



EXTERIOR SOUND LEVEL FOR SNOWMOBILES—SAE J192a

SAE Recommended Practice

Report of Vehicle Sound Level Committee approved September 1970 and last revised November 1973.

1. Introduction—This SAE Recommended Practice is intended as a guide toward standard practice, but may be subject to frequent change to keep pace with experience and technical advances.

2. Scope—This SAE Recommended Practice establishes the instrumentation, test site, and test procedure for determining the maximum exterior sound level for snowmobiles.

3. Instrumentation—The following instrumentation shall be used for the measurements required:

3.1 A sound level meter which meets the Type 1 requirements of ANSI S1.4—1971, Specification for Sound Level Meters.

3.1.1 As an alternative to making direct measurements using a sound level meter, a microphone or sound level meter may be used with a magnetic tape recorder and/or a graphic level recorder or other indicating instrument provided the system meets the requirements of SAE J184.

3.1.2 The microphone shall be used with an acceptable windscreen. To be acceptable, the screen must not affect the microphone response by more than ± 1 dB for frequencies of 20-4000 Hz or $\pm 1\frac{1}{2}$ dB for frequencies of 4000-10,000 Hz.

3.2 An acoustic calibrator.

3.3 Calibrated engine speed tachometer.

3.4 Thermometer.

3.5 Barometer.

3.6 Sling psychrometer, or dew point apparatus.

3.7 Windvane.

3.8 Anemometer.

4. Test Site

4.1 A suitable test site is a level open space free from the effects of large sound reflecting surfaces. Parked vehicles, signboards, or other obstacles must not be located within 100 ft (30 m) of either the vehicle path or the microphone. (See Fig. 1.)

4.2 The microphone shall be located 50 ft (15.2 m) from the centerline of the vehicle path and 4 ft (1.2 m) above the snow or turf. The normal to the vehicle path from the microphone shall establish the microphone point on the vehicle path.

4.3 The measurement area shall be the triangular area formed by the start point, the end point, and the microphone location.

4.4 The surface of the ground within the measurement area, including the vehicle path, shall be covered with a maximum of 3 in (75 mm) loose snow over a base consisting of at least 2 in (50 mm) of snow sufficiently compacted to support the snowmobile without penetration.

An alternate surface of turf, primarily grass up to a maximum of 3 in (75 mm) may be used, which, except for the vehicle operating path, shall be free of visible droplets of water.

4.5 The reference point of the vehicle, to indicate where the vehicle is on the vehicle path, shall be the front of the vehicle ski(s).

4.6 While making sound level measurements, not more than one person other than the observer reading the meter shall be within 50 ft (15 m) of the vehicle or microphone, and that person shall be directly behind the observer reading the meter, on a line through the microphone and the observer.

4.7 The ambient A-weighted sound level (including wind effects), coming from sources other than the vehicle being measured, shall be at least 10 dB lower than the level of the tested vehicle.

5. Procedure

5.1 Vehicle Operation—A full-throttle acceleration test as specified below is the basis for establishing maximum noise capabilities of the snowmobile.

5.1.1 For the test, accelerate the vehicle from a standing start by establishing wide-open throttle at the start point shown in Fig. 1. Maintain wide-open throttle until the end point is reached. The centerline of the vehicle must not deviate more than 3 ft (1 m) from either side of the centerline of the vehicle path. Record the maximum engine speed reached.

5.2 The sound level meter shall be set for fast response and the A-weighting network.

5.2.1 The applicable reading shall be the highest sound level indicated for the run, between the start point and the end point, ignoring unrelated peaks due to extraneous noises.

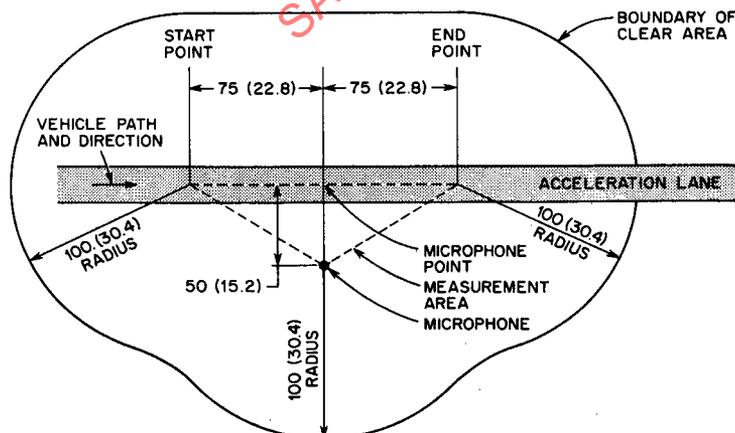
5.2.2 Test runs shall be repeated until three readings within a 2 dB range per vehicle side have been obtained. The sound level for each side of the vehicle shall be the average of all three readings, rounded to the nearest integer. The sound level reported shall be that for the side of the vehicle with the highest readings.

5.3 During the test period, the atmospheric temperature, pressure, humidity, wind speed, and wind direction shall be recorded at intervals not exceeding 1 h.

6. General Comments

6.1 It is recommended that persons technically trained and experienced in the current techniques of sound measurements select the equipment and conduct the tests.

6.2 The operation of recording and measuring equipment is likely



NOTE: THE START AND END POINT ARE SHOWN FOR A LEFT-TO-RIGHT VEHICLE PASSBY; THESE SHOULD BE REVERSED FOR A RIGHT-TO-LEFT PASSBY.

DIMENSIONS ARE FT (m)

FIG. 1—UNIDIRECTIONAL TEST SITE LAYOUT