

INTERNATIONAL STANDARD

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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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IEC Secretariat
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

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CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references	7
3 Terms and definitions	8
4 Measurement method for noise cancelling characteristics.....	9
4.1 Characteristics to be specified	9
4.2 Test signals	10
4.2.1 Pink noise.....	10
4.2.2 Simulated ambient noise.....	10
4.3 Nominal environmental conditions.....	13
4.3.1 General	13
4.3.2 Test site	13
4.3.3 Background noise	13
4.4 Test equipment.....	14
4.4.1 Playback equipment for test signals.....	14
4.4.2 Acoustic test equipment.....	14
4.4.3 Analysis equipment.....	14
4.5 Test procedure for measurement of noise suppression level	15
4.5.1 Adjustment of sound pressure level of test signals.....	15
4.5.2 Sound pressure level measurement at HP-OFF condition	15
4.5.3 Sound pressure level measurement at ANC-OFF condition.....	15
4.5.4 Sound pressure level measurement at ANC-ON condition.....	15
4.6 Test procedure for measurement of noise suppression loudness.....	16
4.6.1 Adjustment of loudness of test signals.....	16
4.6.2 Loudness measurement at HP-OFF condition	16
4.6.3 Loudness measurement at ANC-OFF condition.....	16
4.6.4 Loudness measurement at ANC-ON condition	16
4.7 Reporting of data.....	16
4.7.1 Insertion loss.....	16
4.7.2 Noise suppression ratio	17
Annex A (normative) Pseudo-diffuse sound field for measurement of ANC headphones.....	18
Annex B (informative) Example of reporting of data	20
Annex C (informative) Examples of filter circuits for making simulated ambient noise	22
Annex D (informative) Procedure for real ear measurements	24
Bibliography.....	25
Figure 1 – Tolerance limit of power spectrum of simulated aircraft cabin noise	11
Figure 2 – Tolerance limit of power spectrum of simulated train compartment noise.....	12
Figure 3 – Tolerance limit of power spectrum of simulated cafeteria noise	13
Figure 4 – Example of noise-cancelling characteristic measurement system	15
Figure A.1 – Measurement reference point and sound pressure level confirmation point.....	18
Figure B.1 – Example of reporting of insertion loss performance.....	20
Figure C.1 – Example of filter circuit for making simulated aircraft cabin noise.....	22
Figure C.2 – Example of filter circuit for making simulated train compartment noise.....	23

Table 1 – Power spectrum of simulated aircraft cabin noise 10

Table 2 – Power spectrum of simulated train compartment noise 11

Table 3 – Power spectrum of simulated cafeteria noise..... 12

Table B.1 – Example of reporting of insertion loss performance 21

Table B.2 – Example of reporting of noise suppression ratio performance..... 21

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SOUND SYSTEM EQUIPMENT –

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

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

Draft	Report on voting
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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.

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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 – Part 4: 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*