SAE International™ SURFACE VEHICLE STANDARD

SAE J2042 REV. MAY2003

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Clearance, Sidemarker, and Identification 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 clearance, sidemarker, and identification lamps intended for use on vehicles 2032 mm or more in overall width. A clearance lamp, sidemarker lamps, or an identification lamp conforming to the requirements of this document may be used on vehicles less than 2032 mm in overall width.

2. *References*

2.1 Applicable Publications—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 15096-001.

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

2.2 Related Publications—The following publications are provided for information purposes only and are not a required part of this document.

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

SAE J387—Terminology—Motor Vehicle Lighting
SAE J567—Lamp Bulb Retention System
SAE J592—Clearance, Sidemarker, and Identification Lamps
SAE J1889—L.E.D. Lighting Devices

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

2.2.2.1 FMVSS Publications—Available from the Superintendent of Documents, U. S. Government Printing Office, Mail Stop: SSOP, Washington, DC 20402-9320.

Federal Motor Vehicle Safety Standards 49CFR 571.108
Federal Highway Administration 49CFR Part 393 Subpart B

2.2.2.2 Truck Trailer Manufacturers Association Publication—Available from Truck Trailer Manufacturers Association, 1020 Princess Street, Alexandria, VA 22314-2247.

Truck Trailer Manufacturers Association RP-9

2.2.2.3 The Maintenance Council Publication—Available from The Maintenance Council, American Trucking Associations, 2200 Mill Road, Alexandria, VA 22314-5388.

The Maintenance Council RP-702

3. Definitions

3.1 Clearance Lamp—A clearance lamp provides light to the front or rear of a vehicle to indicate the overall width and height.

3.2 Sidemarker Lamp—A sidemarker lamp provides light to the side of a vehicle to indicate the overall length of the vehicle. Additional sidemarker lamps may also be mounted at intermediate locations on the side of the vehicle. The rear sidemarker lamp used on a trailer is also referred to as a tracking lamp.

3.3 Identification lamp—An identification lamp is a group of three lamps in a horizontal row which provide light to the front or rear or both, having a light center spacing of not less than 150 mm nor more than 300 mm apart, to identify vehicles 2032 mm or more in overall width.

3.4 Combination Clearance and Sidemarker Lamp—A combination clearance and sidemarker lamp is a single lamp which simultaneously meets the requirements of a clearance and a sidemarker lamp.

***4. Lighting Identification Code.*—**Clearance, sidemarker, or identification lamps may be identified by the code “P3”; combination clearance and sidemarker lamps may be identified by the code “PC2,” in accordance with SAE J759.

5. Tests

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

5.1.1 VIBRATION

5.1.2 MOISTURE

5.1.3 DUST

5.1.4 CORROSION

5.1.5 PHOTOMETRY

5.1.5.1 The photometric test shall be made at a device distance of at least 3 m from the photometer.

5.1.5.2 The H-V axis of a clearance or identification lamp shall be taken to be parallel to the longitudinal axis of the vehicle, when the device is mounted in its design position.

5.1.5.3 The H-V axis of a sidemarker lamp shall be taken to be perpendicular to a vertical plane passing through the longitudinal axis of the vehicle, when mounted in its design position.

5.1.5.4 The H-V axis of a combination clearance and sidemarker lamp shall be taken to be parallel to the longitudinal axis of the vehicle when testing the clearance lamp function, and perpendicular to a vertical plane passing through the longitudinal axis of the vehicle when testing the sidemarker lamp function, when the device is mounted in its design position.

5.1.6 WARPAGE TEST ON DEVICES WITH PLASTIC COMPONENTS

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

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

6. Requirements

6.1 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.

6.1.1 VIBRATION

6.1.2 MOISTURE

6.1.3 DUST

6.1.4 CORROSION

6.1.5 PHOTOMETRY—The lamp shall be designed to conform to the zone total photometric requirements of Table 1 and its footnotes, except that front yellow clearance and identification lamps that are roof mounted on the vehicle need not meet the photometric requirements at 20 degrees down; 45 degrees left to 45 degrees right. Zone totals should be reduced by the values at these test points, as listed in Table 1, when testing a lamp for this application. The summation of the luminous intensity measurements at the test points in a zone shall be at least the value shown.

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

TABLE 1—PHOTOMETRIC REQUIREMENTS(1)(2)(3)

Zone	Test Points (degrees)	Minimum Luminous Intensity (cd)(4) Red	Minimum Luminous Intensity (cd)(4) Yellow	Zone Total Luminous Intensity (cd)(5) Red	Zone Total Luminous Intensity (cd)(5) Yellow
	20U	0.1	0.2		
	10U	0.4	1.0		
I	H 45L	0.4	1.0	1.4	3.4
	10D	0.4	1.0		
	20D	0.1	0.2		
	10U	0.4	1.0		
II	H V	0.4	1.0	1.2	3.0
	10D	0.4	1.0		
	20U	0.1	0.2		
	10U	0.4	1.0		
III	H 45R	0.4	1.0	1.4	3.4
	10D	0.4	1.0		
	20D	0.1	0.2		
	Maximum Luminous Intensity (cd) Red-Rear Lamps Only(6)			18	

1. Ratio requirements of 6.1.5.1 apply.
2. Photometric requirements of 6.1.5 apply.
3. Combination clearance and sidemarker lamps shall conform with both clearance and sidemarker lamp photometric requirements.
4. The measured values at each individual test point shall not be less than 60% of the required minimum value shown for that individual test point location.
5. The sum of the luminous intensity measurements at each test point within a zone shall not be less than the Zone Total Luminous Intensity shown.
6. 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. When red clearance lamps are optically combined with stop and turn signal lamps, the maximum applies only on or above the horizontal.

6.1.6 WARPAGE

6.2 Color—The color of the light from the front clearance lamps, the front identification lamps, and the front and intermediate sidemarker lamps shall be yellow.

The color of the light from the rear clearance lamps, rear identification lamps, and the rear sidemarker lamp (aka a tracking lamp on a trailer) shall be red.

The color shall meet the requirements of SAE J578.

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

6.4 Design Requirements

6.4.1 A clearance lamp shall not be combined with a tail lamp.

6.4.2 A clearance lamp may be combined with a turn signal lamp or a stop lamp.

6.4.3 A sidemarker lamp may be combined with a side turn signal lamp.

6.4.4 A clearance lamp, identification lamp, or a sidemarker lamp may be combined with a reflex reflector.

6.4.5 If a clearance lamp is combined with a turn signal lamp or a stop lamp, or if a sidemarker lamp is combined with a side turn signal lamp, and a replaceable multiple light source is used, the light source retention system shall be designed with an indexing feature in order to insure that the light source is properly indexed. Removable light source retention systems shall have an indexing feature so that they cannot be reinserted into the lamp housing in a random position, unless the lamp will perform its intended function with random light source orientation.

6.5 Installation Requirements

6.5.1 Clearance lamps shall be mounted on the permanent structure of the vehicle as near as practicable to the upper left and right extreme edges of the vehicle.

6.5.2 Sidemarker lamps shall be mounted on the permanent structure of the vehicle not less than 380 mm above the road surface measured from the center of the device at vehicle curb weight.

An intermediate yellow sidemarker lamp shall be mounted at the midpoint on vehicles 7.6 m or more in overall length.

The red, rear sidemarker lamp, used on trailers, also referred to as a tracking lamp, shall be mounted on the permanent structure of the trailer not less than 380 mm nor more than 1525 mm above the road surface measured from the center of the lamp at trailer curb weight.

6.5.3 Identification lamps shall be mounted on the permanent structure of the vehicle as near as practicable to the vehicle centerline and to the top of the vehicle.

6.5.4 When the rear identification lamps are mounted at the extreme height of the vehicle, rear clearance lamps need not meet the requirement that they be mounted as close as practicable to the top of the vehicle.

6.5.5 The lamps shall be designed to comply with all photometric requirements of Table 1 as installed on the vehicle, with all vehicular obstructions considered, except that yellow clearance and identification lamps that are roof mounted need not meet the photometric requirements of 20 degrees down, 45 degrees left to 45 degrees right.

7. Guidelines

7.1 Installation Guidelines—The following guidelines apply to devices used on the vehicle and shall not be considered part of the requirements.

7.1.1 Performance of the lamps may deteriorate significantly as a result of dirt, grime, snow, and ice accumulation on the optical surfaces. Installation of the device on vehicles should be considered to minimize the effect of these factors.

7.1.2 In instances where severe environments are expected, such as in off-highway, mining, fuel haulage, or where it is expected to be totally immersed in water, the user should specify devices specifically designed for such use.