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SURFACE VEHICLE STANDARD

SAE J1395

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Submitted for recognition as an American National Standard

(R) FRONT AND REAR TURN SIGNAL LAMPS FOR USE ON MOTOR VEHICLES 2032 mm OR MORE IN OVERALL WIDTH

1. Scope—This SAE Standard provides test procedures, requirements, and guidelines for turn signal lamps intended for use on vehicles 2032 mm or more in overall width. Front and rear turn signal lamps conforming to the requirements of this document may be used 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 J567—Lamp Bulb Retention System for Requirements and Gages Used in Retention System Design

SAE J588—Turn Signal Lamps for Use on Motor Vehicles Less Than 2032 mm in Overall Width

SAE J576—Plastic Material for Use in Optical Parts Such as Lenses and Reflectors of Motor Vehicle Lighting Devices

SAE J578—Color Specification

SAE J759—Lighting Identification Code

SAE J1050—Describing and Measuring the Driver's Field of View

SAE J2139—Tests for Lighting Devices, Reflective Devices and Components Used on Vehicles 2032 mm or More in Overall Width

SAE Technical Paper 830566, "Motor Vehicle Conspicuity," R.L. Henderson, K. Ziedman, W.J. Burger, and K.E. Cavey, National Highway Traffic Safety Administration

2.1.2 OTHER PUBLICATIONS—Attention is called to the following documents for additional information on lamp design and installation.

FMVSS 108

FHWA 393 Subpart B

TTMA #RP-9

TMC #RP-702

2.2 Definitions

2.2.1 A turn signal lamp is the signaling element of a turn signal system which indicates a change in direction by giving a flashing light on the side toward which the turn or lane change will be made. See SAE J590 for flash rate and percent on time.

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3. Lighting Identification Code—Turn signal lamps for use on vehicles 2032 mm or more in overall width may be identified by the code:

"I 6" for a rear mounted turn signal lamp and for a front mounted turn signal lamp mounted 100 mm or more from the headlamp,

"I 7" for a front mounted turn signal lamp mounted less than 100 mm from the headlamp, in accordance with SAE J759.

4. Tests

4.1 SAE J2139 is a part of this document. The following tests are applicable with modification as indicated.

4.1.1 VIBRATION**4.1.2 MOISTURE****4.1.3 DUST****4.1.4 CORROSION****4.1.5 PHOTOMETRY**

4.1.5.1 Photometric measurements shall be made with the light source of the device at least 3 m from the photometer.

4.1.5.2 The H-V axis of the device shall be taken to be parallel to the longitudinal axis of the vehicle, when the device is mounted in its design position.

4.1.5.3 Photometric measurements shall be made with the light source steadily burning. Photometric measurements of multiple compartment lamps or multiple lamp arrangements shall be made by either of the following methods by aligning the axis of each lamp or compartment with the photometer.

4.1.5.3.1 All compartments or lamps shall be photometered together provided that a line from the light source of each compartment or lamp to the center of the photometer sensing device does not make an angle of more than 0.6 degrees with the photometer H-V axis. When compartments or lamps are photometered together, the H-V axis shall intersect the midpoint between their light sources.

4.1.5.3.2 Each compartment or lamp shall be photometered separately. The photometric measurement for the entire multiple compartment lamp or multiple lamp arrangement shall be determined by adding the photometric outputs from each individual lamp or component at corresponding test points.

4.1.6 WARPAGE TEST ON DEVICES WITH PLASTIC COMPONENTS

4.2 Color—SAE J578 is a part of this document.

4.3 Plastic Materials—SAE J576 is a part of this document.

5. Requirements

5.1 Performance Requirements—The device when tested in accordance with the test procedures of this document shall meet the requirements of SAE J2139 or as indicated.

5.1.1 VIBRATION**5.1.2 MOISTURE****5.1.3 DUST****5.1.4 CORROSION**

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5.1.5 PHOTOMETRY—The device tested shall meet the photometric performance requirements of Table 1 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.

5.1.5.1 A multiple compartment lamp or multiple lamps may be used to meet the photometric requirements of a turn signal lamp. If multiple compartments or multiple lamps are used and the distance between adjacent light sources does not exceed 560 mm for two compartments or lamp arrangements and does not exceed 410 mm for three compartments or lamp arrangements, then the combination of the compartments or lamps must be used to meet the photometric requirements of Table 1. If the distance between adjacent light sources exceeds the above dimensions, each compartment or lamp shall comply with the photometric requirements of Table 1.

5.1.5.2 When a tail lamp, clearance lamp, or a parking lamp is combined with the turn signal lamp, the turn signal lamp intensity shall be not less than three times the luminous intensity of the tail lamp, clearance lamp, or a parking lamp at any test point, except that at H-V, H-5L, H-5R, and 5U-V, the turn signal lamp intensity shall be not less than five times the luminous intensity of the tail lamp, clearance lamp, or parking lamp.

When a tail lamp or a clearance lamp is combined with the turn signal lamp and the maximum intensity of the tail lamp or clearance lamp is located below the horizontal and is within an area generated by a 1.0 degree radius around the test point, the ratio for the test point may be computed using the lowest value of the tail lamp or clearance lamp luminous intensity within the generated area.

5.1.5.3 Rear signals from a forward mounted double-faced turn signal lamp need only meet the performance requirements contained in Table 1 from directly to the rear to the left for left-hand lamp, and from directly to the rear to the right for a right-hand lamp. The intent is to permit the manufacturer to provide glare protection for the driver.

5.1.5.4 When a front turn signal lamp is mounted less than 100 mm from the low beam headlamp, the turn signal lamp luminous intensity shall be not less than 2.5 times the values specified in Table 1 for a front turn signal lamp.

5.1.5.5 Spacing for a direct light source type design front turn signal lamp, that is, a lamp primarily employing a lens to meet photometric requirements (for example, a lamp that does not employ a reflector), shall be measured from the center of the light source to the closest lighted edge of the low beam headlamp or any additional lamp used to supplement or used in lieu of the low beam, such as an auxiliary low beam or fog lamp.

5.1.5.6 Spacing for a front turn signal lamp which primarily employs a reflector (for example, a parabolic section) in conjunction with a lens to meet photometric requirements shall be measured from the geometric centroid of the front turn signal effective projected luminous lighted lens area to the closest lighted edge of the low beam headlamp or any additional lamp used to supplement or used in lieu of the low beam, such as an auxiliary low beam or fog lamp.

5.1.6 WARPAGE

5.2 Color—The color of the light from the front turn signal lamp shall be yellow and the color of the light from the rear turn signal lamp may be red or yellow as specified in SAE J578.

5.3 Plastic Materials—The plastic materials used in the optical parts shall meet the requirements of SAE J576.

5.4 Design Requirements

5.4.1 If a turn signal lamp is combined with a tail lamp, a clearance lamp, or a parking lamp, and a replaceable multiple light source is used, the light source retention system shall be designed with an indexing means so that the light source is properly indexed. Removable light source retention sys-