



Standard Test Method for Electromagnetic Shielding Effectiveness of Glazings¹

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1. Scope

1.1 This test method covers the determination of the electromagnetic shielding effectiveness of glazings or glazing configurations.

1.1.1 The intended application of this test method is for glazings or glazing configurations to be evaluated for their transmittance or shielding capability to electromagnetic frequencies.

1.1.2 This is a component test. It is not applicable to full systems such as walls, floors, ceilings, shielded racks, or window systems.

1.1.3 The intention of this test method is to standardize a measurement procedure for glazings or glazing configurations, with and without coatings, films, interlayers, or other enhancements, as single or insulating units at a standard size and when mounted in a standardized frame.

1.1.4 This test method is to provide a means of generating data for the glazing or glazing configuration infills that can be used by the consumer, designer, and system manufacturer to understand the capability and contribution of glazings or glazing configurations to a system used for Electromagnetic Interference (EMI) security.

1.2 This test method is for use in the assessment of EMI transmittance for frequency ranges 100 kHz to 20 GHz. Specific test frequencies within these ranges are required.

1.3 *Units*—The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.4 *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. Some specific hazards statements are given in Section 8 on Hazards.*

¹ This test method is under the jurisdiction of ASTM Committee F12 on Security Systems and Equipment and is the direct responsibility of Subcommittee F12.10 on Systems Products and Services.

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2. Referenced Documents

2.1 *ASTM Standards*:²

E631 *Terminology of Building Constructions*

2.2 *IEEE Standards*:³

IEEE Standard 299–1977 *IEEE Standard Method for Measuring the Effectiveness of Electromagnetic Shielding Enclosures*

IEEE STD C95.1–1991 *IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz*

2.3 *OSHA Standard*:⁴

OSHA Regulation, 29 CFR 1910 Department of Labor, July 1992

2.4 *ANSI Standard*:⁵

ANSI/NCSL Z540.3 *Requirements for the Calibration of Measuring and Test Equipment*

2.5 *ISO Standard*:⁶

ISO/IEC 17025:2005 *General Requirements for the Competence of Testing and Calibration Laboratories*

3. Terminology

3.1 *Definitions*:

3.1.1 *accredited independent testing laboratory*—testing laboratory accredited to perform the referenced testing procedures by a nationally recognized accrediting agency in accordance with ISO/IEC 17025 and led by a test director.

3.1.2 *electric field measurements*—the attenuation provided by a glazing or glazing configuration is assessed by using a local source to generate the electric field. The electric field measurement will be from 1 to 100 MHz.

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 Available from Institute of Electrical and Electronics Engineers, Inc. (IEEE), 445 Hoes Ln., Piscataway, NJ 08854, <http://www.ieee.org>.

⁴ Available from Occupational Safety and Health Administration (OSHA), 200 Constitution Ave., Washington, DC 20210, <http://www.osha.gov>.

⁵ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

⁶ Available from International Organization for Standardization (ISO), 1, ch. de la Voie-Creuse, CP 56, CH-1211 Geneva 20, Switzerland, <http://www.iso.org>.