



Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum¹

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INTRODUCTION

This test method is designed to measure the sound attenuation provided by a suspended ceiling in the presence of a continuous plenum space under prescribed laboratory test conditions. The test method is an adaptation of AMA-1-II-1967 Method of Test. This modified test method may give results differing from the AMA-1-II procedure.

1. Scope

1.1 This test method utilizes a laboratory space so arranged that it simulates a pair of horizontally adjacent small offices or rooms separated by a partition and sharing a common plenum space. The partition either extends to the underside of a common plenum space or penetrates through it. In the prescribed configuration, special design features of the facility ensure that the only significant sound transmission path is by way of the ceiling and the plenum space.

1.2 Within the limitations outlined in the significance statement, the primary quantity measured by this test method is the ceiling attenuation of a suspended ceiling installed in a laboratory environment. By accounting for receiving room sound absorption, the normalized ceiling attenuation may be determined.

1.3 The test method may also be used to evaluate the attenuation of composite ceiling systems comprised of the ceiling material and other components such as luminaires and ventilating systems.

1.4 The field performance of a ceiling system may differ significantly from the results obtained by this test method (see Significance and Use).

1.5 The procedures may also be used to study the additional sound insulation that may be achieved by other attenuation measures. This would include materials used either as plenum barriers or as backing for all or part of the ceiling.

1.6 The facility may also be used to study the performance of an integrated system comprising plenum, ceiling, and partition, tested as a single assembly.

1.7 *This standard does not purport to address all of the safety concerns, if any, 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.*

2. Referenced Documents

2.1 ASTM Standards:

- C 423 Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method²
- C 634 Terminology Relating to Environmental Acoustics²
- C 636 Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels²
- E 90 Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions²
- E 336 Test Method for Measurement of Airborne Sound Insulation in Buildings²
- E 413 Classification for Rating Sound Insulation²
- E 548 Guide for General Criteria Used for Evaluating Laboratory Competence³

2.2 ANSI Standards:

- S1.11-1986 Specification for Octave-Band and Fractional-Octave Band Analog and Digital Filters⁴

2.3 Other Standards:

¹ This test method is under the jurisdiction of ASTM Committee E-33 on Environmental Acoustics and is the direct responsibility of Subcommittee E33.03 on Sound Transmission.

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² *Annual Book of ASTM Standards*, Vol 04.06.

³ *Annual Book of ASTM Standards*, Vol 14.02.

⁴ Available from American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.

