



SURFACE VEHICLE RECOMMENDED PRACTICE

J47™

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(R) Maximum Sound Level Potential for Motorcycles

RATIONALE

SAE J47 has been reaffirmed to comply with the SAE Five-Year Review policy.

1. SCOPE

This SAE Recommended Practice establishes the test procedure, environment, and instrumentation for determining the maximum sound level potential for motorcycles under wide open throttle acceleration and closed throttle deceleration.

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 J184	Qualifying a Sound Data Acquisition System
SAE J213	Motorcycle Classifications
SAE J331	Sound Pressure Levels for Motorcycles
SAE J1349	Engine Power Test Code—Spark Ignition and Compression Ignition—Net Power Rating

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SAE WEB ADDRESS:

Full document details: SAE J47_202006

For more information on this standard, visit
https://www.sae.org/standards/content/J47_202006

Documents
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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 (R2006) / ANSI S1.4a (R2006) Sound Level Meters, Specifications for

3. DEFINITIONS

3.1 RATED ENGINE SPEED

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

3.2 MANUAL CLUTCH

A clutch which must be disengaged by the operator to prevent engine stalling when the vehicle's forward motion is stopped.

3.3 LONGITUDINAL PLANE OF SYMMETRY

As defined in SAE J213.

4. INSTRUMENTATION

The following instrumentation shall be used where applicable.

- 4.1 A sound level meter which meets the Type 1 or Type S1A requirements of ANSI S1.4. At intervals of not more than 2 years, the sound level meter shall be calibrated for compliance with the Type 1 or Type S1A requirements of ANSI S1.4. As an alternative to making direct measurements using a sound level meter, a sound data acquisition system may be used, provided that the system meets the requirements of SAE J184.
- 4.2 An acoustic calibrator with accuracy of ± 0.5 dB. (See 8.6.4.) At intervals of not more than 2 years, the acoustic calibrator shall be calibrated to its original specifications.
- 4.3 An engine speed tachometer, or other means of determining engine speed, with steady-state accuracy of $\pm 3\%$ at 60% and 100% of rated engine speed.
- 4.4 A speedometer with steady-state accuracy of $\pm 3\%$ at a vehicle speed of 100 km/h, or the vehicle maximum speed, whichever is less.
- 4.5 An anemometer with steady-state accuracy of $\pm 10\%$ at a wind speed of 5.0 m/s.
- 4.6 An acceptable wind screen may be used with the microphone. To be acceptable, the screen shall not affect the microphone response more than ± 1 dB for frequencies of 4000 to 10 000 Hz, taking into account the orientation of the microphone.

5. TEST SITE

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

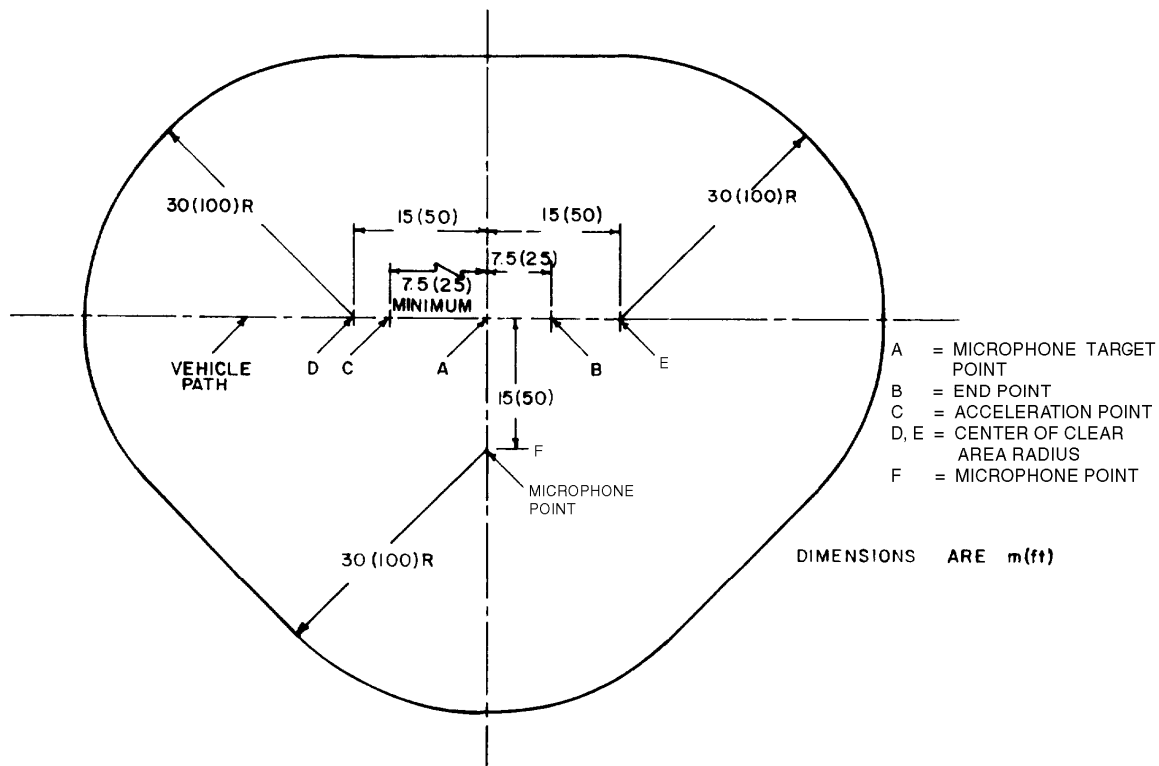


FIGURE 1 - TEST SITE

5.1.1 On the Vehicle Path

A—Microphone target point

B—End point—a point 7.5 m beyond the microphone target point

C—Acceleration point—a point at least 7.5 m before to the microphone target point established by the method described in 6.2 and 6.3.

D—A point 15 m before the microphone target point

E—A point 15 m beyond the microphone target point

5.1.2 Off the Vehicle Path

F—Microphone point—a point 15 m from the centerline of the vehicle path on the perpendicular line which passes through the microphone target point.

5.2 The measurement area within the test site shall be a triangular area defined by the microphone point (F) and the points D and E. The surface of the ground within at least this area shall be portland cement or bituminous asphalt concrete, dry and free from snow, soil, or other extraneous material.

5.3 The test site shall be free of large sound-reflecting surfaces (other than the ground) such as parked vehicles, signboards, buildings, or hillsides, located within 30 m of the measurement area.

5.4 The vehicle path shall be relatively smooth portland cement or bituminous asphalt concrete, dry and free of extraneous material such as gravel, snow, or ice and of sufficient length for acceleration, deceleration, and stopping of the vehicle.

5.5 The microphone of the sound measurement system shall be located above the microphone point. The microphone shall be positioned $1.2\text{ m} \pm 0.02\text{ m}$ above the ground plane. The microphone's reference axis shall be perpendicular to the vehicle path. (See 8.6.1.)