

SLOVENSKI STANDARD

SIST EN ISO 3382-1:2009

01-september-2009

Nadomešča:
SIST EN ISO 3382:2001

Akustika - Merjenje akustičnih parametrov v prostorih - 1. del: Prostori za prireditve (ISO 3382-1:2009)

Acoustics - Measurement of room acoustic parameters - Part 1: Performance spaces (ISO 3382-1:2009)

iTeh STANDARD PREVIEW (standards.iteh.ai)

Acoustique - Mesurage des paramètres acoustiques des salles - Partie 1: Salles de spectacles (ISO 3382-1:2009)

[SIST EN ISO 3382-1:2009
https://standards.iteh.ai/catalog/standards/sist/f50719f-46cf-4f82-b783-ba30e2b51261/sist-en-iso-3382-1-2009](https://standards.iteh.ai/catalog/standards/sist/f50719f-46cf-4f82-b783-ba30e2b51261/sist-en-iso-3382-1-2009)

Ta slovenski standard je istoveten z: EN ISO 3382-1:2009

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 3382-1:2009

en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 3382-1:2009

<https://standards.iteh.ai/catalog/standards/sist/ff50719f-46cf-4f82-b783-ba30e2b51261/sist-en-iso-3382-1-2009>

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 3382-1

June 2009

ICS 91.120.20

Supersedes EN ISO 3382:2000

English Version

**Acoustics - Measurement of room acoustic parameters - Part 1:
Performance spaces (ISO 3382-1:2009)**

Acoustique - Mesurage des paramètres acoustiques des
salles - Partie 1: Salles de spectacles (ISO 3382-1:2009)

Akustik - Messung von raumakustischen Parametern - Teil
1: Aufführungsplätze (ISO 3382-1:2009)

This European Standard was approved by CEN on 14 June 2009.

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.

iTeh STANDARD PREVIEW
(standards.iteh.ai)
<https://standards.iteh.ai/catalog/standards/sist/f50719f-46cf-4f82-b783-ba30e2b51261/sist-en-iso-3382-1-2009>



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword.....	3
---------------	---

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN ISO 3382-1:2009](https://standards.iteh.ai/catalog/standards/sist/f50719f-46cf-4f82-b783-ba30e2b51261/sist-en-iso-3382-1-2009)

<https://standards.iteh.ai/catalog/standards/sist/f50719f-46cf-4f82-b783-ba30e2b51261/sist-en-iso-3382-1-2009>

Foreword

This document (EN ISO 3382-1:2009) 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 2009, and conflicting national standards shall be withdrawn at the latest by December 2009.

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.

iTeh STANDARD PREVIEW
(standards.iteh.ai)
Endorsement notice

The text of ISO 3382-1:2009 has been approved by CEN as a EN ISO 3382-1:2009 without any modification.

[SIST EN ISO 3382-1:2009](https://standards.iteh.ai/catalog/standards/sist/f50719f46cf4f82-b783-ba30e2b51261/sist-en-iso-3382-1-2009)
<https://standards.iteh.ai/catalog/standards/sist/f50719f46cf4f82-b783-ba30e2b51261/sist-en-iso-3382-1-2009>

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 3382-1:2009

<https://standards.iteh.ai/catalog/standards/sist/ff50719f-46cf-4f82-b783-ba30e2b51261/sist-en-iso-3382-1-2009>

INTERNATIONAL STANDARD

ISO
3382-1

First edition
2009-06-15

Acoustics — Measurement of room acoustic parameters —

Part 1: Performance spaces

Acoustique — Mesurage des paramètres acoustiques des salles —

Partie 1: Salles de spectacles

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 3382-1:2009

<https://standards.iteh.ai/catalog/standards/sist/f50719f-46cf-4f82-b783-ba30e2b51261/sist-en-iso-3382-1-2009>



Reference number
ISO 3382-1:2009(E)

© ISO 2009

ISO 3382-1:2009(E)

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN ISO 3382-1:2009

<https://standards.iteh.ai/catalog/standards/sist/f50719f-46cf-4f82-b783-ba30e2b51261/sist-en-iso-3382-1-2009>

**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2009

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

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	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Measurement conditions	3
5 Measurement procedures	6
6 Evaluation of decay curves	8
7 Measurement uncertainty	9
8 Spatial averaging	10
9 Statement of results	10
Annex A (informative) Auditorium measures derived from impulse responses	12
Annex B (informative) Binaural auditorium measures derived from impulse responses	21
Annex C (informative) Stage measures derived from impulse responses	23
Bibliography	25

[SIST EN ISO 3382-1:2009](https://standards.iteh.ai/catalog/standards/sist/f50719f46cf4f82-b783-ba30e2b51261/sist-en-iso-3382-1-2009)

<https://standards.iteh.ai/catalog/standards/sist/f50719f46cf4f82-b783-ba30e2b51261/sist-en-iso-3382-1-2009>

ISO 3382-1:2009(E)

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 3382-1 was prepared by Technical Committee ISO/TC 43, *Acoustics*, Subcommittee SC 2, *Building acoustics*.

This first edition of ISO 3382-1, together with ISO 3382-2 and ISO 3382-3, cancels and replaces ISO 3382:1997, of which it constitutes a technical revision. Annex A has been extended with information on JND (just noticeable difference), recommended frequency averaging and by the addition of a new parameter for LEV (listener envelopment). A new Annex C has been added with parameters for the acoustic conditions on the orchestra platform.

<https://standards.iteh.ai/catalog/standards/sist/f50719f-46cf-4f82-b783-ba30e2b51261/sist-en-iso-3382-1-2009>

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

- *Part 1: Performance spaces*
- *Part 2: Reverberation time in ordinary rooms*

Open plan spaces are to form the subject of a future part 3.

Introduction

The reverberation time of a room was once regarded as the predominant indicator of its acoustical properties. While reverberation time continues to be regarded as a significant parameter, there is reasonable agreement that other types of measurements, such as relative sound pressure levels, early/late energy ratios, lateral energy fractions, interaural cross-correlation functions and background noise levels, are needed for a more complete evaluation of the acoustical quality of rooms.

This part of ISO 3382 establishes a method for obtaining reverberation times from impulse responses and from interrupted noise. The annexes introduce the concepts and details of measurement procedures for some of the newer measures, but these do not constitute a part of the formal specifications of this part of ISO 3382. The intention is to make it possible to compare reverberation time measurements with higher certainty and to promote the use of and consensus in measurement of the newer measures.

Annex A presents measures based on squared impulse responses: a further measure of reverberation (early decay time) and measures of relative sound levels, early/late energy fractions and lateral energy fractions in auditoria. Within these categories, there is still work to be done in determining which measures are the most suitable to standardize upon; however, since they are all derivable from impulse responses, it is appropriate to introduce the impulse response as the basis for standard measurements. Annex B introduces binaural measurements and the head and torso simulators (dummy heads) required to make binaural measurements in auditoria. Annex C introduces the support measures that have been found useful for evaluating the acoustic conditions from the musicians' point of view.

(standards.iteh.ai)

[SIST EN ISO 3382-1:2009](https://standards.iteh.ai/catalog/standards/sist/f50719f46cf4f82-b783-ba30e2b51261/sist-en-iso-3382-1-2009)

<https://standards.iteh.ai/catalog/standards/sist/f50719f46cf4f82-b783-ba30e2b51261/sist-en-iso-3382-1-2009>

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 3382-1:2009

<https://standards.iteh.ai/catalog/standards/sist/ff50719f-46cf-4f82-b783-ba30e2b51261/sist-en-iso-3382-1-2009>