acting on the diaphragm

NOTE Phase angle is expressed in degrees or radians (° or rad).

¹ ISO/IEC Guide 98-3:2008 is published as a reissue of the Guide to the expression of uncertainty in measurement (GUM), 1995.