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

GB/T 21231.1-2018

**Acoustics -- Measurement of airborne noise emitted and
structure-borne vibration induced by small air-moving devices
-- Part 1: Airborne noise measurement**

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Foreword

GB/T 21231 "Measurement of airborne noise and acoustic vibration caused by acoustic small ventilation devices" includes the following two parts.

- Part 1. Air noise measurement;
- Part 2. Structural vibration measurement.

This part is the first part of GB/T 21231.

This part is drafted in accordance with the rules given in GB/T 1.1-2009.

This part replaces GB/T 21231-2007 "Measurement method for radiated air noise of acoustic small ventilation devices".

Compared with GB/T 21231-2007, the main technical changes in this section are as follows.

- Added the terms and definitions (see 3.1.2, 3.2.3);
- In order to adapt to vibration measurement, the adapter plate has added a damper plate replacement scheme (see 5.2);

- Increased the pq curve measurement method for small fans (see Appendix A);
- Added guidelines for progress in measurement uncertainty information (see Appendix E).

This section uses the translation method equivalent to the ISO 10302-1.2011 "acoustic small ventilation device radiated air noise and caused by the knot

Measurement of vibrations - Part 1. Air noise measurement.

The documents of our country that have a consistent correspondence with the international documents referenced in this part are as follows.

---GB/T 3767-2016 Acoustic sound pressure method for the determination of noise source sound power level and sound energy level reflection surface above the approximate free field

Engineering method (ISO 3744.2010, IDT)

---GB/T 6881.1-2002 Acoustic sound pressure method for the determination of noise source sound power level and sound power level reverberation chamber precision method (ISO 3741.1999, IDT)

---GB/T 6882-2016 Acoustic sound pressure method for the determination of noise source sound power level and sound energy level anechoic chamber and semi-anechoic chamber precision

Law (ISO 3745.2012, IDT)

This part was proposed by the Chinese Academy of Sciences.

This part is under the jurisdiction of the National Acoustic Standardization Technical Committee (SAC/TC17).

This section was drafted by. Institute of Acoustics, Chinese Academy of Sciences, Shenzhen Zhongya Electromechanical Industry Co., Ltd., Anhui Weiwei Plastic Parts Group Co., Ltd.

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Environmental Science Research Institute, Anhui Vocational and Technical College.

Introduction

This part of GB/T 21231 specifies small ventilation devices mainly used for cooling electronic equipment such as computers and communication equipment.

Radiation air noise measurement method and report preparation content.

In order to maintain consistency with the measurement of radiated noise of such equipment, this section uses the description of the radiated noise in ISO 7779 and the sound power level.

Measurement methods. The described amount of total noise radiation of the tested ventilation device is the A-weighted sound power level. 1/3 octave sound power level is noise radiating

Describe the amount in detail. In addition to the 1/3 octave sound power level, the octave sound power level can also be used.

Acoustic air noise radiated by small ventilation devices and

Measurement of structural vibration caused

Part 1. Air noise measurement

1 Scope

This part of GB/T 21231 specifies the noise of airborne noise radiated by small ventilation units used to cool electrical, electronic and mechanical equipment.

Power level measurement method.

Such small ventilation devices include axial fans, tubular axial fans, vane axial fans, centrifugal fans, electric impellers, and

The form of change.

This section describes test equipment and methods for measuring airborne noise radiated by small ventilation units. The air noise is the body of the ventilation device

The product flow and its function as the static pressure of the fan formed on the test device. The purpose of this section is to provide ventilation equipment manufacturers with ventilation

Manufacturers of cooling electronics and similar applications, as well as test labs. This part is a manufacturer of ventilation equipment, equipment manufacturers and testing

Try the laboratory to provide a way to get comparable results. The results of this section can be used for engineering information and performance identification, and this method can also

It is cited in the procurement technical specification and the contract signed between the buyer and the seller. The ultimate goal of noise radiation measurement is to provide designers with

Data to assist in the design of electrical, electrical or mechanical equipment containing one or more ventilation devices.

Based on empirical data, the method of calculating the maximum (volume) flow rate specified in this section by the test of the scaling box is

OK.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

ISO 3741 acoustic sound pressure method for the determination of noise source sound power level and sound energy level reverberation chamber precision method (Acoustics-Determi-

Nationofsoundpowerlevelsandsoundenergylevelsofnoisesourcesusingsoundpressure-Precision

Methodsforreverberationtestrooms)

ISO 3744 Acoustic Sound Pressure Method for the Determination of Sound Sources of Noise Sources and Approximate Free Fields Above the Acoustic Energy Level Reflective Surface (A-

coustics-Determinationofsoundpowerlevelsandsoundenergylevelsofnoisesourcesusingsound

pressure-Engineeringmethodsforanessentiallyfreefieldoverareflectingplane)

ISO 3745 acoustic sound pressure method for the determination of noise source sound power level and sound energy level anechoic chamber and semi-anechoic chamber precision method

(Acoustics-Determinationofsoundpowerlevelsandsoundenergylevelsofnoisesourcesusing soundpressure-Precisionmethodsforanechoictestroomsandhemi-anechoictestrooms1)

ISO 5801.2007 Industrial fans with standardized air ducts for performance testing (Industrialfans-Performancetesting

Usingstandardizedairways)