Irish Standard
I.S. EN ISO 15186-3:2010

Acoustics - Measurement of sound insulation in buildings and of building elements using sound intensity - Part 3: Laboratory measurements at low frequencies (ISO 15186-3:2002)

I.S. EN ISO 15186-3:2010

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EUROPEAN STANDARD

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English Version

Acoustics - Measurement of sound insulation in buildings and of building elements using sound intensity - Part 3: Laboratory measurements at low frequencies (ISO 15186-3:2002)

Acoustique - Mesurage par intensité de l'isolation acoustique des immeubles et des éléments de construction - Partie 3: Mesurages en laboratoire à de basses fréquences (ISO 15186-3:2002)

Akustik - Bestimmung der Schalldämmung in Gebäuden und von Bauteilen aus Schallintensitätsmessungen - Teil 3: Messungen bei niedrigen Frequenzen im Prüfstand (ISO 15186-3:2002)

This European Standard was approved by CEN on 5 August 2010.

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

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Foreword

The text of ISO 15186-3:2002 has been prepared by Technical Committee ISO/TC 43 “Acoustics” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 15186-3:2010 by 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of an identical text or by endorsement, at the latest by March 2011, and conflicting national standards shall be withdrawn at the latest by March 2011.

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.

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Endorsement notice

The text of ISO 15186-3:2002 has been approved by CEN as a EN ISO 15186-3:2010 without any modification.

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I.S. EN ISO 15186-3:2010

INTERNATIONAL STANDARD

ISO 15186-3

First edition
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Acoustics — Measurement of sound insulation in buildings and of building elements using sound intensity —

Part 3: Laboratory measurements at low frequencies

Acoustique — Mesurage par intensité de l'isolation acoustique des immeubles et des éléments de construction —

Partie 3: Mesurages en laboratoire à de basses fréquences

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Annexes

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 3.

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 part of ISO 15186 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 15186-3 was prepared by Technical Committee ISO/TC 43, *Acoustics*, Subcommittee SC 2, *Building acoustics*.

ISO 15186 consists of the following parts, under the general title *Acoustics — Measurement of sound insulation in buildings and of building elements using sound intensity*:

— *Part 1: Laboratory measurements*

— *Part 2: In-situ conditions*

— *Part 3: Laboratory measurements at low frequencies*

Annex A forms a normative part of this part of ISO 15186. Annex B is for information only.

Acoustics — Measurement of sound insulation in buildings and of building elements using sound intensity —

Part 3: Laboratory measurements at low frequencies

1 Scope

1.1 General

This part of ISO 15186 specifies a sound intensity method to determine the sound reduction index and the element-normalized level difference of building elements at low frequencies. This method has significantly better reproducibility in a typical test facility than those of ISO 140-3, ISO 140-10 and ISO 15186-1. The results are more independent of the room dimensions of the laboratory and closer to values that would be measured between rooms of volume greater than 300 m^3. This part of ISO 15186 is applicable in the frequency range 50 Hz to 160 Hz but is mainly intended for the frequency range 50 Hz to 80 Hz.

NOTE For elements faced with thick, porous absorbers, the recommended frequency range is 50 Hz to 80 Hz.

The main differences between the methods of ISO 15186-1 and ISO 15186-3 are that in ISO 15186-3

a) the sound pressure level of the source room is measured close to the surface of the test specimen, and

b) the surface opposite the test specimen in the receiving room is highly absorbing and converts the room acoustically into a duct with several propagating cross-modes above the lowest cut-on frequency.

The results found by the method of ISO 15186-3 can be combined with those of ISO 140-3 and ISO 15186-1 to produce data in the frequency range 50 Hz to 5 000 Hz.

1.2 Precision

The reproducibility of this intensity method is, for all frequencies, estimated to be equal to or better than that found with the method of ISO 140-3 at 100 Hz.

Some comparisons of data obtained with the methods of this part of ISO 15186 and ISO 140-3 are given in annex B.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 15186. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 15186 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 140-1, *Acoustics — Measurement of sound insulation in buildings and of building elements — Part 1: Requirements for laboratory test facilities with suppressed flanking transmission*

ISO 140-3:1995, *Acoustics — Measurement of sound insulation in buildings and of building elements — Part 3: Laboratory measurements of airborne sound insulation of building elements*