

Electroacoustics - Octave-band and fractional-octave-band filters - Part 1: Specifications

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NATIONAL FOREWORD

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English Version

Electroacoustics - Octave-band and fractional-octave-band filters - Part 1: Specifications (IEC 61260-1:2014)

Electroacoustique - Filtrés de bande d'octave et de bande
d'une fraction d'octave - Partie 1: Spécifications
(CEI 61260-1:2014)

Elektroakustik - Bandfilter für Oktaven und Bruchteile von
Oktaven - Teil 1: Anforderungen
(IEC 61260-1:2014)

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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

Foreword

The text of document 29/835/FDIS, future edition 1 of IEC 61260-1, prepared by IEC/TC 29 "Electroacoustics" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61260-1:2014.

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) 2014-12-21
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2017-03-21

This document supersedes EN 61260:1995.

EN 61260-1:2014 includes the following significant technical changes with respect to EN 61260:1995:

- a) the single document in the first edition of EN 61260:1995 is in EN 61260 series separated into the three parts covering: specifications, pattern evaluation tests and periodic tests;
- b) the EN 61260:1995 specified three performance categories: classes 0, 1 and 2. The EN 61260 series specifies requirements for class 1 and 2;
- c) in the EN 61260:1995, the design goals for the specification can be based on base-2 or base 10 design. In EN 61260 series only base-10 is specified;
- d) the reference environmental conditions have been changed from 20 °C / 65 % RH to 23 °C / 50 % RH;
- e) EN 61260:1995 specified tolerance limits without considering the uncertainty of measurement for verification of the specifications. EN 61260 series specifies acceptance limits for the observed values and maximum-permitted uncertainty of measurements for laboratories testing conformance to specifications in the standard.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard IEC 61260-1:2014 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

CISPR 16-1-1:2010 NOTE Harmonised as EN 55016-1-1:2010.

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

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61000-4-2	-	Electromagnetic compatibility (EMC) -- Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test	EN 61000-4-2	-
IEC 61000-4-3	2006	Electromagnetic compatibility (EMC) -- Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test	EN 61000-4-3	2006
IEC 61000-6-1	2005	Electromagnetic compatibility (EMC) -- Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments	EN 61000-6-1	2007
IEC 61000-6-2	2005	Electromagnetic compatibility (EMC) -- Part 6-2: Generic standards - Immunity for industrial environments	EN 61000-6-2	2005
IEC 61000-6-3	2006	Electromagnetic compatibility (EMC) -- Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments	EN 61000-6-3	2007
IEC 61672-1	-	Electroacoustics - Sound level meters -- Part 1: Specifications	EN 61672-1	-
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	2012	Uncertainty of measurement -- Part 4: Role of measurement uncertainty in conformity assessment	-	-
CISPR 22 (mod)	2008	Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement	EN 55022	2010
			+AC	2011

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INTRODUCTION

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

- Part 1: Specifications
- Part 2: Pattern evaluation tests (under consideration)
- Part 3: Periodic tests (under consideration)

For assessments of conformance to performance specifications, 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 a 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 first edition of IEC 61260-1 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.

ELECTROACOUSTICS – OCTAVE-BAND AND FRACTIONAL-OCTAVE-BAND FILTERS –

Part 1: Specifications

1 Scope

1.1 This part of the IEC 61260 series specifies performance requirements for analogue, sampled-data, and digital implementations of band-pass filters. The extent of the pass-band region of a filter's relative attenuation characteristic is a constant percentage of the exact mid-band frequency for all filters of a given bandwidth. An instrument conforming to the requirements of this standard may contain any number of contiguous band-pass filters covering any desired frequency range.

1.2 Performance requirements are provided for two filter classes: class 1 and class 2. In general, specifications for class 1 and class 2 filters have the same design goals and differ mainly in the acceptance limits and the range of operational temperature. Acceptance limits for class 2 are greater than, or equal to, those for class 1. Maximum-permitted expanded uncertainties of measurement are also specified.

1.3 Performance requirements are given for designs where the octave frequency ratio and the mid-band frequencies are powers of ten.

1.4 Band-pass filters conforming to the performance requirements of this standard may be part of various measurement systems or may be an integral component of a specific instrument such as a spectrum analyser.

1.5 This standard specifies the ranges of environmental conditions for operation of the filters. The required range depends on whether the instrument containing the filters is designed to be operated in a controlled environment or more generally in the field.

1.6 Band-pass filters conforming to the requirements of this standard are capable of providing frequency-band-filtered spectral information for a wide variety of signals, for example, time-varying, intermittent or steady; broadband or discrete frequency; and long or short durations.

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 61000-4-2, *Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test*

IEC 61000-4-3:2006, *Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test*

IEC 61000-6-1:2005, *Electromagnetic compatibility (EMC) – Part 6-1: Generic standards – Immunity for residential, commercial and light-industrial environments*