



SURFACE VEHICLE STANDARD	J2042™	NOV2024
	Issued	1991-06
	Revised	2024-11
Superseding J2042 MAY2018		
Clearance, Sidemarker, and Identification Lamps for On-Road Vehicles 2032 mm or More in Overall Width		

RATIONALE

- 2.2.1: SAE J578 title updated; SAE J2039 and SAE J2261 titles corrected.
- 2.2.2: UN R148 replaces previous R7.
- 2.2.5 and 2.2.6: External-document list updated. Mailing addresses, website addresses, and phone numbers updated for external-document sources.
- 6.4.3.1: Copyedit to remove extraneous word, fix typographical errors, and disambiguate meaning.
- 6.5.2.1: Minor copyedits so it can't be misread as prohibiting more than one intermediate sidemarker per side of the vehicle, while retaining the location requirement if only one intermediate sidemarker is fitted.
- Figures 1, 2, and 3: Clarified zone-total minimum intensity locations and requirements in footnotes.

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1. SCOPE

This SAE Standard provides requirements, test procedures, and installation guidelines for clearance, sidemarker, and identification lamps intended for use on vehicles 2032 mm or more in overall width. Sidemarker lamps conforming to the requirements of this document may also 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 International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

SAE J576	Plastic Material or Materials for Use in Optical Parts Such as Lenses and Reflex Reflectors of Motor Vehicle Lighting Devices
SAE J578	Chromaticity Requirements for Ground Vehicle Lamps and Lighting Equipment
SAE J759	Lighting Identification Code
SAE J1432	Rear High Mounted Stop Lamps and Rear High Mounted Turn Signal Lamps for Use on Vehicles 2032 mm or More in Overall Width
SAE J1889	LED Signal and Marking Lighting Devices
SAE J2039	Side Turn Signal Lamp for Long Vehicles
SAE J2139	Tests for Signal and Marking Devices Used on Vehicles 2032 mm or More in Overall Width
SAE J2261	Stop Lamps and Front- and Rear-Turn Signal Lamps for Use on Motor 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 SAE Technical Report.

2.2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

SAE J387	Terminology - Motor Vehicle Lighting
SAE J592	Sidemarker Lamps for Use on Road Vehicles Less than 2032 mm in Overall Width
SAE J2040	Tail Lamps (Rear Position Lamps) for Use on Vehicles 2032 mm or More in Overall Width

2.2.2 United Nations Publications

Available from United Nations Economic Commission for Europe, Palais des Nations, CH 1211, Geneva 10, Switzerland, Tel +41 (0) 229 17 12 34, www.unece.org.

UN Regulation № 48 Uniform Provisions Concerning the Approval of Vehicles with Regard to the Installation of Lighting and Light-signaling Devices

UN Regulation № 148 Uniform Provisions Concerning the Approval of Light-Signalling Devices (Lamps) for Power-Driven Vehicles and Their Trailers

2.2.3 Code of Federal Regulations (CFR) Publications

Copies of these documents are available online at <https://www.ecfr.gov>.

49 CFR Part 393, Subpart B Lamps, Reflective Devices, and Electrical Wiring

49 CFR § 571.108 Standard No. 108; Lamps, reflective devices, and associated equipment

2.2.4 Transport Canada Publications

Available from Transport Canada, Tower C, Place de Ville, 330 Sparks Street Ottawa, Ontario K1A 0N5, Tel: 1-800-305-2059, www.tc.gc.ca.

Canada Motor Vehicle Safety Standard No. 108 (CMVSS 108), Lighting Systems and Reflective Devices

Technical Standards Document 108, Lamps, Reflective Devices, and Associated Equipment

Trailers: Federal Lighting Equipment Location Requirements

Trucks, Buses, MPVs: Federal Lighting Equipment Location Requirements

2.2.5 Truck Trailer Manufacturers Association Publications

Available from Truck Trailer Manufacturers Association, 7001 Heritage Village Plaza, Suite 220, Gainesville, VA 20155-3094, Tel: 703-549-3010, <https://www.trucktrailer.org/>.

RP-9 Location of Lighting Devices for Trailers

2.2.6 Technology and Maintenance Council Publications

Available from Technology and Maintenance Council, American Trucking Associations, 80 M Street SE, Suite 800, Washington, DC 20003-3557, Tel: 703-838-1763, <https://tmc.trucking.org/>.

RP-148 Exterior Lighting Systems for Signaling, Marker, Clearance and Identification Lamps

RP-702C Trailer Lamp and Reflector Placement

RP-704C Heavy-Duty Lighting Systems for Trailers

RP-1430 Lamp and Reflector Placement For Light- and Medium-Duty Vehicles With Liftgates

3. DEFINITIONS

3.1 CLEARANCE (END-OUTLINE MARKER) LIGHT FUNCTION

A light signal to the front and/or rear of a vehicle to indicate the overall width and height of a vehicle 2032 mm or more in overall width.

3.2 CLEARANCE (END-OUTLINE MARKER) LAMP

A device providing the clearance (end-outline marker) light function.

3.3 SIDEMARKER LIGHT FUNCTION

A light signal to indicate the presence, length, and orientation of a vehicle as viewed from the side.

3.4 SIDEMARKER LAMP

A device providing the sidemarker light function.

3.5 IDENTIFICATION LIGHT FUNCTION

A light signal provided to the front and/or rear to identify the vehicle as being 2032 mm or more in overall width.

3.6 IDENTIFICATION LAMPS

A group of three devices in a horizontal row, substantially identical in appearance, providing the front and/or rear identification light function.

3.7 COMBINATION CLEARANCE (END-OUTLINE MARKER) AND SIDEMARKER LAMP

A single lamp which simultaneously provides the clearance (end-outline marker) and sidemarker light functions.

4. LIGHTING IDENTIFICATION CODE

Clearance, sidemarker, and identification lamps as defined in this standard may be identified by the code **P3**. Combination clearance and sidemarker lamps may be identified by the code **PC2** according to 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 Photometric tests shall be made with the device at least 3 m from the photometer.

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

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

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

5.1.5.5 Lamps with LED light sources should be tested according to SAE J1889 Photometry Procedures.

5.1.6 Warpage Test on Devices with Plastic Components

5.1.6.1 Lamps with LED light sources should be tested according to SAE J1889 Thermal Cycle Test instead of the SAE J2139 Warpage Test.

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

Each lamp, when tested according to the 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

Each lamp shall conform to the zone total photometric requirements of Figure 1 (red), Figure 2 (yellow), and/or Figure 3 (white) and their footnotes. The sum of intensity measurements at all test points within a zone shall be at least the required zone total, except that front yellow or white clearance and identification lamps mounted on the roof of a motor vehicle (excluding trailers) need not meet the photometric requirements at 20D, 45L to 45R. Zone totals should be reduced by the values at these test points, as listed in Figures 2 and 3, when testing a lamp intended for roof mounting.

6.1.5.1 When a clearance lamp is combined with a stop and/or turn signal lamp, the stop and/or turn signal light function intensity shall be at least 5X the luminous intensity of the clearance light function at H-V; H-5L; H-5R, and 5U-V. At all other test points, the stop and/or turn signal light function intensity shall be at least 3X that of the clearance light function.

6.1.6 Warpage

6.1.6.1 Lamps with LED light sources should meet SAE J1889 Thermal Cycle Test.

6.2 Color

In accordance with the color specifications contained in SAE J578:

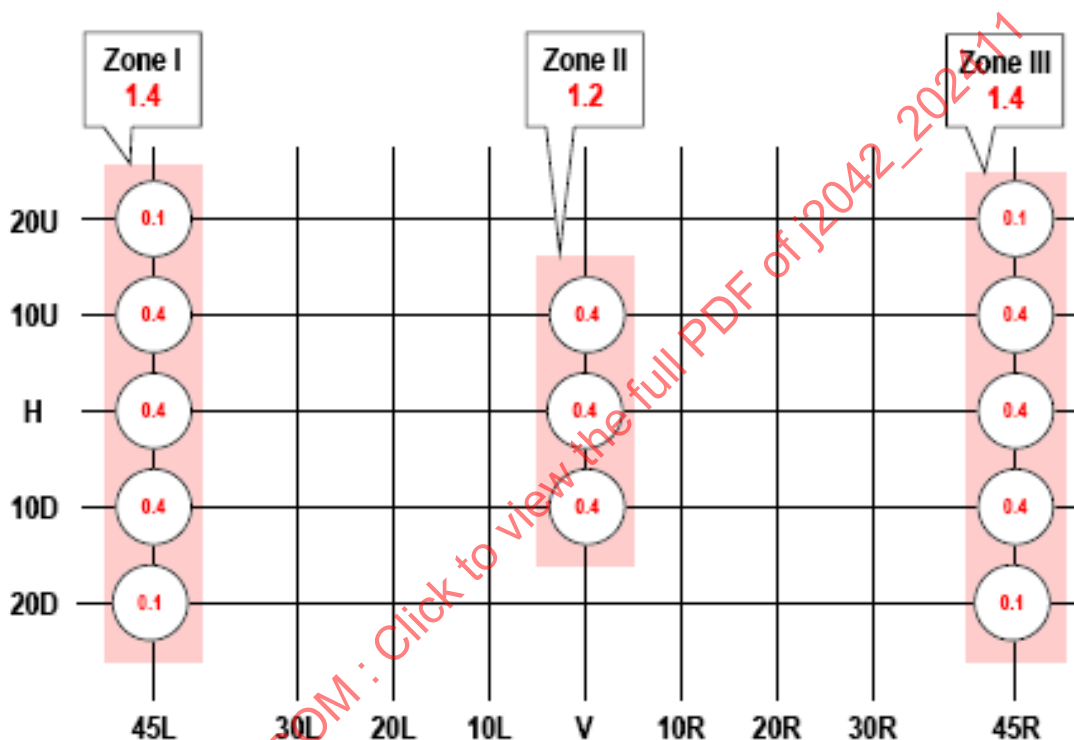
Front clearance and front identification lamps shall emit yellow or white light.

Front and intermediate sidemarker lamps shall emit yellow light.

Rear clearance lamps, rear identification lamps, and rearmost sidemarker lamps shall emit red light.

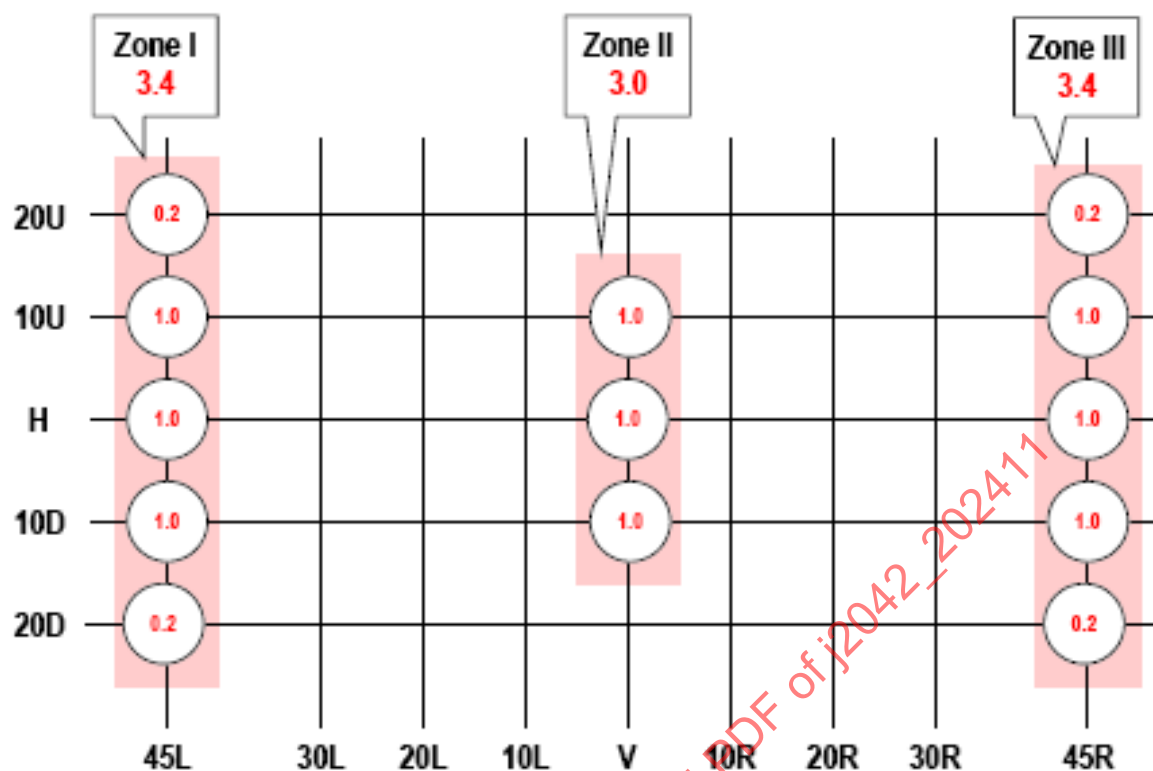
6.3 Plastic Materials

Plastic materials used in optical parts of a lamp shall meet the requirements of SAE J576.



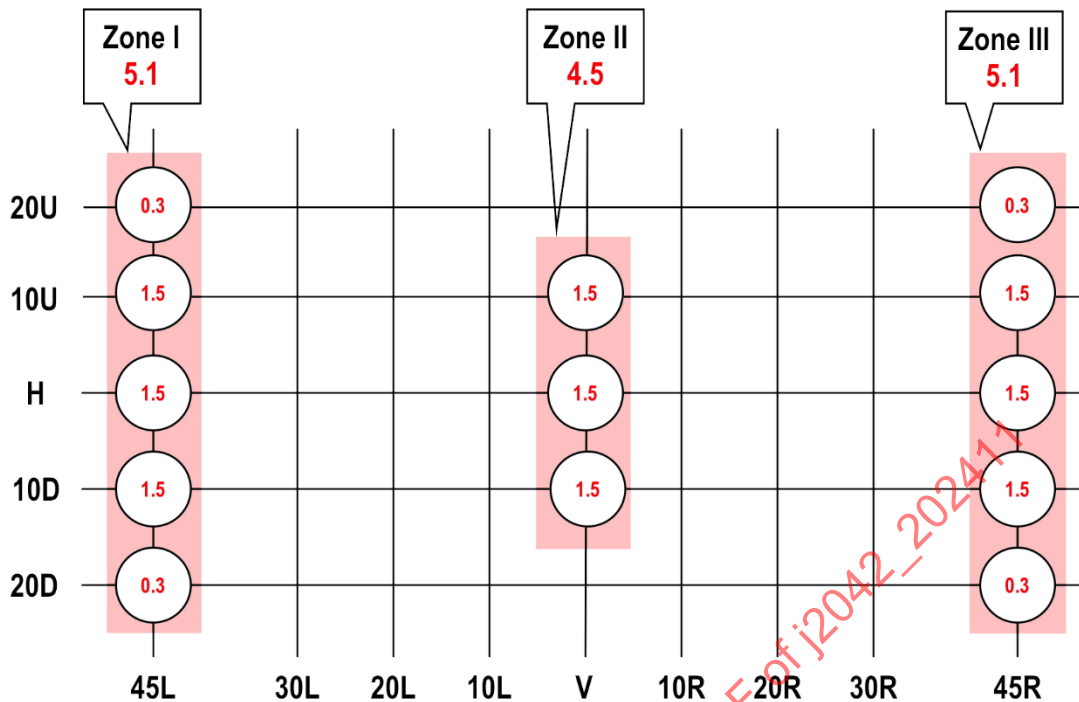
1. The maximum luminous intensity for red rear lamps is 18 cd within the angular range shown, and shall not be exceeded over any area larger than that generated by a 0.5 degree radius within the solid angle defined by the test points. When red clearance lamps are optically combined with stop and/or turn signal lamps, the 18-cd maximum applies only on or above the horizontal.
2. Ratio requirements of 6.1.5.1 apply.
3. Photometric requirements of 6.1.5 apply.
4. Combination clearance and sidemarker lamps shall meet both clearance and sidemarker lamp photometric requirements.
5. The sum of intensity measurements at all test points within a zone shall be at least the required zone total.
6. Regardless of zone totals, the measured value at any test point shall be at least 60% of the minimum value required at that test point.
7. Regardless of zone totals, measured intensity within the range of 20U to 20D and 45L to 45R shall be at least 60% of the lowest minimum intensity required at the nearest adjacent test points.

Figure 1 - Photometric requirement (red)
Minimum luminous intensity (cd)



1. Ratio requirements of 6.1.5.1 apply.
2. Photometric requirements of 6.1.5 apply.
3. Combination clearance and sidemarker lamps shall meet both clearance and sidemarker lamp photometric requirements.
4. The sum of intensity measurements at all test points within a zone shall be at least the required zone total.
5. Regardless of zone totals, the measured value at any test point shall be at least 60% of the minimum value required at that test point.
6. Regardless of zone totals, measured intensity within the range of 20D to 20U and 45L to 45R shall be at least 60% of the lowest minimum intensity required at the nearest adjacent test points.

Figure 2 - Photometric requirement (yellow)
Minimum luminous intensity (cd)



1. Photometric requirements of 6.1.5 apply.
2. Combination clearance and sidemarker lamps shall meet both clearance and sidemarker lamp photometric and colorimetric requirements.
3. The sum of intensity measurements at all test points within a zone shall be at least the required zone total.
4. Regardless of zone totals, the measured value at any test point shall be at least 60% of the minimum value required at that test point.
5. Regardless of zone totals, measured intensity within the range of 20U to 20D and 45L to 45R shall be at least 60% of the lowest minimum intensity required at the nearest adjacent test points.

Figure 3 - Photometric requirement (white)
Minimum luminous intensity (cd)

6.4 Design Requirements

- 6.4.1 Except as provided in 6.4.3.1, 6.4.4.1, and 6.4.6, the identification, clearance, and sidemarker light functions shall be of substantially unchanging intensity, i.e., steady-burning.
- 6.4.2 A clearance lamp shall not be combined with a tail lamp.
- 6.4.3 A clearance lamp may be combined with a turn signal lamp or a stop lamp as defined in SAE J2261.
- 6.4.3.1 If a clearance lamp is optically combined with a turn signal or stop lamp, the clearance light function, when in use, shall remain active while the turn signal or stop light function is being provided, and the lamp shall provide higher (turn or stop) and lower (clearance) intensities, in accordance with the intensity ratio requirements of 6.1.5.1 of this document.
- 6.4.4 A clearance lamp may be combined with a high-mounted turn signal lamp or a high-mounted stop lamp as defined in SAE J1432.
- 6.4.4.1 If a clearance lamp is combined with a high-mounted turn signal or high-mounted stop lamp, the clearance light function, when in use, shall remain active while the high-mounted turn signal or high-mounted stop light function is being provided, and the lamp shall provide higher (turn or stop) and lower (clearance) intensities, in accordance with the intensity ratio requirements of 6.1.5.1 of this document.