

|            |   |                           |
|------------|---|---------------------------|
| <b>STN</b> | <b>Meracie mikrofóny. Časť 3: Primárna metóda na voľnopolôovú kalibráciu laboratórnych normálnych mikrofónov technikou reciprocity.</b> | <b>STN<br/>EN 61094-3</b> |
|            |   | 36 8880                   |

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

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 12/16

Obsahuje: EN 61094-3:2016, IEC 61094-3:2016

Oznámením tejto normy sa od 19.07.2019 ruší  
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Úrad pre normalizáciu, metrológiu a skúšobníctvo SR, 2017  
Podľa zákona č. 264/1999 Z. z. v znení neskorších predpisov sa môžu slovenské technické normy  
rozmnožovať a rozširovať iba so súhlasom Úradu pre normalizáciu, metrológiu a skúšobníctvo SR.

**EUROPEAN STANDARD**  
**NORME EUROPÉENNE**  
**EUROPÄISCHE NORM**

**EN 61094-3**

September 2016

ICS 17.140.50; 33.160.50

Supersedes EN 61094-3:1995

English Version

**Electroacoustics - Measurement microphones - Part 3: Primary  
method for free-field calibration of laboratory standard  
microphones by the reciprocity technique  
(IEC 61094-3:2016)**

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)

Messmikrofone - Teil 3: Primärverfahren zur Freifeld-  
Kalibrierung von Laboratoriums-Normalmikrofonen nach der  
Reziprozitätsmethode  
(IEC 61094-3:2016)

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Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

## **European foreword**

The text of document 29/873/CDV, future edition 2 of IEC 61094-3, prepared by IEC TC 29, Electroacoustics, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61094-3:2016.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2017-04-19
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2019-07-19

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The text of the International Standard IEC 61094-3:2016 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 61094-8:2012

NOTE Harmonized as EN 61094-8:2012.

**Annex ZA**  
**(normative)**

**Normative references to international publications  
with their corresponding European publications**

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.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: [www.cenelec.eu](http://www.cenelec.eu).

| Publication        | Year | Title   | EN/HD      | Year |
|--------------------|------|---|------------|------|
| IEC 61094-1        | 2000 | Measurement microphones -- Part 1:<br>Specifications for laboratory standard<br>microphones   | EN 61094-1 | 2000 |
| IEC 61094-2        | 2009 | Electroacoustics - Measurement<br>microphones -- Part 2: Primary method for<br>the pressure calibration of laboratory<br>standard microphones by the reciprocity<br>technique | EN 61094-2 | 2009 |
| ISO 9613-1         | -    | Acoustics; attenuation of sound during<br>propagation outdoors; part_1: calculation of<br>the absorption of sound by the atmosphere   | -          | -    |
| IEC/TS 61094-7     | -    | Measurement microphones -- Part 7: Values -<br>for the difference between free-field and<br>pressure sensitivity levels of laboratory<br>standard microphones                 | -          | -    |
| ISO/IEC Guide 98-3 | -    | Uncertainty of measurement - Part 3: Guide -<br>to the expression of uncertainty in<br>measurement (GUM:1995)   | -          | -    |



# INTERNATIONAL STANDARD

## NORME INTERNATIONALE



**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**





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# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



**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**

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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

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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)

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