SAE International™

SURFACE VEHICLE RECOMMENDED PRACTICE

SAE J2139

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Superseding J2139 MAR2001

Tests for Signal and Marking Devices Used on Vehicles 2032 mm or More in Overall Width

1. Scope

This SAE Recommended Practice provides standardized laboratory tests, test methods, and performance requirements applicable to signal and marking devices used on vehicles 2032 mm or more in overall width.

1.1 Rationale

1. Changed reference to SAE J577 vibration to reflect new standard.
2. Changed reference to SAE J1889 to reflect new title.
3. Added reference to SAE J2577 - Heavy Duty Lamp Electrical Connector Standard.
4. Changed 4.1.1.1 to reflect new SAE J577 Standard.
5. Removed test information in 4.1.2.1 that is now included in SAE J577.
6. Changed 4.4.2.4 from 248 hours to 240 hours. This was a typo in the current version.

2. References

2.1 Applicable Publications

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

2.1.1 SAE PUBLICATIONS

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE J387—Terminology—Motor Vehicle Lighting
SAE J575—Tests for Motor Vehicle Lighting Devices and Components for Use on Vehicles Less than 2032 mm in Overall Width
SAE J576—Plastic Materials for Use in Optical Parts Such as Lenses and Reflectors of Motor Vehicle Lighting Devices
SAE J577—Vibration Test Machine
SAE J578—Color Specification

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SAE J1330—Photometry Laboratory Guidelines
SAE J1455—Joint SAE/TMC Recommended Environmental Practices for Electronic Equipment Design
SAE J1889—LED Signal and Marking Lighting Devices
SAE J2357—Application Guidelines for Electronically Driven and/or Controlled Exterior Automotive Lighting Equipment
SAE J2577—Heavy Duty Lamp Electrical Connector Standard

2.1.2 ASTM PUBLICATIONS

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM B 117—Method of Salt Spray (Fog) Testing
ASTM C 150-84—Specification for Portland Cement
ASTM E 308-85—Standard Method for Computing the Colors of Objects by Using the CIE System

3. Definitions

3.1 Discharge Signal Lighting (DSL) System

A vehicular lighting system used in signal and marking applications. The DSL system is composed of a discharge light source, interconnecting wiring, and a signal or marking lighting assembly.

3.2 Discharge Light Source

An electric light source in which light is produced by a stabilized electric discharge through an ionized gas. The light source consists of a sealed glass/tube envelope wall and ballast. The size, shape, and color will depend on the application. (For example, but not limited to: neon, or fluorescent lamps.)

3.3 Light Emitting Diode (LED) Lighting Device

A lighting device in which light is produced by an LED or an array of LED's.

3.4 Lighting Device Light Center

The geometric center of the light source or sources used to illuminate the device function or the geometric center of the illuminated area if the light output is produced indirectly.

3.5 Incandescent Lighting Device

A lighting device in which light is produced by a filament being heated to incandescence by an electrical current.

3.6 Integrated Electronic Component

Electronic component(s) integrated within the housing of the lamp assembly or physically inseparable from the lighting device used to produce the desired output.

3.7 Sample

Samples submitted for test shall be representative of the device as regularly manufactured and marketed. Each sample shall be securely mounted on the test fixture in its design position and shall include all accessory equipment necessary to operate the device in its normal manner.

3.8 Sealed Lighting Devices

Lighting devices that do not allow the passage of gas or water between the interior environment and the exterior environment.

3.9 Test Fixture

Fixture specifically designed to support the device in its designed operating position during a laboratory test.

3.10 Vibration Test Fixture

A fixture specifically designed to support the device in its operating position during the vibration test. The fixture shall not have a resonant frequency in the test range.

4. Tests

The following sections describe the individual tests which need not be performed in any particular sequence, except as noted in the test procedure. Unless otherwise specified all tests will be done at an ambient room temperature of 25 °C ± 5 °C. The completion of the tests may be expedited by performing the tests simultaneously on separately mounted samples. However, it is recommended that the design of each device be evaluated to determine if the vibration test or the warpage test affect other tests, in which case, those tests shall be performed first.

4.1 Vibration Test

This test evaluates the ability of the sample device to resist damage from vibration-induced stresses. This test is not intended to test the vibration resistance of bulb filaments, but may be used to evaluate the effects of vibration-induced stresses on shock-mounted devices.

4.1.1 VIBRATION TEST PROCEDURES

4.1.1.1 The DUT (Device Under Test), as mounted on the support supplied, shall be bolted to the anvil end of the table of the SAE J577 vibration test machine.

4.1.1.2 Test duration is 60 +1/–0 minutes.