SAE International™

SURFACE VEHICLE STANDARD

SAE J914 SEP2009

Issued 1965-02
Revised 2009-09

Superseding J914 JUL2003

Side Turn Signal Lamps for Vehicles Less than 12 m in Length

RATIONALE

The following changes were incorporated to include Mirror Mounted Turn Signals in this document:

Section 2.1.1 Moved SAE J1889 L.E.D. Lighting Devices from 2.2 Related Publications to 2.1 Applicable Publications. This is consistent with other SAE Signals that incorporate SAE J1889.
Section 2.2.2 Added ECE Regulation 48 and Regulation 6 to this section. Added contact information for European Union regulations.
Section 3.2 changed to include a definition for a Mirror Mounted Turn Signal that is rearward facing
Section 3.3 added a definition for a Mirror Mounted Turn Signal that is side facing.
Section 3.4 – Revised numbering of Mounting Height definition. Definition revised to make it more descriptive.
Section 4 – Included Identification codes for rear and side facing mirror mounted turn signals. Renumbered this section.
Section 5.1.5.1 – Revised photometric test distance description to be consistent with other SAE publications.
Section 5.1.5.3 – Added SAE J1889 note. This is consistent with other SAE Signals that incorporate SAE J1889.
Section 5.1.5.4 – Added section to define test method for a signal that is mounted on a movable component.
Section 5.3 – Added Materials Test
Section 6.1.5 – Added photometric requirements sections for rear and side facing mirror mounted turn signals. Revised wording of 6.1.5.1 for the E2 type side turn signal lamp to clarify that Figure 1 is to be used with this type of signal lamp. Added new figures for photometric requirements of mirror mounted signals. These tables were developed with input from the Side Mirror Turn Signal Task Force, UMTRI research papers, and a lighting demonstration/survey from the Spring 2006 Lighting Committee Meetings in Sante Fe, NM.
Section 6.2 – Color revised so that side turn signals and side facing mirror mounted turn signals could only be yellow. This is because most of these lamps have light emitting surfaces that are visible from the front view of the vehicle. There can't be any red light visible from the front, therefore these types of side turn signals are limited to yellow light. Rear facing mirror mounted turn signals can be red or yellow in color. These signals are generally not visible from the front of the vehicle
Section 6.4.2 – This section was added to specify mirror mounted signals must flash simultaneously with the required signals. This was added so that drivers who view required turn signals and the mirror mounted turn signals on the same vehicle will not misinterpret the signals as two different vehicles indicating a turn.
Section 7.1.5 – This section was added to alert users that red light from the rear facing mirror mounted turn signal shall not be visible from the front of a vehicle. Definition was developed from ECE Reg 48. Related Figure 4 also added.

1. SCOPE

This SAE Standard provides installation requirements, test procedures, design guidelines, and performance requirements for side turn signal lamps for vehicles less than 12 m in length.

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 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 J567 Lamp Bulb Retention System

SAE J575 Test Methods and Equipment for Lighting Devices and Components 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 J588 Turn Signal Lamps for Use on Motor Vehicles Less than 2032 mm in Overall Width

SAE J759 Lighting Identification Code

SAE J1889 L.E.D. Signal and Marking Lighting Devices

2.2 Related Publications

The following publications are provided for information purposes only and are not a required part of this specification.

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 J2039 Side Turn Signal Lamps for Large Vehicles

SAE J2139 Test for Signal and Marking Devices Used on Vehicles 2032 mm or More in Overall Width

2.2.2 European Community/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, http://www.unece.org/trans/main/wp29/wp29regs.html.

ECE Reg 6 Uniform Provisions Concerning the Approval of Direction Indicators for Power-Driven Vehicles and Their Trailers

ECE Reg 48 Uniform Provisions Concerning the Approval of Vehicles with Regard to the Installation of Lighting and Light-Signalling Devices

3. DEFINITIONS

3.1 Side Turn Signal Lamp

A lighting device mounted on the side of a vehicle at or near the front, and used as part of the turn signal system to indicate a change in direction by means of a flashing warning signal on the side toward which the vehicle operator intends to turn or maneuver.

NOTE: Side turn signals, when used, are supplemental to, and should not be confused with turn signals described in SAE J588, which, in some cases, may be mounted on the side of the vehicle.

3.2 Rear Facing Mirror Mounted Side Turn Signal Lamp

A side turn signal lamp incorporated into a rearward facing surface of an outside rearview mirror assembly.

3.3 Side Facing Mirror Mounted Side Turn Signal Lamp

A side turn signal lamp incorporated in an outboard facing surface of an outside rearview mirror assembly.

3.4 Mounting Height

Is the vertical distance above the road surface measured to the geometric center of the functional portion of the light emitting surface of the side turn signal lamp on the vehicle at curb weight.

4. LIGHTING IDENTIFICATION CODE

4.1 Side Turn Signal Lamps for use on vehicles less than 12 m in length may be identified by the code “E2” in accordance with SAE J759.

4.2 Rear Facing Mirror Mounted Side Turn Signal Lamps may be identified by code “E3” in accordance with SAE J759.

4.3 Side Facing Mirror Mounted Side Turn Signal Lamps may be identified by code “E4” in accordance with SAE J759.

5. TESTS

5.1 SAE J575 is a part of this document. The following tests are applicable with 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 Photometric Test

5.1.5.1 Photometric tests shall be made with the photometer at a distance of at least 3 m from the lamp, or at least 10 times the maximum linear extent of the functional portion of the light emitting surface, whichever is greater. The H-V axis shall be taken as the horizontal line through the light source and normal to the longitudinal axis of the vehicle.

5.1.5.2 Photometric measurements shall be made with the light source steadily burning.

5.1.5.3 SAE J1889 is a part of this document.

5.1.5.4 When testing rear facing mirror mounted side turn signal lamps mounted on a movable component of the mirror assembly, the assembly shall be oriented in the nominal design mounting position as defined by the manufacturer.

5.1.6 Warpage Test on Devices with Plastic Components

5.2 Color Test

SAE J578 is part of this document.

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:

6.1.1 Vibration

SAE J575.

6.1.2 Moisture

SAE J575.

6.1.3 Dust

SAE J575.

6.1.4 Corrosion

SAE J575.

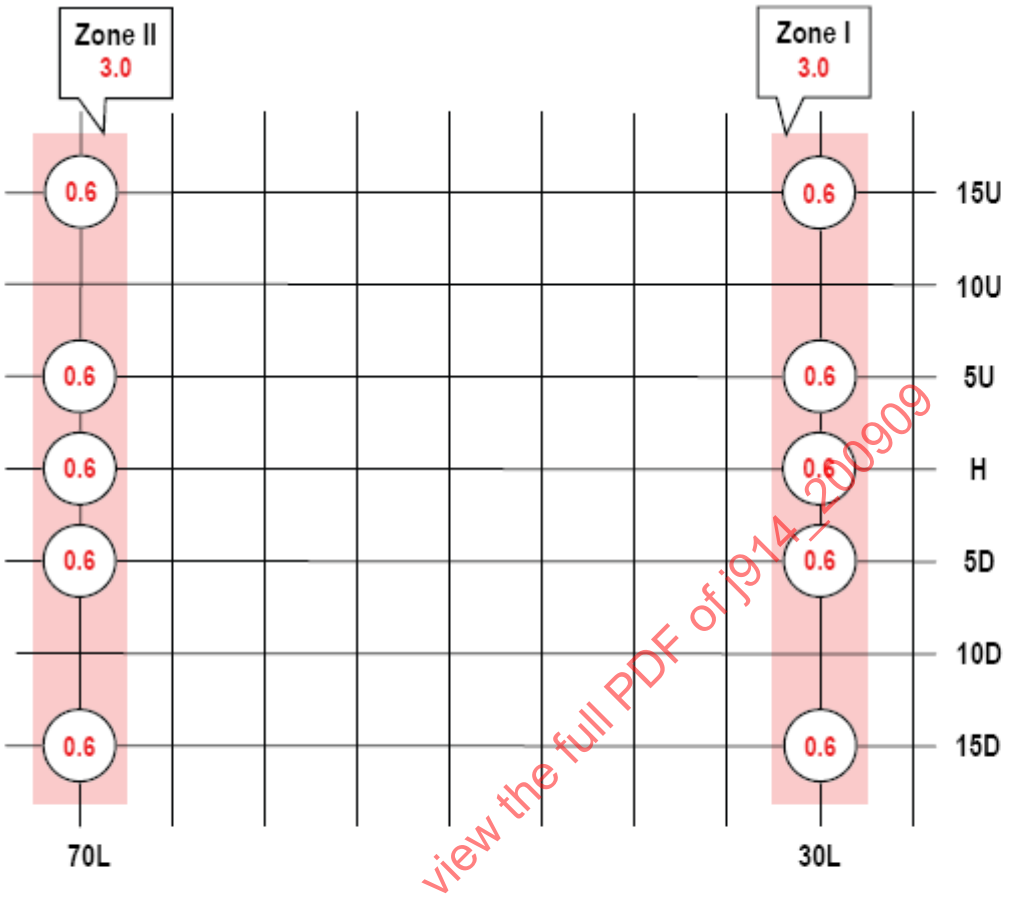
6.1.5 Photometry

SAE J575.

6.1.5.1 A Side Turn Signal Lamp (E2 Identification) shall be designed to conform to the zone total photometric requirements of Figure 1 and its footnotes. The summation of the luminous intensity measurements at the test points in a zone shall be at least the value shown.

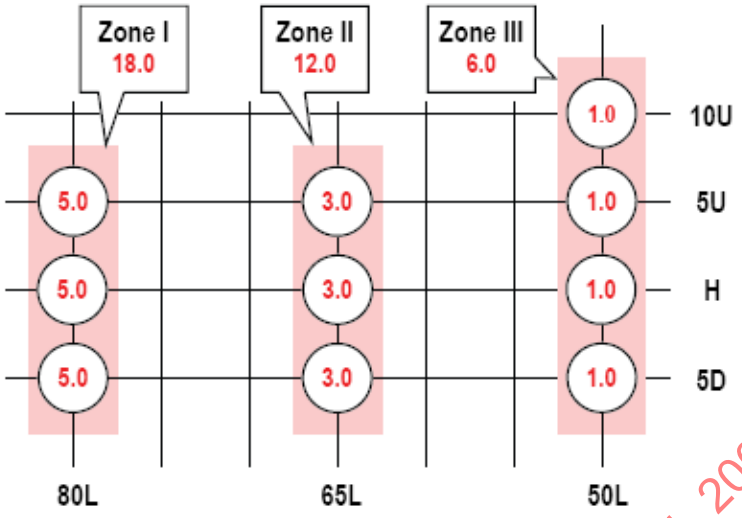
6.1.5.2 A Rear Facing Mirror Mounted Side Turn Signal Lamp (E3) shall be designed to conform to the zone total photometric requirements of Figure 2 and its footnotes. The summation of the luminous intensity measurements at the test points in a zone shall be at least the value shown.

6.1.5.3 A Side Facing Mirror Mounted Side Turn Signal Lamp (E4) shall be designed to conform to the zone total photometric requirements of Figure 3 and its footnotes. The summation of the luminous intensity measurements at the test points in a zone shall be at least the value shown.



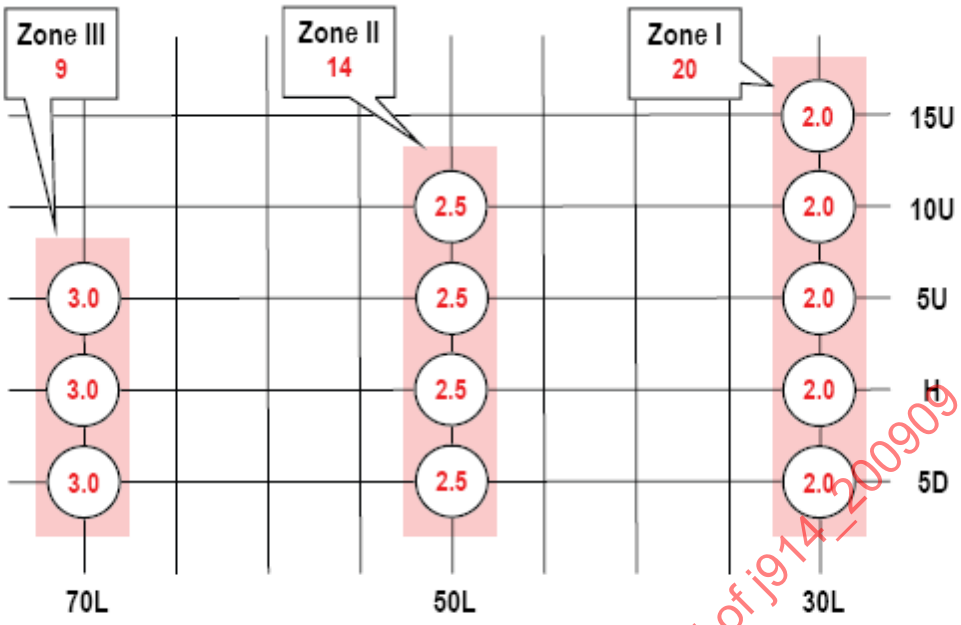
1. The maximum luminous intensity is 200 cd at any test point within the photometric pattern shown.
2. Angles shown are for lamps mounted on left-hand side of vehicle. For lamps mounted on right-hand side, substitute right-hand angles.
3. The measured values at each test point shall not be less than 60% of the required minimum value shown for that individual test point location.
4. 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. The luminous intensity measurements at each discrete test point shown within the corresponding zone are the values used to calculate the specified zone total.

FIGURE 1 - PHOTOMETRIC REQUIREMENTS - SIDE TURN SIGNAL
Minimum Luminous Intensity



1. The maximum luminous intensity is 30 cd at any test point within the photometric pattern shown.
2. Angles shown are for lamps mounted on left-hand side of vehicle. For lamps mounted on right-hand side, substitute right-hand angles.
3. The measured values at each test point shall not be less than 60% of the required minimum value shown for that individual test point location.
4. 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. The luminous intensity measurements at each discrete test point shown within the corresponding zone are the values used to calculate the specified zone total.

FIGURE 2 - PHOTOMETRIC REQUIREMENTS - REAR FACING MIRROR MOUNTED SIDE TURN SIGNAL
Minimum Luminous Intensity



1. The maximum luminous intensity is 30 cd at any test point within the photometric pattern shown.
2. Angles shown are for lamps mounted on left-hand side of vehicle. For lamps mounted on right-hand side, substitute right-hand angles.
3. The measured values at each test point shall not be less than 60% of the required minimum value shown for that individual test point location.
4. 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. The luminous intensity measurements at each discrete test point shown within the corresponding zone are the values used to calculate the specified zone total.

FIGURE 3 - PHOTOMETRIC REQUIREMENTS - SIDE FACING MIRROR MOUNTED SIDE TURN SIGNAL
Minimum Luminous Intensity

6.1.6 Warpage

SAE J575.

6.2 Color

6.2.1.1 The color of the light from a side turn signal lamp (E2 Identification) and a side facing mirror mounted side turn signal lamp (E4 Identification) shall be yellow, as specified in SAE J578.

6.2.1.2 The color of the light from a rear facing mirror mounted side turn signal lamp (E3) shall be yellow or 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 Installation Requirements

6.4.1 Visibility and photometric performance of the side turn signal lamp within the test angles shown in Figure 1 shall not be obstructed by any portion of the vehicle unless the lamp is designed to comply with all requirements when the obstruction is considered.

6.4.2 Side turn signal lamps shall flash simultaneously and in phase with the required turn signal lamps.

7. GUIDELINES

7.1 Installation Guidelines

The following guidelines apply to the side turn signal lamps as used on the vehicle and shall not be considered to be part of the requirements.

7.1.1 Side turn signal lamps should be located as close to the front of the vehicle as practicable, and at a height of no more than 1650 mm and no less than 500 mm.

7.1.2 The electrical wiring in the vehicle should be adequate to supply design voltage to the light source.

7.1.3 Installation of lamps on vehicles should be such that the effect of dirt, grime, and/or snow accumulation on optical surfaces is minimized.

7.1.4 Where it is expected that lamps must perform in extremely severe environments, such as off-highway, mining or fuel haulage, or where it is expected that they will be totally immersed in water, the user should specify lamps specifically designed for such use.

7.1.5 If a rear facing mirror mounted side turn signal lamp (E3 Identification) is red, no red light shall be projected towards the front of the vehicle. There must be no direct visibility of the light emitting surface of a red lamp within 15 degrees L to R from 1 m to 2.2 m above the ground at 25 m distance as shown in Figure 4.