

(R) Signal &amp; Marking Light Sources

## RATIONALE

This standard was revised in two aspects. Specification for recent new signal and marking filament light sources have been included. The sections that were added/revised as part of the filament light source update are listed below. In addition to that the scope is extended to include solid state lighting.

Due to the development of more efficient and cost-effective solid-state lighting solutions using light emitting diodes (LEDs) over the last years, the use of solid-state lighting options for signaling and lighting function in vehicles has become more and more common. In many applications the installed light sources are sealed system solutions, where customized LED arrays and associated electronics are used. Another option for solid-state lighting is the use of replaceable LED light sources, which can be inserted into a system using traditional socket systems and can therefore be easily exchanged. This principle is similar to currently existing miniature filament bulbs. This proposal is intended to extend the scope of SAE J573 to include these replaceable LED light sources in a similar manner to filament light sources. Due to differences between LED light sources compared to filament light sources in terms of the optical, mechanical and electronic characteristics, the LED light sources are not intended as direct replacement of filament light sources.

The following revisions were made as part of the update to the filament light source sections in SAE J573:

- a. Title change to Signal and Marking Light Sources
- b. Terminology change, from bulb and/or lamp to light source
- c. New filament light sources were added to the document:
  1. T-3 ¼ filament light sources included (W3W, W5W, WY5W)
  2. T-5 filament light source (W16W)
  3. B-6 (1003)
  4. S-8 bayonet base (1141, 1157A, 2057A, 2357NA)
  5. S-8 wedge (families of 3057, 3157, 3357, 3457, 3757, 4057, 4114, 4157)
  6. T6 ½ Light Sources were included (7400 series and WY21W)
  7. P-6 Light Sources (5200 series, 7000 series)
  8. ECE types H21W, H6W, HY21W, PSX26W

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- b. In Table 2 light sources typically used only for Parts and Service are marked with a footnote, "listed for historical purpose".
- c. Table 3 was updated to include references to tables and figures with new light source specifications
- d. Table 9 and Figure 11 were added to include T - 6½ light sources base configurations
- e. In cases where light source dimensions are elsewhere documented, such as in ECE R37, and/or IEC (IEC-60809, IEC-60061-1) specifications and light source drawings were not duplicated to avoid showing discrepancies between the standards. Therefore this document contains no figures of ANSI 5000 series and 7000 series

Sections added/revised as part of the incorporation of LED light sources:

- a. Scope
- b. 2.1.1, added SAE J2357 to applicable SAE publications
- c. 2.1.3, added IESNA LM-80 to applicable Other publications
- d. Table 1
- e. 3.xx (various)
- f. Table 2B
- g. 4.3, 4.4, 4.5
- h. Figure 12, Figure 13, Table 9

## 1. SCOPE

Most signal and marking lighting devices have light sources (bulbs), which can be based on either filament or LED technology. To assure field replacement, it is important that light source types employed be readily available in normal service channels. This document defines the physical, electrical, and photometric characteristics necessary to achieve a proper replacement for popular types of signal and marking light sources.

Some of the design characteristics in this document are listed solely for the sake of standardization and are not intended to describe the performance of lighting devices (lamp assemblies) on the vehicle.

## 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 724-776-4970 (outside USA), [www.sae.org](http://www.sae.org).

SAE J567      Light Source Retention System

SAE J578      Color Specification

SAE J1330 Photometry Laboratory Accuracy Guidelines

SAE J2357 Application Guidelines for Electronically Driven and/or Controlled Exterior Automotive Lighting Equipment

### 2.1.2 ANSI Publications

Available from American National Standards Institute, 25 West 43rd Street, New York, NY 10036-8002, Tel: 212-642-4900, [www.ansi.org](http://www.ansi.org).

ANSI\_ANSLG\_C81.61 Electric Lamp Bases

ANSI\_ANSLG\_C81.62 Lamp Holders for Electric Lamps

ANSI\_ANSLG\_C81.63 Gauges for Electrical Lamp Bases and Lamp Holders

ANSI ANSLG Special Report SR25e - 2009 Assigned Miniature Lamp Codes

### 2.1.3 International Electrotechnical Commission (IEC) Publications

Available from International Electrotechnical Commission, 3, rue de Varembe, P.O. Box 131, CH-1211 Geneva 20, Switzerland, Tel: +41-22-919-02-11, [www.iec.ch](http://www.iec.ch).

IEC Publication 60061-1 Lamp caps and holders together with gauges for the control of interchangeability and safety - Part 1: Lamp caps

IEC Publication 60809 Lamps for road vehicles - Dimensional, electrical and luminous requirements

IEC Publication 60810 Lamps for road vehicles - Performance requirements

IEC Technical Report 62471 Part 2 Photobiological safety of lamps and lamp systems - Part 2: Guidance on manufacturing requirements relating to non-laser optical radiation safety

## 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 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>.

### 2.2.2 CIE Publications

Available from Commission Internationale de L'eclairage, CIE Central Bureau, Kegelgasse 27, 1030 Wien Austria, see also: national organizations of CIE in the case of the USA: United States National Committee of the CIE, c/o Ronald B. Gibbons, Virginia Tech Transportation Institute, 3500 Transportation Research Place, Blacksburg, VA 24061, U.S.A., email: [gibbons@vti.vt.edu](mailto:gibbons@vti.vt.edu), <http://www.cie-usnc.org>

Publication No. 70 - 1987 The Measurement of Absolute Luminous Intensity Distributions