SLOVENSKI STANDARD
SIST EN ISO 3382-2:2008

01-november-2008

Nadomešča:
SIST EN ISO 3382:2001

Akustika - Merjenje parametrov prostorske akustike - 2. del: Odmevni čas v običajnih prostorih (ISO 3382-2:2008)

Acoustics - Measurement of room acoustic parameters - Part 2: Reverberation time in ordinary rooms (ISO 3382-2:2008)

Akustik - Messung von Parametern der Raumakustik - Teil 2: Nachhallzeit in gewöhnlichen Räumen (ISO 3382-2:2008)

Acoustique - Mesurage des parametres acoustiques des salles - Partie 2: Durée de réverbération des salles ordinaires (ISO 3382-2:2008)

Ta slovenski standard je istoveten z: **EN ISO 3382-2:2008**

ICS:

17.140.01	Akustična merjenja in blaženje hrupa na splošno	Acoustic measurements and noise abatement in general
91.120.20	Akustika v stavbah. Zvočna izolacija	Acoustics in building. Sound insulation

SIST EN ISO 3382-2:2008 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 3382-2

June 2008

ICS 91.120.20

Supersedes EN ISO 3382:2000

English Version

Acoustics - Measurement of room acoustic parameters - Part 2: Reverberation time in ordinary rooms (ISO 3382-2:2008)

Acoustique - Mesurage des paramètres acoustiques des salles - Partie 2: Durée de réverbération des salles ordinaires (ISO 3382-2:2008)

Akustik - Messung von Parametern der Raumakustik - Teil 2: Nachhallzeit in gewöhnlichen Räumen (ISO 3382-2:2008)

This European Standard was approved by CEN on 22 May 2008.

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 CEN 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 own language and notified to the CEN Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, 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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Ref. No. EN ISO 3382-2:2008: E

Contents

Page

Foreword

This document (EN ISO 3382-2:2008) has been prepared by Technical Committee ISO/TC 43 "Acoustics" in collaboration with Technical Committee CEN/TC 126 “Acoustic properties of building elements and of buildings” the secretariat of which is held by AFNOR.

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 December 2008, and conflicting national standards shall be withdrawn at the latest by December 2008.

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

This document supersedes EN ISO 3382:2000.

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

Endorsement notice

The text of ISO 3382-2:2008 has been approved by CEN as a EN ISO 3382-2:2008 without any modification.

INTERNATIONAL STANDARD

ISO 3382-2

First edition
2008-06-15

Acoustics — Measurement of room acoustic parameters —

Part 2: Reverberation time in ordinary rooms

Acoustique — Mesurage des paramètres acoustiques des salles —

Partie 2: Durée de réverbération des salles ordinaires

Reference number
ISO 3382-2:2008(E)

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

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 3382-2 was prepared by Technical Committee ISO/TC 43, *Acoustics*, Subcommittee SC 2, *Building acoustics*.

ISO 3382-2, together with ISO 3382-1 and ISO 3382-3, cancel and replace ISO 3382:1997.

ISO 3382 consists of the following parts, under the general title *Acoustics — Measurement of room acoustic parameters*:

— *Part 1: Performance rooms*

— *Part 2: Reverberation time in ordinary rooms*

The following part is in preparation:

— *Part 3: Open plan spaces*

Introduction

This part of ISO 3382 specifies three levels of measurement accuracy: survey; engineering; and precision. The main difference concerns the number of measurement positions and thus the time required for the measurements. Annex A contains some additional information about the measurement uncertainty of the reverberation time. The introduction of the option of a survey measurement is intended to promote more frequent measurement of reverberation time in rooms where it is relevant. It is obvious that a very simple measurement is better than no measurement.

There are several reasons to measure reverberation time. First, the sound pressure level from noise sources, the intelligibility of speech, and the perception of privacy in a room are strongly dependent on reverberation time. Rooms may include domestic rooms, stairways, workshops, industrial plants, classrooms, offices, restaurants, exhibition centres, sports halls, and railway and airport terminals. Second, reverberation time is measured to determine the correction term for room absorption inherent in many acoustic measurements, such as sound insulation measurements according to ISO 140 (all parts) and sound power measurements according to ISO 3740.

In some countries, building codes specify the required reverberation times in classrooms and other categories of room. However, in the vast majority of rooms, it is left to the design team to specify and design for a reverberation time that is reasonable for the purpose of a room. This part of ISO 3382 is intended to contribute to the general understanding and acceptance of reverberation time for room quality and usability.

Two different evaluation ranges are defined in this part of ISO 3382, 20 dB and 30 dB. However, a preference has been given to the 20 dB evaluation range for several reasons:

a) the subjective evaluation of reverberation is related to the early part of the decay;

b) for the estimation of the steady-state sound level in a room from its reverberation time, it is appropriate to use the early part of the decay: and

c) the signal-to-noise ratio is often a problem in field measurements, and it is often difficult or impossible to get a evaluation range of more than 20 dB. This requires a signal-to-noise level of at least 35 dB.

The traditional measuring technique is based on visual inspection of every single decay curve. With modern measuring equipment, the decay curves are normally not displayed and this may introduce a risk that abnormal decay curves are used for the determination of the reverberation time. For this reason, Annex B introduces two new measures that quantify the degree of non-linearity and the degree of curvature of the decay curve. These measures may be used to give warnings when the decay curve is not linear, and consequently the result should be marked as less reliable and not having a unique reverberation.

The use of rotating microphones during the measurement of decay curves has been considered by the working group, and this procedure is found to be without a clear physical meaning and thus it is only accepted for the interrupted noise method and only when the result is used for a correction term.

For other reverberation time measurements, ISO 3382-1 covers auditoria and performance spaces, and ISO 354 absorption coefficient measurements in a reverberation room. Neither ISO 3382-1 nor ISO 354 is suitable for measurements in rooms like those mentioned above. Thus, this part of ISO 3382 fills a gap among measurement standards for acoustic properties of buildings.

This part of ISO 3382 does not repeat the technical details of ISO 3382-1, but deals with the measurement of reverberation time, only, in any kind of room.