



Standard Test Method for Acoustic Emission for Insulated and Non-Insulated Aerial Personnel Devices Without Supplemental Load Handling Attachments¹

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1. Scope

1.1 This test method describes a procedure for non-destructive testing using acoustic emission (AE) testing for insulated and non-insulated aerial personnel devices which do not have a supplemental load handling attachment.

1.1.1 *Equipment Covered*—This test method covers the following types of vehicle-mounted insulated aerial personnel devices:

- 1.1.1.1 Extensible boom aerial personnel devices,
- 1.1.1.2 Articulating boom aerial personnel devices, and
- 1.1.1.3 Any combination of 1.1.1.1 and 1.1.1.2.

1.1.2 *Equipment Not Covered*—This test method does not cover any of the following equipment:

- 1.1.2.1 Material-handling aerial devices,
- 1.1.2.2 Digger-derricks with platform, and
- 1.1.2.3 Cranes with platform.

1.2 The AE test method is used to detect and area-locate emission sources. Verification of emission sources may require the use of other nondestructive test (NDT) methods, such as radiography, ultrasonics, magnetic particle, liquid penetrant, and visual inspection. **Warning**—This test method requires that external loads be applied to the superstructure of the vehicle under test. During the test, caution must be taken to safeguard personnel and equipment against unexpected failure or instability of the vehicle or components.

NOTE 1—This test method is not intended to be a stand alone NDT method for the verification of the structural integrity of an aerial device. Other NDT methods should be used to supplement the results.

1.3 The values given in inch-pound units are to be regarded as the standard. The SI units given in parentheses are for information only.

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.*

¹ This test method is under the jurisdiction of ASTM Committee F18 on Electrical Protective Equipment for Workers and is the direct responsibility of Subcommittee F18.55 on Acoustic Emission.

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2. Referenced Documents

2.1 ASTM Standards:

E 569 Practice for Acoustic Emission Monitoring of Structures During Controlled Stimulation²

E 610 Terminology Relating to Acoustic Emission³

E 650 Guide for Mounting Piezoelectric Acoustic Emission Sensors²

E 750 Practice for Characterizing Acoustic Emission Instrumentation²

E 976 Guide for Determining the Reproducibility of Acoustic Emission Sensor Response²

F 2174 Practice for Verifying Acoustic Emission Sensor Response⁴

2.2 ANSI Standard:

ANSI A92.2 Standard for Vehicle-Mounted Elevating and Rotating Aerial Devices⁵

2.3 ASNT Standard:

ASNT Recommended Practice SNT-TC-1A⁶

2.4 CARP/SPI Standard:

Recommended Practice for Acoustic Emission Testing of Fiberglass Tanks-Vessels⁷

3. Terminology

3.1 Definitions:

3.1.1 *acoustic emission (AE)*—the class of phenomena whereby elastic waves are generated by the rapid release of energy from a localized source or sources within a material, or the transient elastic wave(s) so generated. Acoustic emission is the recommended term for general use. Other terms that have been used in AE literature include stress wave emission, microseismic activity, and emission or acoustic emission with other qualifying modifiers.

² Annual Book of ASTM Standards, Vol 03.03.

³ Discontinued; see 1991 Annual Book of ASTM Standards, Vol 03.03. Replaced by Terminology E 1316.

⁴ Annual Book of ASTM Standards, Vol 10.03.

⁵ Available from the American National Standards Institute, 11 West 42nd St., 13th Floor, New York, NY 10036.

⁶ Available from American Society of Nondestructive Testing, 4153 Arlinggate Plaza, Caller #28518, Columbus, OH 43228.

⁷ Available from the Society of Plastics Industry, 355 Lexington Ave., New York, NY 10017.