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AMERICAN NATIONAL
STANDARD

Electroacoustics – Measurement microphones - Part 5: Methods for pressure calibration of working standard microphones by comparison

(a nationally adopted international standard)

Secretariat:

Acoustical Society of America

Approved on July 12, 2021:

American National Standards Institute, Inc.

Abstract

This part of IEC 61094-5 is applicable to working standard microphones with removable protection grids meeting the requirements of IEC 61094-4 and to laboratory standard micro-phones meeting the requirements of IEC 61094-1. This part of IEC 61094 describes methods of determining the pressure sensitivity by comparison with either a laboratory standard microphone or another working standard microphone with known sensitivity in the respective frequency range.

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Contents

1	Scope	1
2	Normative references.....	1
3	Terms and definitions.....	1
4	Reference environmental conditions	2
5	Principles of pressure calibration by comparison	2
5.1	Principles	2
5.2	Measuring the output voltages of the microphones.....	3
6	Factors influencing the pressure sensitivity	4
6.1	General	4
6.2	Microphone pressure equalization mechanism	4
6.3	Polarising voltage	4
6.4	Reference shield configuration	4
6.5	Pressure distribution over the diaphragms.....	5
6.6	Dependence on environmental conditions	5
6.7	Validation	6
7	Calibration uncertainty components	6
7.1	General	6
7.2	Sensitivity of the reference microphone	6
7.3	Measurements of microphone output.....	6
7.4	Differences between the sound pressure at the test microphone and that at the reference microphone.....	6
7.5	Acoustic impedances of the microphones	7
7.6	Microphone separation distance.....	7
7.7	Microphone capacitance.....	7
7.8	Microphone configuration during calibration.....	7
7.9	Uncertainty on pressure sensitivity level	7
Annex A (informative)	Examples of couplers and jigs for simultaneous excitation.....	8
A.1	A coupler for use with WS2 microphones at frequencies up to 10 kHz	8
A.2	A jig for use with WS2 or WS3 microphones at frequencies up to 20 kHz.....	9
Annex B (informative)	Examples of couplers for sequential excitation	11
B.1	A coupler for use with LS1 microphones at frequencies up to 8 kHz.....	11
B.2	A coupler for use with WS2 microphones at frequencies up to 16 kHz	12

Annex C (informative) Determining the open-circuit sensitivity of a measurement microphone without using the insert-voltage method.....	13
Annex D (informative) Typical uncertainty analysis	15
D.1 Introduction	15
D.2 Analysis	15
D.3 Combined and expanded uncertainties	17

Tables

Table A.1 – Calculated corrections to be added to the sensitivity level of the WS3 microphone when using the arrangement in Figure A.4.....	10
Table D.1 – Example uncertainty budget.....	15

Figures

Figure A.1 – A coupler for use with WS2 microphones.....	8
Figure A.2 – A jig fitted with an LS2 and WS2 microphone.....	9
Figure A.3 – Example arrangement of LS2 and WS2 microphones in a jig.....	9
Figure A.4 – Example arrangement of LS2 and WS3 microphones in a jig.....	9
Figure B.1 – A coupler for use with LS1 microphones.....	11
Figure B.2 – A coupler for use with WS2 microphones.....	12

Foreword

This Foreword is for information only and is not a part of the American National Standard ANSI/ASA S1.15-2021/Part 5/ IEC 61094-5:2016 American National Standard Electroacoustics - Measurement microphones - Part 5: Methods for pressure calibration of working standard microphones by comparison. As such, this Foreword may contain material that has not been subjected to public review or a consensus process. In addition, it does not contain requirements necessary for conformance to the standard.

This standard is a nationally adopted international standard (NAIS). This standard comprises a part of a group of definitions, standards, and specifications for use in acoustics. It was developed and approved by Accredited Standards Committee S1 Acoustics, under its approved operating procedures. Those procedures have been accredited by the American National Standards Institute (ANSI). The Scope of Accredited Standards Committee S1 is as follows:

Standards, specifications, methods of measurement and test, and terminology in the field of physical acoustics, including architectural acoustics, electroacoustics, sonics and ultrasonics, and underwater sound, but excluding those aspects which pertain to biological safety, tolerances, and comfort.

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.

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.

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.

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.

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.

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 61094-5 has been prepared by IEC technical committee 29: Electroacoustics.

This edition cancels and replaces the first edition published in 2001. This edition constitutes a technical revision.

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

- a) details of additional components of uncertainty;
- b) revised corrections for type WS3 microphones;
- c) 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
29/870/CDV	29/887A/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.

Note that in this national adoption, the decimal sign is a comma on the line and international English spelling is used throughout.

A list of all parts in the IEC 61904 series, published under the general title *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.

The contents of the Corrigendum 1 of December 2016 have been included in this copy. At the time this Standard was submitted to Accredited Standards Committee S1, Acoustics for approval, the membership was as follows:

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Richard J. Peppin, *Vice-Chair*

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Richard L. McKinley
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Working Group S1/WG 1, Standard Microphones and their Calibration, which assisted Accredited Standards Committee S1, Acoustics, in the development of this standard, had the following membership.

Chad M. Walber, *Chair*
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Suggestions for improvements to this standard will be welcomed. They should be sent to Accredited Standards Committee S1, Acoustics, in care of the Standards Secretariat of the Acoustical Society of America, 1305 Walt Whitman Road, Suite 300, Melville, New York 11747. Telephone: + 1 (516) 576-2341; E-mail: standards@acousticalsociety.org.

American National Standard

Electroacoustics – Measurement microphones – Part 5: Methods for pressure calibration of working standard microphones by comparison (a nationally adopted international standard)

1 Scope

This part of IEC 61094-5 is applicable to working standard microphones with removable protection grids meeting the requirements of IEC 61094-4 and to laboratory standard microphones meeting the requirements of IEC 61094-1.

This part of IEC 61094 describes methods of determining the pressure sensitivity by comparison with either a laboratory standard microphone or another working standard microphone with known sensitivity in the respective frequency range.

Alternative comparison methods based on the principles described in IEC 61094-2 are possible but beyond the scope of this part of IEC 61094.

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 *Electroacoustics – Measurement microphones – Part 1: Specifications for laboratory standard microphones*

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 61094-1 and the following apply.

3.1

reference microphone

laboratory standard microphone or working standard microphone with known pressure sensitivity

3.2

test microphone

laboratory standard microphone or working standard microphone to be calibrated by comparison with a reference microphone