SURFACE VEHICLE STANDARD

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Superseding J131 JUN2010

(R) Motorcycle Turn Signal Lamps

RATIONALE

Document due for 5 year review.

The changes incorporated are to make the document consistent with J-document formating

Added Table of Contents.

Section 1. Scope updated

Section 2. References updated. Added J759, J1690, and J1889

Add Section 2.2 for related publications

Section 3 - Add definition of Turn Signal function in alignment with SAE J588. Added definition of Sequential turn signal.

Add new section 4 referencing Lighting Identification Code in alignment with other SAE documents

Renamed General Requirements section to TEST in alignment with other SAE documents

Eliminated the term section xx of the test titles

Eliminated photometry test tables

Aligned photometry test distance to detector with J588.

Added references to J1889

Reworded Plastic Materials Test section

Added requirements section in alignment with other SAE documents

Added Performance requiremetns section in alignment with other SAE documents

Replaced photometry test tables with photometry test figures in alignment with other SAE documents

Added Design Requirement section

Added Sequential turn indicator in alignment with J588

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https://www.sae.org/standards/content/J131_202205/

Moved Installation requirements into requirements section.

Modified wording for visibility requirements in alignment with other SAE documents

Added motorcycle specific figures for visibility angles.

Added Guidelines section

Implemented guidelines from J588

Added Additional notes section

Moved Appendix A content to Additional notes section

Renumbered Notes section

Eliminated Appendix A

TABLE OF CONTENTS

1. SCOPE

This SAE Standard provides test procedures, requirements, and guidelines for motorcycle turn signal lamps. It does not apply to mopeds.

2. REFERENCES

2.1 Applicable Publications

The following publications form a part of the specification to the extent specified herein. Unless otherwise indicated, the latest revision 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 J213 Motorcycle Classifications

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

SAE J576 Plastic 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 J1690 Flashers

SAE J1889 LED 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 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 J567 Light Source Retention System

SAE J1050 Describing and Measuring the Driver's Field of View

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

2.2.2 Code of Federal Regulations (CFR) Publications

Available from the United States Government Printing Office, 732 North Capitol Street, NW, Washington, DC 20401, Tel: 202-512-1800, www.gpo.gov.

CFR Title 49 Part 571.108 Lamps, Reflective Devices and Associated Equipment (FMVSS 108)

2.2.3 Transport Canada Publications

Available from Transport Canada, Multi-Modal and Road Safety Programs, 330 Sparks Street, Ottawa, Ontario K1A 0N5, Canada, Tel +1-613-998-8616, or +1-800-333-0371, mvs-sa@tc.gc.ca, www.tc.gc.ca.

Canada Motor Vehicle Safety Standard 108 (CMVSS 108) – Lighting Systems and 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, http://www.unece.org/trans/main/wp29/wp29regs.html.

UN Regulation No. 53 Uniform Provisions Concerning the Approval of Category L3 Vehicles with Regard to the 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 (LSD)

3. DEFINITIONS

3.1 TURN SIGNAL FUNCTION

A flashing light to the front and or rear of a vehicle on the side toward which a change of direction is intended.

3.2 MOTORCYCLE TURN SIGNAL LAMP

A device mounted on a motorcycle providing the turn signal function.

3.3 SEQUENTIAL TURN SIGNAL

A turn signal function where adjacent illuminated areas activate or deactivate consecutively.

4. LIGHTING IDENTIFICATION CODE

Motorcycle turn signal lamps may be identified by the code D in accordance with SAE J759.

5. TESTS

5.1 SAE J575 is a part of this document. The following tests 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 Photometric measurements shall be made at least 3 meters or 10 times the maximum linear extent of the Effective Projected Luminous Lens Area (EPLLA) of the signal lamp, whichever is greater from the photometer.

5.1.5.2 The H-V axis shall be taken as parallel to the longitudinal axis of the vehicle.

5.1.5.3 The test methods and procedures of SAE J1889 shall also be applied if LED light sources are present in the turn signal lamp(s).

5.1.5.4 Photometry of sequential turn signals shall be tested with all illuminated areas switched on at their full intended intensity.

5.1.6 Warpage Test for Devices with Plastic Components

5.2 Color Test

The color of the turn signal function shall be determined by SAE J578.

5.3 Materials Test

Plastic materials used in 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 unless noted; in addition, lamps with LED light sources shall also meet the requirements of SAE J1889.

6.1.1 Vibration

6.1.2 Moisture

6.1.3 Dust

6.1.4 Corrosion

6.1.5 Photometry

6.1.5.1 The lamp shall be designed to conform to the requirements shown in Figure 1FY, Figure 1RR, or Figure 1RY respectively for Motorcycle Class including C, D, H, and the requirements shown in Figure 2RR, or Figure 2RY respectively for Motorcycle Class including A, B, E, L.

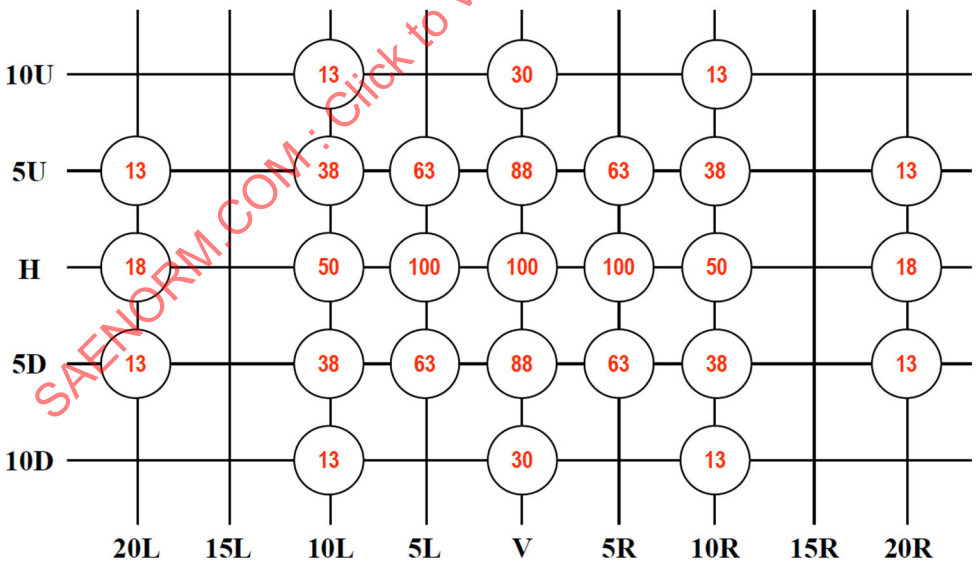
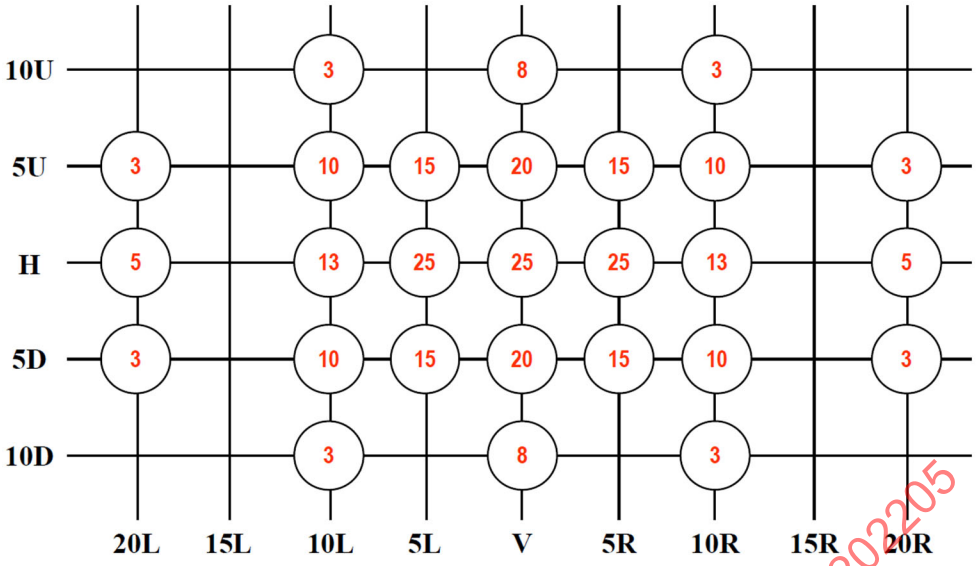
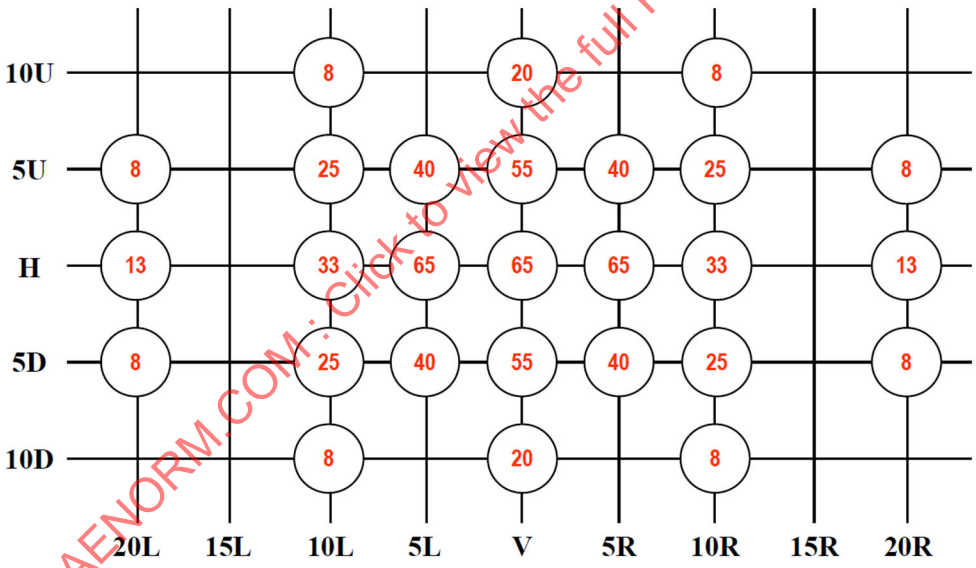


Figure 1FY - Front signal lamp (yellow) photometric requirements minimum luminous intensity (cd) – class C, D, H



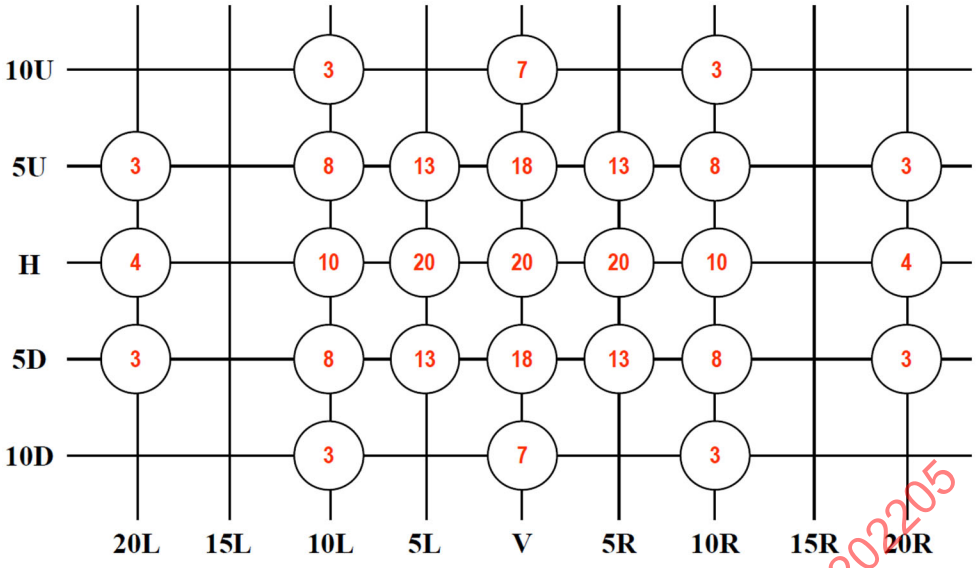
1. The maximum luminous intensity is 300cd within the photometric pattern shown.

Figure 1RR - Rear signal lamp (red) photometric requirements minimum luminous intensity (cd) – class C, D, H



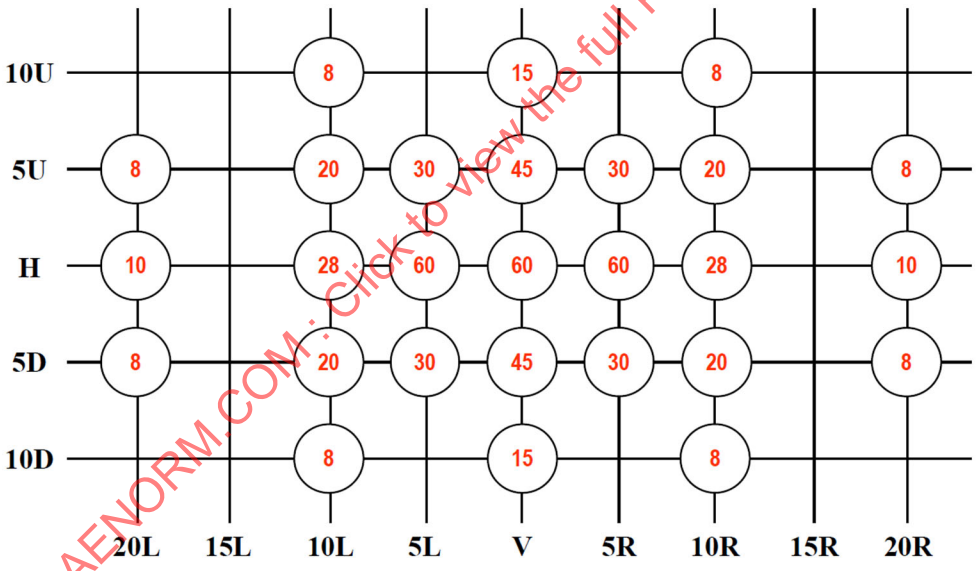
1. The maximum luminous intensity is 750cd within the photometric pattern shown.

Figure 1RY - Rear signal lamp (yellow) photometric requirements minimum luminous intensity (cd) – class C, D, H



1. The maximum luminous intensity is 300cd within the photometric pattern shown.

Figure 2RR - Rear signal lamp (red) photometric requirements minimum luminous intensity (cd) – class A, B, E, L



1. The maximum luminous intensity is 750cd within the photometric pattern shown.

Figure 2RY - Rear signal lamp (yellow) photometric requirements minimum luminous intensity (cd) – class A, B, E, L

6.1.6 Warpage

6.2 Color

The color of light from the turn signal lamps shall be red or yellow to the rear and yellow to the front of the vehicle as specified in SAE J578

6.3 Materials Requirements

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

6.4 Design Requirements

6.4.1 The effective projected luminous lens area (EPLLA) of each turn signal shall be at least 22.0 cm^2.

6.4.2 SAE J1889 contains the requirements for LED Lamps.

6.4.3 Sequential Turn Signal Operation

6.4.3.1 A Turn Signal may activate in a sequential manner provided that

6.4.3.1.1 All sequentially illuminated areas are activated in no more than 200msec after the beginning of the ON cycle.

6.4.3.1.2 Sequential activation proceeds in a consistently progressive manner from inboard to outboard indicating the direction of the turn.

6.4.3.1.3 For the duration of the ON cycle, any variation in intensity of the illuminated areas shall not be designed to decrease.

6.4.3.2 A Turn Signal may deactivate in a sequential manner provided that:

6.4.3.2.1 All illuminated areas are deactivated in no more than 200msec from the beginning of the OFF cycle.

6.4.3.2.2 Sequential deactivation proceeds in a consistently progressive manner from inboard to outboard indicating the direction of the turn.

6.4.3.2.3 For the duration of the OFF cycle, any variation in intensity of the illuminated areas shall not be designed to increase.

6.4.3.3 Each turn signal shall comply with flash rate requirements per SAE J1690 Flashers.

6.4.3.3.1 The ON portion of the flashing cycle begins when any illuminated area begins to activate.

6.4.3.3.2 The OFF portion of the flashing cycle begins when any illuminated area begins to extinguish.

6.4.3.4 Sequential Turn Signal Activation or Deactivation Direction

6.4.3.4.1 The path of a sequential turn signal as determined by the geometric center of each sequential area, as measured by the orthogonal projection on a plane perpendicular to the defined test pattern direction relative to the axis of reference, shall proceed in a primary direction with no more than one direction change.

6.4.3.4.2 The ratio between the total width and the total height of the turn signal's sequential path as measured by 6.4.5.4.1 shall not be less than 1.7:1. The width and height shall be measured parallel and perpendicular to ground respectively (maximum width / maximum height > 1.7).

6.5 Installation Requirements

Turn signal lamps shall meet the following requirements as installed on the vehicle:

6.5.1 The optical axis of each signal lamp on the front shall be symmetrically spaced a minimum of 200 mm (8.0 inches) from the centerline of the vehicle and 100 mm (4. inches) from the inside diameter of the retaining ring of the headlamp unit providing the lower beam. On the rear, the symmetrical spacing shall be a minimum of 110 mm (4-1/2 inches) from the centerline of the vehicle to the filament axis of the signal lamp. A minimum edge to edge separation of 100 mm (4.0 inches) when a single tail/stop lamp is mounted on the vertical centerline and the turn signal lamps are red.

6.5.2 Each turn signal lamp arrangement shall be designed to conform to all photometric requirements of Figures 1FY, 1RR, 1RY, 2RR, or 2RY with all vehicular obstructions considered.