



SURFACE VEHICLE RECOMMENDED PRACTICE

J331™

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Superseding J331 JAN2012

Sound Levels for Motorcycles

RATIONALE

SAE J331 has been reaffirmed to comply with the SAE Five-Year Review policy.

FOREWORD

This recommended practice establishes a method for measuring total motorcycle sound pressure levels under full throttle acceleration and closed throttle deceleration. Factors which contribute to total motorcycle sound include those from the exhaust, intake, mechanical components, tires/road interface and others. SAE J47 is recommended for measuring the maximum total motorcycle sound pressure level under wide open throttle acceleration and closed throttle deceleration. SAE J47 is intended to capture the maximum total sound pressure of a motorcycle but is not intended to reflect real in use operating conditions. SAE J331 is intended to capture the sound pressure emitted during a typical in-use acceleration or deceleration of a motorcycle. Two other standards address measurement of exhaust sound pressure levels of stationary motorcycles; SAE J1287 is recommended for off-highway motorcycles, and SAE J2825 is recommended for on-highway motorcycles.

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Full document details: SAE J331_202007

For more information on this standard, visit
https://www.sae.org/standards/content/J331_202007

Documents

Document Sharing Hub

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 724-776-4970 (outside USA), www.sae.org.

SAE J47 Maximum Sound Level Potential for Motorcycles

SAE J184 Qualifying a Sound Data Acquisition System

SAE J213 Motorcycle Classifications

SAE J1349 Engine Power Test Code - Spark Ignition and Compression Ignition – As Installed Net Power Rating

2.1.2 ANSI Publication

Available from American National Standards Institute, 25 West 43rd Street, New York, NY 10036-8002, Tel: 212-642-4900, www.ansi.org.

ANSI S1.4-1983 Specification for Sound Level Meters

3. DEFINITIONS

3.1 MANUAL TRANSMISSION

A transmission having multiple discrete gear ratios which are individually selectable by the vehicle operator.

3.2 AUTOMATIC TRANSMISSION

A transmission which does not have multiple discrete gear ratios individually selectable by the vehicle operator.

3.3 RATED ENGINE SPEED

The engine speed in revolutions per minute at which the engine delivers its maximum net brake power as defined in SAE J1349 as determined by the manufacturer.

3.4 LONGITUDINAL PLANE OF SYMMETRY

As defined in SAE J213.

4. INSTRUMENTATION

4.1 The following instrumentation shall be used where applicable:

- 4.1.1 A sound level meter which meets the Type 1 or Type S1A requirements of ANSI S1.4-1983. As an alternative to making direct measurements using a sound level meter, a microphone or sound level meter may be used with recorder or other indicating instrument, provided that the system meets the requirements of SAE J184.
- 4.1.2 A sound level calibrator with an accuracy of ± 0.5 dB conforming to IEC942 (1988) Class 1 and/or ANSI S1.40-1984 (see 9.6.4).
- 4.1.3 An engine speed tachometer, or other means of determining engine speed, with a steady-state accuracy of $\pm 3\%$ at 60% and 100% of rated engine speed.
- 4.1.4 A speedometer with steady-state accuracy of $\pm 3\%$ at a vehicle speed of 50 km/h (31 mph).
- 4.1.5 An anemometer with steady-state accuracy of $\pm 10\%$ at a wind speed of 5.5 m/s (12 mph).
- 4.1.6 An acceptable windscreen may be used with the microphone. To be acceptable, the screen shall not affect the microphone response more than ± 1 dB for frequencies of 63 to 4000 Hz and ± 1.5 dB for frequencies of 4000 to 10000 Hz, taking into account the orientation of the microphone.

5. TEST SITE

5.1 The test site (Figure 1) shall be a flat open space accommodating a straight vehicle path and the following points:

On the vehicle path—

- a. The microphone target point
- b. Acceleration point - a point 7.5 m (25 ft) prior to the microphone target point
- c. End point - a point 30 m (100) beyond the microphone target point
- d. A point 15 m (50 ft) prior to the microphone target point
- e. A point 15 m (50 ft) beyond the microphone target point

Off the vehicle path—

- f. Microphone point - a point 15 m (50 ft) from the vehicle path on the perpendicular line which passes through the microphone target point
- g. Measurement area