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AMERICAN NATIONAL STANDARD

**Electroacoustics – Octave-band and Fractional-
octave-band Filters –
Part 3: Periodic Tests
(a nationally adopted international standard)**

Secretariat:

Acoustical Society of America

Approved on July 19, 2016:

American National Standards Institute, Inc.

Abstract

This part describes procedures for periodic testing of octave-band and fractional-octave-band filters that were designed to conform to the class 1 or class 2 specifications given in ANSI/ASA S1.11-2014/Part 1/ IEC 61260-1:2014. The aim of this standard is to ensure that periodic testing is performed in a consistent manner by all laboratories.

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ANSI/ASA S1.11-2016/Part 3 /
IEC 61260-3:2016

Accredited Standards Committee S1, Acoustics

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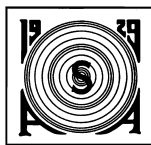
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Foreword

[This Foreword is for information only, and is not a part of the American National Standard ANSI/ASA S1.11-2016/Part 3/IEC 61260-3:2016 American National Standard Electroacoustics – Octave-band and Fractional-octave-band Filters – Part 3: Periodic Tests. 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 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.

This standard supplements ANSI/ASA S1.11-2014/Part 1/IEC 61260-1:2014 *American National Standard Electroacoustics – Octave-band and Fractional-octave-band Filters – Part 1: Specifications*.

This standard is an identical national adoption of IEC 61260-3:2016 *Electroacoustics – Octave-band and fractional-octave-band filters – Part 3: Periodic tests*, which was prepared by IEC/TC 29. However, in conformance with ANSI and IEC rules, the words “this part of ANSI/ASA S1.11/IEC 61260” replace the words “this part of IEC 61260” where they appear in the IEC document, decimal points were substituted in place of the decimal commas used in IEC documents, and American English spelling is used in place of British English spelling.

The ANSI/ASA equivalents to ISO/IEC standards referenced herein are given below:

- ANSI/ASA S1.4-2014/Part 1/IEC 61672-1:2013 American National Standard Electroacoustics – Sound Level Meters – Part 1: Specifications (a nationally adopted international standard)
- ANSI/ASA S1.11-2014/Part 1/IEC 61260-1:2014 American National Standard Electroacoustics - Octave-band and Fractional-octave-band Filters – Part 1: Specifications (a nationally adopted international standard)
- ANSI/ASA S1.11-2016/Part 2/IEC 61260-2:2016 American National Standard Electroacoustics - Octave-band and Fractional-octave-band Filters – Part 2: Pattern-evaluation Tests (a nationally adopted international standard)

At the time this Standard was submitted to Accredited Standards Committee S1, Acoustics for approval, the membership was as follows:

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A.A. Scharine, *Vice-Chair*

N. Stremmel, *Secretary*

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	P.D. Schomer	

Working Group S1/WG 5, Band Filter Sets, which assisted Accredited Standards Committee S1, Acoustics, in the development of this standard, had the following membership.

R.J. Peppin, Chair

O-H. Bjor

M. Buzduga

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: 631-390-0215; FAX: 631-923-2875; E-mail: asastds@acousticalsociety.org.

INTRODUCTION

IEC 61260:1995 and IEC 61260:1995/AMD 1:2001 are now separated into the following three parts of IEC 61260 series:

- Part 1: Specifications
- Part 2: Pattern evaluation tests
- Part 3: Periodic tests

For assessments of conformance to performance specifications, ANSI/ASA S1.11/Part 1/IEC 61260-1 uses different criteria than were used for the IEC 61260:1995 edition.

IEC 61260:1995 did not provide any requirements or recommendations to account for the uncertainty of measurement in assessments of conformance to specifications. This absence of requirements or recommendations to account for uncertainty of measurement created ambiguity in determinations of conformance to specifications for situations where a measured deviation from a design goal was close to the limit of the allowed deviation. If conformance was determined based on whether a measured deviation did or did not exceed the limits, the end-user of the octave-band and fractional-octave-band filters incurred the risk that the true deviation from a design goal exceeded the limits.

To remove this ambiguity, IEC Technical Committee 29, at its meeting in 1996, adopted a policy to account for measurement uncertainty in assessments of conformance in International Standards that it prepares.

This edition of ANSI/ASA S1.11/Part 3/IEC 61260-3 uses an amended criterion for assessing conformance to a specification. Conformance is demonstrated when (a) measured deviations from design goals do not exceed the applicable *acceptance limits* and (b) the uncertainty of measurement does not exceed the corresponding maximum-permitted uncertainty. Acceptance limits are analogous to the tolerance limits allowances for design and manufacturing implied in the IEC 61260:1995.

Actual and maximum-permitted uncertainties of measurement are determined for a coverage probability of 95 %. Unless more specific information is available, the evaluation of the contribution of a specific filter or filter set to a total measurement uncertainty can be based on the acceptance limits and maximum-permitted uncertainties specified in this standard.

American National Standard

Electroacoustics – Octave-band and Fractional-octave-band Filters – Part 3: Periodic Tests

1 Scope

1.1 This part of ANSI/ASA S1.11/IEC 61260 describes procedures for periodic testing of octave-band and fractional-octave-band filters that were designed to conform to the class 1 or class 2 specifications given in IEC 61260-1:2014. The aim of this standard is to ensure that periodic testing is performed in a consistent manner by all laboratories.

1.2 The purpose of periodic testing is to assure the user that the performance of an octave-band and fractional-octave-band filter conforms to the applicable specifications of IEC 61260-1 for a limited set of key tests and for the environmental conditions under which the tests were performed.

1.3 The extent of the tests in this standard is deliberately restricted to the minimum considered necessary for periodic tests.

1.4 Periodic tests described in this standard apply to filters for which the manufacturer claims conformance to the specifications in IEC 61260-1:2014. Periodic tests in this standard apply to filters for which the model has been, or has not been, pattern approved by an independent testing organization responsible for pattern approvals in accordance with the test procedures of IEC 61260-2.

1.5 Because of the limited extent of the periodic tests, if evidence of pattern approval is not publicly available, no general conclusion about conformance to the specifications of IEC 61260-1 can be made, even if the results of the periodic tests conform to all applicable requirements of this standard.

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 61260-1:2014, *Electroacoustics – Octave-band and fractional-octave-band filters – Part 1: Specifications*

IEC 61260-2:2016, *Electroacoustics – Octave-band and fractional-octave-band filters – Part 2: Pattern-evaluation tests*

IEC 61672-1, *Electroacoustics – Sound level meters – Part 1: Specifications*

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

ISO/IEC Guide 98-4, *Uncertainty of measurement – Part 4: Role of measurement uncertainty in conformity assessment*