



Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine¹

This standard is issued under the fixed designation E 492; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

INTRODUCTION

This test method is one of several for evaluating the sound insulating properties of building elements. It is designed to measure the impact sound transmission performance of an isolated floor-ceiling assembly, in a controlled laboratory environment. Others in the set deal with field measurement of impact sound transmission through floor-ceiling assemblies, and the laboratory and field methods of measuring airborne sound transmission loss of building partitions such as walls, floor-ceiling assemblies, doors, and other space-dividing elements.

1. Scope

1.1 This test method covers the laboratory measurement of impact sound transmission of floor-ceiling assemblies using a standardized tapping machine. It is assumed that the test specimen constitutes the primary sound transmission path into a receiving room located directly below and that a diffuse sound field exists in this room.

1.2 Measurements may be conducted on floor-ceiling assemblies of all kinds, including those with floating-floor or suspended ceiling elements, or both, and floor-ceiling assemblies surfaced with any type of floor-surfacing or floor-covering materials.

1.3 This test method prescribes a uniform procedure for reporting laboratory test data, that is, the normalized one-third octave band sound pressure levels transmitted by the floor-ceiling assembly due to the tapping machine.

1.4 *This standard does not purport to address 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:²

C 634 Terminology Relating to Environmental Acoustics
E 90 Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements

E 548 Guide for General Criteria Used for Evaluating Laboratory Competence³

E 717 Guide for the Preparation of the Accreditation Annex of Acoustical Test Standards

E 989 Classification for Determination of Impact Insulation Class (IIC)

E 2235 Test Method for the Determination of Decay Rates for Use in Sound Insulation Test Methods

2.2 ANSI Standards:

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

S1.26 Method for the Calculation of the Absorption of Sound by the Atmosphere⁴

2.3 ISO Standard:

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 For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Withdrawn

⁴ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036.

