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Sound system equipment - Part 24: Headphones and earphones - Active acoustic noise cancelling characteristics

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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Sound system equipment - Part 24: Headphones and earphones - Active acoustic noise cancelling characteristics (IEC 60268-24:2023)

Équipements pour systèmes électroacoustiques - Partie 24: Casques et écouteurs - Caractéristiques d'annulation active du bruit acoustique (IEC 60268-24:2023)

Elektroakustische Geräte - Teil 24: Kopfhörer und Ohrhörer - Eigenschaften zur aktiven Geräuschunterdrückung (IEC 60268-24:2023)

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European foreword

The text of document 100/3880/CDV, future edition 1 of IEC 60268-24, prepared by Technical Area 20 Analogue and digital audio, of IEC technical committee 100: Audio, video and multimedia systems and equipment, was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60268-24:2024.

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) 2024-10-04
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In the official version, for Bibliography, the following notes have to be added for the standard indicated:

ISO 4869-1:2018 NOTE Approved as EN ISO 4869-1:2018 (not modified)

ISO 11904-1:2002 NOTE Approved as EN ISO 11904-1:2002 (not modified)

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 Where 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.cencenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60268-7	-	Sound system equipment - Part 7: Headphones and earphones	EN 60268-7	-
IEC 60318-4	-	Electroacoustics - Simulators of human head and ear - Part 4: Occluded-ear simulator for the measurement of earphones coupled to the ear by means of ear inserts	EN 60318-4	-
IEC 60318-7	-	Electroacoustics - Simulators of human head and ear - Part 7: Head and torso simulator for the measurement of sound sources close to the ear	EN IEC 60318-7	-
IEC 61260-1	-	Electroacoustics - Octave-band and fractional-octave-band filters - Part 1: Specifications	EN 61260-1	-
IEC 61672-1	-	Electroacoustics - Sound level meters - Part 1: Specifications	EN 61672-1	-
ISO 532-1	2017	Acoustics - Method for calculating loudness - Part 1: Zwicker method	-	-
ISO 3741	2010	Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure - Precision methods for reverberation test rooms	EN ISO 3741	2010
ANSI/ASA S12.42	2010	Methods for the Measurement of Insertion Loss of Hearing Protection Devices in Continuous or Impulsive Noise Using Microphone-in-Real-Ear or Acoustic Test Fixture Procedures	-	-
ITU-T Recommendation P.58	-	Head and torso simulator for telephonometry	-	-

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

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Sound system equipment – Part 24: Headphones and earphones – Active acoustic noise cancelling characteristics

Équipements pour systèmes électroacoustiques – Partie 24: Casques et écouteurs – Caractéristiques d'annulation active du bruit acoustique

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SOUND SYSTEM EQUIPMENT –

Part 24: Headphones and earphones – Active acoustic noise cancelling characteristics

FOREWORD

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IEC 60268-24 has been prepared by Technical Area 20 Analogue and digital audio, of IEC technical committee 100: Audio, video and multimedia systems and equipment. It is an International Standard.

The text of this International Standard is based on the following documents:

Draft	Report on voting
100/3880/CDV	100/3981/RVC

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 60268 series, published under the general title *Sound system equipment*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

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INTRODUCTION

This document specifies both methods of measurement and reporting of data for noise cancelling characteristics on active acoustic noise cancelling headphones and earphones.

Active acoustic noise cancelling headphones and earphones are commonly used to reduce the ambient acoustic noise to which the ear is exposed.

However, to date, there is no International Standard for evaluating the noise cancelling performance of active acoustic noise cancelling headphones and earphones. Manufacturers currently measuring noise cancelling performance only use proprietary methods, and the resulting metrics are neither uniform nor comparable.

This document provides measurement methods and metrics for the noise cancelling performance of active acoustic noise cancelling headphones and earphones. The resulting measured and calculated values enable comparison of performance data obtained in different locations.

SOUND SYSTEM EQUIPMENT –

Part 24: Headphones and earphones – Active acoustic noise cancelling characteristics

1 Scope

This document is applicable to active acoustic noise-cancelling headphones and earphones which have the function of reducing the noise heard by the user by the output sound from the transducer generated by the environment noise detection microphone and the noise reduction signal processing circuit.

This document specifies the terms and definitions of this type of headphones or earphones, the characteristics to be specified, and the measurement and evaluation methods.

The noise detection microphone or microphones are mounted in the body, on the surface, or on an accessory of the headphones or earphones. Signal processing circuits are analogue and digital electronic circuits.

This document does not deal with equipment intended for hearing protection.

The noise cancelling characteristic measurement methods can be applied to headphones and earphones having no active noise cancelling function.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60268-7, *Sound system equipment – Part 7: Headphones and earphones* IEC 61260-1:2014, *Electroacoustics – Octave-band and fractional-octave-band filters – Part 1: Specifications*

IEC 60318-4, *Electroacoustics – Simulators of human head and ear – Part4: Occluded-ear simulator for the measurement of earphones coupled to the ear by means of ear inserts*

IEC 60318-7, *Electroacoustics – Simulators of human head and ear – Part 7: Head and torso simulator for the measurement of air-conduction hearing aids*

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

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

ISO 532-1:2017, *Acoustics – Method for calculating loudness – Part 1: Zwicker method*

ISO 3741:2010, *Acoustics – Determination of sound power levels and sound energy levels of noise sources using sound pressure – Precision methods for reverberation test rooms*

ANSI/ASA S12.42:2010, *Methods for the Measurement of Insertion Loss of Hearing Protection Devices in Continuous or Impulsive Noise Using Microphone-in-Real-Ear or Acoustic Test Fixture Procedures*

ITU-T Recommendation P.58, *Head and torso simulator for telephonometry*