SURFACE VEHICLE STANDARD

J586™	MAY2024
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(R) Stop Lamp for Use on Motor Vehicles
Less than, Equal to, or Greater than 2032 mm in Overall Width

RATIONALE

This standard is being reviewed as a part of SAE's Five-Year Review policy. The Lighting Systems Steering Committee agreed to merge the Stop Lamp requirements of document SAE J2261 into document SAE J586. In general, there is a large amount of redundancy in these two documents and there was a desire to merge the document for vehicles equal to or greater than 2032 mm in overall width with the document for vehicles less than 2032 mm in overall width.

SAE J2261 will become obsolete when the merged SAE J586 document is published. There will be a reference when SAE J2261 is searched that will direct users to SAE J586.

Updates to this revision include the following.

- Document title revised to include lamps on vehicles less than, equal to, or greater than 2032 mm in overall width.
- Table of contents revised.
- Section 1 - Scope revised to include Stop Lamp requirements in SAE J2261 for vehicles equal to and more than 2032 mm in overall width.
- 2.1.1 - Added reference to the following SAE publications: SAE J387, SAE J2139, SAE J2261.
- 2.2.1 - Removed reference to the following SAE publications: SAE J222, SAE J592, SAE J594, SAE J1050, SAE J1319, SAE J2042, SAE J2261, SAE J2442.
- 2.2.2 - Revised references to FMVSS 108 and CMVSS 108 publications.
- 2.2.3 - Revised reference to United Nations publications R48 and R148.
- 2.2.4 - Added reference to TMC and TTMA publications.
- 3.1 - Changed "signal" to "light" using SAE J585 APR2023 revision as template.
- 3.2 - Changed "device" to "lamp" using SAE J585 APR2023 revision as template.

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https://www.sae.org/standards/content/J586_202405

- 3.3 - Added definition for Stop Lamp Arrangement using SAE J585 APR2023 revision as template.
- 3.4 - Added definition for multiple lamp arrangement.
- 4 - Added identification coded “S2” for stop lamps for use on vehicles 2032 mm or more in overall width.
- 5.1 - Added reference to SAE J2139 for stop lamps for use on vehicles 2032 mm or more in overall width.
- 5.1.5.2 - Revised reference to photometry figures and revised Table 1 to include photometry figures.
- 5.1.5.3 - Added photometry requirements for S2 lamps.
- 6.1 - Added reference to SAE J2139 for stop lamps for use on vehicles 2032 mm or more in overall width.
- 6.1.5 - Changed wording to “stop light function”; renumbered section.
- Figures 1, 2, 3 - Renumbered and moved figures to this section; revised titles using SAE J585 APR2023 revision as template.
- 6.4.4 - Added EPLLA requirements for stop lamps used on vehicles 2032 mm or more in overall width.
- 6.5 - Combined projected area and luminous intensity figures into one figure (4)…redundant.
- 7 - Removed 7.1.3, 7.1.4, and 7.1.5.

TABLE OF CONTENTS

1. SCOPE

This SAE Standard provides test procedures, requirements, and guidelines for stop lamps intended for use on vehicles of less than, equal to, or greater 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. Unless otherwise indicated, 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 J387 Terminology - Motor Vehicle Lighting

SAE J567 Light Source Retention System

SAE J575 Test Methods and Equipment for Lighting Devices for Use on Vehicles Less than 2032 mm in Overall Width

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 J1889 LED Signal and Marking Lighting Devices

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 J585 Tail Lamp (Rear Position Lamp) for Use on Motor Vehicles Less than, Equal to, or Greater than 2032 mm in Overall Width

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

SAE J1957 Center High Mounted Stop Lamp Standard for Vehicles Less than 2032 mm Overall Width

SAE J2040 Tail Lamps (Rear Position Lamps) for Use on Vehicles 2032 mm or More in Overall Width

SAE J2999 Determination of the Effective Projected Luminous Lens Area (EPLLA) by Design Analysis

2.2.2 Federal Publications

Available from the Superintendent of Documents, U.S. Government Printing Office, Mail Stop: SSOP, Washington, DC 20402-9320, http://www.gpoaccess.gov/cfr/index/htlm.

CFR Title 49 Part 571.108 Lamps, Reflective Devices and Associated Equipment - Federal Motor Vehicle Safety Standards (FMVSS) 108

2.2.3 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.

CMVSS 108 Lighting Systems and Retro Reflective Devices

2.2.4 United Nations Publications

Available from United Nations Economic Commission for Europe, Palais des Nations, CH-1211, Geneva 10, Switzerland, Tel: +41-0-22-917-12-34, www.unece.org.

UN Regulation No. 48 Installation of lighting and light-signalling devices

UN Regulation No.148 Uniform provisions concerning the approval of light-signalling devices (lamps) for power-driven vehicles and their trailers

2.2.5 Truck Trailer Manufacturing Association (TTMA) Publications

Available from Truck Trailer Manufacturers Association, 7001 Heritage Village Plz, Ste 220 · Gainesville, VA 20155-3094, 703 549 3010, http://www.trucktrailer.org.

RP 9 Location of Lighting Devices for Trailers

2.2.6 Technology and Maintenance Council (TMC) Publications

Available from the Technology and Maintenance Council, American Trucking Associations, 80 M St SE, Ste 800 · Washington, DC 20003-3557, Tel: (703) 838-1763, http://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

AV 7-1 Heavy Duty Lighting Systems for Trailers

3. DEFINITIONS

3.1 STOP LIGHT FUNCTION

A steady light to the rear of a vehicle to indicate the intentional deceleration or the stopping of a vehicle.

3.2 STOP LAMP

A lamp providing the stop light function.

3.3 STOP LAMP ARRANGEMENT

All the elements or components that comprise the stop light function.

3.4 MULTIPLE LAMP ARRANGEMENT

An array of two or more separate lamps on one side of the vehicle which operate together for a particular lighting function.

4. LIGHTING IDENTIFICATION CODE

Stop lamps for use on vehicles less than 2032 mm in overall width may be identified by the code “S.”

Stop lamps for use on vehicles equal to or greater than 2032 mm in overall width may be identified by the code “S2.”

These codes are in accordance with SAE J759.

5. TESTS

5.1 With modifications as indicated, the following tests in SAE J575 are applicable for stop lamps on vehicles less than 2032 mm in overall width and tests in SAE J2139 are applicable for stop lamps on vehicles 2032 mm or more in overall width.

5.1.1 Vibration Test

5.1.2 Moisture Test

5.1.3 Dust Test

5.1.4 Corrosion Test

5.1.5 Photometry Test

5.1.5.1 Test distance shall be at least 3 m or at least 10 times the maximum linear extent of the effective projected luminous lens area of the stop lamp, whichever is greater. The H-V axis shall be taken as parallel to the axis of reference of the lamp as mounted on the vehicle.

5.1.5.2 For lamps identified “S” the photometric requirements specified in Figures 1, 2, and 3 shall be applied based on the effective projected luminous area for the entire stop light function on each side, as depicted in Table 1.

Table 1 - Assignment of photometry requirements based on the size of the effective projected luminous lens area

Effective Projected Luminous Lens Area	Size	Photometry Figure
Less than 225 cm^2	1	1
225 to 450 cm^2	2	2
Greater than 450 cm^2	3	3

5.1.5.3 For lamps identified “S2,” only the photometric requirements specified in Figure 1 shall be applied.

5.1.5.4 Photometric measurements of multiple lamp arrangements shall be made by one of the following methods.

5.1.5.4.1 If a multiple lamp arrangement on each side of the vehicle is used to obtain the stop light function, all lamps shall be photometered together provided that a line from the optical axis of each lamp to the center of the photometer sensing device does not make an angle of more than 0.6 degree with the photometer H-V axis. When lamps are photometered together, the H-V axis shall intersect the midpoint between their optical axes. If these conditions are not met use the following method.

5.1.5.4.2 Each lamp shall be photometered separately by aligning the axis of each lamp with the photometer. The photometric measurement for the multiple lamp arrangement shall be determined by adding the photometric outputs from each individual lamp at corresponding test points.

5.1.5.5 The test methods and procedures of SAE J1889 shall also be applied if LED light sources are present in the lamp.

5.1.6 Warpage Test for Devices with Plastic Components

5.2 Color Test

The color of the stop light function shall be tested according to SAE J578.

5.3 Material Test

Plastic materials used in the optical parts shall be tested according to SAE J576.

6. REQUIREMENTS

6.1 Performance Requirements

A device when tested in accordance with the test procedures specified in Section 5, shall meet the following requirements per SAE J575 for lamps on vehicles less than 2032 mm in overall width or SAE J2139 for lamps on vehicles greater than or equal to vehicles 2032 mm in overall width.

6.1.1 Vibration Test

6.1.2 Moisture Test

6.1.3 Dust Test

6.1.4 Corrosion Test

6.1.5 Photometry Test

6.1.5.1 For vehicles less than 2032 mm in overall width the lamp(s) providing the stop light function shall be designed to conform to the zone total photometric requirements of Figure 1, 2, or 3 and corresponding footnotes. The summation of the luminous intensity measurements at the test points in a zone shall be at least the value shown. The lamp size, either 1, 2, or 3 is determined by its effective projected luminous area from Table 1.

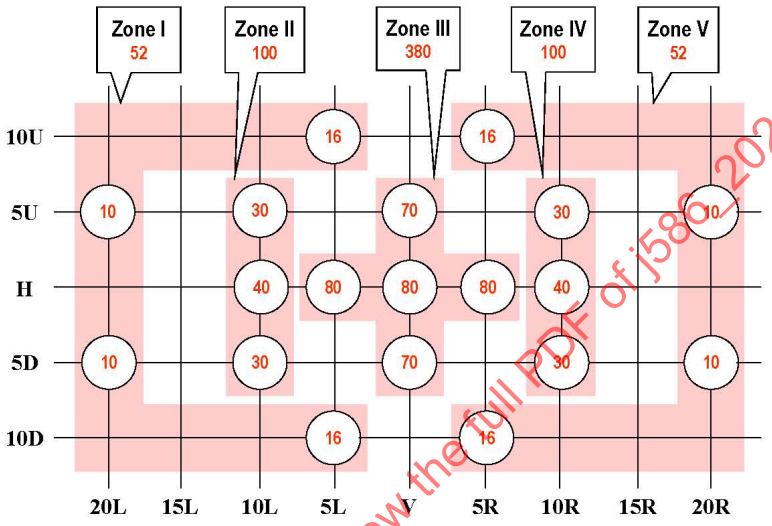
6.1.5.2 For vehicles 2032 mm or more in overall width, the lamp(s) providing stop light function shall be designed to conform to the zone total photometric requirements of Figure 1 and corresponding footnotes. The summation of the luminous intensity measurements at the test points in a zone shall be at least the value shown.

6.1.5.3 A multiple lamp arrangement on each side of the vehicle may be used to meet the photometric requirements of the stop light function. If multiple lamps are used and the distance between optical axes does not exceed 560 mm for two lamp arrangements and does not exceed 410 mm for three lamp arrangements, then the entire lamp arrangement shall be used to determine the size of the lamp and select the appropriate photometric requirement (see Figure 1, 2, or 3). If the distance between adjacent optical axes exceeds the previous dimensions, each lamp shall comply with the photometric performance provisions stated in Table 1 and corresponding Figure 1, 2, or 3.

6.1.5.4 When a stop light function is combined with the tail light function, the stop light function shall not be less than three times the luminous intensity of the tail light function at any test point; except that at H-V, H-5L, H-5R, and 5U-V, the stop light function shall not be less than five times the luminous intensity of the tail light function.

6.1.5.5 If a size 2, size 3, or multiple lamp arrangement is used and the distance between optical axes for both the tail lamp and stop lamp is within the dimensions specified in 6.1.5.3, the ratio of the stop light function to the tail light function shall be computed with the entire lamp or all the lamps lighted. If a multiple lamp arrangement is used and the distance between optical axes for one of the functions exceeds the dimensions specified in 6.1.5.3, the ratio shall be computed for only those lamps where the tail light function and stop light function are optically combined.

6.1.5.6 When the tail light function is combined with the stop light function, and the maximum luminous intensity of the tail light function is located below horizontal and within an area generated by a 0.5 degree (1.0 degree for vehicles 2032 mm or more in overall width) radius around a test point, the ratio for the test point may be computed using the lowest value of the tail light function luminous intensity within the generated area.



1. The maximum luminous intensity is 300 cd within the photometric pattern shown.
2. The Measured value at each test point shall not be less than 60% of the required minimum value shown for that individual test point location.
3. The sum of the luminous intensity measurements at each test point within a zone shall not be less than the Zone total shown. The luminous intensity measurements at each discrete test point shown within the corresponding zone are the values used to calculate the specified zone total.
4. 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.
5. Ratio requirements of 6.1.5.4
6. Multiple lamps requirements of 6.1.5 and its sub paragraphs apply.
7. Where stop lamps are mounted with their axis of reference less than 750 mm above the road surface, photometry requirements below 5° down may be met at 5° down rather than the required downward angle.

Figure 1 - Photometric requirements - Minimum luminous intensity (cd) for size 1 of lamps identified "S" and lamps identified "S2"