



SURFACE VEHICLE STANDARD	J2087™	FEB2021
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Superseding J2087 AUG2017		
(R) Daytime Running Lamp		

RATIONALE

Title: Changed from daytime running light to daytime running lamp for each instance in document.

Section 1: Revised scope wording daytime running light function (DRLF) and allow for multiple lamps.

2.1.1: Added SAE J1383, SAE J1889, SAE J2261, SAE J2442, SAE J2650. Moved SAE J1050 to 2.2.1.

2.2.1: Added SAE J1050.

2.2.4: Updated UN website. Removed ECE designation from UNECE documents. Added UN R148.

2.2.5: Moved "Canada Motor Vehicle Safety Standard" to section title.

2.2.6: Added "Federal Motor Vehicle Safety Standard" to section title.

3.2: Clarified definition for DRLF; removed reference to specific lamps.

3.3: Removed telltale reference.

Sections 5 and 6: Renumbered sections to be consistent with other J-document format (sequence).

5.1.5.1: Added measurement distance for low beam DRLF test requirements. Added other photometry test conditions 5.1.5.2, 5.1.5.3, 5.1.5.4.

5.1.6: Removed unnecessary statement of steady burning because it is already specified in SAE J575.

5.2: Added 5.8.

5.3: Renamed to "material tests."

6.1: Deleted the "performance requirements" preamble. Added SAE J575 reference and removed it from 6.2 to 6.7.

6.1.5.1: Removed Figures 2 and 3. Removed zone requirements.

Figure 1: Changed title to dedicated and front position DRLF. Removed footnotes 2 and 3. Added a new footnote 3 from FMVSS 108.

6.1.5.1: Added "optically combined with a front position lamp" and cumulative DRL per side requirement.

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6.1.5.2: Turn signal DRLF requirement is only 2.5 times and turn signal pattern.

6.1.5.3: Removed when tested at 1.5D-2R and measured entire beam pattern, because the beam pattern for DRLs with multiple light sources may not uniformly change at reduced intensities. Removed high beam DRL option. As of the publication of this document, FMVSS/CMVSS 108 permit the DRL function to be provided by reduced-intensity upper beam headlamps. However, such DRLs present functional disadvantages and so this is not a recommended practice for new vehicle models.

6.2: Added emitted color.

6.3: Changed title to “materials.”

6.4: Removed location on vehicle requirement because vehicle level requirement, not lamp level requirement (should be in SAE J2442). Removed visibility requirements because vehicle level requirement, not lamp level requirement (should be in SAE J2442). Deleted installation requirement because vehicle level requirement, not lamp level requirement (should be in SAE J2442).

6.4.1: Added 200 cm² max area requirement. Added requirement for DRLF consisting of two or more lamps. When other lamps are used as a DRL, they are now acting as DRLs and must meet DRL area requirements.

6.4.2: Removed “shall be certified” for reduced voltage operation requirement for light source. Added prolonged use without blackening.

Section 7: Deleted guidelines section because vehicle level requirement should be in SAE J2442.

Section 8: Renumbered to Section 7 and removed Section 8.

TABLE OF CONTENTS

1.	SCOPE.....	3
2.	REFERENCES.....	3
2.1	Applicable Documents.....	3
2.1.1	SAE Publications.....	3
2.2	Related Publications.....	4
2.2.1	SAE Publications.....	4
2.2.2	CIE Publications.....	4
2.2.3	University of Michigan Transportation Research Institute (UMTRI) Publications.....	4
2.2.4	United Nations Publications.....	4
2.2.5	Canada Motor Vehicle Safety Standard (CMVSS) Publications.....	4
2.2.6	Federal Motor Vehicle Safety Standards (FMVSS) Publications.....	4
2.2.7	China Publications.....	4
3.	DEFINITIONS.....	5
4.	LIGHTING IDENTIFICATION CODE.....	5
5.	TESTS.....	5
6.	REQUIREMENTS.....	6
7.	NOTES.....	8
7.1	Revision Indicator.....	8
Figure 1	Photometric requirements for dedicated DRL or DRL optically combined with front position lamp minimum luminous intensity (cd).....	7

1. SCOPE

This SAE Standard provides requirements and test procedures for the daytime running light function (DRLF) and the lamps that provide it.

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 J588	Turn Signal Lamps for Use on Motor Vehicles Less than 2032 mm in Overall Width
SAE J759	Lighting Identification Code
SAE J1383	Performance Requirements for Motor Vehicle Headlamps
SAE J1889	LED Signal and Marking Lighting Devices
SAE J2261	Stop Lamps and Front- and Rear-Turn Signal Lamps for Use on Motor Vehicles 2032 mm or More in Overall Width
SAE J2560	Halogen Light Source Performance Requirements for Motor Vehicle Forward Lighting
SAE J2442	Harmonized Provisions for Installation of Exterior Lamps and Retro-Reflecting Devices on Road Vehicles Except Motorcycles
SAE J2650	Performance Requirements for Light Emitting Diode (LED) Road Illumination 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 J1050 Describing and Measuring the Driver's Field of View

SAE Lighting Committee DRL Test Reports, 1974 to 1989 (nine separate reports).

2.2.2 CIE Publications

Available from CIE Central Bureau, Babenbergerstrasse 9/9A, 1010 Vienna, Austria, Tel: +43 1 714 31 87, www.cie.co.at.

CIE TC4.13 Report Automobile Daytime Running Lights (DRL), Third Draft, July 1990

2.2.3 University of Michigan Transportation Research Institute (UMTRI) Publications

Available abstracts, <http://www.umich.edu/~industry/complete.html>.

2.2.4 United Nations Publications

Available from United Nations, Palais des Nations, CH-1211 Geneva 10, Switzerland, Tel: +41-0-22-917-12-34, <http://www.unece.org>.

UN Regulation No. 48 Uniform Provisions Concerning the Approval of Vehicles with Regard to the Installation of Lighting and Light-Signalling Devices

UN Regulation No. 87 Uniform Provisions Concerning the Approval of Daytime Running Lamps for Power-Driven Vehicles

UN Regulation No. 148 Uniform Provisions Concerning the Approval of Light Signalling Devices (Lamps) for Power-Driven Vehicles and Their Trailers

2.2.5 Canada Motor Vehicle Safety Standard (CMVSS) 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.

CMVSS 108 Lighting Systems and Reflective Devices

2.2.6 Federal Motor Vehicle Safety Standards (FMVSS) Publications

Available from the Superintendent of Documents, U.S. Government Printing Office, 732 North Capitol Street, NW, Washington, DC 20401, <http://www.gpo.gov/fdsys>.

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

2.2.7 China Publications

GB 23255-2019 Photometric Characteristics of Daytime Running Lamps for Motor Vehicles

3. DEFINITIONS

3.1 DAYTIME RUNNING LAMP (DRL)

A lamp providing the daytime running light function.

3.2 DAYTIME RUNNING LIGHT FUNCTION (DRLF)

Steady operating light function that is used to improve conspicuity of a vehicle from the front when the regular headlamps are not required for driving

4. LIGHTING IDENTIFICATION CODE

A lamp providing DRLF meeting the performance requirements of Section 6 of this document may be identified by the code DRL 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

5.1.5.1 Photometric measurements shall be made with the photometer located at least 3.05 m from the point where the optical axis intersects the outer surface of the DRL lens, except if the DRLF is provided by lower beam—then the minimum distance shall be 18.3 m.

5.1.5.2 If DRLF is provided by activation of a lower beam at its 100% luminous intensity, the photometry test may be avoided.

5.1.5.3 If DRLF is provided by a lower beam whose luminous intensity is reduced, the photometric requirement shall be tested in accordance with SAE J575.

5.1.5.4 Photometry of all DRLs providing DRLF on one side of a vehicle shall be evaluated together.

5.1.6 Warpage Test on Devices with Plastic Components

5.2 Color Test

The color emitted by DRLF shall be tested according to SAE J578.

5.3 Materials Test

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

6. REQUIREMENTS

6.1 A DRL, when tested in accordance with the test procedures specified in Section 5, shall meet the following requirements per SAE J575 unless otherwise indicated.

6.1.1 Vibration

6.1.2 Moisture

6.1.3 Dust

6.1.4 Corrosion

6.1.5 Photometry

6.1.5.1 Dedicated DRL or DRL Optically Combined with a Front Position Lamp

The DRL shall be designed to conform to the light intensity distribution (candela) values shown in Figure 1, when tested in accordance with 5.1.

The cumulative DRLs per side shall comply with the photometric requirements

6.1.5.2 DRLF Provided by a Turn Signal

The turn signal lamp providing the DRLF shall be designed to produce at least 2.5 times the light intensity distribution (candela) values of the basic front turn signal requirements specified in SAE J588 or SAE J2261.

6.1.5.3 DRLF Provided by a Lower Beam

In the case of the DRLF provided by lower beam headlamps, the luminous intensity from the lamp shall be equal to or greater than 40%, but not more than 100%, of its designed photometric intensity values at all test points.

6.1.5.4 DRL Function Location with Respect to Other Lamps

If a DRL is located such that its lighted edge is within 100 mm of the optical center of a front turn signal lamp, or within 40 mm of a lighted edge of a front turn signal lamp, the DRL must be extinguished or its luminous intensity reduced to a maximum of 250 cd at H-V during turn signal operation, unless the turn signal provides at least 2.5 times the basic minimum required intensity.