



SURFACE VEHICLE RECOMMENDED PRACTICE

J565™

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Superseding J565 FEB2010

(R) Semiautomatic Headlamp Beam Switching Devices

RATIONALE

The Semiautomatic Headlamp Beam Switching (SHBSD) Devices document has been updated to include a Test Drive Method of evaluation to be consistent with SAE J3069. With the industry moving toward performance-based testing for Adaptive Driving Beam (ADB), there should be an alternate to the SAE J565 laboratory-based measurement method. The SAE J565 FEB2010 revision is referred to as the Laboratory Test Method in this update. Testing based on the procedures and requirements of SAE J3069 are referred to as the test drive method.

The test drive method is the same between ADB and SHBSD. The difference between the two systems is that, unlike the SHBSD device, which toggles the headlight between high beam and low beam, the ADB modifies portions of the projected light.

The Laboratory Test Method was retained to give manufacturers evaluating product to the SAE J565 FEB2010 revision the option of continuing with the current test method.

2.1.1 - updated with documents SAE J578, SAE J1383, SAE J2650, and SAE J3069.

2.1.2 - added section with documents.

2.1.3 - added section with documents.

2.2 - added Related Publications section.

2.2.1 - added section with documents SAE J387, SAE J1330, and SAE J2442.

3.4 - modified from "The angular range that the semiautomatic headlamp beam switching device ..." to "The angular range of light that the semiautomatic headlamp beam switching device ...".

Section 5 - modified and restructured section. Environmental testing for SHBSD is consolidated into 5.1. The environmental tests from SAE J3069 were used for consistency between documents. Beam Switching Performance evaluation (see 5.3) can be completed with either the Laboratory Test Method (see 5.3.1) or the Test Drive Method (see 5.3.2). The "Laboratory Test Method" is the testing defined in SAE J565 FEB2010. The "Test Drive Method" is based on the procedures and requirements of SAE J3069.

Section 5 - modified various section titles to follow SAE standards.

Section 5 - moved various sections for document consistency and removed various sections to be consistent with methodology of SAE J3069.

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5.3.2 - added Test Drive Method, references the procedures from SAE J3069; references to “ADB” were changed to “SHBSD” and “ADB lamps” were changed to “high beam lamps.”

5.3.2.1 - added “Test Drive Setup.”

5.3.2.1.1 - added “The headlamps used for the test drive method do not need to be tested for light output. It is understood that production representative lamps on the vehicle will comply to the associated lighting requirements.”

5.3.2.2.2 - added “test drives.”

5.3.2.2.1, 5.3.2.2.2 - added which references the procedures from SAE J3069. References to “ADB” were changed to “SHBSD.”

Section 6 - modified and restructured. Requirements. Environmental testing for SHBSD are consolidated into 6.1; 6.3 contains the requirements for beam switching performance; 6.3.1 contains the “Laboratory Test Method,” the testing defined in the FEB2010 revision of SAE J565; and 6.3.2 contains the “Test Drive Method,” where requirements of SAE J3069 are referenced.

6.4.11.2 - moved High Beam Dimming Response time to 6.3.1.8.2 and modified response time to 2.5 seconds to be consistent with SAE J3069.

Rationale from SAE J3069 JUN2016: The SAE Task Force understood the importance for an ADB to react within an appropriate time when confronted with the sudden appearance of an opposing or preceding vehicle due to cresting a hill, a vehicle entering a roadway, etc. To test that response time, the track procedures require that the ADB respond to the sudden appearance of the preceding or opposing test fixture lamps during the test drive. It is known that ADB cannot react instantaneously when confronted by the sudden appearance of a vehicle, so the opposing or preceding driver may experience high beam glare levels for a short period of time. The allowed period of time was debated. The current SAE J565 requires a reaction time of less than 4 seconds. Based on published literature, the un-alerted driver reaction time was considered to be approximately 2.5 seconds to dim from high beam to low beam. Based on this, the task force selected 2.5 seconds as the maximum reaction time of ADB for the sudden appearance of an opposing or preceding vehicle. The 2.5-second duration is also supported by the research summarized in SAE 890732 Perception/Reaction Time Values for Accident Reconstruction.

6.3.2, 6.3.2.1 - added “Test Drive Requirements,” referencing the requirements from SAE J3069. The photometric requirements for the headlamps are not referenced (as in SAE J3069); it is understood that the headlamps being used for drive testing are headlamps that comply with SAE J1383 low beam requirements.

6.4 - added with subsections; references the wiper zone and accessibility for cleaning. The wording is updated to be consistent with SAE J3069.

7.1.1 - moved “Accessibility” from installation guidelines.

1. SCOPE

This SAE Standard provides test procedures, performance requirements, and guidelines for semiautomatic headlamp beam switching (SHBSD) devices.

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 version 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 (U.S. and Canada only) or +1 724-776-4970 (outside U.S. and Canada), www.sae.org.

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 J1383	Performance Requirements for Motor Vehicle Headlamps
SAE J1889	LED Signal and Marking Lighting Devices
SAE J2009	Discharge Forward Lighting System and Subsystems
SAE J2357	Application Guidelines for Electronically Driven and/or Controlled Exterior Automotive Lighting Equipment
SAE J2650	Performance Requirements for Road Illumination Devices Using Light Emitting Diode (LED) Sources
SAE J3069	Adaptive Driving Beam System

2.1.2 Code of Federal Regulations (CFR) Publications

Copies of these documents are available online at www.ecfr.gov.

FMVSS 108	Lamps, Reflective Devices and Associated Equipment
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2.1.3 Transport Canada Publications

Available from Transport Canada, Tower C, Place de Ville, 330 Sparks Street, Ottawa, Ontario K1A 0N5, Canada, Tel: 1-888-830-4911, www.tc.canada.ca.

CMVSS 108	Lighting System and Retroreflective Devices
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2.1.4 UNECE Publications

Available from United Nations Economic Commission for Europe, Palais des Nations, CH-1211, Geneva 10, Switzerland, or at: <http://www.unece.org/trans/main/welcwp29.html>.

UN Regulation No. 48	Uniform Provisions Concerning the Approval of Vehicles with Regard to the Installation of Lighting and Light-Signaling Devices
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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 (U.S. and Canada only) or +1 724-776-4970 (outside U.S. and Canada), www.sae.org.

SAE J387 Terminology - Motor Vehicle Lighting

SAE J1330 Photometry Laboratory Accuracy Guidelines

SAE J2442 Harmonized Provisions for Installation of Exterior Lamps and Retro-Reflecting Devices on Road Vehicles Except Motorcycles

3. DEFINITIONS

3.1 SEMIAUTOMATIC HEADLAMP BEAM SWITCHING DEVICE (SHBSDD)

A device that provides either automatic or manual control of beam switching at the option of the driver. When the control is automatic, the headlamps switch from the high beam to the low beam when a sensor detects the light from the headlamps of an approaching car and/or the light from the tail lamps of a preceding car. The headlamps will switch back to the high beam when the light from the road ahead is at an appropriate intensity. When the control is manual, the driver may obtain either beam manually regardless of other vehicle lighting present ahead of the vehicle.

3.2 DIM SENSITIVITY ILLUMINANCE THRESHOLD

The illuminance projected onto the light sensor of the device under test at the time the device switches from high beam to low beam as the light level of the source is gradually increased.

3.3 RETURN SENSITIVITY ILLUMINANCE THRESHOLD

The illuminance projected onto the light sensor of the device under test at the time the device switches from low beam to high beam as the light level of the source is gradually decreased.

3.4 SYSTEM DETECTION RANGE

The angular range of light that the semiautomatic headlamp beam switching device is required to detect the light from the headlamps of an approaching car or the light from the tail lamps of a preceding car as defined by the angular extents of Tables 1 and 2 of this document.

4. LIGHTING IDENTIFICATION CODE

No applicable markings apply.