The Engineering Society For Advancing Mobility Land Sea Air and Space®
INTERNATIONAL
400 Commonwealth Drive, Warrendale, PA 15096-0001

SURFACE VEHICLE STANDARD

SAE J1957

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Submitted for recognition as an American National Standard

CENTER HIGH MOUNTED STOP LAMP STANDARD FOR VEHICLES LESS THAN 2032 mm OVERALL WIDTH

1. Scope—This SAE Standard provides test procedures, requirements, and guidelines for center high mounted stop lamps (CHMSL) for use on vehicles less than 2032 mm in overall width.

2. References

2.1 Applicable Documents—The following publications form a part of this specification to the extent specified herein. The latest issue of SAE publications shall apply.

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

SAE J575—Tests for Motor Vehicle Lighting Devices and Components
SAE J576—Plastic Materials for Use in Optical Parts Such as Lenses and Reflectors of Motor Vehicle Lighting Devices
SAE J578—Color Specification
SAE J759—Lighting Identification

2.2 Definitions

2.2.1 The center high mounted stop lamp (CHMSL) is an additional lamp of the stop lamp system, giving a brake actuated steady warning light to the rear of the vehicle. The CHMSL is intended to provide a signal to both the operator of the following vehicle as well as through intervening vehicles.

3. Lighting Identification Code

3.1 CHMSL for passenger vehicles may be identified with U3 code in accordance with SAE J759.

4. Tests

4.1 SAE J575—The following test procedures in SAE J575 are part of this document, with the modifications indicated:

4.1.1 VIBRATION TEST

4.1.2 MOISTURE TEST

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4.1.3 DUST TEST

4.1.4 CORROSION TEST

4.1.5 PHOTOMETRY

4.1.5.1 Photometric tests shall be made with the photometer at least 3 m from the light source. The lamp axis shall be taken as the horizontal line through the light source and parallel to what would be the longitudinal axis of the vehicle if the lamp were mounted in its normal position on the vehicle.

4.1.6 WARPAGE TEST ON DEVICES WITH PLASTIC COMPONENTS—Stop lamp cycle time and temperature in Table 1 of SAE J575 shall be used for evaluating a CHMSL.

4.2 Color Test—SAE J578 is a part of this report.

5. Requirements

5.1 Performance Requirements—Center high mounted stop lamps, when tested in accordance with the test procedures specified in 4.1 shall meet the requirements indicated in the following sections of SAE J575.

5.1.1 VIBRATION TEST

5.1.2 MOISTURE TEST—Does not apply to CHMSLs mounted inside the vehicle.

5.1.3 DUST TEST—Does not apply to CHMSLs mounted inside the vehicle.

5.1.4 CORROSION TEST—Does not apply to CHMSLs mounted inside the vehicle.

5.1.5 PHOTOMETRY TEST—The lamp, when tested in accordance with 4.1 of this document, shall meet the photometric requirements contained in Table 1. For interior mounted CHMSLs, the photometry test shall include the vehicle manufacturer's specified glazing in the design position.

TABLE 1—MINIMUM ZONAL PHOTOMETRIC REQUIREMENTS FOR CENTER HIGH MOUNTED STOP LAMPS

Group	Test Points (degrees)	Minimum Total Intensity (candela)
1	5U-V H-5L H-V H-5R 5D-V	125
2	5U-5R 5U-10R H-10R 5D-10R 5D-5R	98
3	5U-5L 5U-10L H-10L 5D-10L 5D-5L	98
4	10U-10L 10U-V 10U-10R	32

a. The luminous intensity values at each test point shall not be less than 60% of the minimum value specified in Table 2.

b. The listed maximum shall not be exceeded over any area larger than that generated by a 0.5 degree radius within the solid angle defined by the test points in Table 1.

5.1.6 WARPAGE TEST—There shall be no evidence of warpage which results in failure of any test contained in 4.1 of this document.

5.2 Color Test—The light emitted by the CHMSL shall be red.

5.3 Material Requirements—Plastic materials used in CHMSL optic parts shall conform to the requirements in SAE J576.

5.4 Dimensional Requirements—The effective projected luminous lens area measured on a plane at right angles to the lamp axis shall not be less than 29 cm^2 (4.5 in^2).

5.5 Installation Requirements

5.5.1 The CHMSL shall not be optically combined with any other signal lamp or reflective device other than with a cargo lamp.

5.5.2 The center of the CHMSL shall be mounted on the vertical centerline of the vehicle.

5.5.3 If the lamp is mounted below the rear window, no portion of the lens shall be lower than 152 mm (6 in) below the rear window on convertibles, or 76 mm (3 in) on other passenger cars.

5.5.4 CHMSL shall have a signal visible from 45 degrees to the left to 45 degrees to the right of the longitudinal axis of the vehicle.

5.5.5 The CHMSL shall be activated only upon application of the service brakes.

5.5.6 If the CHMSL is mounted inside the vehicle, means shall be provided to minimize reflections at the rear window glazing that might be visible to the driver when viewed directly, or indirectly in the rearview mirror.

6. Guidelines

6.1 Photometric design guidelines for center high mounted stop lamps, when tested in accordance with 4.1.5 of this document, are contained in Table 2.

TABLE 2—DESIGN PHOTOMETRIC GUIDELINES FOR CENTER HIGH MOUNTED STOP LAMPS

	Test Points	Minimum Intensity (candela)
10U	10L	8
	V	16
	10R	8
5U and 5D	10L	16
	5L	25
	V	25
	5R	25
	10R	16
H	10L	16
	5L	25
	V	25
	5R	25
	10R	16
	Maximum[1]	130

[1] The lamp shall not exceed the listed maximum over an area larger than that generated by a 0.25 degree radius within a solid cone angle from 10 degrees L to 10 degrees R and from 10 degrees U to 5 degrees D.

6.2 Serviceability/Cleanability—The CHMSL shall be designed to be serviced and cleaned with either commonly available tools or no tools. The number of trim pieces that must be removed for this purpose should be minimized. This guideline applies to lamp servicing, bulb replacement, and access to the rear window glazing for cleaning purposes.

6.3 Replacement bulb identification should be permanently located on the lamp housing.

6.4 The vertical location is specified with the intent of positioning the lamp higher than the conventional stop lamps. The lamp shall be mounted high to insure its visibility through intervening vehicles. It may be located forward of the tail, stop, and rear turn signal lamps.

6.5 Heat test cycle time and temperature cycle may be increased to represent a more severe heat test based on CHMSL mounting environment and/or performance cycle.

PREPARED AND APPROVED BY THE SAE SIGNALLING AND MARKING DEVICES STANDARDS COMMITTEE

APPROVED BY THE SAE LIGHTING COORDINATING COMMITTEE