



SURFACE VEHICLE STANDARD

J584™

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Superseding J584 SEP2010

(R) Motorcycle Headlamps

RATIONALE

This revision to SAE J584 was developed by a task force containing members of the Lighting Systems Group and the Specialized Vehicle and Equipment Motorcycle Committee.

The photometric test point tables were updated to figures. The titles were updated to match the current classifications of motorcycles in SAE J213, and the application was changed to only be dependent on speed, not engine size.

A section was added to allow additional light with the low beam or high beam while the motorcycle is leaning. "Bank lighting" was defined for this application. The UN regulations use the term "bend lighting," but SAE already uses that term in adaptive forward lighting systems. The photometric requirements started at the HV line, but was moved to 0.5U to work with existing SAE test points.

An option was added to aim the headlamp to the low beam as opposed to the high beam. This was added to encourage harmonization with UN motorcycle regulations as well as automotive regulations. The aiming method is based on SAE J1383, SAE J583, and the UN symmetrical beam headlamp regulation. Discussion occurred on the value of the maximum gradient and the position of the gradient when aiming.

The aiming adjustment requirements were reviewed extensively. After initially retaining the requirement of ± 4 degrees, and adding an allowance as a function of vehicle pitch angle, a simplified wording was agreed on which requires vertical adjustment and allows horizontal adjustment. The text was moved to 6.4. The aiming adjustment tests, clarity of hot spot, and inward force test sections were all removed.

In addition to the items explained above, the following updates have been made:

- Updated the format of the document to current SAE standards.
- Added SAE J2595 and SAE J2650 to 2.1.1.
- Added 2.2.
- Added SAE J387 to 2.2.1.
- Revised the definition of motorcycle headlamp.
- Added definition for bank lighting.
- Added optical axis mark and trademark indication.

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Documents
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- Updated the names of SAE J575 tests in 5.1.
- Moved “beam aim during photometric test” section to 5.1.1 and 6.1.1.
- Reorganized “photometric design requirements” into appropriate sections under test and performance requirements.
- Added a note allowing adaptive driving beam devices; SAE J3069 was not referenced because it is written for automobiles, not motorcycles.
- Revised wording in 7.1.

The task force discussed removing the “single beam” photometric figures, but did not receive enough useful feedback on whether it was feasible, so it remains in the document.

The task force also developed an additional set of “harmonized” photometric figures that would function as a harmonized pattern with the SAE and UNECE requirements. These figures were checked by several headlamp manufacturers using existing lamp photometry to verify the feasibility of the requirements. However, the UN body is working toward a significant modification to the existing regulations, so the SAE J584 task force is delaying incorporation of the harmonized figures until the new UN regulations are established.

1. SCOPE

This SAE Standard provides test procedures, performance requirements, design guidelines, and installation guidelines for motorcycle headlamps.

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 J107	Operator Controls and Displays on Motorcycles
SAE J213	Motorcycle Classifications
SAE J565	Semiautomatic Headlamp Beam Switching Devices
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 J1383	Performance Requirements for Motor Vehicle Headlamps
SAE J2595	Performance Requirements for Sealed Beam Motor Vehicle Headlamps
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 J387 Terminology - Motor Vehicle Lighting

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 Canadian Publications

Available from Transport Canada, Road Safety and Motor Vehicle Regulation Directorate, P.O. Box 8880, Ottawa Post Terminal, Ottawa, Ontario, K1G 3J2, www.tc.gc.ca.

CMVSS 108 Canadian Motor Vehicle Safety Standard for Exterior Lighting

2.2.4 UN Publications

Available from United Nations Economic Commission for Europe, Palais des Nations, CH-1211, Geneva 10, Switzerland, Tel: +41-0-22-917-12-34, www.unece.org.

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. 57 Uniform Provisions Concerning the Approval of Headlamps for Motor Cycles and Vehicles Treated as Such

UN Regulation No. 113 Uniform Provisions Concerning the Approval of Motor Vehicle Headlamps Emitting a Symmetrical Passing Beam

3. DEFINITIONS

3.1 MOTORCYCLE HEADLAMP

A road illumination device providing high and/or low beam functions designed and intended for use on a motorcycle.

3.2 BANK LIGHTING

A lighting function that increases illumination in curves when a motorcycle is leaning.

4. LIGHTING IDENTIFICATION CODE, MARKINGS AND NOTICES

4.1 Headlamps meeting the performance requirements of this document may be identified by the code M or N in accordance with SAE J759.

4.2 Headlamps intended for visual/optical aim using the low beam pattern shall be marked "VOM."

4.3 Headlamps shall be permanently marked with the name and/or trademark of the manufacturer, importer, or vehicle manufacturer.

4.4 Optical Axis Marking

To assure proper horizontal and vertical alignment of the aiming screen or optical aiming equipment, the optical axis location shall be indicated. The mark or markings may be on the interior or exterior of the lens or indicated by a mark or central structure on the interior or exterior of the headlamp.

5. TESTS

Test voltage application shall be per SAE J575. The test procedures and test requirements specified in this document were developed emphasizing extreme conditions in the headlamp environment. Separate headlamps shall be used for each test. Unless otherwise indicated, all drain holes, breathing devices, or other openings or vents of headlamp units under test shall be in their normal operating condition.

Light sources: Unless otherwise specified, light sources used in the tests shall be representative of light sources in regular production.

5.1 SAE J575 is a part of this document. The following tests, from that document, are applicable with the modifications as indicated.

5.1.1 Photometry Test

5.1.1.1 For lamps designed to be aimed using the low beam cutoff (VOM):

5.1.1.1.1 Gradient Measurement Procedure

Conduct a vertical scan of the lamp beam pattern along the V-V line over a sufficient vertical distance to locate the maximum gradient and determine the shape of the gradient curve. The gradient G_{log} should be calculated using the mathematical expression: $G_{log} = \log_{10} I(\alpha) - \log_{10} I(\alpha+0.1)$, where I is the measured candela value and α is the vertical angular position in degrees.

5.1.1.1.2 Gradient Position in Beam Pattern

The lamp aim shall be adjusted until the vertical angular position at which the maximum gradient measured along the V-V line is located at the H-H line.

5.1.1.2 For lamps designed to be aimed using the high beam:

Aim the lamp using the high beam as described in 6.1.1.2.

5.1.1.3 For single beam lamps:

Aim the lamp as described in 6.1.1.3.

5.1.2 Vibration Test

5.1.3 Water Intrusion (Moisture) Test

5.1.4 Dust Exposure Test

5.1.5 Corrosion Test

5.1.6 Warpage Test on Device with Plastic Components