



Designation: E 90 – 02

Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements¹

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INTRODUCTION

This test method is part of a set for evaluating the sound-insulating properties of building elements. It is designed to measure the transmission of sound through a partition or partition element in a laboratory. Others in the set cover the measurement of sound isolation in buildings (Test Method E 336), the laboratory measurement of impact sound transmission through floors (Test Method E 492), the measurement of impact sound transmission in buildings (Test Method E 1007), the measurement of sound transmission through building facades and facade elements (Guide E 966), the measurement of sound transmission through a common plenum between two rooms (Test Method E 1414), a quick method for the determination of airborne sound isolation in multiunit buildings (Practice E 597), and the measurement of sound transmission through door panels and systems (Test Method E 1408).

1. Scope

1.1 This test method covers the laboratory measurement of airborne sound transmission loss of building partitions such as walls of all kinds, operable partitions, floor-ceiling assemblies, doors, windows, roofs, panels, and other space-dividing elements.

1.2 *Laboratory Accreditation*—A procedure for accrediting a laboratory for performing this test method is given in Annex A3.

1.3 *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 634 Terminology Relating to Environmental Acoustics²
- E 336 Test Method for Measurement of Airborne Sound Insulation in Buildings²
- E 413 Classification for Rating Sound Insulation²
- E 492 Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Method²

E 597 Practice for Determining a Single-Number Rating of Airborne Sound Isolation for Use in Multiunit Building Specifications²

E 966 Guide for Field Measurement of Airborne Sound Insulation of Building Facades and Facade Elements²

E 1007 Test Method for Field Measurement of Tapping Machine Impact Sound Transmission through Floor-Ceiling Assemblies and Associated Support Structures²

E 1289 Specification for Reference Specimen for Sound Transmission Loss²

E 1332 Classification for Determination of Outdoor-Indoor Transmission Class²

E 1375 Test Method for Measuring the Interzone Attenuation of Furniture Panels Used as Acoustical Barriers²

E 1408 Test Method for Laboratory Measurement of the Sound Transmission Loss of Door Panels and Door Systems²

E 1414 Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum²

2.2 ANSI Standards:

S1.4 Specification for Sound-Level Meters³

S1.6 Standard Preferred Frequencies, Frequency Levels, and Band Numbers for Acoustical Measurements³

S1.10 Pressure Calibration of Laboratory Standard Pressure Microphones³

S1.11 Specification for Octave-Band and Fractional-Octave-Band Analog and Digital Filters³

S12.31 Precision Methods for the Determination of Sound

¹ This test method is under the jurisdiction of ASTM Committee E33 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 Available from the American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.