

## § 325.21

within fifteen (15) days following the date of the vehicle inspection.

[40 FR 42437, Sept. 12, 1975, as amended at 41 FR 10226, Mar. 10, 1976; 54 FR 50385, Dec. 6, 1989; 60 FR 38743, July 28, 1995; 66 FR 49869, Oct. 1, 2001]

### Subpart C—Instrumentation

#### § 325.21 Scope of the rules in this subpart.

The rules in this subpart specify criteria for sound level measurement systems which are used to make the sound level measurements specified in subpart D and subpart E of this part.

#### § 325.23 Type of measurement systems which may be used.

The sound level measurement system must meet or exceed the requirements of American National Standard Specification for Sound Level Meters (ANSI S1.4-1971), approved April 27, 1971, issued by the American National Standards Institute,<sup>1</sup> throughout the applicable frequency range for either:

- (a) A Type 1 sound level meter;
- (b) A Type 2 sound level meter; or
- (c) A Type S sound level meter which has—
  - (1) A weighing frequency response;
  - (2) Fast dynamic characteristics of its indicating instrument; and
  - (3) A relative response level tolerance consistent with those of either a Type 1 or Type 2 sound level meter, as specified in section 3.2 of ANSI S1.4-1971.

#### § 325.25 Calibration of measurement systems.

(a)(1) The sound level measurement system must be calibrated and appropriately adjusted at one or more frequencies in the range from 250 to 1,000 Hz at the beginning of each series of measurements and at intervals of 5–15 minutes thereafter, until it has been determined that the sound level measurement system has not significantly drifted from its calibrated level. Once this fact has been established, calibrations may be made at intervals once every hour. A significant drift shall be

<sup>1</sup> Copies of the specification may be secured from the American National Standards Institute, 1430 Broadway, New York, New York, 10018.

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considered to have occurred if a 0.3 dB or more excursion is noted from the system's predetermined reference calibration level. In the case of systems using displays with whole decibel increments, the operator may visually judge when the 0.3 dB drift has been met or exceeded.

(2) The sound level measurement system must be checked periodically by its manufacturer, a representative of its manufacturer, or a person of equivalent special competence to verify that its accuracy meets the manufacturer's design criteria.

(b) An acoustical calibrator of the microphone coupler type designed for the sound level measurement system in use shall be used to calibrate the sound level measurement system in accordance with paragraph (a) of this section. The calibration must meet or exceed the accuracy requirements specified in section 5.4.1 of the American National Standard Institute Standard *Methods for Measurements of Sound Pressure Levels* (ANSI S1.13-1971) for field method measurements.

[40 FR 42437, Sept. 12, 1975, as amended at 41 FR 10227, Mar. 10, 1976]

#### § 325.27 Use of a windscreen.

A properly installed windscreen, of the type recommended by the manufacturer of the Sound Level Measurement System, shall be used during the time that noise emission measurements are being taken.

### Subpart D—Measurement of Noise Emissions; Highway Operations

#### § 325.31 Scope of the rules in this subpart.

The rules in this subpart specify conditions and procedures for measurement of the sound level generated by a motor vehicle engaged in a highway operation for the purpose of ascertaining whether the motor vehicle conforms to the Standards for Highway Operations set forth in 40 CFR 202.20.

#### § 325.33 Site characteristics; highway operations.

(a) Measurement shall be made at a test site which is adjacent to, and includes a portion of, a traveled lane of a

public highway. A microphone target point shall be established on the centerline of the traveled lane of the highway, and a microphone location point shall be established on the ground surface not less than 31 feet (9.5 m) or more than 83 feet (25.3 m) from the microphone target point and on a line that is perpendicular to the centerline of the traveled lane of the highway and that passes through the microphone target point. In the case of a standard test site, the microphone location point is 50 feet (15.2 m) from the microphone target point. Within the test site is a triangular measurement area. A plan view diagram of a standard test site, having an open site within a 50-foot (15.2 m) radius of both the microphone target point and the microphone location point, is shown in Figure 1. Measurements may be made at a test site having smaller or greater dimensions in accordance with the rules in subpart F of this part.

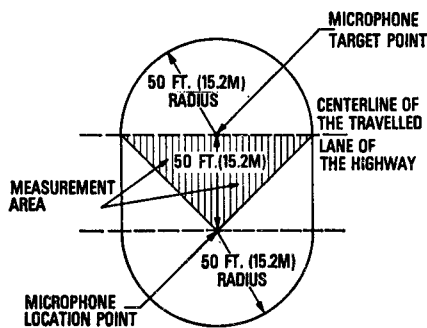


Figure 1  
STANDARD TEST SITE;  
HIGHWAY OPERATIONS

(b) The test site must be an open site, essentially free of large sound-reflecting objects. However, the following objects may be within the test site, including the triangular measurement area:

- (1) Small cylindrical objects such as fire hydrants or telephone or utility poles.
- (2) Rural mailboxes.
- (3) Traffic railings of any type of construction except solid concrete barriers (see § 325.5(c)(4)).
- (4) One or more curbs having a vertical height of 1 foot (.3 m) or less.

(c) The following objects may be within the test site if they are outside of the triangular measurement area of the site:

(1) Any vertical surface (such as billboard), regardless of size, having a lower edge more than 15 feet (4.6 m) higher than the surface of the traveled lane of the highway.

(2) Any uniformly smooth sloping surface slanting away from the highway (such as a rise in grade alongside the highway) with a slope that is less than 45 degrees above the horizontal.

(3) Any surface slanting away from the highway that is 45 degrees or more and not more than 90 degrees above the horizontal, if all points on the surface are more than 15 feet (4.6 m) above the surface of the traveled lane of the highway.

(d) The surface of the ground within the measurement area must be relatively flat (see § 325.5(c)(5)). The site shall be a "soft" test site. However, if the site is determined to be "hard," the correction factor specified in § 325.75(a) of this part shall be applied to the measurement.

(e) The traveled lane of the highway within the test site must be dry, paved with relatively smooth concrete or asphalt, and substantially free of—

- (1) Holes or other defects which would cause a motor vehicle to emit irregular tire, body, or chassis impact noise; and
- (2) Loose material, such as gravel or sand.

(f) The traveled lane of the highway on which the microphone target point is situated must not pass through a tunnel or underpass located within 200 feet (61 m) of that point.

[40 FR 42437, Sept. 12, 1975, as amended at 54 FR 50385, Dec. 6, 1989]

#### § 325.35 Ambient conditions; highway operations.

(a)(1) *Sound.* The ambient A-weighted sound level at the microphone location point shall be measured, in the absence of motor vehicle noise emanating from within the clear zone, with fast meter response using a sound level measurement system that conforms to the rules of § 325.23.

(2) The measured ambient level must be 10 dB(A) or more below that level