
Electoacoustics - Instruments for measurement of aircraft noise - Performance requirements for systems to measure one-third-octave band sound pressure levels in noise certification of transport-category aeroplanes (IEC 61265:1995)

Electoacoustics - Instruments for measurement of aircraft noise - Performance requirements for systems to measure one-third-octave band sound pressure levels in noise certification of transport-category aeroplanes

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Elektroakustik - Geräte zur Messung von Flugzeuggeräuschen - Anforderungen an die Eigenschaften von Systemen zur Messung von Schalldruckpegeln in Terzbändern bei der Zertifizierung von Flugzeugen der Transport-Kategorie

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Electroacoustique - Instruments pour la mesure du bruit des aéronefs - Prescriptions relatives aux systèmes de mesure des niveaux de pression acoustique par tiers d'octave, pour la certification acoustique des avions de transport

Ta slovenski standard je istoveten z: EN 61265:1995

ICS:

17.140.30	Emisija hrupa transportnih sredstev	Noise emitted by means of transport
49.020	Letala in vesoljska vozila na splošno	Aircraft and space vehicles in general

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EUROPEAN STANDARD

EN 61265

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 1995

IEC/TC 29

ICS 17.140.50 49.020

Descriptors: Electroacoustics, acoustic measuring instruments, acoustic measurements, noise sound, aircraft, sound pressure, level quantity, certification, characteristics, specifications

English version

Electroacoustics
Instruments for measurement of aircraft noise
Performance requirements for systems to measure one-third-octave
band sound pressure levels in noise certification of
transport-category aeroplanes
(IEC 1265:1995)

Electroacoustique

Instruments pour la mesure du bruit des aéronefs

Prescriptions relatives aux systèmes de mesure des niveaux de pression acoustique par tiers d'octave, pour la certification acoustique des avions de transport

(CEI 1265:1995)

Elektroakustik

Geräte zur Messung von Flugzeuggeräuschen

Anforderungen an die Eigenschaften von Systemen zur Messung von Schalldruckpegeln in Terzbändern bei der Zertifizierung von Flugzeugen der Transport-Kategorie

(IEC 1265:1995)

This European Standard was approved by CENELEC on 1995-03-06. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

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 Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 29(CO)216, future edition 1 of IEC 1265, prepared by IEC TC 29, Electroacoustics, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61265 on 1995-03-06.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 1996-04-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 1996-04-01

Annexes designated "normative" are part of the body of the standard.
Annexes designated "informative" are given for information only.
In this standard, annex ZA is normative and annexes A and B are informative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 1265:1995 was approved by CENELEC as a European Standard without any modification.

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Annex ZA (normative)**Normative references to international publications
with their corresponding European publications**

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE: When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 50(801)	1994	International Electrotechnical Vocabulary (IEV) Chapter 801: Acoustics and electroacoustics	-	-
IEC 801-2	1991	Electromagnetic compatibility for industrial-process measurement and control equipment Part 2: Electrostatic discharge requirements	EN 60801-2	1993
IEC 801-3	1984	Part 3: Radiated electromagnetic field requirements	HD 481.3 S1	1987
IEC 942	1988	Sound calibrators	HD 556 S1	1991
IEC 1094-3	199x ¹⁾	Measurement microphones Part 3: Primary method for free-field calibration of laboratory standard microphones by the reciprocity technique (in preparation)	-	-
IEC 1094-4	199x ²⁾	Part 4: Specifications for working standard microphones (in preparation)	-	-
IEC 1260	199x ³⁾	Electroacoustics Octave-band and fractional-octave-band filters (in preparation)	-	-

1) Document circulated as a Draft International Standard under reference 29/294/DIS.
2) Document circulated as a Draft International Standard under reference 29/295/DIS.
3) Document circulated as a Draft International Standard under reference 29/292/DIS.

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Международная Электротехническая Комиссия

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CONTENTS

	Page
FOREWORD	5
INTRODUCTION	7
Clause	
1 Scope and object	9
2 Normative references	9
3 Definitions	11
4 Requirements	15
Annexes	
A Bibliography	25
B Methods of testing the electroacoustical performance of a measurement system	27

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTROACOUSTICS –
INSTRUMENTS FOR MEASUREMENT OF AIRCRAFT NOISE –
PERFORMANCE REQUIREMENTS FOR SYSTEMS TO MEASURE
ONE-THIRD-OCTAVE-BAND SOUND PRESSURE LEVELS IN NOISE
CERTIFICATION OF TRANSPORT-CATEGORY AEROPLANES**

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a world-wide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international cooperation 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.
- 2) The formal decisions or agreements of the IEC on technical matters, prepared by technical committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 3) They have the form of recommendations for international use published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) 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.

International Standard IEC 1265 has been prepared by IEC technical committee 29: Electroacoustics.

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

DIS	Report on voting
29(CO)216	29/289/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 International Standard cancels and replaces IEC 561 in its entirety. The present standard was prepared to incorporate improvements in instrumentation, following a request to the IEC by the International Civil Aviation Organization (ICAO) to develop specifications for digital equipment for use in aircraft noise measurement and analysis for the purpose of noise certification.

Annexes A and B are for information only.

INTRODUCTION

This International Standard provides requirements for the electroacoustical performance of instruments (that may be components of a complete system) for measurement of the sound produced by aeroplanes in flight or by an aeroplane engine installed on an outdoor test stand. Methods are also indicated by which the performance of such instruments may be tested periodically.

Measurement and data-analysis procedures for aircraft noise certification are described in Volume I of Annex 16 to the Convention on International Civil Aviation, with further guidance and descriptions of acceptable "equivalent procedures" given in the *Environmental Technical Manual* prepared by the ICAO Committee on Aviation Environmental Protection (CAEP), (see annex A). The procedures include measurement and analysis of the sound from aircraft in flight, and, in some circumstances, of the sound from static engines under test, under given operating and atmospheric conditions.

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ELECTROACOUSTICS – INSTRUMENTS FOR MEASUREMENT OF AIRCRAFT NOISE – PERFORMANCE REQUIREMENTS FOR SYSTEMS TO MEASURE ONE-THIRD-OCTAVE-BAND SOUND PRESSURE LEVELS IN NOISE CERTIFICATION OF TRANSPORT-CATEGORY AEROPLANES

1 Scope and object

This International Standard specifies requirements for the electroacoustical performance of systems of instruments used to measure sound for the purposes of aeroplane noise certification, and recommends methods by which tests may be made periodically to verify that the performance continues to comply with the requirements given within stated tolerances.

In general, a sound measurement system for this purpose comprises a combination of instruments extending from a microphone through data recording and processing devices to a suitable output. Particular measurement systems, differing in their composition, perform the necessary functions in different ways and operate on either analogue or digital principles.

The purpose of this International Standard is to ensure that different measurement systems have the same electroacoustical characteristics within the stated tolerances under specified reference environmental conditions. This standard does not provide recommendations for installation of microphones or microphone windscreens, nor requirements for measurement and analysis procedures used in aeroplane noise certification, but gives only the performance specifications for the measurement systems used to provide one-third-octave-band sound pressure levels averaged over a period of time.

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Certain of the requirements apply to the complete measurement system, including any means of recording a time waveform of the sound pressure signal to be measured prior to analysis. Other requirements apply specifically to the microphone which generates an electrical signal in response to the sound pressure received. Still further requirements apply only to the instruments used to operate on that signal in order to provide an output in the form of one-third-octave-band sound pressure levels.

The requirements of this International Standard apply to the instruments used to measure the sound produced by jet- or propeller-driven transport-category aeroplanes of maximum certificated takeoff mass over 9 000 kg, or their propulsion systems when installed on a suitable outdoor engine test stand.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 50(801): 1994, *International Electrotechnical Vocabulary (IEV) – Chapter 801: Acoustics and electroacoustics*