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Standards

Irish Standard  
I.S. EN 61260-1:2014

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

**I.S. EN 61260-1:2014**

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

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EUROPEAN STANDARD

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NORME EUROPÉENNE

EUROPÄISCHE NORM

June 2014

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Supersedes EN 61260:1995

English Version

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

Electroacoustique - Filtres 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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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2017-03-21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

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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](http://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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**IEC 61260-1**

Edition 1.0 2014-02

# **INTERNATIONAL STANDARD**

## **NORME INTERNATIONALE**

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

**Électroacoustique – Filtres de bande d'octave et de bande d'une fraction  
d'octave –  
Partie 1: Spécifications**



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**IEC 61260-1**

Edition 1.0 2014-02

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

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

**Électroacoustique – Filtres de bande d'octave et de bande d'une fraction  
d'octave –  
Partie 1: Spécifications**

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## CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references.....	7
3 Terms and definitions .....	8
4 Reference environmental conditions.....	12
5 Performance requirements.....	12
5.1 General.....	12
5.2 Octave frequency ratio .....	13
5.3 Reference frequency .....	13
5.4 Exact mid-band frequencies .....	13
5.5 Nominal mid-band frequencies.....	13
5.6 Band-edge frequencies.....	14
5.7 Time-averaged signal levels .....	14
5.8 Filter attenuation .....	14
5.9 Reference attenuation .....	15
5.10 Relative attenuation .....	15
5.11 Normalized effective bandwidth .....	18
5.12 Effective bandwidth deviation .....	19
5.13 Linear operating range .....	19
5.14 Time-invariant operation.....	20
5.15 Anti-alias filters .....	20
5.16 Summation of output signals.....	21
5.17 Overload indicator .....	21
5.18 Filter decay time.....	21
5.19 Maximum input signal.....	21
5.20 Output terminals and terminating impedances .....	22
5.21 Power supply check .....	22
5.22 Sensitivity to various environments .....	22
5.22.1 General.....	22
5.22.2 Ambient air temperature and relative humidity .....	22
5.23 Electrostatic-discharge and electromagnetic-compatibility requirements .....	22
5.23.1 General.....	22
5.23.2 Electrostatic discharges.....	23
5.23.3 Immunity to power-frequency and radio-frequency fields .....	23
5.23.4 Emission limits .....	25
6 Instrument marking .....	25
7 Instruction manual .....	26
7.1 General.....	26
7.2 Operation.....	26
7.3 Testing.....	27
Annex A (informative) Relationship between tolerance interval, corresponding acceptance interval and the maximum-permitted uncertainty of measurement .....	28
Annex B (normative) Maximum-permitted expanded uncertainties of measurement .....	29
Annex C (informative) Examples of conformance assessment to specifications of this standard .....	30

C.1	General.....	30
C.2	Conformance criteria .....	30
C.3	Example test results .....	31
Annex D (informative) Base 2 filters .....		33
Annex E (normative) Nominal mid-band frequencies .....		34
E.1	Mid-band frequencies for octave-band and one-third-octave-band filters.....	34
E.2	Mid-band frequencies for one-half-octave-band filters .....	34
E.3	Mid-band frequencies for other bandwidths .....	34
Annex F (informative) Normalized frequencies at breakpoints of acceptance limits on minimum and maximum relative attenuation for one-third-octave-band filters.....		36
Annex G (informative) Filter response to exponentially swept sinusoidal signals.....		38
G.1	Exponential frequency sweep .....	38
G.2	Response of set of band-pass filters to a sweep.....	38
Annex H (informative) Measurement of filter decay time.....		41
H.1	General.....	41
H.2	Measurement of filter decay time .....	41
H.2.1	Instruments with the capability to measure reverberation time .....	41
H.2.2	Instruments without the capability to measure reverberation time .....	41
Bibliography .....		43
Figure 1 – Minimum and maximum limits on relative attenuation as a function of $f/f_m$ for class 1 and class 2 octave-band filters .....		17
Figure A.1 – Relationship between tolerance interval, corresponding acceptance interval and the maximum-permitted uncertainty of measurement.....		28
Figure C.1 – Examples of conformance assessment .....		32
Figure G.1 – Relation between the logarithmic frequency scale and the linear time scale due to the exponential sweep.....		40
Table 1 – Acceptance limits on relative attenuation for octave-band filters .....		15
Table 2 – Limits for radiated disturbance of class B Information Technology Equipment (ITE) at a distance of 10 m.....		25
Table 3 – Limits for conducted disturbance to the voltage of a public supply of electric power .....		25
Table B.1 – Maximum-permitted expanded uncertainties of measurement .....		29
Table C.1 – Examples of conformance assessment .....		31
Table E.1 – Mid-band frequencies for octave-band and one-third-octave-band filters in the audio range .....		35
Table F.1 – Acceptance limits on relative attenuation for one-third-octave-band filters.....		37

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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OCTAVE-BAND AND FRACTIONAL-OCTAVE-BAND FILTERS –****Part 1: Specifications****FOREWORD**

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International Standard IEC 61260-1 has been prepared by IEC technical committee 29: Electroacoustics.

This first edition of IEC 61260-1, future IEC 61260-2 and future IEC 61260-3, cancel and replace the first edition of IEC 61260 published in 1995, and Amendment 1:2001. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the IEC 61260:

- a) the single document in the first edition of IEC 61260:1995 is in IEC 61260 series separated into the three parts covering: specifications, pattern evaluation tests and periodic tests;
- b) the IEC 61260:1995 specified three performance categories: classes 0, 1 and 2. The IEC 61260 series specifies requirements for class 1 and 2;
- c) in the IEC 61260:1995, the design goals for the specification can be based on base-2 or base 10 design. In IEC 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) IEC 61260:1995 specified tolerance limits without considering the uncertainty of measurement for verification of the specifications. IEC 61260 series specifies acceptance limits for the observed values and maximum-permitted uncertainty of measurements for laboratories testing conformance to specifications in the standard.

The text of this standard is based on the following documents:

FDIS	Report on voting
29/835/FDIS	29/839/RVD

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 the parts in the IEC 61260 series, published under the general title *Electroacoustics – Octave-band and fractional-octave-band filters* 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 web site 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.

## 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*

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