



SURFACE VEHICLE INFORMATION REPORT

J2641™

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Stationary Sound Testing of Snowmobiles, Procedure and Enforcement Issues

RATIONALE

Five-Year Review and minor editorial changes.

1. SCOPE

This SAE Information Report provides basic information about the issues surrounding the administration of stationary, infield sound testing of snowmobiles. The information provided herein is meant to enhance safety, improve the environment, and promote uniform testing.

1.1 Purpose

The purpose of this document is to identify problems in the administration and in safety of infield, snowmobile stationary sound testing, as described in SAE J2567.

2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue of SAE publications shall apply.

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

| | |
|-----------|---|
| SAE J33 | Snowmobile Definitions and Nomenclature - General |
| SAE J192 | Maximum Exterior Sound Level for Snowmobiles |
| SAE J1161 | Operational Sound Level Measurement Procedure for Snowmobiles |
| SAE J2567 | Measurement of Exhaust Sound Levels of Stationary Snowmobiles |

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https://www.sae.org/standards/content/J2641_202105

2.2 Related Publications

The following publications are provided for information purposes only and are not a required part of this SAE Technical Report.

2.2.1 SSCC Publications

Available from the Snowmobile Safety Certification Committee, 1640 Haslett Road, Suite 170, Haslett, MI 48840 and at www.snowmobilesafetycertification.org.

SSCC/11 Supplement Detailed Standards and Testing Specifications and Procedure

2.2.2 Motorcycle Industry Council Publications

Available from Motorcycle Industry Council, Inc., 2 Jenner St., Suite 150, Irvine, CA 92718-3812 and at www.fs.fed.us/t-d/pubs/#N/A.

Correlation of Off-Highway Motorcycle Sound Test Methods EPASAE, October 1993

Evaluation of Stationary and Moving Motorcycle Noise Test Methods for Use in Proposed Regulations (McDonnell Douglas Astronautics Company West), December 1975

3. DEFINITIONS

3.1 SNOWMOBILE

A self-propelled vehicle intended for off-road travel primarily on snow, having a curb weight of not more than 454 kg (1000 pounds), driven by track or tracks in contact with the snow, steered by a ski or skis in contact with the snow. A snowmobile may be classified under the following special classes:

3.1.1 CLASS I - COMPETITIVE SNOWMOBILE

A snowmobile intended solely for use in organized public racing. Racing snowmobiles are snowmobiles advertised and sold by the manufacturer for use on race courses only and not for use on trails.

3.1.2 CLASS II - CHILDREN'S SNOWMOBILE

A snowmobile intended for daylight use, in restricted off-road areas, primarily on snow. This vehicle is intended to be used by a child at least 6 years of age, under adult supervision.

4. TECHNICAL REQUIREMENTS

4.1 Personnel

The administration of an infield, stationary sound measurement, as in SAE J2567, would require a minimum of two persons with the possibility of a third, in some instances. One person will be required to straddle the machine and operate the speed control while simultaneously holding the brake to maintain the position of the unit relative to the microphone. The second person will be required for the reading and recording of the sound level measurement. A third person may be required to ascertain the engine revolutions by means of an external tachometer on those units not equipped with an engine revolution counter. Other personnel may be required to block or guide traffic if this procedure is carried out trailside or in congested areas.

4.2 Training

The person or persons operating the sound meter would need to be trained in its operation/calibration so as not to obtain improper readings, lessening the effectiveness of the stationary sound test procedure in enforcement. The person straddling the machine should have a background in snowmobile operation and a working familiarity with the controls and systems of the machines reasonably expected to be encountered in use on the trail system. If the use of an external tachometer is necessary, one or more persons of the testing group would need to be familiarized with its operation prior to performing any sound measurement procedures.

5. MACHINE CONSIDERATIONS

5.1 Drive Belts and Clutches

Various engine types and sizes along with different applications dictate that not all snowmobiles will be able to be successfully tested at the 2500 rpm of SAE J2567. Some fan cooled two-stroke snowmobiles and some four-stroke snowmobiles have partial clutch engagement at or before 2500 rpm. If testing to SAE J2567 is attempted on machines with lower than 2500 rpm engagement speeds, drive belt damage may be incurred.

5.2 Machine Modification

The ability of an individual to modify clutch engagement rpm may be used to avoid enforcement efforts by raising or lowering engagement speeds to change the sound level.

6. SOUND TESTING CONSIDERATIONS

6.1 Sound Test Correlation

There has been no correlation established between moving sound measurement testing (i.e., SAE J1161 and SAE J192) with the stationary test of SAE J2567 (see 2.1.3). There is no established or identifiable "ratio" or conversion of sound levels from moving tests that can be correlated to stationary (SAE J2567) testing.

6.2 Environmental Effects

Testing by the SAE Snowmobile Sound Level Task Force has shown that there are a number of environmental issues that can have an effect on sound level measurement. These include changes in barometric pressure, altitude, ambient temperature, snow depth, moisture content and compaction, and test location. These issues should be taken into consideration when setting sound limits for enforcement purposes, allowing sufficient tolerance to compensate for their effects.

6.3 Conducting the SAE J2567 Test

The ability to maintain a steady state 2500 rpm and the ability to maintain the machine in position to the microphone by the test team member can affect the reading of the sound meter. If the engine rpm is allowed to fluctuate or the machine moves away from the microphone while the meter reading is taking place, it may not be a true reading.

6.4 Inability to Conduct the SAE J2567 Procedure

There could be machines that have full clutch engagement below the SAE J2567, 2500 rpm engine test speed. These units may either overcome the available braking forces or break the drive belt before reaching the required steady state rpm.

6.5 Exhaust Silencer Marking

Starting with model year 2002, snowmobiles that are compliant with SSCC/11 Supplement noise limits have a marking on the exhaust silencer that consists of the letters "SSCC Certified" with the manufacturer's name underneath. Unless the silencer was tampered or is defective, this marking should indicate that the vehicle will produce the noise level at which it was certified by the manufacturer. Snowmobiles from MY2002 and newer that do not have this marking on their exhaust silencer should be considered to have an aftermarket silencer that may generate a higher sound pressure level than the OEM part, but could meet noise level prescribed when tested following the general recommendations of SAE J2567.