SURFACE VEHICLE STANDARD

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Superseding J585 FEB2008

Tail Lamps (Rear Position Lamps) for Use on Motor Vehicles Less than 2032 mm in Overall Width

RATIONALE

Revisions from comments on March 10, 2014 ballot

- Table of Contents 2.1 and section 2.1 revised to “documents” to agree with most other SAE standards and ballot comments
- Table of Contents, 2.2 changed publications to documents for consistency
- Added 5.1 – 5.3 to table of contents per ballot comments
- Removed 6.1.1 – 6.1.6 in table of contents for consistency with 5.1 per ballot comments
- Removed duplicated sentence from 2.1.1 per ballot comment
- 2.1.1 Revised to “Light Source Retention System” per ballot comments
- 2.1.1 Revised L.E.D. to LED per ballot comment for consistency
- 2.2 Revised to “Documents” per ballot comment and consistency with most other SAE J standards
- 2.2.3 Revised ECE Reg. 7 per ballot comment
- 8.1 Spelled out “standards” per ballot comment

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)**
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SAE values your input. To provide feedback on this Technical Report, please visit
http://www.sae.org/technical/standards/J585_201406

TABLE OF CONTENTS

1. SCOPE

This SAE Standard provides test procedures, requirements, and guidelines for tail lamps (rear position lamps) intended for use on vehicles of 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. Unless otherwise indicated, the latest issue of SAE publications shall apply.

2.1.1 SAE Publications

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 Color Specification

SAE J759 Lighting Identification Code

SAE J1319 Rear Fog Lamp Systems

SAE J1889 LED Signal and Marking Lighting Devices

2.2 Related Documents

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 724-776-4970 (outside USA), www.sae.org.

SAE J586 Stop Lamps for Use on Motor Vehicles Less than 2032 mm in Overall Width

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

SAE J594 Reflex Reflectors

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 J2042 Clearance, Sidemarker, and Identification Lamps for Use on Motor 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

2.2.2 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 (FMVSS 108)

2.2.3 United Nations Publications

Available from United Nations Economic Commission for Europe, Palais des Nations, CH-1211, Geneva 10, Switzerland, Tel: +44-0-22-917-12-34, http://www.unece.org/trans/main/wp29/wp29regs.htlm.

ECE Regulation 7 Uniform Provisions Concerning the Approval of Front and Rear Position Lamps, Stop-Lamps and End-Outline Marker Lamps for Motor Vehicles (Except Motorcycles) and Their Trailers

3. DEFINITIONS

3.1 Tail Lamp (Rear Position Lamp)

Whether separate or in combination with other lamps, tail lamps are located on both the left and right rear of the vehicle to indicate the presence and width of a vehicle by a steady operating, low intensity light when viewed from the rear.

3.2 Multiple lamp arrangement is defined in SAE J387.

3.3 Tail lamp arrangement means all the elements or components that comprise the tail lamp function.

3.4 The terminology contained in SAE J387 shall apply to this standard.

4. LIGHTING IDENTIFICATION CODE

Tail lamps for use on vehicles less than 2032 mm in overall width may be identified by the code “T” in accordance with SAE J759.

5. TESTS

5.1 The following tests in SAE J575 are applicable with the modifications as indicated.

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 area of the signal 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 The photometric requirements specified in Figures 1, 2 and 3 shall be applied based on the effective projected luminous area for the entire tail lamp function on each side of the vehicle as depicted in Table 1 and the following paragraphs.

TABLE 1 - EFFECTIVE PROJECTED LUMINOUS AREAS

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

5.1.5.3 Photometric measurements of multiple lamp arrangements shall be made by one of the following methods:

5.1.5.3.1 If a multiple lamp arrangement on each side of the vehicle is used to obtain the turn signal 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.

5.1.5.3.2 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.

5.1.5.4 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 tail lamps shall be determined by SAE J578.

5.3 Materials 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; in addition lamps with LED light sources shall also meet the requirements of SAE J1889.

6.1.1 Vibration Test

6.1.2 Moisture Test

6.1.3 Dust Test

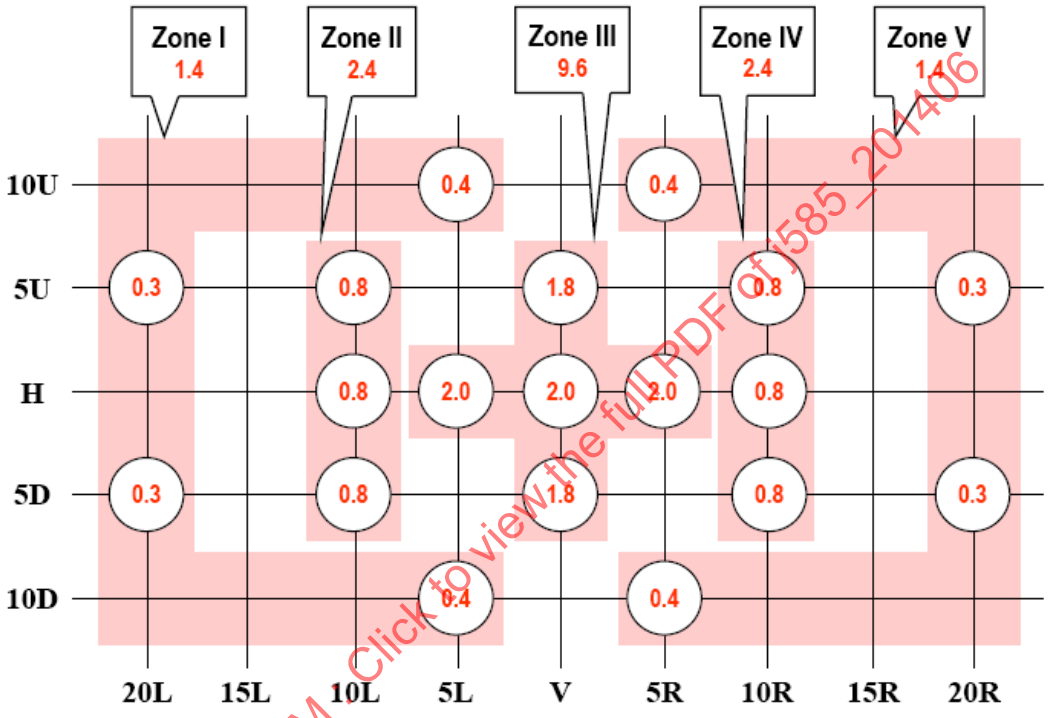
6.1.4 Corrosion Test

6.1.5 Photometry Test

6.1.5.1 The lamp 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.

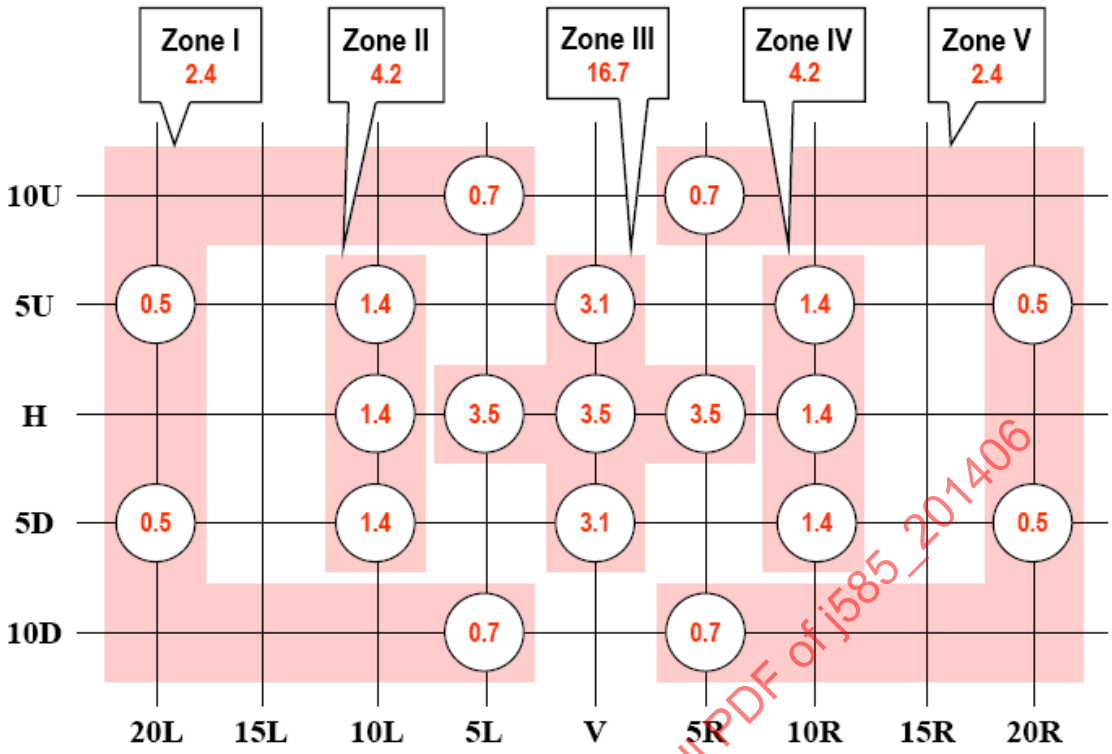
6.1.5.2 A multiple lamp arrangement on each side of the vehicle may be used to meet the photometric requirements of a tail lamp. If multiple lamps are used and the distance between optical axes does not exceed 560 mm for two lamp arrangements and does not exceed 410 mm for three lamp arrangements, then the entire lamp arrangement must be used to meet the photometric requirements for the corresponding figure and size of lamp. If the distance between adjacent optical axes exceeds the previous dimensions, each lamp shall comply with the photometric performance requirements required by Table 1 and the corresponding Figure 1, 2 or 3.

6.1.5.3 When a tail lamp is combined with the turn signal or stop lamp, the signal lamp intensity shall not be less than three times the luminous intensity of the tail lamp at any test point, except that at 5U-V, H-5L, H-V, and H-5R, the turn signal or stop lamp intensity shall not be less than five times the luminous intensity of the tail lamp. If a size 2, 3 or multiple lamp arrangement is used and the distance between optical axes for both the tail lamp and the turn signal or stop lamp is within the dimensions specified in 6.1.5.2, the ratio of the turn signal or stop lamp to the tail lamp shall be computed with the entire lamp or all 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 6.1.5.2, the ratio shall be computed for only those lamps where the tail lamp and turn signal or stop lamp are optically combined. When the tail lamp is combined with the turn signal or stop lamp and the maximum luminous intensity of the tail lamp is located below horizontal and within an area generated by a 1.0 degree radius around a test point, the ratio for the test point may be computed using the lowest value of the tail lamp luminous intensity within the generated area.



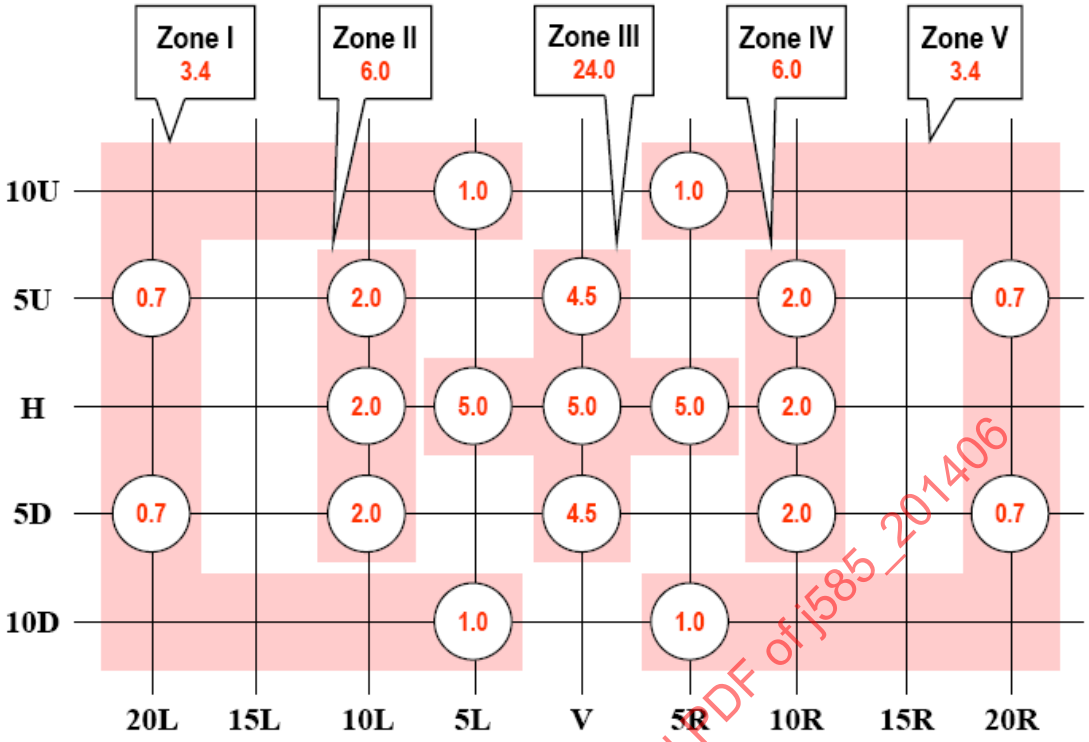
1. The maximum luminous intensity is 18 cd within the photometric pattern shown.
2. The Measured value at each test point shall not be less than 60% of the required minimum value for that individual test point location.
3. The sum of the luminous intensity measurements at each test point within a zone 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 6.1.5.3 apply.
6. Multiple lamps requirements of 6.1.5 and its sub paragraphs apply.
7. Where tail lamps are mounted with their axis of reference less than 750mm 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) Size 1 (less than 225 cm^2)



1. The maximum luminous intensity is 18 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 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 6.1.5.3 apply.
6. Multiple lamps requirements of 6.1.5 and its sub paragraphs apply.
7. Where tail lamps are mounted with their axis of reference less than 750mm above the road surface, photometry requirements below 5° down may be met at 5° down rather than the required downward angle.

FIGURE 2 - PHOTOMETRIC REQUIREMENTS
Minimum Luminous Intensity (cd) Size 2 (225 - 450cm^2)



1. The maximum luminous intensity is 18 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 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 6.1.5.3 apply.
6. Multiple lamps requirements of 6.1.5 and its sub paragraphs apply.
7. Where tail lamps are mounted with their axis of reference less than 750mm above the road surface, photometry requirements below 5° down may be met at 5° down rather than the required downward angle.

FIGURE 3 - PHOTOMETRIC REQUIREMENTS
Minimum Luminous Intensity (cd) Size 3 (greater than 450 cm^2)

6.1.6 Warpage

6.2 Color

The color of the light from a tail lamp shall be red as specified in SAE J578.

6.3 Material Requirements

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

6.4 Design Requirements

6.4.1 If a turn signal or stop lamp is optically combined with the tail lamp and a two-filament replaceable bulb is used, the bulb shall have an indexing base and the socket shall be designed so that bulbs with non-indexing bases cannot be used. Removable sockets shall have an indexing feature so that they cannot be reinserted into lamp housings in random positions, unless the lamp will perform its intended function with random light source orientation.

6.4.2 SAE J1889 contains the requirements for LED lamps