Ergonomics - Accessible design - Sound pressure levels of auditory signals for consumer products (ISO 24501:2010)



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EUROPEAN STANDARD NORME EUROPÉENNE **EUROPÄISCHE NORM**

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English Version onomics - Accessible design - Sound pressure levels of repitory signals for consumer products (ISO 24501:2010) Ergonomie - Conception accessible - Niveaux de pression acoustique des signaux auditifs pour produits de Ergonomie - Zugängliche Gestaltung - Schalldruckpegel von akustischen Signalen für Konsumgüter (ISO consommation courante (ISO 24501:2010) 24501:2010) This European Standard was approved by CEN on 14 December 2010. CEN members are bound to comply with the OEN/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 EN-CENELEC Management Centre or to any CEN 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 CEN member into its or anguage and notified to the CEN-CENELEC Management Centre has the same status as the official versions. giu Alaly, L Schand ar. PM Ophier Alter Dy The The Start of the Start CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Irela, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom. EUROPEAN COMMITTEE FOR STANDARDIZATION

COMITÉ EUROPÉEN DE NORMALISATION EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN ISO 24501:2010) has been prepared by Technical Committee ISO/TC 159 "Ergonomics" in collaboration with Technical Committee CEN/TC 122 "Ergonomics" the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2011, and conflicting national standards shall be withdrawn at the latest by June 2011.

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5 Endorsement notice

The text of ISO 24501:2010 has been approved by CEN as a EN ISO 24501:2010 without any modification.

Contents

Forewo	ivord	/
Introdu	ction	/
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Symbols	2
5	Range of sound pressure levels of auditory signals	2
5.1	General	2
5.2	When not considering the masking effect of an interfering sound	3
5.2.1	General	3
5.2.2	Method using octave-band analysis or one-third-octave-band analysis	
5.3	When taking the masking effect of interfering sound into consideration	
5.3.1	Method using A-weighted sound pressure level measurement	
5.3.2	Method using octave-band analysis	
5.3.3	Method using one-third-octave-band analysis	5
Annex	A (normative) Method for measuring the sound pressure level of an auditory signal	7
Annex	B (normative) Method for measuring the sound pressure level of interfering sound11	I
Annex	C (informative) Example of the record of measurement conditions and results14	1
Annex	D (informative) Examples of measurement and range setting of the sound pressure level of auditory signals	5
Bibliog	raphy2 ⁴	1

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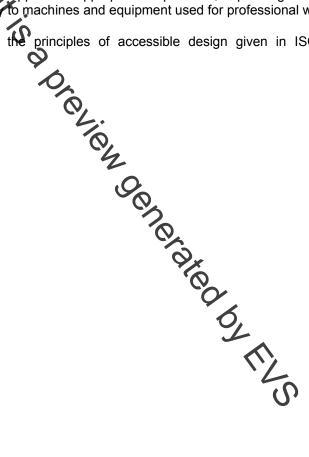
Introduction

People conduct their daily lives surrounded by various consumer products. Consumer products, as defined in ISO 20282-1, include home electrical appliances, information and telecommunication products, gas-heating equipment, toys, sanitary equipment, and health-care products, many of which use auditory signals. These auditory signals can be indistinct because of the hearing loss which occurs with ageing or because of interfering sounds in the surroundings. Also, with age, our visual ability declines gradually. Auditory signals with an appropriate sound level can assist product users with auditory or visual impairment in using the product correctly and safely.

This International Standard specifies methods for determining an appropriate sound level range of auditory signals, so that all product users, including people with age-related hearing loss, can hear them properly against interfering sound. This sound level range specification was determined, based on results of experiments in which people of all ages participated. Auditory signals whose sound pressure level is in that range are expected to be audible and comfortably loud for most users in the presence of interfering sounds.

This International Standard should be applied as appropriate to products, depending on the product type and its conditions of use. It does not apply to machines and equipment used for professional work.

This International Standard adopts the principles of accessible design given in ISO/IEC Guide 71 and amplified in ISO/TR 22411.



Ergonomics — Accessible design — Sound pressure levels of auditory signals for consumer products

1 Scope

This International Standard specifies methods for determining the sound pressure level range of auditory signals so that the users of consumer products, including people with age-related hearing loss, can hear the signal properly in the presence of interfering sounds.

Auditory signals, in this International Standard, refer to sounds with a fixed frequency (also called beep sounds) and do not include variable frequency sounds, melodic sounds, or voice guides.

This International Standard is applicable to auditory signals which are heard at an approximate maximum distance of 4 m from the product, as long as no physical barrier exists between the product and the user. It is not applicable to auditory signals heard through a head receiver or earphones, or to those heard with the ear located very near to the sound source because of the interference of the head with sound propagation.

This International Standard does not specify the sound pressure level of auditory signals regulated by other statutes, such as those for fire alarms, gas leakages and crime prevention, nor does it specify auditory signals particular to a communication tool such as telepropes.

This International Standard does not specify auditory danger signals for public or work areas which are covered in ISO 7731, ISO 8201, and ISO 11429.

2 Normative references

The following referenced standards are indispensable for the application of this document. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 24500:2010, Ergonomics — Accessible design — Auditory signation consumer products

IEC 60050-801, International electrotechnical vocabulary — Chapter 801: Acoustics and electroacoustics

IEC 61260, Electroacoustics - Octave-band and fractional-octave-band filters

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 24500 and IEC 60050-801 and the following apply.

3.1

product actuation sound

sound generated by actuation of the consumer product which incorporates the auditory signal to be designed

EXAMPLE A cooling-fan noise.