



Designation: E2532 – 09 (Reapproved 2017)

Standard Test Methods for Evaluating Performance of Highway Traffic Monitoring Devices¹

This standard is issued under the fixed designation E2532; 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.

1. Scope

1.1 *Purpose*—The two test methods contained in this standard define acceptance tests for evaluating the performance of a Traffic Monitoring Device (TMD) according to the functions it performs, the data it provides, the required accuracy of the data, and the conditions under which the device operates. Acceptance tests are recommended whenever a TMD is purchased, installed, or performance validation is desired. The tests are performed in a field environment and result in an accept or a reject decision for the TMD under test.

1.2 *Exceptions*—Exceptions and options to the test methods may be included in any derivative test method presented by a user as part of the procurement process for TMDs. Sellers may offer exceptions and options in responding to an invitation to bid.

1.3 *Units*—The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units,² which are provided for information only and are not considered standard.

1.4 The following safety procedures apply to Sections 6 and 7, which describe the details of the acceptance test methods. When a test site accessible by the public (for example, a street or highway) is used for the acceptance test of the TMD, obtain approval from the public authority having jurisdiction over the site for the traffic control procedures to be used during the test. *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 These test methods are under the jurisdiction of ASTM Committee E17 on Vehicle - Pavement Systems and are the direct responsibility of Subcommittee E17.52 on Traffic Monitoring.

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² *Standard Practice for Use of the International System of Units (SI): The Modern Metric System*, IEEE/ASTM SI 10™-2002, The Institute of Electrical and Electronics Engineers (IEEE), Inc., 3 Park Avenue, New York, NY, 10016-5997, USA and American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, USA, ISBN 0-7381-3317-5.

2. Referenced Documents

2.1 *ASTM Standards*:³

E177 Practice for Use of the Terms Precision and Bias in ASTM Test Methods

E867 Terminology Relating to Vehicle-Pavement Systems

E1318 Specification for Highway Weigh-In-Motion (WIM) Systems with User Requirements and Test Methods

E2300 Specification for Highway Traffic Monitoring Devices

3. Terminology

3.1 Definitions of terms and definitions of terms specific to these test methods are given below.

3.2 *Definitions*:

3.2.1 *accepted reference value, n*—value attributed to a particular quantity (for example, vehicle class by number of axles and interaxle spacings, vehicle count, lane occupancy, or vehicle speed) and agreed upon by the user and seller in advance of testing of a TMD, which has an uncertainty appropriate for the given purpose. **E2300**

3.2.2 *accuracy, n*—closeness of agreement between a value indicated by a TMD and an accepted reference value. **E2300**

3.2.3 *axle, n*—axis oriented transversely to the nominal direction of vehicle motion, and extending the full width of the vehicle, about which the wheels at both ends rotate. **E867, E1318**

3.2.4 *axle count, n*—number of vehicle axles enumerated at a point on a lane or roadway during a specified time interval. **E867**

3.2.5 *bias, n*—a generic concept related to a consistent or systematic difference between a set of test results from the process and an accepted reference value of the property being measured. **E177**

3.2.6 *correct detection, n*—an indication by a TMD that a vehicle actually passing over the detection area of the TMD is detected by the TMD. **E2300**

³ 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.