



Standard Test Method for Acoustic Emission Testing of Insulated Aerial Personnel Devices with Supplemental Load Handling Attachments¹

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1. Scope

1.1 This test method describes a procedure for acoustic emission (AE) testing of insulated aerial personnel devices (IAPDs) with supplemental load handling attachments.

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

- 1.1.1.1 Extensible-boom IAPDs,
- 1.1.1.2 Articulating-boom IAPDs, 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 Noninsulated aerial devices,
- 1.1.2.2 Insulated aerial personnel devices without supplemental load handling attachments,
- 1.1.2.3 Digger-derricks with platform,
- 1.1.2.4 Cranes with platform, and
- 1.1.2.5 Aerial devices with load-lifting capabilities located anywhere other than adjacent to the 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.

NOTE 1—**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.

1.3 *This standard does not purport to address all of the safety problems, 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:

E 569 Practice for Acoustic Emission Monitoring of Structures

During Controlled Stimulation²

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

E 1067 Practice for Acoustic Emission Testing of Fiberglass Reinforced Plastic Resin (FRP) Tanks/Vessels²

E 1316 Terminology for Nondestructive Examinations²

F 914 Test Method for Acoustic Emission for Insulated Aerial Personnel Devices³

2.2 Other Standards:

ANSI A92.2 Standard for Vehicle-Mounted Elevating and Rotating Aerial Devices⁴

ASNT SNT-TC-1A Recommended Practice for Personnel Qualification and Certification in Nondestructive Testing⁵

Equipment Manufacturer's Institute,⁶ Manufacturers of Aerial Devices and Digger-Derricks Council (EMI/MADDDC), Nomenclature and Specifications for Truck-Mounted:

- (a) Extensible Aerial Devices,
- (b) Articulating Aerial Devices, and
- (c) Digger-Derricks

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 (1) stress wave emission, (2) microseismic activity, and (3) emission or acoustic emission with other qualifying modifiers.

3.1.2 *amplitude (acoustic emission signal amplitude)*—the peak voltage of the largest excursion attained by the signal

² Annual Book of ASTM Standards, Vol 03.03.

³ Annual Book of ASTM Standards, Vol 10.03.

⁴ Available from the American National Standards Institute, 11 West 42nd Street, 13th Floor, New York, NY 10036.

⁵ Available from American Society of Nondestructive Testing, 4153 Arlinggate Plaza, Caller #28518, Columbus, OH 43228.

⁶ Available from the Equipment Manufacturer's Institute, 410 N. Michigan Ave., Chicago, IL 60611.

¹ This test method is under the jurisdiction of ASTM Committee F-18 on Electrical Protective Equipment for Workers and is the direct responsibility of Subcommittee F18.55 on Acoustic Emission.

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