



Normal Incidence Sound Absorption Evaluation Procedure

1 Introduction

Note: Nothing in this standard supercedes applicable laws and regulations.

Note: In the event of conflict between the English and domestic language, the English language shall take precedence.

1.1 Purpose. Measure the normal incidence sound absorption of acoustic materials.

1.2 Applicability. This test is applicable to all material added to the vehicle for sound absorption purposes.

1.3 Remarks. This test procedure is used in the development of acoustic components and subsystems. ISO 10534 shall be referenced for more detailed information corresponding to the following procedure.

2 References

Note: Only the latest approved standards are applicable unless otherwise specified.

2.1 External Standards/Specifications.

ISO 10534

2.2 GM Standards/Specifications.

None

3 Resources

3.1 Facilities. Wholly contained in ISO 10534. Record the room temperature during the test period.

3.1.1 Calibration. The test facilities and equipment shall be in good working order and shall have a valid calibration label.

3.1.2 Alternatives. Alternative test facilities and equipment may also be used. However, all measuring variables as specified in this standard shall be determined correctly with respect to their physical definition.

3.2 Equipment. Wholly contained in ISO 10534.

3.3 Test Vehicle/Test Piece. The impedance tube is best suited for measurements on porous materials such as those used for insulation purposes. It is impossible to obtain reliable results for materials whose ability to absorb depends upon resonance; for example, damped vibrating panels or a large slit resonator.

A minimum of three test samples of each tube diameter, large and small, should be tested to provide a good indication of the sample acoustic performance.

3.4 Test Time.

Calendar time: 2 d

Test hours: 6 h

Coordination hours: 2 h to 4 h

3.5 Test Required Information. Wholly contained in ISO 10534.

3.6 Personnel/Skills. Wholly contained in ISO 10534.

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September 2015

Page 1 of 2

4 Procedure

4.1 Preparation.

4.1.1 Test Specimen Preparation. Cut out test samples for each tube diameter carefully to ensure the samples fit snugly in the holders. Sealing any cracks around the edges with petroleum jelly is recommended. The samples should not be fitted too tightly and must be able to slide reasonably easily. The front surface of flat test samples shall be mounted normally to the tube axis.

An air-gap behind the sample should be used if this situation exists in the vehicle and a system check of this is required. For all other material comparison testing, an air-gap should not be used.

4.2 Conditions. All conditions are wholly contained in ISO 10534.

4.2.1 Environmental Conditions. Reference ISO 10534.

4.2.2 Test Conditions. Deviations from the requirements of this standard shall have been agreed upon. Such requirements shall be specified on component drawings, test certificates, reports, etc.

4.3 Instructions. Measure the normal incidence sound absorption per ISO 10534.

5 Data

5.1 Calculations. When different diameter impedance tubes, large and small, are used for a wider frequency range, the working frequency ranges of the tubes shall overlap by about one octave. Test results from different impedance tubes shall not be averaged at the overlap frequencies but shall be given, and plotted, separately.

5.2 Interpretation of Results. Wholly contained in ISO 10534.

5.3 Test Documentation. Wholly contained in ISO 10534.

6 Safety

This standard may involve hazardous materials, operations, and equipment. This standard does not propose to address all the safety problems associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

7 Notes

7.1 Glossary. Wholly contained in ISO 10534.

7.2 Acronyms, Abbreviations, and Symbols. Not applicable.

8 Coding System

This standard shall be referenced in other documents, drawings, etc., as follows:

Test to GMW14484

9 Release and Revisions

This standard was originated in October 2005. It was first approved by the Global N&V Acoustics and Airborne Noise IDSR Harmonization Team in October 2005. It was first published in October 2005.

Issue	Publication Date	Description (Organization)
1	OCT 2005	Initial publication.
2	SEP 2010	Five year refresh. (Global N&V Airborne Noise VPO Team)
3	SEP 2015	Five year refresh. (Global N&V Airborne Noise VPO Team)

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September 2015

Page 2 of 2

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