



SURFACE VEHICLE RECOMMENDED PRACTICE

J2999™

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Superseding J2999 JUN2017

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

RATIONALE

Table of Contents – Removed, not necessary for this document length.

2.1.2 – Updated publication references.

2.1.3 – Removed section number and incorporated content into 2.1.2.

3 – Alphabetized the definitions.

4 – Added Lighting Identification Code section with a N/A. Renumbered all sections after 4.

5.3.1.1 – Added the requirement that any element used toward Effective Projected Luminous Lens Area (EPLLA) must significantly contribute to the light output of the function. This was taken from a December 5, 1990, NHTSA interpretation clarifying why mounting hole bosses, reflex reflector area, beads, or rims were not included in the EPLLA calculation.

5.3.1.3 – Added a requirement for shared elements between a low and high intensity signal function that the intensity between the shared elements regardless of color must meet an intensity ratio threshold of 5:1 to be counted toward EPLLA. The intensity ratio aligns with the FMVSS photometric ratio requirement at HV between functions which may be combined like stop and rear position (tail) functions.

Figure 1 – Updated to include a color changing example to more clearly depict low intensity areas, clarifying the requirements for when the function color changes.

INTRODUCTION

Historical Background

EPLLA is a simple and effective method for establishing a minimum light emitting area. EPLLA was originally established in 1970 to ensure signal conspicuity via adequate lit area, while also mitigating glare from higher intensity signal functions. This method was effective in mitigating glare when a small number of standardized high heat filament light sources were used to create a lighting function, resulting in relatively uniform luminance. However, the advent of LEDs allows greater flexibility in optics design and determining the number of light sources such that the relatively uniform luminance of a lamp is no longer a given. For these situations, the significant contribution and added design intensity ratio requirement in 5.3.1.3 provides an effective method to control potential glare from these devices.

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1. SCOPE

This SAE Recommended Practice provides a method for determining the Effective Projected Luminous Lens Area (EPLLA) of a lamp function using design analysis. This standard was created to clarify and address how to determine EPLLA with traditional and new technologies.

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: 1-877-606-7323 (U.S. and Canada only) or 1-724-776-4970 (outside U.S. and Canada), www.sae.org.

SAE J586	Stop Lamp for Use on Motor Vehicles Less than, Equal to, or Greater than 2032 mm in Overall Width
SAE J588	Turn Signal Lamps for Use on Motor Vehicles Less than 2032 mm in Overall Width
SAE J1432	Rear High Mounted Stop Lamps and Rear High Mounted Turn Signal Lamps for Use on Vehicles 2032 mm or More in Overall Width
SAE J1957	Center High Mounted Stop Lamp Standard for Vehicles Less than 2032 mm Overall Width
SAE J2039	Side Turn Signal Lamp for Long Vehicles
SAE J2087	Daytime Running Lamp
SAE J2261	Stop Lamps and Front- and Rear-Turn Signal Lamps for Use on Motor Vehicles 2032 mm or More in Overall Width

2.1.2 Federal Publications

Available from Superintendent of Documents, U.S. Government Publishing Office, Mail Stop SSOP, Washington, DC 20402-9320, Tel: 866-512-1800, or at www.ecfr.gov.

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

Available from Transport Canada, Multi-Modal and Road Safety Programs, 330 Sparks Street, Ottawa, Ontario K1A 0N5, Canada, Tel: 1-888-830-4911, <http://www.tc.gc.ca/eng/acts-regulations/regulations-crc-c1038.htm>.

Canada Motor Vehicle Safety Standard 108 (CMVSS 108) – Lighting Systems and Reflective Devices

2.2 Related Publications

The following publications are provided for information purposes only and are not a required part of this SAE Recommended Practice.

2.2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 1-877-606-7323 (U.S. and Canada only) or 1-724-776-4970 (outside U.S. and Canada), www.sae.org.

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