~~Current Code Deletion;~~ Revised Amendment until Jul. 2023; Additional Amendment for Aug. 2023;

Table of Contents

Section 2.25. Weigh-In-Motion Systems Used for Vehicle Enforcement ~~Screening~~ – Tentative Code for Vehicle Screening and Code for Direct Enforcement

This tentative code **for vehicle screening (Class A)** has a trial or experimental status and is not intended to be enforced. The requirements are designed for study prior to the development and adoption of a final code. Officials wanting to conduct an official examination of a device or system are advised to see paragraph G-A.3. Special and Unclassified Equipment.

(Tentative Code Added 2015)

The Class E systems used for direct enforcement shall follow this code.

A. Application

A.1. General . – This code applies to **fixed (not portable)** systems used to weigh vehicles, while in motion, for the purpose of screening and sorting the vehicles based on the vehicle weight to determine if a static weighment is necessary **(Class A) and direct enforcement of the weight limit of vehicles (Class E)**.

A.2. Exception. – This code does not apply to weighing systems intended for the collection of statistical traffic data.

A.3. Additional Code Requirements. – In addition to the requirements of this code, weigh-in-motion screening systems shall meet the requirements of Section 1.10. General Code.

S. Specifications

S.1. Design of Indicating and Recording Elements and of Recorded Representations.

S.1.1. Ready Indication. – The system shall provide a means of verifying that the system is operational and ready for use.

S.1.2. Value of System Division Units. – The value of a system division "d" expressed in a unit of weight shall be equal to:

(a) 1, 2, or 5; or

(b) a decimal multiple or submultiple of 1, 2, or 5.

Examples: divisions may be 10, 20, 50, 100; or 0.01, 0.02, 0.05; or 0.1, 0.2, 0.5, etc.

S.1.2.1. Units of Measure. – The system shall indicate weight values using only a single unit of measure.

S.1.3. Maximum Value of Division. – The value of the system division "d" for a Class A **and Class E**, ~~**weight-in-motion**~~ **weigh-in-motion (WIM)** system shall not be greater than 50 kg (100 lb).

S.1.3.1. Number of Scale Division. – The number of scale divisions for Class E shall be a minimum of 200 and a maximum of 4,000.

S.1.3.2. Minimum Capacity. – The minimum capacity in scale division for Class E shall be 10.

S.1.4. Value of Other Units of Measure.

S.1.4.1. Speed. – Vehicle speeds shall be measured in miles per hour or kilometers per hour.

S.1.4.2. Axle-Spacing (Length). – The center-to-center distance between any two successive axles shall be measured in:

(a) meters and decimal submultiples of a meter;

(b) feet and inches; or

(c) feet and decimal submultiples of a foot.

S.1.4.3. Vehicle Length. – If the system is capable of measuring the overall length of the vehicle, the length of the vehicle shall be measured in feet and/or inches, or meters.

S.1.5. Capacity Indication. – An indicating or recording element shall not display nor record any values greater than 105 % of the specified capacity of the load receiving element.

S.1.6. Identification of a Fault. – Fault conditions **that may affect the tolerance of accuracy as specified in Table T.2.2 Tolerances for Accuracy** shall be presented to the operator in a clear and unambiguous means. The following fault conditions **are recommended to** ~~**shall**~~ be identified:

(a) Vehicle speed is below the minimum or above the maximum speed as specified.

(b) The maximum number of vehicle axles as specified has been exceeded.

(c) A change in vehicle speed greater than that specified has been detected.

(d) Imbalanced weight between the left and right wheels has exceeded the specified values.

(e) Vehicle has changed lanes between or in the proximity of the first and the last sensors.

(f) Any axle or wheel is not on the load-receiving element of the sensors.

(g) Vehicle direction of travel is not valid for the installation.

(h) The amount of time all vehicle axles are simultaneously on the scale is below the minimum data acquisition time per manufacturer.

S.1.7. Recorded Representations.

S.1.7.1. Values to be Recorded. – At a minimum, the following values shall be printed and/or stored electronically for each vehicle weighment:

(a) transaction identification number;

(b) station ID;

~~**(b)**~~ **(c)** lane identification (required if more than one lane at the site has the ability to weigh a vehicle in motion);

~~**(c)**~~ **(d)** vehicle speed;

~~**(d)**~~ **(e)** number of axles;

~~**(e)**~~ **(f)** weight of each axle;

~~**(f)**~~ **(g)** identification and weight of axle groups;

~~**(g)**~~ **(h)** axle spacing;

~~**(h)**~~ **(i)** total vehicle weight;

(j) total vehicle length;

~~**(i)**~~ **(k)** all fault conditions that occurred during the weighing of the vehicle**, as identified in paragraph S.1.6. Identification of a Fault**;

~~**(j)**~~ **(l)** violations, as identified in paragraph S.2.1. Violation Parameters, which occurred during the weighing of the vehicle; and

~~**(k)**~~ **(m)** time and date.

Note: For Class E, consult the specific jurisdictional legislation for additional values that may be required to issue enforcement violations. All gross vehicle, axle, and axle group weights must be printed and/or stored with the corrected values that include any necessary reductions due to the system tolerance and adopted violation thresholds. Violation thresholds may be dependent on additional items, not specified in this code

S.1.8. Value of the Indicated and Recorded System Division. – The value of the system's division "(d)," as recorded, shall be the same as the division value indicated.

S.2. System Design Requirements.

S.2.1. Violation Parameters. – The instrument shall be capable of accepting user-entered violation parameters for the following items:

(a) single axle weight limit;

(b) axle group weight limit;

(c) gross vehicle weight limit; and

(d) bridge formula maximum.

The instrument shall display and/or record violation conditions when these parameters have been exceeded.

Note: Jurisdiction-defined weight limits for S.2.1 Violation Parameters (a) through (d) can be used to determine the violation.

S.3. Design of Weighing Elements.

S.3.1. Multiple Load-Receiving Elements. – An instrument with a single indicating or recording element, or a combination indicating-recording element, that is coupled to two or more load-receiving elements with independent weighing systems, shall be provided with means to prohibit the activation of any load-receiving element (or elements) not in use, and shall be provided with automatic means to indicate clearly and definitely which load receiving element (or elements) is in use.

Commented [CN1]: Single and tandem also can be different between jurisdiction.
FHWA Single = 20 kips Tan = 34 kips
NYS Single = 22.4 kips Tan = 36 kips.

How about…"*Jurisdiction-defined weight limits for S.2.1.(a) through (d) can be used to determine the violation parameters*"

Commented [PT2R1]: ok

S.4. Design of Weighing Devices, Accuracy Class.

S.4.1. Designation of Accuracy. – Weigh-in-motion systems meeting the requirements of this code shall be designated as accuracy Class A **and Class E**.

Note: This does not preclude higher accuracy classes from being proposed and added to this Code in the future when it can be demonstrated that weigh-in-motion systems grouped within those accuracy classes can achieve the higher level of accuracy specified for those devices.

S.5. Design of Temperature.

S.5.1. Operating Temperature. – The operating temperature limit shall be from -10°C (14°F) to +40°C (104°F).

S.5.2. Temperature Effect on No-Load Balance. – The zero-load indication shall not vary by more than one division per 5°C (9°F) change in temperature.

S.6. Design of Electric Power Supply.

S.6.1. Power Supply, Voltage and Frequency.

(a) AC main power: Weighing devices shall comply with Table T.2.2 Tolerances for Accuracy when tested over the range of -15% to +10% of the marked nominal line voltage(s) at 60 Hz, or the voltage range marked by the manufacturer, at 60 Hz.

(b) DC main power (including rechargeable or non-rechargeable batteries): Weighing devices shall not indicate nor record values outside the applicable tolerance limits set forth in Table T.2.2 Tolerances for Accuracy when the battery power output is excessive or deficient.

S.6.2. Power Interruption. – A power interruption shall not cause an indicating or recording element to display or record any values outside the applicable tolerance limits.

S.7. Design of Balance for Class E.

S.7.1. Zero-Load Adjustment.

(a) An automatic zero adjustment outside the limits in S.7.1.(b) is prohibited.

(b) The maximum load that can be "re-zeroed" during normal operating conditions shall be 3.0 scale divisions.

S.7.2. Zero-Tracking Device for Class E. – A zero-tracking device shall operate only when:

(a) the indication is at zero;

(b) the instrument is in stable equilibrium;

(c) the corrections are not more than 0.5d per second; and

(d) within a range of 4% of Max around the actual zero.

S.7.3. Totalizing Device. – WIM instruments may be provided with a totalizing device which operates:

(e) automatically, in which case the instrument shall be provided with a vehicle recognition device defined in S.7.4. Vehicle Recognition/Presence Device; or

(a) semi-automatically (e.g., it operates automatically following a manual command).

S.7.4. Vehicle Recognition/Presence Device for Class E – WIM instruments which are able to operate without the intervention of an operator shall be provided with a vehicle recognition device. The device shall detect the presence of a vehicle in the weigh zone and shall detect when the whole vehicle has been weighed. WIM instruments shall not indicate or print the vehicle mass unless all of the wheels of the vehicle have been weighed.

Note: S.7.1 and S.7.2 may not be applicable to all devices.

S.8. Accidental breakdown and Maladjustment. – WIM instruments shall be so constructed that an accidental breakdown or maladjustment of control elements likely to disturb its correct functioning cannot take place without its effect being evident

S.~~5.~~9. Marking Requirements. – In addition to the marking requirements in G-S.1. Identification (except G.S.1.(e)), the system shall be marked with the following information:

(a) accuracy class;

(b) value of the system division "d";

(c) operational temperature limits;

(d) number of instrumented lanes (not required if only one lane is instrumented);

(e) minimum and maximum vehicle speed;

(f) maximum number of axles per vehicle;

(g) maximum change in vehicle speed during weighment; and

(h) minimum and maximum load.

S.~~5.~~9.1. Location of Marking Information. – The marking information required in Section 1.10. General Code, G-S.1. Identification and Section 2.25. Weigh-in-Motion Systems, S.5. Marking Requirements shall be visible after installation. The information shall be marked on the system or recalled from an information screen.

N. Notes

N.1. Test Procedures.

N.1.1. Selection of Test Vehicles. – All dynamic testing associated with the procedures described in each of the subparagraphs of N.1.5 **and N.1.6** shall be performed with a minimum of ~~**two**~~ **the following** test vehicles **for Class A and Class E, respectively**.

N.1.1.1. Selection of Test Vehicles for Class A. – A minimum of two vehicles below shall be used.

(a) The first test vehicle may be a two-axle, six-tire, single-unit truck; that is, a vehicle with two axles with the rear axle having dual wheels. The vehicle shall have a maximum gross vehicle weight of 10 000 lb.

(b) The second test vehicle shall be a five-axle, single-trailer truck with a maximum gross vehicle weight of 80 000 lb.

N.1.1.2. Selection of Test Vehicles for Class E. – A minimum of three vehicles below shall be used.

(a) The first test vehicle may be a two-axle, six-tire, single-unit truck or Federal Highway Administration (FHWA) Class 5; that is, a vehicle with two axles with the rear axle having dual wheels

(b) The second test vehicle shall be a five-axle, single-trailer truck or FHWA Class 9 3S2 Type.

(c) The third test vehicle shall be a three-axle, single-unit truck or FHWA Class 6.

(d) The gross vehicle weights shall be as stated in N.1.2.3. Dynamic Test Loads for Class E.

Note 1: Consideration should be made for testing the systems using vehicles which are typical to the system's ~~**daily operation**~~ **target vehicles**.

Note 2: Vehicles with liquid loads should be excluded from the testing and from enforcement.

N.1.1.~~1.~~3. Weighing of Test Vehicles. – All test vehicles shall be weighed on a reference scale**, meeting the requirements of Appendix A,** before being used to conduct the dynamic tests.

N.1.1.~~2.~~4. Determining Reference Weights for Axle, Axle Groups, and Gross Vehicle Weight. – The reference weights shall be the average weight value of a minimum of three static weighments of all single axles, axle groups, and gross vehicle weight **on a reference scale before being used to conduct the dynamic tests**.

Note: The axles within an axle group are not considered single axles.

N.1.2. Test Loads.

N.1.2.1. Static Test Loads. – All static test loads shall use certified test weights.

N.1.2.2. Dynamic Test Loads for Class A. – Test vehicles used for dynamic testing shall be loaded to 85 % to 95 % of their legal maximum Gross Vehicle Weight **for a minimum of 20 runs per test vehicle type**. The "load" shall be non-shifting and shall be positioned to present as close as possible, an equal side-to-side load.

N.1.2.3. Dynamic Test Loads for Class E. – Test vehicles used for dynamic testing shall be loaded in two (2) different load conditions. The "load" shall be non-shifting and shall be positioned to present as close as possible, an equal side-to-side load.

(a) a half load condition (60-80% of the legal load limit of the test vehicle) for a minimum of 10 runs per test vehicle type; and

(b) a full load condition (> 85% of the legal load limit for the test vehicle) for a minimum of 20 runs per test vehicle type

N.1.3. Reference Scale. – Each reference vehicle shall be weighed statically on a multiple platform vehicle scale **or a single-platform vehicle scale**

N.1.3.1. Multi-Platform Vehicle Scale. – It is comprised of three individual weighing/load-receiving elements, each an independent scale. The three individual weighing/load receiving elements shall be of such dimension and spacing to facilitate~~:~~ the single-draft weighing of all reference test vehicles;

(a) the simultaneous weighing of each single axle and axle group of the reference test vehicles on different individual elements of the scale; and

(b) gross vehicle weight determined by summing the values of the different reference axle and reference axle groups of a test vehicle.

N.1.3.2. Single-Platform Vehicle Scale. – Each individual axle or axle group of the reference test vehicles shall be measured on the single platform vehicle scale. Only one single axle or axle group for measurement shall be on the single platform, while other single axles or axle groups shall be off the platform. The GVW shall be determined by summing all the single axles and axle groups.

The scale shall be tested immediately prior to using it to establish reference test loads and in no case more than ~~**24 hours**~~ **4 weeks** prior. To qualify for use as a suitable reference scale, it must meet NIST Handbook 44, Class III L maintenance tolerances.

Commented [CN3]: This needs to be revised and defined.

Commented [PT4R3]: I think they commented 6 months is too long, we might get away with 4 weeks, lets try that, I think 2 weeks was mentioned at the S&T committee meeting

N.1.3.1. Location of a Reference Scale. – The location of the reference scale must be considered since vehicle weights will change due to fuel consumption.

N.1.4. Test Speeds. – All dynamic tests shall be conducted **at the designated speed(s).**

N.1.4.1. Test Speeds for Class A. – Speed shall be within 20% below or at the posted speed limit.

N.1.4.2. Test Speeds for Class E. – Two speeds shall be used.

(a) at a high speed – posted speed limit (Vmax); and

(b) at a low speed – site-specific minimum speed, not below manufacturer's requirement (Vmin).

N.1.5. Test Procedures for Class A.

N.1.5.1. Dynamic Load Test. – The dynamic test shall be conducted using the test vehicles defined in N.1.1.**1.** Selection of Test Vehicles. The test shall consist of a minimum of 20 runs for each test vehicle at the speed as stated in N.1.4.**1.** Test Speeds.

At the conclusion of the dynamic test, there will be a minimum of 20 weight readings for each single axle, axle group, and gross vehicle weight of ~~**the**~~ **each** test vehicle. The tolerance for each weight reading shall be based on the percentage values specified in Table T.2.2 Tolerances for Accuracy ~~**Class A**~~.

N.1.5.2. Vehicle Position Test. – During the conduct of the dynamic testing, ensure the vehicle stays within the defined roadway along the width of the sensor. The test shall be conducted with 10 runs with the vehicle centered along the width of the sensor; 5 runs with the vehicle on the right side along the width of the sensor; and 5 runs with the vehicle on the left side along the width of the sensor. Only gross vehicle weight is used for this test and the tolerance for each weighment shall be based on the tolerance value specified in T.2.3. Tolerance Value for Vehicle Position Test.

N.1.5.3. Axle Spacing Test. – The axle spacing test is a review of the displayed and/or recorded axle spacing distance of the test vehicles. The tolerance value for each distance shall be based on the tolerance value specified in T.2.4. Tolerance Value for Axle Spacing.

N.1.6. Test Procedures for Class E.

N.1.6.1. Dynamic Load Test. – The dynamic test shall be conducted using the test vehicles defined in N.1.1.2. Selection of Test Vehicles for Class E. The test shall consist of a minimum of 30 runs for each test vehicle. A minimum of 10 runs at half load condition and a minimum of 20 runs at full load condition.

At the conclusion of the dynamic test, there will be a minimum of 30 weight readings or 15 weight readings at each speed. The tolerance for each weight reading shall be based on the percentage values specified in Table T.2.2 Tolerances for Accuracy at 100% compliance.

(a) a half load condition. – The test shall be conducted with 10 runs in total or 5 runs at each speed as stated in N.1.4.2. Test Speeds for Class E along the width of the sensor.

(b) a full load condition. – The test shall be conducted with 20 runs in total or 10 runs at each speed as stated in N.1.4.2. Test Speeds for Class E along the width of the sensor.

See Table N.1.6 below to summarize the minimum number of test runs for Class E.

Table N.1.6
Minimum Number of Test Runs per Each Test Vehicle for Class E

Load Condition	Speed
Half Load (10 runs)	High Speed Vmax (5 runs)
	Low Speed Vmin (5 runs)
Full Load (20 runs)	High Speed Vmax (10 runs)
	Low Speed Vmin (10 runs)
30 runs	15 runs x 2 speeds

N.1.6.2. Vehicle Position Test. – During the conduct of the dynamic testing for Class E, ensure the vehicle stays within the defined roadway and load receiving element of the sensor. No position test shall be performed for Class E because of the natural behavior of the test truck drivers.

N.1.6.3. Axle Spacing Test. – The axle spacing test is a review of the displayed and/or recorded axle spacing distance of the test vehicles. The tolerance value for each distance shall be based on the tolerance value specified in T.2.4. Tolerance Value for Axle Spacing.

N.1.6.4. Reference Axle Spacing. – Before measuring the reference axle spacing, the test vehicle shall be positioned straight, and the driving axle shall also be straight. A steel tape measure shall be used to determine the reference axle spacing. Both left and right axle spacing shall be measured, and the average of two measurements shall be recorded by the nearest cm (inches). Each axle spacing shall be made by a single measurement.

N.1.6.5 Test of Operating Speed Interlock. – To test the functioning of the operating speed interlock, test runs with one of the reference vehicles shall be made at speeds outside the range of operating speeds:

(a) at a speed of at least 5 % in excess of the maximum operating speed, OPVmax; and

(b) at a speed of at least 5 % below the minimum operating speed, OPVmin (if applicable).

The instrument shall detect the above conditions and not indicate or print any mass or load values unless there is a clear warning message on the indication and/or the printout.

N.1.6.6 Test of Operating Speed. – To determine and test the operating speed during an in-motion test, conduct six test runs of the unloaded two-axle rigid reference vehicle over the lateral center of the load receptor at constant speed. Three runs shall be near maximum operating speed, OPVmax, and three additional runs shall be just above minimum operating speed, OPVmin.

The reference value (conventional true value) for speed to be used in calculating the error in the indicated operating speed for each test run shall be the quotient of the measured axle spacing (to the nearest 10 mm) of the static two-axle rigid reference vehicle divided by the measured time interval (to the nearest millisecond) between arrival at a defined location (e.g., the leading edge) on the load receptor by the front and the rear axle of the moving two-axle rigid reference vehicle. No error in the indicated operating speed shall exceed 3 mph.

T. Tolerances

T.1. Principles.

T.1.1. Design. – The tolerance for a weigh-in-motion system is a performance requirement independent of the design principle used.

T.2. Tolerance Values for Accuracy Class A and Class E.

T.**2.1. Tests Involving Digital Indications or Representations.** – To the tolerances that would otherwise be applied in paragraphs T.2.2. Tolerance Value for Dynamic Load Test and T.2.3. Tolerance Value for Vehicle Position Test, there shall be added an amount equal to one-half the value of the scale division to account for the uncertainty of digital rounding.

T.2.2. Tolerance Values for Dynamic Load Test. – The tolerance values applicable during dynamic load testing are as specified in Table T.2.2 **for vehicle screening as well as direct enforcement purposes**.

Table T.2.2.
Tolerances for Accuracy ~~Class A~~

Load Description*	Tolerance as a Percentage of Applied Test Load
Axle Load	± 20 %
Axle Group Load **(including bridge formula)**	± 15 %
Gross Vehicle Weight	± 10 %

* **Class A for Vehicle Screening Purposes**: No more than 5 % of the weighments in each of the load description subgroups shown in this table shall exceed the applicable tolerance.

*** Class E for Direct Enforcement Purposes: All weighments shall be 100% compliance. Any weighments with any fault as identified in paragraph S.1.6 Identification of a Fault shall not be included in determining tolerances for accuracy.**

T.2.3. Tolerance Value for Vehicle Position Test for Class A. – The tolerance value applied to each gross vehicle weighment is ± 10 % of the applied test load.

T.2.4. Tolerance Value for Axle Spacing. – The tolerance value applied to each axle spacing measurement shall be ± 0.15 m (**~~0.5 ft~~6 inches**) **at 100% compliance**.

T.3. Influence Factors. – The following factor is applicable to tests conducted under controlled conditions only.

T.3.1. Temperature. – Systems shall satisfy the tolerance requirements under all operating temperature unless a limited operating temperature range is specified by the manufacturer.

T.3.2. Power Supply. – System shall satisfy the tolerance requirements under voltage ranges of -15% to +10% of the marked nominal line voltage(s) at 60 Hz or the voltage range marked by the manufacturer at 60 Hz. The battery-operated systems shall satisfy the tolerance requirements when the battery power output is not excessive or deficient.

T.4. Radio Frequency Interference (RFI) and Other Electromagnetic Interference Susceptibility. – The difference between the weight indication due to the disturbance and the weight indication without the disturbance shall not exceed the tolerance value as stated in Table T.2.2. Tolerances for Accuracy Class A.

UR. User Requirements

UR.1. Selection Requirements. – Equipment shall be suitable for the service in which it is used with respect to elements of its design, including but not limited to, its capacity, number of scale divisions, value of the scale division, or verification scale division and minimum capacity.

UR.1.1. General. – The typical class or type of device for particular weighing applications is shown in Table 1. Typical Class or Type of Device for Weighing Applications.

Table 1.
Typical Class or Type of Device for Weighing Applications

Class	Weighing Application
A	Screening and sorting of vehicles based on axle, axle group, and gross vehicle weight.
E	**Enforcing of vehicles based on axle, axle group, and gross vehicle weight.**
Note: A WIM system with a higher accuracy class than that specified as "typical" may be used.	

UR.2. User Location Conditions and Maintenance. – The system shall be installed and maintained as defined in the manufacturer's recommendation.

UR.2.1. System Modification. – The dimensions (e.g., length, width, thickness, etc.) of the load receiving element of a system shall not be changed beyond the manufacturer's specifications, nor shall the capacity of a scale be increased beyond its design capacity by replacing or modifying the original primary indicating or recording element with one of a higher capacity, except when the modification has been approved by a competent engineering authority, preferably that of the engineering department of the manufacturer of the system, and by the weights and measures authority having jurisdiction over the system.

UR.2.2. Foundation, Supports, and Clearance. – The foundation and supports shall be such as to provide strength, rigidity, and permanence of all components.

On load-receiving elements, which use moving parts for determining the load value, clearance shall be provided around all live parts to the extent that no contacts may result when the load-receiving element is empty, nor throughout the weighing range of the system.

UR.2.3. Access to Weighing Elements. – If necessary, adequate provision shall be made for inspection and maintenance of the weighing elements.

UR.3. Maximum Load. – A system shall not be used to weigh a load of more than the marked maximum load of the system.

UR.4 Enforcement Guidance. – Prior to the issuance of an enforcement violation, the user shall consult the specific jurisdictional legislation and/or protocol for additional values that may be required. All gross vehicle, axle, and axle group weights must be printed and/or stored with the corrected values that include any necessary reductions due to the system tolerance and adopted violation thresholds.

Appendix D. Definitions

The specific code to which the definition applies is shown in the [brackets] at the end of the definition. Definitions for the General Code [1.10] apply to all codes in NIST Handbook 44.

A

axle. – The axis oriented transversely to the nominal direction of vehicle motion, and extending the full width of the vehicle, about which the wheel(s) at both ends rotate. [2.25]

axle-group load. – The sum of all tire loads of the wheels on a group of adjacent axles; a portion of the gross-vehicle weight. [2.25]

axle load. – The sum of all tire loads of the wheels on an axle; a portion of the gross-vehicle weight. [2.25]

axle spacing. – The distance between the centers of any two axles. When specifying axle spacing, the axels used also need to be identified. [2.25]

S

single-axle load. – The load transmitted to the road surface by the tires lying on the same longitudinal axis (that axis transverse to the movement of the vehicle and about which the wheels rotate). [2.25]

T

tandem-axle load. – The load transmitted to the road surface by the tires of two single-axles lying on the same longitudinal axis (that axis transverse to the movement of the vehicle and about which the wheels rotate). [2.25]

triple-axle load. – The load transmitted to the road surface by the tires of three single-axles lying on the same longitudinal axis (that axis transverse to the movement of the vehicle and about which the wheels rotate). [2.25]

W

weigh-in-motion (WIM). – A process of estimating a moving vehicle's gross weight and the portion of that weight that is carried by each wheel, axle, or axle group, or combination thereof, by measurement and analysis of dynamic vehicle tire forces. [2.25]

weigh-in-motion screening scale. – A weigh-in-motion system used to identify potentially overweight vehicles. [2.25]

wheel weight. – The weight value of any single or set of wheels on one side of a vehicle on a single axle. [2.25]

WIM System. – A set of sensors and supporting instruments that measure the presence of a moving vehicle and the related dynamic tire forces at specified locations with respect to time; estimate tire loads; calculate speed, axle spacing, vehicle class according to axle arrangement, and other parameters concerning the vehicle; and process, display, store, and transmit this information. This standard applies only to highway vehicles. [2.25]

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