

ICS 91.120.30
CCS A 59



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

GB/T 19889.18-2017

**Acoustics -- Measurement of sound insulation in buildings and
of building elements -- Part 18: Laboratory measurement of
sound generated by rainfall on building elements**

声学 建筑和建筑构件隔声测量 第18部分：建筑构件雨噪声隔声的实验室测量
(English Translation)

Issued on: December 29, 2017

Implemented on: April 1, 2018

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine of the People's Republic of China, Standardization
Administration of the People's Republic of China**

Table of Contents

Preface
1 Scope
2 Normative references
3 Terms and definitions
4 Measuring equipment
5 Test arrangements
6 Rainfall type
7 Test equipment and process
8 Results
9 Test report
Appendix A (Informative) Bottom perforated sink and equivalent water pipe array Example
Appendix B (informative) reference specimen rain noise sound insulation measurement
References

Foreword

GB/T 19889 "acoustic building and building sound insulation measurement" is divided into the following sections.

- Part 1. Lateral transmission suppressed laboratory testing facilities requirements;
- Part 2. Determination of data precision, verification and application;
- Part 3. Laboratory measurement of airborne sound insulation of building elements;
- Part 4. Field measurements of airborne sound insulation between rooms;
- Part 5. Outer wall components and external sound-induced sound insulation field measurements;
- Part 6. Laboratory measurement of floor impact sound insulation;
- Part 7. Floor slamming sound insulation field measurements;
- Part 8. Heavy gauge standard floor cladding improvement of the amount of laboratory measurements;
- Part 10. Small building airborne sound insulation laboratory measurements;

--- Part 14. Special field measurement guidelines;

--- Part 18. Laboratory measurement of rain noise and sound insulation of building elements.

This section GB/T 19889 Part 18.

This section drafted in accordance with GB/T 1.1-2009 given rules.

This section uses the redrafted law Amendment uses ISO 140-18:2006 "acoustic building and building sound insulation measurements Part 18 Sub-laboratory noise measurement of building components rain noise. " this part of ISO 140-18:2006 technical differences and the reasons are as follows.

--- On normative references, this section made a technical adjustment of differences in order to adapt to China's technical conditions, the adjustment of the set in the second chapter "Normative references", the specific adjustments are as follows.

- Replaced IEC 61260:1995 and AM1.2001 with GB/T 3241-2010 modified to adopt international standards;
 - Replaced IEC 60721-2-2:1988 with modified GB/T 4797.5-2008 using international standards;
 - Increasing reference to GB/T 50076-2013 indoor reverberation time measurement specification;
 - Removed the measurement of the sound parameters of the acoustic room of ISO 3382-2 Part 2. Reverberation time of normal room (Acoustics-Measurement of room acoustic parameters-Part 2: Reverberation time in ordinary rooms
- Added "equivalent water pipe array" related technical content, the equivalent water pipe array system after a large number of experimental verification, more convenient for large Rain noise insulation test of specimen (see 7.2.2);
- Increasing the equivalent water pipe array examples and related technical parameters and bottom perforated water pipe array diagram (see Appendix A).

This section is proposed by the Chinese Academy of Sciences.

This part of the National Acoustic Standardization Technical Committee (SAC/TC17) centralized.

This section drafted unit. Tsinghua University, China Academy of Building Research, Institute of Acoustics, Chinese Academy of Sciences.

1 Scope

This part of GB/T 19889 specifies the laboratory of rain noise insulation performance of building components such as roofing, roofing/ceiling systems and skylights Measurement method, the method of rain noise generated by simulated rainfall-induced building components. The results can be used to compare the rain noise insulation of different components can, and in accordance with the requirements of rain noise sound insulation properties of building components design.

Rain noise measured in this section refers to the impact of raindrops on the roof of building components caused by vibration and radiation to indoor noise. Rain noise source for simulated rainfall controlled by a water tank, lateral soundtransduction in the measuring laboratory is suppressed.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version applies to this article Pieces. For undated references, the latest edition (including all amendments) applies to this document.

Electroacoustics octave and fractional octave filters (IEC 61260:1995, MOD) GB/T 3241-2010 GB/T 3785.1-2010 Electroacoustic sound level meter Part 1. Specification (IEC 61672-1:2002, IDT) GB/T 3785.2-2010 Electroacoustics sound level meter Part 2. Type evaluation test (IEC 61672-2:2003, IDT) Classification of environmental conditions for electric and electronic products Natural environmental conditions Precipitation and winds (IEC 60721-2-2).

1988, MOD)

GB/T 15173-2010 Electroacoustic sound calibrator (IEC 60942:2003, IDT) GB/T 19889.1-2005 Acoustics - Measurement of sound insulation of buildings and building elements - Part 1. Laboratory measurement of suppressed lateral sound transmission Test facility requirements (ISO 140-1:1997, IDT) GB/T 19889.3-2005 Acoustics - Measurement of sound insulation of buildings and building elements - Part 3. Experimental study of airborne sound insulation of building elements Room Measurement (ISO 140-3:1995, IDT) GB/T 31004.1-2014 Acoustics - Construction and building elements - Acoustical sound insulation - Part 1. Laboratory measurements (ISO 15186-1:2000, IDT) GB/T 50076-2013 Indoor reverberation time measurement specification

3 Terms and definitions

The following terms and definitions apply to this document.

Indoor average sound pressure level averagesoundpressurelevelinaroom Sound pressure

squared space and time average and the reference sound pressure squared ratio, taking the base 10 logarithm multiplied by 10, unit dB. air Between the mean refers to the entire test room, but does not include the direct radiation source area or near the border (such as walls, etc.) area, because it They have a significant effect on the outcome.