INTERNATIONAL STANDARD

**ISO 10848-3**

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# Acoustics — Laboratory measurement of the flanking transmission of airborne and impact sound between adjoining rooms —

## Part 3: Application to light elements when the junction has a substantial influence

*Acoustique — Mesurage en laboratoire des transmissions latérales du bruit aérien et des bruits de choc entre des pièces adjacentes —*

*Partie 3: Application aux éléments légers lorsque la jonction a une influence importante*

Reference number
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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 10848-3 was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 126, *Acoustic properties of building elements and of buildings*, 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).

ISO 10848 consists of the following parts, under the general title *Acoustics — Laboratory measurement of the flanking transmission of airborne and impact sound between adjoining rooms*:

— *Part 1: Frame document*

— *Part 2: Application to light elements when the junction has a small influence*

— *Part 3: Application to light elements when the junction has a substantial influence*

The following part is under preparation:

— Part 4: *Application to all other cases*

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# Acoustics — Laboratory measurement of the flanking transmission of airborne and impact sound between adjoining rooms —

## Part 3: Application to light elements when the junction has a substantial influence

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## 1 Scope

ISO 10848 specifies measurement methods to be performed in a laboratory test facility in order to characterize the flanking transmission of one or several building components.

The measured quantities can be used to compare different products, or to express a requirement, or as input data for prediction methods, such as EN 12354-1 and EN 12354-2.

This part of ISO 10848 is specifically referred to in ISO 10848-1:2006, 4.4, as being a supporting part to the frame document.

This part of ISO 10848 applies to structurally connected light elements forming a T or X junction. A light element is defined in ISO 10848-1:2006, Clause 3.

The relevant quantity to be measured is selected according to ISO 10848-1:2006, 4.4. The performance of the building components is expressed either as an overall quantity for the combination of elements and junction (such as $D_{n,f}$ and/or $L_{n,f}$) or as the vibration reduction index $K_{ij}$ of a junction. $D_{n,f}$ and $L_{n,f}$ depend on the actual dimensions of the elements, while $K_{ij}$ is in principle an invariant quantity.

For general application of the test results, $D_{n,f}$ and $L_{n,f}$ are the relevant quantities to measure for lightweight, well-damped types of elements (for example, timber or metal framed stud walls or wooden floors on beams), where the actual situation has no real influence on the sound reduction index and damping of the elements. If the acoustical properties of the elements are substantially influenced by the actual situation, $K_{ij}$ is the relevant quantity to measure.

## 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.

ISO 140-2, *Acoustics — Measurement of sound insulation in buildings and of building elements — Part 2: Determination, verification and application of precision data*

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*

ISO 140-6:1998, *Acoustics — Measurement of sound insulation in buildings and of building elements — Part 6: Laboratory measurements of impact sound insulation of floors*

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

ISO 717-2, *Acoustics — Rating of sound insulation in buildings and of building elements — Part 2: Impact sound insulation*

ISO 10848-1:2006, *Acoustics — Laboratory measurement of the flanking transmission of airborne and impact sound between adjoining rooms — Part 1: Frame document*

## 3 Terms and definitions

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

**3.1**
**normalized flanking level difference**
$D_{n,f}$
difference in the space and time average sound pressure level produced in two rooms by one or more sound sources in one of them, when the transmission only occurs through a specified flanking path

NOTE $D_{n,f}$ is normalized to an equivalent sound absorption area ($A_0$) in the receiving room and expressed, in decibels:

$$D_{n,f} = L_1 - L_2 - 10 \lg \frac{A}{A_0} \text{ dB} \quad (1)$$

where

$L_1$ is the average sound pressure level in the source room, in decibels;

$L_2$ is the average sound pressure level in the receiving room, in decibels;

$A$ is the equivalent sound absorption area in the receiving room, in square metres;

$A_0$ is the reference equivalent sound absorption area, in square metres; $A_0$ = 10 m$^2$.

[ISO 10848-1:2006]

**3.2**
**normalized flanking impact sound pressure level**
$L_{n,f}$
space and time average sound pressure level in the receiving room produced by a standard tapping machine operating at different positions on a tested floor in the source room, when the transmission only occurs through a specified flanking path

NOTE $L_{n,f}$ is normalized to an equivalent sound absorption area ($A_0$) in the receiving room and is expressed in decibels:

$$L_{n,f} = L_2 + 10 \lg \frac{A}{A_0} \text{ dB} \quad (2)$$

where

$L_2$ is the average sound pressure level in the receiving room, in decibels;

$A$ is the equivalent sound absorption area in the receiving room, in square metres;

$A_0$ is the reference equivalent sound absorption area, in square metres; $A_0$ = 10 m$^2$.

[ISO 10848-1:2006]

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