

Regulations of Connecticut State Agencies

TITLE 14. Motor Vehicles. Use of the Highway by Vehicles. Gasoline

Agency

Motor Vehicle Department

Subject

Maximum Permissible Noise Levels for Vehicles

Inclusive Sections

§§ 14-80a-1—14-80a-10a

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Maximum Permissible Noise Levels for Vehicles

Sec. 14-80-1—14-80-18. Repealed

Repealed June 1, 1978.

Sec. 14-80-1a. Definitions

(a) “Motor Vehicle” means any vehicle as defined in subdivision (26) of section 14-1, Connecticut General Statutes.

(b) “dB(A)” means the standard abbreviation for “A” weighted sound level in decibels.

(c) “Sound Level” means the “A” weighted sound level obtained by use of fast meter response and “A” weighting characteristics specified in American National Standard S1.4-1971 “Specification for Sound level Meters”.

(d) “Gross Vehicle Weight Rating (G.V.W.R.)” means the value specified by the manufacturer as the maximum fully loaded overall weight allowed for a single vehicle;

(e) “Gross Combination Weight Rating (G.C.W.R.)” means the sum total of the G.V.W.R. of each vehicle or unit comprising a combination vehicle.

(f) “Hard Test Site” means any test site having the ground surface covered with concrete, asphalt, packed dirt, gravel or similar acoustically reflective material for more than one-half the distance between the microphone target point and the microphone location.

(g) “Soft Test Site” means any test site having the ground surface covered with grass, other ground cover or similar acoustically absorptive material for one-half or more of the distance between the microphone target point and the microphone location.

(h) “Ground Cover” means any of various low, dense-growing plants such as ivy, myrtle, low weeds, or brush.

(i) “Traffic Railing” means any longitudinal highway traffic barrier system installed along the side or median of a highway. For the purpose of this regulation, a traffic railing must have at least thirty-five percent of its vertical height from the ground surface to the top of the railing, open to free space in order to qualify as an acceptable object within a noise measurement test site. Posts or other discrete supports shall be ignored when ascertaining open free space.

(j) “Relatively Flat” means a sound measuring site which does not contain significant concave curvatures or slope reversals that may result in the focusing of sound waves toward the microphone location.

(k) “Motorcycle” means any vehicle as defined in subdivision (25) of section 14-1, Connecticut General Statutes.

(l) “Snowmobile” means a vehicle coming within the definition of the term “snowmobile” as defined in section 14-379, Connecticut General Statutes.

(Effective December 27, 1978)

Sec. 14-80a-2a. Provisions

Except as provided in section 14-80a-3a of this regulation, the requirements in sections

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14-80a-1a through 14-80a-10a apply to motor vehicles and snowmobiles at any time or under any condition of surface grade, vehicle load, acceleration or deceleration.

(Effective June 1, 1978)

Sec. 14-80a-3a. Exceptions

Sections 14-80a-1a through 14-80a-10a do not apply to:

(a) The sound generated by a warning device, such as a horn or siren installed in a motor vehicle, unless such a device is intentionally sounded in order to preclude an otherwise valid noise emission measurement.

(b) An emergency motor vehicle, such as a fire engine, an ambulance, a police van, or a rescue van, when it is responding to an emergency call.

(c) A snow plow in operation.

(d) The sound generated by auxiliary equipment which is normally operated only when the motor vehicle on which it is installed is stopped or is operating at a speed of 5 MPH (8 km/h) or less, unless such device is intentionally operated at speeds greater than 5 MPH (8 km/h) in order to preclude an otherwise valid noise measurement. Examples of that type of auxiliary equipment include, but are not limited to, cranes, asphalt spreaders, ditch diggers, liquid or slurry pumps, auxiliary air compressors, welders and trash compactors.

(Effective June 1, 1978)

Sec. 14-80a-4a. Allowable noise levels

Motor vehicle and snowmobile noise emissions when measured with the sound level measuring microphone located 50 feet (15.2 m) from the target point in accordance with the requirements of section 14-80a-7a shall not exceed the following specified values:

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(a) Any motor vehicle or combination motor vehicle having a G.V. W.R. or G.C.W.R. of less than 10,000 pounds (4536 kg) including passenger motor vehicles:

MAXIMUM PERMISSIBLE SOUND LEVEL READINGS dB(A)

	HIGHWAY OPERATION			STATIONARY		
	Soft Site			Soft Site		Hard Site
	35 MPH or less	Above 35 MPH	35 MPH or less	Hard Site	Above 35 MPH	
HIGHWAY SPEED LIMIT						
VEHICLES MANUFACTURED						
Prior to Jan. 1, 1979	76 dB(A)	82 dB(A)	78 dB(A)	84 dB(A)	76 dB(A)	78 dB(A)
On and After Jan. 1, 1979	72 dB(A)	79 dB(A)	74 dB(A)	81 dB(A)	72 dB(A)	74 dB(A)

(b) Any motor vehicle or combination motor vehicle having a G.V.W.R. or G.C.W.R. of 10,000 pounds (4536 kg) or greater excluding buses:

MAXIMUM PERMISSIBLE SOUND LEVEL READINGS dB(A)

	HIGHWAY OPERATION			STATIONARY		
	Soft Site			Soft Site		Hard Site
	35 MPH or less	Above 35 MPH	35 MPH or less	Hard Site	Above 35 MPH	
HIGHWAY SPEED LIMIT						
	86 dB(A)	90 dB(A)	88 dB(A)	92 dB(A)	86 dB(A)	88 dB(A)

(c) Any bus including school buses having a G.V.W.R. or G.C.W.R. of 10,000 pounds (4536 kg) or greater:

MAXIMUM PERMISSIBLE SOUND LEVEL READINGS dB(A)

	HIGHWAY OPERATION			STATIONARY		
	Soft Site		Hard Site	Soft Site		Hard Site
	35 MPH or less	Above 35 MPH	35 MPH or less	Above 35 MPH		
HIGHWAY SPEED LIMIT						
VEHICLES MANUFACTURED						
Prior to Jan. 1, 1979	86 dB(A)	90 dB(A)	88 dB(A)	92 dB(A)	86 dB(A)	88 dB(A)
On and After Jan. 1, 1979	83 dB(A)	88 dB(A)	86 dB(A)	90 dB(A)	83 dB(A)	85 dB(A)

(d) Any motorcycle:

MAXIMUM PERMISSIBLE SOUND LEVEL READINGS dB(A)

	HIGHWAY OPERATION			STATIONARY		
	Soft Site		Hard Site	Soft Site		Hard Site
	35 MPH or less	Above 35 MPH	35 MPH or less	Above 35 MPH		
HIGHWAY SPEED LIMIT						
VEHICLES MANUFACTURED						
Prior to Jan. 1, 1979	80 dB(A)	84 dB(A)	82 dB(A)	86 dB(A)	80 dB(A)	82 dB(A)
On and After Jan. 1, 1979	78 dB(A)	82 dB(A)	80 dB(A)	84 dB(A)	78 dB(A)	80 dB(A)

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	MAXIMUM PERMISSIBLE SOUND LEVEL READINGS dB(A)			
	OPERATION ANY SPEED		STATIONARY	
	<i>Soft Site (including snow)</i>	<i>Hard Site (including ice)</i>	<i>Soft Site</i>	<i>Hard Site</i>
(e) Snowmobiles				
(1) Any snowmobile:				
SNOWMOBILES				
MANUFACTURED				
Prior to Jan. 1, 1973	85 dB(A)	87 dB(A)	86 dB(A)	88 dB(A)
On and After Jan. 1, 1973 and prior to Jan. 1, 1975	82 dB(A)	84 dB(A)	83 dB(A)	85 dB(A)
On and After Jan. 1, 1975	78 dB(A)	80 dB(A)	79 dB(A)	81 dB(A)

The speed range designated for the maximum permissible sound levels in the charts above are determined by prevailing speed limits and speed limit advisory signs. The speed limits

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do not necessarily have to be posted.

(2) Certification of new snowmobiles. For the purposes of measuring sound emissions of new snowmobiles sold or offered for sale in Connecticut, independent certification by the Snowmobile Safety and Certification Committee, Inc., or an alternative testing laboratory approved by the Commissioner that a snowmobile model has been tested and does comply with a requirement of not more than 78 dB(A) under SAE J192(a) and 73 dB(A) under SAE J1161 shall be accepted as conclusive evidence of compliance with the maximum permissible sound levels for snowmobiles as established in Subsection (e) of this section.

(Effective June 1, 1978)

Sec. 14-80a-5a. Sound level measurement tolerances

(a) Measurement tolerances shall be allowed to take into account the effects of the following factors:

(1) The standard practice of reporting field sound level measurements to the nearest whole decibel.

(2) Variations resulting from commercial instrument tolerances.

(3) Variations resulting from the topography of the noise measurement site.

(4) Variations resulting from atmospheric conditions such as wind, ambient temperature, and atmospheric pressure.

(5) Variations resulting from reflected sound from small objects allowed within the test site.

(6) The interpretation of the effects of the above cited factors by enforcement personnel.

(b) Measurement tolerances shall not exceed two decibels for a given measurement and such tolerance shall be added directly to the appropriate maximum allowed sound level limit specified in section 14-80a-4a.

(Effective June 1, 1978)

Sec. 14-80a-6a. Instrumentation

(a) Sound level meter: The sound level meter shall meet or exceed the requirement of American National Standard Specification for sound level meters (ANSI S1.4-1971), approved April 27, 1971 and issued by the American National Standards Institute, for Types 1, II or S sound level meters.

(b) Sound level calibrator: A sound level calibration instrument of the coupler type shall be used to calibrate the sound level meter in decibel units and such instrument shall produce a calibration sound pressure level having a tolerance no greater than ± 3 dB with a reference sound pressure level of 20 micronewtons per square meter.

(c) Anemometer: An anemometer for use in measuring the wind speed at the test site shall be capable of indicating wind speed up to 20 MPH (32.2 km/h) and shall be accurate to within ten percent of the indicated reading.

(d) Remote instrument location system: The sound level meter may be remotely located

from the microphone by a cable system connected and used in compliance with the sound level meter manufacturer's recommendations.

(Effective June 1, 1978)

Sec. 14-80a-7a. Measurements of noise emissions

(a) Ambient conditions:

(1) Prevailing background sound level: The ambient A weighted sound level at the microphone location as measured in the absence of motor vehicle noise emanating from within the test site, with fast meter response shall be 10 dB(A) lower than the sound level limits specified in section 14-80a-4a which corresponds to the maximum permissible sound level reading which is applicable at the test site at the time of testing.

(2) Wind: The wind velocity at the test site shall be measured at the beginning of each series of noise measurements and at intervals of approximately 15 minutes thereafter until it has been established that the wind velocity is essentially determined to be below 12 MPH (19.3 km/h). Once this fact has been established, wind velocity measurements may be made once each hour. Noise measurements shall be made only if the measured wind velocity is 12 MPH (19.3 km/h) or less.

(3) Precipitation: Sound level measurements shall not be made under any condition of precipitation; however, measurements may be made with snow on the ground. The ground surface within the triangular measurement area must be free of standing water.

(b) Location and operation of sound level system:

(1) Microphone location: The microphone shall be located at a height not less than 2 feet (.6 m) nor more than 6 feet (1.8 m) above the plane of the roadway surface and not less than 3.5 feet (1.1 m) above the surface on which the microphone stands. When the sound level meter is hand held or otherwise monitored by a person located near the microphone, the holder must orient himself relative to the highway in a manner consistent with the recommendation of the manufacturer of the sound level measuring instrument. The holder or observer shall not be closer than 2 feet (.6 m) from the system's microphone nor shall he locate himself between the microphone and the vehicle being measured.

(2) Microphone orientation: The microphone shall be oriented toward the travel lane of the highway at the microphone target point at an angle that is consistent with the recommendation of the system's manufacturer. If the manufacturer of the instrument does not recommend an angle of orientation for its microphone, the microphone shall be oriented toward the highway at a vertical angle of not less than 70° and not more than perpendicular to the horizontal plane of the traveled lane of the highway.

(3) Sound level meter response: The sound level measurement system shall be set to the "A"-weighting network and "fast" meter response mode.

(c) Measurement procedure - highway operation: Sound level measurement shall be made of the sound level generated by a motor vehicle or snowmobile operated through the measurement area within the test site, regardless of the highway or surface grade, load, acceleration or deceleration. The sound level generated by the vehicle shall be the highest

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reading observed on the sound level measurement system as the vehicle passes through the measurement area corrected when appropriate in accordance with section 14-80a-9a. The sound level of the vehicle being measured must be observed to rise at least 6 dB(A) before the maximum sound level occurs and to fall at least 6 dB (A) after the maximum sound level occurs in order to be considered a valid sound level reading.

(d) Measurement procedure - stationary test:

(1) The motor vehicle or snowmobile shall be parked on the test site as specified in section 14-80a-8a (a) (2). If the motor vehicle is a combination (articulated) vehicle, it shall be parked so that the longitudinal centerline of the towing vehicle and the towed vehicle are in substantial alignment.

(2) All auxiliary equipment on the vehicle designed to be operated under normal conditions only when the vehicle is operated at a speed less than 5 MPH (8 km/in) shall be turned off. Examples of such equipment include cranes, asphalt spreaders, liquid or slurry pumps, auxiliary air compressors, welders, and trash compactors.

(3) Any motor vehicle equipped with an engine radiator fan automatic clutch system shall be tested with the fan clutch disengaged.

(4) With vehicle's transmission in the neutral position* and its clutch (if equipped) engaged, the engine's throttle shall be quickly depressed or advanced to its maximum displacement and immediately released to allow the engine to return to its idle speed. If the vehicle is equipped with an engine speed governor, the engine control shall be advanced to allow the engine to reach its maximum governed speed before returning the throttle control to the engine idle position. Such measurement shall be exclusive of any overshoot in excess of the governed speed.

*Snowmobiles not equipped with a "neutral" transmission shift feature will require "blocking" to raise the vehicles drive tread or belt above the test site surface.

(5) The maximum reading observed on the sound level measuring instrument occurring during the procedure specified in item (4) above shall be recorded.

(6) The procedures specified in items (4) and (5) above shall be repeated until the two maximum sound level readings are noted to be within 2 dB(A) of each other. These two readings shall be numerically averaged and the results shall be used for establishing compliance with this regulation.

(Effective June 1, 1978)

Sec. 14-80a-8a. Site characteristics

(a) Microphone target point:

(1) Highway operations: Sound level measurements shall be made at a test site which is adjacent to and includes a portion of a traffic lane or public highway. A microphone target point shall be established on the center line of the traveled lane.

(2) Stationary test: The motor vehicle or snowmobile to be tested shall be parked on the test site and a microphone target point shall be established within three feet (.91 m) of the vehicle's exhaust system outlet(s) measured on the longitudinal centerline of the motor

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vehicle or snowmobile.

(b) **Microphone location point:** A microphone location point shall be established on the ground surface not less than 35 feet (10.7 m) and not more than 83 feet (25.3 m) from the microphone target point and on a line that is perpendicular to the center line of the lane on which the vehicle is located or operated.

(e) **Test site:** A plan view diagram of a standard test site which is enclosed within a 50 foot (15.2 m) radius surrounding both the microphone target point and the microphone location point, is shown in figure one. Within the test site is a triangular measurement area. Measurements may be made at a test site having smaller or greater dimensions in accordance with the requirements of section 14-80a-9a. The test site shall 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 mail boxes.
- (3) Traffic railings of any type of construction except solid concrete barriers.
- (4) One or more curbs having a vertical height of one foot (.3 m) or less.
- (5) The following objects may be within the test site if they are outside of the triangular measurement area of the site:
 - a. Any vertical surface (such as a billboard), regardless of size, having a lower edge more than fifteen feet (4.6 m) higher than the surface of the traveled lane of the highway.
 - b. Any uniformly smooth sloping surface slanting away from the roadway (such as a rise in grade alongside the roadway) with a slope that is less than 45 degrees above the horizontal.
 - c. Any surface slanting away from the roadway that has a slope between 45 degrees and 90 degrees providing all points on this surface are more than 15 feet (4.6 m) above the surface of the test lane or roadway.

The surface of the ground within the measurement area must be relatively flat. Sound level measurements may be made on either “soft” or “hard” test sites as defined in section 14-80a-1a.

For highway operations, the traffic lane of the highway within the test site must be dry, paved with relatively smooth concrete or asphalt, and substantially free of holes or other defects which would cause a motor vehicle to emit irregular tire, body or chassis impact noise. The traffic lane of any 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.

(Effective June 1, 1978)

Sec. 14-80a-9a. Microphone distance correction factors

If the distance between the microphone location point and the microphone target point is other than 50 feet, (15.2 m), the maximum observed sound level reading generated by the vehicle being measured must be corrected in accordance with table one prior to determining

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compliance with the sound level values of section 14-80a-4a.

(Effective June 1, 1978)

Sec. 14-80a-10a. Validity of regulations

If any section or subsection of these regulations is found invalid, the remainder will continue to be valid and enforceable.

TABLE 1-DISTANCE CORRECTION FACTORS

If the distance between the Microphone location point and the Microphone target point is: *The value (dB(A) to be applied to the observed sound level reading is—*

35 feet (10.7 m) or more but less than 39 feet (11.9 m)—	-3
39 feet (11.9 m) or more but less than 43 feet (13.1 m)—	-2
43 feet (13.1 m) or more but less than 48 feet (14.6 m)—	-1
48 feet (14.6 m) or more but less than 58 feet (17.7 m)—	0
58 feet (17.7 m) or more but less than 70 feet (21.3 m)—	+1
70 feet (21.3 m) or more but less than 83 feet (25.3 m)—	+2

See Figure 1 on following page.

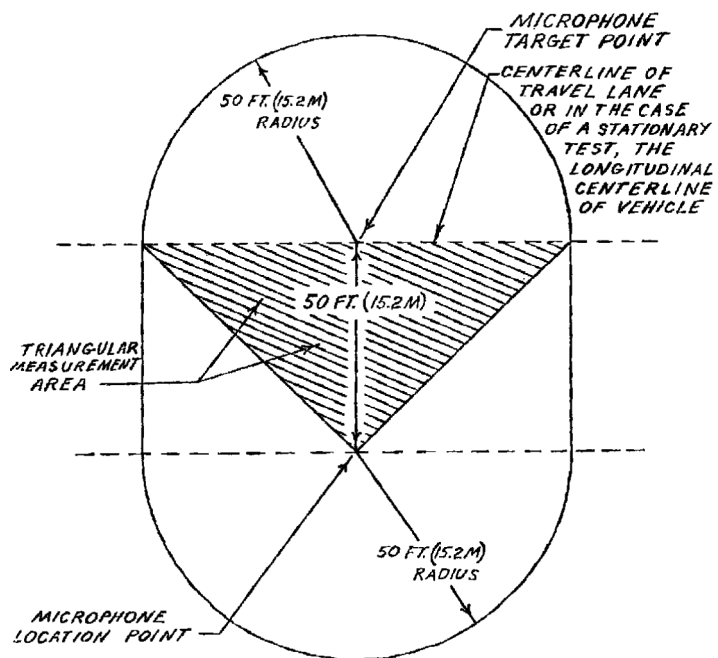
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FIGURE 1



STANDARD TEST SITE

(Effective June 1, 1978)