

ICS 91.120.30



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 19889.1-2026

**Acoustics-Field measurement of sound insulation in buildings
and of building elements-Part 1: Airborne sound insulation
between rooms**

声学 建筑和建筑构件隔声的现场测量 第1部分：房间之间空气声隔声

(English Translation)

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Foreword

GB/T 19889 Acoustics - Measurement of Sound Insulation in Buildings and of Building Elements consists of the following parts:

- Part 1: Requirements of laboratory test facilities with suppressed flanking transmission;
- Part 2: Determination, verification and application of precision data;
- Part 3: Laboratory measurements of airborne sound insulation of building elements;
- Part 4: Field measurements of airborne sound insulation between rooms;
- Part 5: Field measurements of airborne sound insulation of façade elements and facades;
- Part 6: Laboratory measurements of impact sound insulation of floors;
- Part 7: Field measurements of impact sound insulation of floors;
- Part 8: Laboratory measurements of the reduction of transmitted impact noise by floor coverings on a heavyweight standard floor.

This Part is Part 1 of GB/T 19889.

This Part equivalently adopts ISO 140-1:1997 Acoustics - Measurement of Sound Insulation in Buildings and of Building Elements - Part 1: Requirements for Laboratory Test

Facilities with Suppressed Flanking Transmission; and ISO 140-1:1997/Amd 1:2004 Acoustics -Measurement of Sound Insulation in Buildings and of Building Elements - Part 1: Requirements for Laboratory Test Facilities with Suppressed Flanking Transmission - Amendment 1: Specific Requirements on the Frame of the Test Opening for Lightweight Twin Leaf Partitions (English Version).

Compared with ISO 140-1:1997, the differences of this Part are as follows:

--- This Part deletes the text of "considering the recommended installation hole size of the test piece, it is appropriate to take the volume of the room as 50m³ to 60m³" from 3.1

NOTE and 4.1 NOTE of ISO 140-1:1997. This is because it is difficult to meet the conditions of the low-frequency diffuse field in a small room, and the volume of the existing sound-proof laboratories in China is generally larger than the recommended value.

--- This Part include the supplement document of ISO 140-1:1997/Amd 1:2004 Acoustics -Measurement of Sound Insulation in Buildings and of Building Elements - Part 1:

Requirements for Laboratory Test Facilities with Suppressed Flanking Transmission
-Acoustics - Measurement of Sound Insulation in Buildings and of Building Elements - Part 1: Requirements for Laboratory Test Facilities with Suppressed Flanking Transmission

1 Scope

This Part lays down specifications concerning laboratory test facilities for sound insulation measurements of building elements. It applies to laboratory test facilities with suppressed radiation from flanking elements; and/ or structural isolation between source and receiving rooms.

2 Normative References

The provisions in following documents become the provisions of this Part of GB/T 19889 through reference in this Standard. For dated references, the subsequent amendments (excluding corrigendum) or revisions do not apply to this Standard, however, parties who reach an agreement based on this Standard are encouraged to study if the latest versions of these documents are applicable. For undated references, the latest edition of the referenced document applies.

GB/T 19889.3-2005 Acoustics - Measurement of sound insulation in buildings and of building elements - Part 3: Laboratory measurements of airborne sound insulation of building elements (ISO 140-3:1995, IDT) ISO 140-8:1997 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 heavyweight standard floor

3 Laboratory Test Facilities for Airborne Sound Insulation

Measurements under Diffuse Field Conditions the laboratory test facility consists of two adjacent reverberant rooms with a test opening between them in which the test specimen is inserted.

types B and C, flanking includes paths F_f , F_d , and D_f which are all influenced by the mass of the nominal separating construction. For wall and floor constructions of types B and C, the additional lining shall be applied to the heavyweight test construction in such a way that only transmission via path D_d is reduced.

A.2.1 Walls

Type A: Lightweight panels A two-leaf partition; each leaf should comprise layers of plasterboard or other board material of similar mass per area (at least 30 kg/m²). The cavity between the leaves shall be at least 200 mm wide and shall contain mineral wool at least 100 mm thick. The leaves shall be supported on timber or metal studs and shall not be mechanically connected to each other. The perimeter of the lightweight panels shall not be rigidly bonded to the permanent structure.

Type B: Lightweight masonry wall A brick or block wall, plastered on one side, having a mass per unit area of (100 ± 10) kg/m².

On one side there shall be constructed an independent lining comprising two layers of 12.5 mm plasterboard supported on a timber or metal stud frame which is not connected to the wall. The lining shall be on that side of the wall facing that room on which the wall is supported. The perimeter of the lightweight lining shall not be rigidly bonded to the permanent structure. The cavity between the wall and the lining shall be at least 50 mm wide and shall contain mineral wool.

Type C: Heavyweight masonry wall A brick or block wall; plastered on one side, having a mass per unit area of (400 ± 40) kg/m².

On one side there shall be constructed an independent lining comprising two layers of 12.5 mm plasterboard supported on a timber or metal stud frame which is not connected to the wall. The cavity between the wall and the lining shall be at least 50 mm wide and shall contain mineral wool. The lining shall be on that side of the wall facing that room on which the wall is supported.

The perimeter of the lightweight lining shall not be rigidly bonded to the permanent structure.

A.2.2 Floors

Type A: Lightweight floor the lightweight floor can be constructed with the ceiling supported from joists below those which support the floor. The construction details shall be equivalent

to the lightweight wall described above.

Type B: Lightweight masonry floor A masonry base having a mass per unit area of (100 ± 10) kg/m², sealed on one side with plaster.

A lining comprising two layers of 12.5 mm plasterboard should be suspended below the
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