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MEETOD

Acoustics - Measurement of sound pressure level from
service equipment in buildings - Engineering method

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>See Eesti standard EVS-EN ISO 16032:2004 sisaldab Euroopa standardi EN ISO 16032:2004 ingliskeelset teksti.</p> <p>Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas</p> <p>Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 15.09.2004.</p> <p>Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.</p>	<p>This Estonian standard EVS-EN ISO 16032:2004 consists of the English text of the European standard EN ISO 16032:2004.</p> <p>This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.</p> <p>Date of Availability of the European standard is 15.09.2004.</p> <p>The standard is available from the Estonian Centre for Standardisation and Accreditation.</p>
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ICS 17.140.20; 91.140.01

English version

**Acoustics - Measurement of sound pressure level from service
equipment in buildings - Engineering method (ISO 16032:2004)**

Acoustique - Mesurage du niveau de pression acoustique
des équipements techniques dans les bâtiments - Méthode
d'expertise (ISO 16032:2004)

Akustik - Messung des Schalldruckpegels von
haustechnischen Anlagen in Gebäuden -
Standardverfahren (ISO 16032:2004)

This European Standard was approved by CEN on 16 January 2004.

CEN 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 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 own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, 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 16032:2004) has been prepared by Technical Committee CEN/TC 126 "Acoustic properties of building products and of buildings", the secretariat of which is held by AFNOR, in collaboration with Technical Committee ISO/TC 43 "Acoustics".

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 March 2005, and conflicting national standards shall be withdrawn at the latest by March 2005.

This document includes a Bibliography.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 16032 was prepared by the European Committee for Standardization (CEN) in collaboration with Technical Committee ISO/TC 43, *Acoustics*, Subcommittee SC 2, *Building acoustics*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

Throughout the text of this document, read "...this European Standard..." to mean "...this International Standard...".

Introduction

This document specifies the engineering method for the measurement of sound pressure level from service equipment in buildings. For use of this document measurements are performed under specified operation conditions and operating cycles. Such conditions are given in Annex B.

The operating conditions and operating cycles given in Annex B are only used if they are not opposed to national requirements and regulations.

1 Scope

This document specifies methods for measuring the sound pressure level from service equipment in buildings installed to building structures. This document covers specifically measurements of sanitary installations, mechanical ventilation, heating and cooling service equipment, lifts, rubbish chutes, boilers, blowers, pumps and other auxiliary service equipment, and motor driven car park doors, but can also be applied to other equipment attached to or installed in buildings.

The methods are suitable for rooms with volumes of approximately 300 m³ or less in e.g. dwellings, hotels, schools, offices and hospitals. The standard is not in general intended for measurements in large auditoria and concert halls. However, the operating conditions and operating cycles in Annex B can be used in such cases.

The service equipment sound pressure level is determined as the maximum *A*-weighted and optionally *C*-weighted sound pressure level occurring during a specified operation cycle of the service equipment under test, or as the equivalent continuous sound pressure level determined with a specified integration time. *A*-weighted and *C*-weighted values are calculated from octave-band measurements.

2 Normative references

The following referenced documents are indispensable for the application 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.

EN 60942, *Electroacoustics — Sound calibrators* (IEC 60942:2003).

EN 61260, *Electroacoustics — Octave-band and fractional-octave-band filters* (IEC 61260:1995).

EN 61672-1, *Electroacoustics - Sound level meters - Part 1: Specifications* (IEC 61672-1:2002).

EN 61672-2, *Electroacoustics - Sound level meters - Part 2: Pattern evaluation tests* (IEC 61672-2:2003).

EN ISO 3382, *Acoustics - Measurement of the reverberation time of rooms with reference to other acoustical parameters* (ISO 3382:1997).

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

sound pressure level

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ten times the logarithm to the base 10 of the ratio of the square of the sound pressure, $p^2(t)$, to the square of the reference sound pressure p_0^2 , measured with a particular time weighting and a particular frequency weighting, selected from those defined in EN 61672-1. It is expressed in decibels. The reference sound pressure is 20 µPa