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SAE J1398 MAY85

Stop Lamps for Use on Motor Vehicles 2032 mm or More in Overall Width

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STOP LAMPS FOR USE ON MOTOR VEHICLES 2032 mm OR MORE IN OVERALL WIDTH—SAE J1398 MAY85

SAE Standard

Report of the Lighting Division, approved May 1985. Rationale statement available.

1. Scope—This SAE Technical Report provides test procedures, requirements, and guidelines for stop lamps intended for use on vehicles 2032 mm or more in overall width. Stop lamps conforming to this report may also be used on vehicles less than 2032 mm in overall width.

2. Definitions

2.1 Stop Lamp—A lamp giving a steady light to the rear of a vehicle to indicate the intention of the operator of a vehicle to stop or diminish speed by braking.

3. Lighting Identification Code—Stop lamps for use on vehicles 2032 mm or more in overall width may be identified by the code "S2" in accordance with SAE J759, Lighting Identification Code.

4. Tests

4.1 SAE J575, Tests for Motor Vehicle Lighting Devices and Components is a part of this report. The following tests are applicable with the modifications as indicated:

4.1.1 VIBRATION TEST

4.1.2 MOISTURE TEST

4.1.3 DUST TEST

4.1.4 CORROSION TEST

4.1.5 PHOTOMETRY

In addition to the test procedures in SAE J575, the following apply:

4.1.5.1 Photometric measurements shall be made with the light source of the signal lamp at least 3 m from the photometer. The H-V axis shall be taken as parallel to the longitudinal axis of the vehicle.

4.1.5.2 Photometric measurements of a stop lamp, each compartment of a multiple compartment lamp, and each lamp of a multiple lamp arrangement shall be made separately by aligning the axis of each lamp or compartment with the photometer.

Each lamp or compartment utilized in this manner shall meet the one lighted lamp or compartment value for all functions for which it is designed.

4.1.6 WARPAGE TEST ON DEVICES WITH PLASTIC COMPONENTS

4.2 Color Test—SAE J578, Color Specification for Electric Signal Lighting Devices is a part of this report.

5. Requirements

5.1 Performance Requirements—A device when tested in accordance with the test procedures specified in Section 4 shall meet the following requirements:

5.1.1 VIBRATION—SAE J575.

5.1.2 MOISTURE—SAE J575.

5.1.3 DUST—SAE J575.

5.1.4 CORROSION—SAE J575.

5.1.5 PHOTOMETRY—SAE J575.

5.1.5.1 The lamp under test shall meet the photometric performance requirements contained in Table 1—Photometric Requirements and its footnotes. The summation of the luminous intensity measurements at the specified test points in a zone shall be at least the value shown.

5.1.5.2 When a tail lamp is combined with the stop lamp, the stop lamp shall not be less than three times the luminous intensity of the tail lamp at any test point; except that at H-V, H-5R, and 5U-V, the stop lamp shall not be less than five times the luminous intensity of the tail lamp. When the tail lamp is combined with the stop lamp, and the maximum luminous intensity of the tail lamp is located below horizontal and is within an area generated by 1.0 deg radius around a test point, the ratio for the test point may be computed using the lowest value of the tail lamp luminous intensity within the generated area.

5.1.6 WARPAGE—SAE J575.

5.1.7 COLOR—The color of the light from stop lamps shall be red as specified in SAE J578.

5.2 Materials Requirements—Plastic materials used in optical parts shall meet the requirements of SAE J576, Plastic Materials for Use in Optical Parts Such as Lenses and Reflectors of Motor Vehicle Lighting Devices.

5.3 Design Requirements

5.3.1 If a stop signal is optically combined with the tail lamp and a two-filament bulb is used, the bulb shall have an indexing base and the socket shall be designed so that bulbs with non-indexing bases cannot be used. Removable sockets shall have an indexing feature so that they cannot be re-inserted into lamp housings in random positions, unless the lamp will perform its intended function with random light source orientation.

5.3.2 *The functional lighted lens area of a single lamp, each compartment of a multiple compartment lamp, and each lamp of a multiple lamp arrangement shall be at least 75 cm².*

5.4 Installation Requirements—The stop lamp shall meet the following requirements as installed on the vehicle:

5.4.1 Visibility of the stop lamp shall not be obstructed by any part of the vehicle throughout the photometric test angles for the lamp unless the lamp is designed to comply with all photometric and visibility requirements with these obstructions considered. Signals from lamps on both sides of the vehicle shall be visible through a horizontal angle from 45 deg to the left to 45 deg to the right. Where more than one lamp or optical area is lighted on each side of the vehicle, only one such area on each side need comply. To be considered visible, the lamp must provide an unobstructed view of the outer lens surface, excluding reflex, of at least 12.5 cm² measured at 45 deg to the longitudinal axis of the vehicle.

TABLE 1—PHOTOMETRIC REQUIREMENTS[a,b]

Zone	Test Results (deg)	Minimum Luminous Intensity Total for Zone (cd)
1	10U–5L 5U–20L 5D–20L 10D–5L	50
2	5U–10L H–10L 5D–10L	100
3	5U–V H–5L H–V H–5R 5D–V	380
4	5U–10R H–10R 5D–10R	100
5	10U–5R 5U–20R 5D–20R 10D–5R	50
Maximum Luminous Intensity (cd)		300

[a] The measured value at each test point shall not be less than 60% of the minimum in Table 2.

[b] The maximum value shall not be exceeded over any area larger than that generated by a 0.5 deg radius within the solid angle defined by the test points in Table 2.

TABLE 2—PHOTOMETRIC DESIGN GUIDELINES

Test Points (deg)		Minimum Luminous Intensity (cd)
10U and 10D	5L and 5R	16
5U and 5D	20 L and 20R 10L and 10R V	10 30 70
H	10L and 10R 5L and 5R V	40 80 80
Maximum Luminous Intensity (cd)[a]		300

[a] The maximum design value should not be exceeded over any area larger than that generated by a 0.25 deg radius within the solid angle defined by the test points in Table 2.