



Standard Test Method for Laboratory Measurement of the Sound Transmission Loss of Door Panels and Door Systems¹

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1. Scope

1.1 This test method describes the laboratory measurement of the sound transmission loss for door panels and door systems. It also includes the measurement of the force required to close and latch, as well as to unlatch the door under test. An appendix presents methods to determine the respective contribution of the door components and seals to the sound transmission loss of a door system.

1.2 *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 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

2.2 ANSI Standards:

- ANSI/BHMA A156.2 American National Standard for Bored and Preamsembled Locks & Latches³
- ANSI/BHMA A156.4 Standard 301 American National Standard for Door Controls—Closers³

3. Terminology

3.1 Definitions:

3.1.1 For definitions of terms used in this test method see Definitions C 634.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *door*—any sliding, folding, rolling, lifting, swinging or dropping partition that provides access and can be manually or automatically opened and closed.

3.2.2 *door panel*—the component of the door system that constitutes a movable barrier without accessories: that is, the portion of a door system which may be tested as a fixed panel (room divider). The term *door panel* may be used in the report as part of the description of the designated door system (for example, door panel construction).

3.2.3 *door system*—the combined assembly of the components designated by or provided by the test sponsor which enables a fully operable door panel to function in normal manner while fulfilling its intended purpose. The door system shall include a jamb, threshold/plate/finished floor, lockset/latch/deadbolt, knob/lever/handle, hinges/rollers/guides, stops, panel/barrier/partition, strike plate, hardware, and seals (fixed, automatic, pneumatic, magnetic, or manually adjustable). The system may include mail slots, vision lights, security devices, bells, buzzers, chimes, knockers, door closures, vents, and add-on panels.

3.2.4 *multiple doors*—two or more doors mounted side by side (in a single vertical plane), with a common astragal or mullion; or two or more doors mounted in tandem [a series of vertical planes with intermediate airspace(s)].

3.2.5 *operable and fixed seals*—the combined assembly of components intended to minimize the passage of air, light, or water through or around the door panel and frame assembly. The seals may also perform other functions such as controlling effects of chemical, thermal, blast, security, hydraulics, meterology, radio frequency interference (RFI) or electro magnetic interference (EMI); however, for this test method, only the reduction of airborne sound transmission shall be evaluated.

4. Summary of Test Method

4.1 After the complete door system is installed and all final adjustments are completed, the force or torque to open and to close the door shall be measured during the operable test (see Section 7). Subsequently the sound transmission loss of the door system shall be tested for two conditions in any order of preference: a fully operable door and a sealed panel (see Section 6).

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

