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

GB/T 42552.1-2023

**Acoustics - Laboratory measurement of the reduction of
transmitted impact noise by floor coverings on a small floor
mock-up - Part 1: Heavyweight compact floor**

声学 小楼板模块测量覆面层撞击声改善量的实验室方法 第1部分：重质密实楼板

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Foreword

This document is in accordance with the provisions of GB/T 1:1-2020 "Guidelines for Standardization Work Part 1: Structure and Drafting Rules for Standardization Documents" drafting: This document is the first part of GB/T 42552 "A laboratory method for measuring the impact sound improvement of cladding layers by acoustic small floor modules": GB/T 42552 has issued the following parts:

--- Part 1: Heavy dense floor: This document is equivalent to ISO 16251-1:2014 "A laboratory method for measuring the improvement of impact sound of cladding layers by acoustic small floor modules" Part 1: Heavy dense floor slabs": The following minimal editorial changes have been made to this document:

--- Added note (see Note 2 and Appendix A of 3:1, 3:2);

--- In Table B:1 of Appendix B, an informative reference to GB/T 50121 has been added;

--- In Table B:1 of Appendix B, the footnote "a" specifies the value of the reference acceleration level;

--- Added informative appendix NA: Please note that some contents of this document may refer to patents: The issuing agency of this document assumes no responsibility for identifying patents: This document was proposed by the Chinese Academy of Sciences: This document is under the jurisdiction of the National Acoustic Standardization Technical Committee (SCA/TC17): This document was drafted by: China Academy of Building Research Co., Ltd., Anhui Weiwei Institute of Shock and Noise Reduction Technology, Chinese Academy of Sciences Acoustics Research Institute, South China University of Technology, Hangzhou Aihua Intelligent Technology Co., Ltd., Beijing No: 797 Audio Co., Ltd., Beijing Prestige Sound Technology Technology Co., Ltd., Zhejiang University,

Zhongfutai Cultural Architecture Co., Ltd., Zhongji Zhonglian Engineering Co., Ltd., Tongji University, Weihai Haimadi Blanket Group Co., Ltd., Jianke Environmental Energy Technology Co., Ltd., Beijing Building Materials Inspection and Research Institute Co., Ltd:
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The improvement of impact sound is the main parameter to characterize the acoustic performance of floor cladding, ISO 10140 (all parts) and GB/T 19889 (all Part 2) gives a method for measuring this parameter in a special laboratory test facility with suppressed lateral sound transmission: The test facility used includes There are two upper and lower test rooms, the volume of the receiving room is at least 50m³, the area of the partition floor between the two rooms is at least 10m², and the thickness of the partition floor is close to 140mm concrete floor or special wood structure floor: Floor cladding manufacturers generally wish to have their own testing facilities, but It is often difficult for small and medium-sized enterprises to afford the investment in the above-mentioned large-scale experimental facilities: GB/T 42552 "A laboratory method for measuring the impact sound improvement of cladding layers by acoustic small floor modules" describes the The vibration measurement of small floor modules is used to obtain the improvement of the impact sound of the floor cladding, which aims to measure the improvement of the impact sound of the floor cladding: Lowering the investment threshold is proposed to consist of several parts:

--- Part 1: Heavy dense floor: The purpose is to provide a method for measuring the local reaction floor cladding layer impact by using the concrete floor module: Test method for the amount of sound improvement: The test results measured according to GB/T 42552:1 are compared with those tested according to ISO 10140 (all parts) or according to GB/T 19889 (all parts) The results are comparable: ISO 16251 has only formulated part 1 at present, which is related to the measurement of the impact sound improvement of the floor cladding layer by using the wooden structure floor model: Work is still in progress: Acoustic Small Floor Module to measure cladding impact sound Improved Quantitative Laboratory Methods Part 1: Heavy dense floor slabs

1 Scope

GB/T 42552.1-2023 is Part 1 of the Chinese series on measuring the impact sound improvement of floor coverings on a small floor mock-up, and covers heavyweight compact floors. Footfall noise through a concrete slab is the commonest complaint in Chinese apartment buildings, and the improvement a covering gives is normally measured in a pair of full-size reverberation rooms, which few laboratories have. The small mock-up method uses an instrumented slab and accelerometers instead, which makes the measurement available to manufacturers for development and quality control. The standard sets the measurement principle, the test equipment and apparatus, the test procedure covering the

installation of the specimen, the placement of the impactor and accelerometers, the frequency range, the measurement and the calculation of results, and the test report, with a normative annex on the test device and informative annexes giving a worked result and the correspondence with the ISO parts. It took effect on 1 December 2023.

This document describes a method for measuring the impact of floor slab cladding when the cladding is laid on standard concrete floor modules and excited by a standard impactor: A laboratory method for sound improvement: This method is only applicable to the measurement of soft and flexible floor coverings which "locally" transmit impact sound, such as locally responding floor coverings. The area immediately adjacent to the excitation point transmits the impact sound downwards, so the size of the specimen has no effect on the test results: Partially reactive slab cladding includes soft floor materials such as carpets, polyvinyl chloride (PVC) floors and carpets. This document only deals with noise radiation measurements and does not involve subjective grading of floor cladding quality: Compared with the method specified in ISO 10140 (all parts), the deviation of the measurement results of the two methods in the measurement frequency range is equal to Generally within the range of measurement uncertainty: If there is a large difference between the measurement results of the two methods, the ISO 10140 (all parts) The result of the measurement shall prevail: This document provides the measurement method, technical requirements on the test piece (for example: temperature range, number of test pieces or test piece installation conditions, etc.) Further specified by product test procedures:

Note: If the material to be tested is not soft, such as those sandwich structures, since the test results are related to the size of the test piece, then the test results and Compared with ISO 10140 (all parts) test, the deviation between the two may increase:

2 Normative references

The contents of the following documents constitute the essential provisions of this document through normative references in the text: Among them, dated references For documents, only the version corresponding to the date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to this document: ISO 717-

2 Acoustic evaluation of sound insulation of buildings and building components - Part 2: Impact sound insulation (Acoustics-Rating of shock transducers)

Note: See Appendix NA for the degree of consistency between GB/T 20485 (all parts) and ISO 16063 (all parts):

3 Terms and Definitions

The following terms and definitions apply to this document: 3:

1 La The time integral of the ratio of the square of the instantaneous acceleration to the square of the reference acceleration is divided by the integral time, and the logarithm with base 10 is taken and multiplied by 10: Calculate with formula (1):

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