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**Acoustics -- Laboratory measurement procedures for ducted
silencers and air -- Terminal units - Insertion loss, flow noise
and total pressure loss**

声学 管道消声器和风道末端单元的实验室测量方法 插入损失、气流噪声和全压
损失

(English Translation)

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Foreword

This standard is identical with ISO 7235:2003 laboratory measurement methods "acoustic muffler pipe and duct end unit insertion loss Loss, air flow noise and total pressure loss "(in English).

The Standard Appendix A, Appendix B, Appendix C, Appendix D, Appendix E, Appendix F for the normative appendix, Appendix G, Appendix H for information only appendix.

This standard was proposed by the Chinese Academy of Sciences.

This standard by the National Standardization Technical Committee of Acoustics (SAC/TC17) centralized.

This standard is mainly drafted by. Institute of Acoustics, Shenzhen Ya Electrical and Mechanical Industry Co., Ltd., Tongji University, the Beijing Municipal Labor Conservation Science Institute, Nanjing University, environmental protection long Shao Bang Industrial Co., Ltd., Nanjing Chang Rong Noise Control Engineering Limited.

Introduction

This standard specifies the measurement of insertion loss of ducted silencers substitution duct end unit sound transmission loss measurements.

In an alternative method, first measured when the specimen sonic transmission SPL installed, and then use the replacement pipe measuring acoustic transfer after alternative specimen Sound pressure levels. Acoustic transmission sound pressure level can be measured under the following environments.

- In a reverberation chamber;
- In later tests muffler pipe;
- In the free field.

Test Method for priority selection according to the above order.

Acoustic performance muffler depends on the sound field modes ingredient muffler inlet end, the outlet end of the reflective properties, as well as flanking transmission measuring channel Number and aerodynamic noise (noise regeneration) sound pressure level difference.

This standard describes the configuration of the inlet end and provide the base mode attenuation minimum. At the outlet end, described the end of the reflection will not affect the measurement the method of measuring the amount of the muffler and the end result or measurement error can be amended. In addition, the proposed standard control flanking transmission and environmental noise Measures.

Sound transmission loss of air terminal unit is determined by measurements and theoretical reflection coefficient replacement pipe reverberation chamber.

Insertion loss muffler is generally affected by air currents. Muffler pipe used in the high flow rate, which coupled with the best insertion loss measurements High-speed air flow is measured.

For resistive muffler, when the internal maximum flow rate less than 20m/s, the airflow although little effect on the insertion loss, but will appear on the air Uneven flow distribution. Therefore, the speed limit, corresponding to the design speed of 20m/s should be controlled between (10 ~ 15) m/s.

Gas flow generating renewable air noise through the muffler. Regeneration stream

determines the lowest sound pressure level noise muffler downstream. Therefore, Necessary to get behind the regeneration gas muffler noise power level, it is best to determine the muffler is connected to the reverberation room through the pipe.

According to the standard, it can be measured total pressure loss of the muffler with an airflow. Thus, the total pressure loss was measured to be equipped with testing equipment and equipment.

Acoustic muffler pipe and duct end unit Laboratory measurement of insertion loss, aerodynamic noise and total pressure loss

1 Scope

This standard specifies the following test methods.

- There airflow and without flow, muffler pipe band insertion loss;
- Mufflers regeneration airflow noise band sound power level;
- There airflow through the pipe muffler total pressure loss;

Band sound transmission loss --- air terminal unit.

This standard specifies the method for measuring the ambient temperature of the laboratory. The on-site measurements muffler made in GB/T 19512 in A detailed description.

It should be noted that, according to laboratory test results obtained in this standard is not necessary to be consistent with the results of the test site (installation) obtained.

Different sound and flow fields will lead to different results. For example, the lab measured the pressure loss will be lower than the field. However, the different experiments Test results chamber may be controlled.

This standard applies to include ventilation and air conditioning systems, gas intake and exhaust systems and other similar systems for all types of mufflers.

Other passive ventilation devices, such as elbows, air terminal and T-type connector tube can also be tested in accordance with this standard.

This standard does not apply to a motor vehicle muffler.

Note 1: The fan coil air terminal devices and acoustic tests are also attributed to test air terminal unit.

Note 2: GB/T 21229 Test Method described in detail in an air terminal unit of sound power. EN12238, EN12239, EN12589 for air terminal units Pressure loss test is described in detail.

2 Normative references

The following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard.

GB/T 2624.1 with the differential pressure measuring device mounted to round pipe full pipe fluid flow - Part 1. General principles and Requirements (GB/T 2624.1-2006, ISO 5167-1:2003, IDT) GB/T 3768-1996 Determination of sound pressure of sound power levels of noise sources using an enveloping surface reflectance measuring surface Simple Method (Eqv ISO 3746:1995) GB/T 6881.1-2002 sound pressure Determination of sound power levels of noise sources - Precision methods for reverberation rooms (idt ISO 3741:1999) GB/T 16404.3-2006 sound intensity Determination of sound power levels of noise sources - Part 3. Precision scanning measurement method (ISO 9614-3:2002, IDT) ISO 5167-1 placed pressure gauge flow method Part 1 in a circular cross section pipe. General requirements and ISO 5221 air diffusion measurements rationing and air conditioning ducts with air flow principle IEC 60651:2001 Sound Level Meter IEC 60804:2000 Points Average Sound Level Meters IEC 60942:1997 acoustic calibrator IEC 61260 electrical acoustic octave band and fractional-octave-band filters