

**Akustika. Heliisolatsiooni mõõtmine
hoonetes ja hooneosadel. Osa 2:
Täpsete andmete määramine,
kontrollimine ja kasutamine**

Acoustics - Measurement of sound insulation in
buildings and of building elements - Part 2:
Determination, verification and application of
precision data

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 20140-2:1999 sisaldab Euroopa standardi EN 20140-2:1993 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 23.11.1999 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 20140-2:1999 consists of the English text of the European standard EN 20140-2:1993.</p> <p>This document is endorsed on 23.11.1999 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p>Käsitlusala: Standardi EN 20140 see osa määrab kindlaks juhuslikest ja püsimojudest tingitud akustiliste mõõtmiste määramatuse hindamise viisid, mida on kirjeldatud standardites ISO 140-3 kuni ISO 140-9.</p>	<p>Scope:</p>
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Võtmesõnad: akustika, akustilised katsed, akustilised mõõtmised, andmed, heliisolatsioon, hooned, konstruktsiooniosad, täpsus

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English version

Measurement of sound insulation in buildings
and of building elements

Part 2: Determination, verification and application of precision data
(ISO 140-2 : 1991)

Acoustique; mesurage de l'isolation
acoustique des immeubles et des élé-
ments de construction. Partie 2: Déter-
mination, vérification et application des
données de fidélité (ISO 140-2 : 1991)

Akustik; Messung der Schalldämmung in
Gebäuden und von Bauteilen.
Teil 2: Angaben von Genauigkeitsanfor-
derungen (ISO 140-2 : 1991)

This European Standard was approved by CEN on 1993-02-12 and is identical to the ISO Standard as referred to.

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.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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Foreword

In 1992, CEN/BT decided to submit International Standard

ISO 140-2 : 1991 Acoustics; measurement of sound insulation in buildings and of building elements; determination, verification and application of precision data

to Formal Vote. The result was positive.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, and conflicting national standards withdrawn, by September 1993 at the latest.

In accordance with the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard:

Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

Endorsement notice

The text of the International Standard ISO 140-2 : 1991 was approved by CEN as a European Standard without any modification.

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Introduction

It is not possible to specify completely the construction of laboratory test facilities or the sound field conditions obtained. Therefore some details of the test facilities and procedures in ISO 140-3 to ISO 140-9 are left to the choice of the operator. This, together with the statistical character of sound fields within rooms, leads to uncertainties in the results due to non-systematic (random) and systematic influences.

Random influences can be determined by repeated independent measurements under essentially similar conditions.

Systematic influences (for example, size and shape of test rooms, mounting conditions of the test specimen, calibration of measuring equipment) cannot be determined by a simple procedure. Generally, comparison measurements in different test facilities and knowledge of the random uncertainties under these conditions are necessary in order to assess the systematic influences.

In agreement with modern statistical methods, the concepts of repeatability and reproducibility obtained from complete test results are used in this part of ISO 140, rather than variances of the individual quantities that make up the test result. Repeatability values and reproducibility values offer a simple means of stating the precision of a test method and of measurements carried out according to the test method.

The repeatability and reproducibility are two extremes, the first measuring the minimum and the second the maximum variability in test results. Other intermediate measures of variability between these two extremes are conceivable, such as repetition of tests within a laboratory over longer time intervals, or by different operators, or including the effects of recalibration, but these are not considered in this part of ISO 140.

If, in a particular situation, some intermediate measure should be needed, it must be clearly defined, together with the circumstances under which it applies and the method by which it should be determined.

1 Scope

This part of ISO 140 specifies procedures for assessing the uncertainty in the acoustical measurements described in ISO 140-3 to ISO 140-9 due to random and systematic influences.

It gives guidelines for

- determination of the repeatability value r and the reproducibility value R ;
- verification of repeatability values r and reproducibility values R for different measurement arrangements in one laboratory and for comparisons between different laboratories;
- application of repeatability values r and reproducibility values R in practice.

Tentative repeatability values and reproducibility values of the test methods according to ISO 140-3, ISO 140-4 and ISO 140-6 to ISO 140-8 are given in annex A.

NOTE 1 At present no data are available for ISO 140-5 and ISO 140-9.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 140. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 140 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 140-3:1978, *Acoustics — Measurement of sound insulation in buildings and of building elements — Part 3: Laboratory measurements of airborne sound insulation of building elements.*

ISO 140-4:1978, *Acoustics — Measurement of sound insulation in buildings and of building elements — Part 4: Field measurements of airborne sound insulation between rooms.*

ISO 140-5:1978, *Acoustics — Measurement of sound insulation in buildings and of building elements — Part 5: Field measurements of airborne sound insulation of facade elements and facades.*

ISO 140-6:1978, *Acoustics — Measurement of sound insulation in buildings and of building elements — Part 6: Laboratory measurements of impact sound insulation of floors.*

ISO 140-7:1978, *Acoustics — Measurement of sound insulation in buildings and of building elements — Part 7: Field measurements of impact sound insulation of floors.*

ISO 140-8:1978, *Acoustics — Measurement of sound insulation in buildings and of building elements — Part 8: Laboratory measurements of the reduction of transmitted impact noise by floor coverings on a standard floor.*

ISO 140-9:1985, *Acoustics — Measurements of sound insulation in buildings and of building elements — Part 9: Laboratory measurement of room-to-room airborne sound insulation of a suspended ceiling with a plenum above it.*

ISO 717-1:1982, *Acoustics — Rating of sound insulation in buildings and of building elements —*