AMECA

5 Year Duration
List of Acceptable Plastics for Optical Lenses and Reflex Reflectors Used on Motor Vehicles

June 26, 2020
5 Year Duration

List of Acceptable Plastics for

Optical Lenses and Reflex Reflectors

Used on Motor Vehicles

June 26, 2020 Edition

Automotive Manufacturers Equipment Compliance Agency, Inc.
1025 Connecticut Avenue, NW Suite #1000
Washington DC 20036

www.ameca.org
1. STATUS

The following materials have been accepted by the Automotive Manufacturers Equipment Compliance Agency as meeting the 5-year weathering test of SAE J576 for plastics used in optical lenses and reflectors used on motor vehicles. No evaluation has been made as to the suitability of individual materials for particular automotive uses, or to the manufacturing methods.

You must contact the resin or coating manufacturer to determine the best material for your application.

Every plastics resin manufacturer has specialized products for different applications, processing conditions, manufacturing equipment, light sources and final use.

Please contact the manufacturer directly for more information.

The device manufacturers must ensure that the lenses molded from acceptable materials meet the color and plastic stability test requirements for each individual device.

2. LISTING

The material is listed by the manufacturer's name, trade name and flow formulation, type of resin, color number and color.

3. MATERIAL COATINGS and HAZE

When these materials are used for state/provincial regulated lighting device lenses, the applicable state/provincial regulations shall be met.

Criteria: Reflex reflectors shall meet the haze requirements of SAE J576, paragraph 4.2.3 (under 7%).

Other forward lighting: 30 % see 49 CFR 571.108 S5.1.2 (b)

Background: Reflex reflectors go through three layers of plastic (outer lens, internal reflection in the reflector and the outer lens again). Consequently, the haze requirements for lenses incorporating a reflex reflector must be less than 7%. If a lens does NOT incorporate a reflex it can have up to 30% haze.

The Code "&" denotes material which must be coated to pass the 5 year weathering.

4. DISTRIBUTION

This list is updated and distributed free on a weekly basis. Any revised or pre-release editions may be obtained by contacting AMECA.

5. DEFINITIONS

Coating -- Material applied to surface of the lens to improve some aspect of performance.

Coated materials-- a material which has a coating applied to the surface of the finished sample to impart some protective properties. Coating identification means a mark of the manufacturer’s name, formulation designation number, and recommendations for application.

Color bleeding -- the migration of color out of a plastic part onto the surrounding surface.
Cracking -- a separation of adjacent sections of a plastic material with penetration into the specimen.

Crazing -- a network of apparent fine cracks on or beneath the surface of materials.

Delamination -- a separation of the layers of a material including coatings.

Hard Coat -- 1) Coating which is cured by UV radiation.
   2) Coating which provides additional resistance to abrasion or scratching which may be cured by thermally or by UV radiation. May contribute to long term durability of material.

**NOTE:** Both definitions are being used--please verify the intended performance when discussing hard coats.

Haze -- the cloudy or turbid appearance of an otherwise transparent specimen caused by light scattered from within the specimen or from its surface.

UV-protective Coat -- Coating designed to provide additional protection from the sun's electromagnetic radiation, particularly those wavelengths in the UV bandwidth. Often used on polycarbonate substrates to improve weathering performance. Polycarbonates must be coated for use in or in front of reflex reflectors.

Reflex reflectors-- devices used on vehicles to give an indication to approaching drivers using reflected light from the lamps of the approaching vehicle.

Substrate -- Base material to which all other performance enhancing materials are added.

UV radiation -- Short wavelength, high energy radiation emitted by the sun or other object (HID lamp). Wave lengths between 10 and 380 nm.

HID Lamp -- High Intensity Discharge Lamp. Lamps produce light by the use of a stabilized arc. Lamps can produce significant UV radiation which may require special materials. See SAE J1647

6. **NOTE ON COLOR**

The colors listed have been determined to be in compliance with SAE J-578 using the ASTM E 308-66 method required by FMVSS 108 or in thicknesses specified by the resin manufacturer (SAE J576 S4.1).

**NOT EVERY COLOR LISTED WILL MEET SAE J-578 COORDINATES FOR YOUR **INTENDED** THICKNESS**

**NOT EVERY MATERIAL IN EVERY COLOR WILL MEET J578 WITH LED OR ILLUMINANT C LIGHTSOURCES**

**CHECK WITH THE RESIN MANUFACTURER’S COLOR SPECIALIST**

The ASTM E 308-66 method uses an illuminant A light source energized to 2856k. *If you use anything other than an incandescent light source at 2856k you MUST verify that the resulting color meets the specifications of SAE J-578 for your intended thickness.* Halogen light sources at 3200k, illuminant C (strobe) and LED light sources will dramatically alter the color output. In addition, some light sources do not emit color or luminous flux uniformly. Measurements should
be made to verify that the emitted light using your intended lightsource meets the specifications of J-578 throughout its photometric range.

7. NOTE ON INNER LENS COLOR

Combinations of inner and outer lenses with various colors may not perform predictably. Output will vary markedly with different light sources. Check with the resin manufacturer’s color specialist when making selections.

8. NOTE ON “EQUIVALENT” FORMULATIONS.

Many companies have distributed manufacturing facilities, cooperative agreements or joint ventures. In order to list a facility or another company the company which has done the FIVE year weathering testing must send documentation stating that the materials, processes and end products are equivalent between itself and the new applicant. Due to industry complaints, the List of Acceptable Plastics has revised the listing to more accurately reflect the test data from various parent companies. In addition, if the joint venture is terminated or the manufacturing facility is sold, the subsidiary or joint company must be able to provide weathering test data on its own. A company can no longer rely on the parent company data and processes if they have no relationship to the parent company who conducted the original testing.

9. NOTE ON SAE J-576 FORMATTING

In 2003 SAE reformatted J576 JUL91. Section 2 “References” was split into two sections, Section 2, References and Section 3 Definitions. Please check the formatting used during communication and verify you are referring to the same edition.

10. NOTE ON SUBMITTING FOR ADDITIONAL COLORS

If you plan to add an additional color number to your listing, please list the existing colors which have undergone the FIVE year weathering that are a greater and lesser concentration. The colors listed MUST be in the same color space. See SAE J576, JUL91 Section 4.1

11. Note on Inner Lens Testing

Currently the DOT has issued no guidelines for inner lenses. If and when they do, they will be the requirements that everyone must follow. In the meantime, we would recommend for following guidelines for inner lens test setup.

1) You must test every color combination you want to use—red, blue, amber, etc.
2) You must test every molecular weight for both outer lens and inner lens.
3) The test setup—airspace, ventilation, should duplicate as close as possible the conditions in an inner automotive lens including factors such as ventilation, spacing between inner and outer lens and coatings.
4) In our opinion, the thinnest lens may be used as the outer lens as that would be the worst case scenario.
5) For more information, please see SAE Paper: http://papers.sae.org/2004-01-0800

12. Special Note on the definition of “Protected Inner Lens” and/or “Protected Applications”

Protected Inner Lenses or Protected Applications for polycarbonate lenses refers to an outer lens which has a UV absorbing capabilities. NOT physical protection but UV protection.
Frequently Asked Questions

Q1) If someone else has weathered a polycarbonate/PMMA material, do I have to weather my polycarbonate/PMMA material?
A) Yes, every company’s material stands independently from what another company has done. Each coating, pigment and additive must be tested with each company’s own material. Each separate material stands alone for weathering performance unless bracketed by materials of higher and lower concentrations or molecular weights.

Q2) If someone else has weathered a pigment with another plastic do I have to weather the pigment with my plastic?
A) Yes, every company’s material stands independently from what another company has done. Each coating, pigment and additive must be tested with each company’s own material. Each separate material stands alone for weathering performance unless bracketed by materials of higher and lower concentrations or molecular weights.

Q3) If someone else has weathered a coating do I have to weather my material with that coating?
A) Yes, every company’s material stands independently from what another company has done. Each coating, pigment and additive must be tested with each company’s own material. Each separate material stands alone for weathering performance unless bracketed by materials of higher and lower concentrations or molecular weights.

Q4) Testing laboratories typically use a 1-10 numbering scale according to ASTM D660 to indicate the degree of crazing, cracking or delamination associated with weathering. What numerical value from ASTM D660 is acceptable for listing?
A) FMVSS 108 does not refer to any numerical values from ASTM D660. The numerical values are done by the test laboratory for manufacture convenience. FMVSS 108 Section 5.1.2 (a) refers to SAE J-576 which says:

    SAE J576 Section 5.2.4 APPEARANCE—The exposed samples when compared with the unexposed controls shall not show physical changes affecting performance such as color bleeding, delamination, crazing, or cracking.

In addition, the rewrite of FMVSS 108 states:

    S14.4.2.2.4.2 After completion of the outdoor exposure test materials used for headlamp lenses must show no deterioration.
    S14.4.2.2.4.3 After completion of the outdoor exposure test all materials, when compared with the unexposed control samples, must not show physical changes affecting performance such as color bleeding, delamination, crazing, or cracking. Additionally materials used for
reflex reflectors and lenses used in front of reflex reflectors must not show surface deterioration or dimensional changes.

Your tested samples must not show any changes affecting performance. The only value which shows no change is a numerical value of 10.

Q5) How many thicknesses do I have to test?
A) FMVSS 108 Rewrite: S14.4.2.1.3 Samples must be furnished in thicknesses of 1.6 ± 0.25 mm, 2.3 ± 0.25 mm, 3.2 ± 0.25 mm, and 6.4 ± 0.25 mm.

Q6) Even if it's for a coating?
A) Yes.

Q7) Do materials have to meet the color requirements before testing?
A) Yes: S14.4.2.1.4 All samples must conform to the applicable color test requirement of this standard prior to testing.

Q8) What about the plastics used in non-FMVSS applications such as emergency vehicle lighting which also require three year weathering?
A) Yes, those can be listed with non-standard colors as long as they are NOT used on FMVSS 108 lighting devices.

Testing outline. Note, we also recommend you send DOUBLE samples to prevent any errors.

- 4 Thicknesses
  - For each colour
  - For each coating
  - For each molecular weight (MW)
- For example:
  - 4 thickness samples of dark red, uncoated, Lowest MW
  - 4 thickness samples of light red, uncoated, Lowest MW
  - 4 thickness samples of dark red, uncoated, Highest MW
  - 4 thickness samples of light red, uncoated, Highest MW
  - 4 thickness samples of dark red, coating 1, Lowest MW
  - 4 thickness samples of light red, coating 1, Lowest MW
  - 4 thickness samples of dark red, coating 1, Highest MW
  - 4 thickness samples of light red, coating 1, Highest MW
  - Now repeat for clear, yellow, blue, coating 2 & coating 3
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### Listing of Coating Suppliers

- Chugoku Marine Paints, Ltd., 9, 16, 18, 20, 22, 24, 26, 28, 30, 32
- Fujikura Kasei Co., Ltd., 10, 14, 15, 16, 18, 20, 22, 24, 26, 27, 29, 31, 33, 35, 37, 39, 41
- KCC Corporation, 10, 17, 19, 21, 23, 25, 26, 28, 30, 32, 34, 35, 37, 39
- Mitsubishi Chemical Corporation, 10, 12, 13, 14, 15, 19, 21, 23, 25, 27, 29, 31, 33, 35, 39, 41
- Momentive Performance Materials Inc., 10, 17, 19, 21, 23, 25, 27, 29, 31, 33, 36, 38, 40
- Red Spot Paint & Varnish Co., Inc., 11, 17, 19, 21, 23, 25, 27, 29, 31, 33
<table>
<thead>
<tr>
<th>MFR.</th>
<th>TRADE NAME and FLOW FORMULATION</th>
<th>TYPE OF RESIN</th>
<th>NUMBER</th>
<th>COLOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covestro Deutschland AG (Europe)</td>
<td>MAKROLON AL2447</td>
<td>POLYCARBONATE</td>
<td>550012</td>
<td>Clear &amp;</td>
</tr>
<tr>
<td>Covestro LLC (America)</td>
<td>(coated only)</td>
<td></td>
<td>550396</td>
<td>Clear &amp;</td>
</tr>
<tr>
<td>Covestro (Hong Kong)</td>
<td></td>
<td></td>
<td>550660</td>
<td>Clear &amp;</td>
</tr>
<tr>
<td>Limited. (Asia Pacific)</td>
<td></td>
<td></td>
<td>550674</td>
<td>Clear &amp;</td>
</tr>
<tr>
<td><a href="http://www.covestro.com">www.covestro.com</a></td>
<td></td>
<td></td>
<td>550207</td>
<td>Clear &amp;</td>
</tr>
<tr>
<td>(formerly Bayer MaterialScience)</td>
<td></td>
<td></td>
<td>551013</td>
<td>Clear &amp;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>551019</td>
<td>Clear &amp;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>551068</td>
<td>Clear &amp;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>551070</td>
<td>Clear &amp;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>551104</td>
<td>Clear &amp;</td>
</tr>
</tbody>
</table>

Coated Covestro Deutschland AG (Europe), LLC and Ltd. Makrolon AL plastics may only be treated with the following acceptable coatings applied to the molded lens:

Note: Color 550674 are available on AL2647 only
Color 551013 is available on AL2447 only

**Coating in Alphabetical Order and Corresponding Manufacturer**

- Acryking PH-710, PH-720, PH-800, PH-800N5A: See Mitsubishi Chemical Corporation
- FUJIHARD HH2540U: See Fujikura Kasei Co., Ltd.
- KUV-4000, KUV-5000, KUV-6000: See KCC Corporation
- PHOLUCID 115C and PHOLUCID 130C: See Chugoku Marine Paints
- UVHC5000, UVHC5000K, and UVHC5000K1: See Momentive Performance Materials.
- UVT820V1, UVT820V2, UVT820V3, UVT820V4, UVT820V5, UVT820V6, UVT820V7 and UVT820V8: See Red Spot

**Coating Manufacturer in Alphabetical Order**

Information on PHOLUCID 115C and PHOLUCID 130C coatings may be obtained by writing:

Chugoku Marine Paints, Ltd.
Tokyo Club Building,
2-6, Kasumigaseki 3-Chome
Chiyoda-Ku, Tokyo, 100-0013
Japan
Telephone: 81-3-3506-3971
Facsimile: +81-3-5511-8542 www.cmp.co.jp

NOTE: All PHOLUCID test data submitted by Chugoku Marine Paints.
NOTE: PHOLUCID 115C and PHOLUCID 130C was tested on Makrolon AL 2647 clear only.

(Coating information continued on the next page)
Information on Acryking PH-710, PH-720, PH-800 and PH-800N5A coatings may be obtained by writing to the following company:

Mitsubishi Chemical Corporation
1-1 Marunouchi, 1-Chome,
Chiyoda–Ku, Tokyo 100-8253
Japan
www.m-chemical.co.jp

Note: All Covestro 5 year weathering data submitted by Mitsubishi Chemical Corporation
Note: Acryking PH-710 was tested on AL-2647 clear color only.
Note: Acryking PH-720 was tested on AL-2447 color 551070 only.
Note: Acryking PH-800 and Acryking PH-800N5A was tested on AL-2447 and AL-2647 clear color only.

Information on KUV-4000, KUV-5000, KUV-6000 coatings may be obtained by writing:

KCC Corporation
83 Mabook-Dong, Giheung-Gu, Yongin-Si
Gyunggi-Do, South Korea
www.kccworld.co.kr

Note: All Covestro 5 year weathering data submitted by KCC Corporation
Note: KUV-4000, KUV-5000 was tested on AL2447 and AL2647 clear only.
Note: KUV-6000 was tested on AL2647 clear only

Information on FUJIHARD HH2540U coatings may be obtained by writing:

Fujikura Kasei Co., Ltd.
6-15 Shibakeon 2-Chome
Minato-Ku, Tokyo, 105-0011
Japan
www.fkkasei.co.jp

Note: All Covestro 5 year weathering data submitted by Fujikura Kasei Co., Ltd.
Note: HH2540U was tested on AL2447 and AL2647 clear only.

Information on UVHC5000, UVHC5000K, and UVHC5000K1 hard coat may be obtained by writing to the following address:

Momentive Performance Materials GmbH
Building V7
51368 Leverkusen
Germany

Momentive Performance Materials Inc.
260 Hudson River Road
Waterford, NY 12118
www.momentive.com

Note: All Covestro 5 year weathering data submitted by Momentive Performance Materials.
Note: UVHC5000 was tested on AL2447 and AL2647 clear only.

Information on UVT820V1, UVT820V2, UVT820V3, UVT820V4, UVT820V5, UVT820V6, UVT820V7 and UVT820V8 coatings may be obtained by writing to the following address:

Paint & Varnish Company, Inc.

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AMECA 5 Year Duration List of Acceptable Plastics for Optical Lenses and Reflex Reflectors June 26, 2020
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<tr>
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</tr>
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</table>

Red Spot Paint & Varnish Co., Inc.
P.O. Box 418
Evansville, IN 47703-0418
www.redspot.com

Note: All Covestro 5 year weathering data submitted by Red Spot Paint & Varnish Co., Inc.
Note: UVT820 series coatings were tested on AL 2447/AL 2647 clear only
Coated Formosa Idemitsu Petrochemical Corp. plastics may only be used when treated with the following acceptable coating applied to the molded lens:

**Coating in Alphabetical Order and Corresponding Manufacturer**

Acryking PH-800 and Acryking PH-800N5A: See Mitsubishi Chemical Corporation

**Coating Manufacturer in Alphabetical Order**

Information on Acryking PH-800 and Acryking PH-800N5A coatings may be obtained by writing to the following company:

Mitsubishi Chemical Corporation  
1-1 Marunouchi, 1-Chome,  
Chiyoda–Ku, Tokyo 100-8253  
Japan  
[www.m-chemical.co.jp](http://www.m-chemical.co.jp)
<table>
<thead>
<tr>
<th>MFR.</th>
<th>TRADE NAME and FLOW FORMULATION</th>
<th>TYPE OF RESIN</th>
<th>NUMBER</th>
<th>COLOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lotte Chemical Corp.</td>
<td>LT-1100 (coated)</td>
<td>Polycarbonate</td>
<td></td>
<td>Clear Q2 &amp;</td>
</tr>
</tbody>
</table>

www.lottechem.com

NOTE: Lotte Chemical Corp. plastics are only to be used in a production process approved and monitored by Mitsubishi Chemical Corporation.

Coated Lotte Chemical Corp. plastics are only acceptable with the coatings listed below when properly applied to the molded lens.

**Coating in Alphabetical Order and Corresponding Manufacturer**

Acryking PH-800 and Acryking PH-800N5A: See Mitsubishi Chemical Corporation

**Coating Manufacturer in Alphabetical Order**

Information on Acryking PH-800 and Acryking PH-800N5A coatings may be obtained by writing to the following company:

Mitsubishi Chemical Corporation  
1-1 Marunouchi, 1-Chome, Chiyoda–Ku, Tokyo 100-8253  
Japan  
www.m-chemical.co.jp
<table>
<thead>
<tr>
<th>MFR.</th>
<th>TRADE NAME and FLOW FORMULATION</th>
<th>TYPE OF RESIN</th>
<th>NUMBER</th>
<th>COLOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mitsubishi Engineering Plastics Corp.</td>
<td>IUPILON ML-300</td>
<td>POLYCARBONATE</td>
<td>001</td>
<td>Clear &amp;</td>
</tr>
</tbody>
</table>

www.m-ep.co.jp

Coated Mitsubishi Engineering Plastics Corp. Iupilon plastics may only be treated with the following coatings listed below.

**Coating in Alphabetical Order and Corresponding Manufacturer**

- Acryking PH-710, Acryking PH-720, Acryking PH-800 and PH800N5A: See Mitsubishi Chemical Corporation
- FUJIHARD HH2540U: See Fujikura Kasei Co., Ltd.

**Coating Manufacturer in Alphabetical Order**

Information on FUJIHARD HH2540U coatings may be obtained by writing:

Fujikura Kasei Co., Ltd.
6-15 Shibakeon 2-Chome
Minato-Ku, Tokyo, 105-0011
Japan
www.fkkasei.co.jp

Information on Acryking PH-720, Acryking PH-800 and Acryking PH-800N5A coatings may be obtained by writing to the following company:

Mitsubishi Chemical Corporation
1-1 Marunouchi, 1-Chome,
Chiyoda–Ku, Tokyo 100-8253
Japan
www.m-chemical.co.jp
Coated Mitsubishi Gas Chemical Engineering Plastics (Shanghai) Co. Ltd. Iupilon plastics may only be treated with the following coatings listed below.

Coating in Alphabetical Order and Corresponding Manufacturer

Acryking PH-710, Acryking PH-720, Acryking PH-800 and Acryking PH-800N5A: See Mitsubishi Chemical Corporation

FUJIHARD HH2540U: See Fujikura Kasei Co., Ltd.

Coating Manufacturer in Alphabetical Order

Information on FUJIHARD HH2540U coatings may be obtained by writing:

Fujikura Kasei Co., Ltd.
6-15 Shibakeon 2-Chome
Minato-Ku, Tokyo, 105-0011
Japan
www.fkkasei.co.jp

Information on Acryking PH-710, Acryking PH-720, Acryking PH-800 and Acryking PH-800N5A coatings may be obtained by writing to the following company:

Mitsubishi Chemical Corporation
1-1 Marunouchi, 1-Chome,
Chiyoda–Ku, Tokyo 100-8253
Japan
www.m-chemical.co.jp
<table>
<thead>
<tr>
<th>MFR.</th>
<th>TRADE NAME and FLOW FORMULATION</th>
<th>TYPE OF RESIN</th>
<th>NUMBER</th>
<th>COLOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>SABIC USA</td>
<td>LEXAN® LS-1</td>
<td>POLYCARBONATE</td>
<td>111</td>
<td>White &amp; Clear &amp;</td>
</tr>
<tr>
<td>SABIC USA</td>
<td>LEXAN® LS-2</td>
<td>POLYCARBONATE</td>
<td>111S</td>
<td>Clear &amp;</td>
</tr>
</tbody>
</table>

Coated SABIC USA plastics may only be treated with the following acceptable coatings applied to the molded lens:

**Coating in Alphabetical Order and Corresponding Manufacturer**

Acryking PH-710, Acryking PH-720, Acryking PH-800 and Acryking PH-800N5A coatings: See Mitsubishi Chemical Corporation

FUJIHARD HH2540U: See Fujikura Kasei Co., Ltd.

KUV-5000, KUV-6000: See KCC Corporation

UVHC5000, UVHC5000K, and UVHC5000K1: See Momentive Performance Materials.

UVT820V1, UVT820V2, UVT820V3, UVT820V4, UVT820V5, UVT820V6, UVT820V7 and UVT820V8: See Red Spot

PHOLUCID 130C: See Chugoku Marine Paints

**Coating Manufacturer in Alphabetical Order**

**Chugoku Marine Paints, Ltd.**
Tokyo Club Building,
2-6, Kasumigaseki 3-Chome
Chiyoda-Ku, Tokyo, 100-0013
Japan
Telephone: 81-3-3506-3971
Facsimile: +81-3-5511-8542
www.cmp.co.jp

**FUJIHARD HH2540U**
Fujikura Kasei Co., Ltd.
6-15 Shibakeon 2-Chome
Minato-Ku, Tokyo, 105-0011
Japan
www.fkkasei.co.jp

**Note:** PHOLUCID 130C was tested on Sabic LS1 clear only.

Information on FUJIHARD HH2540U coatings may be obtained by writing:

**Note:** FUJIHARD HH2540U was tested on LS-2 111S Clear Only.

(Coating information continued the next page)
Information on KUV-5000 and KUV-6000 coatings may be obtained by writing:

KCC Corporation
83 Mabook-Dong, Giheung-Gu, Yongin-Si
Gyunggi-Do, South Korea
www.kccworld.co.kr

NOTE: KUV-5000 was tested on SABIC LS-1-111 and SABIC LS-2-111 clear only.

Acryking PH-710, Acryking PH-720, Acryking PH-800 and Acryking PH-800N5A coatings may be obtained by writing to the following address:

Mitsubishi Chemical Corporation
1-1 Marunouchi, 1-Chome,
Chiyoda–Ku, Tokyo 100-8253
Japan
www.m-chemical.co.jp

NOTE: Acryking PH-710, PH-720 and PH-800 was tested on SABIC LS-1-111 only.
Acryking PH-720, Acryking PH-800 and Acryking PH-800N5A was tested on SABIC LS-2-111 only.

Information on UVHC5000, UVHC5000K, and UVHC5000K1 hard coat may be obtained by writing to the following address:

Momentive Performance Materials GmbH
Building V7
51368 Leverkusen
Germany

Momentive Performance Materials Inc.
260 Hudson River Road
Waterford, NY 12118
www.momentive.com

Note: UVHC5000 was tested on SABIC LS1 and LS2 clear only.

Information on UVT820V1, UVT820V2, UVT820V3, UVT820V4,
UVT820V5, UVT820V6, UVT820V7 and UVT820V8 coatings may be obtained by writing to the following address:

Red Spot Paint & Varnish Co., Inc.
P.O. Box 418
Evansville, IN 47703-0418
www.redspot.com

Note: UVT820V1, UVT820V2, UVT820V3, UVT820V4, UVT820V5, UVT820V6, UVT820V7 and UVT820V8 was tested on LS1-111/LS2-111 Clear only
Coated SABIC Australia plastics may only be treated with the following acceptable coatings applied to the molded lens:

**Coating in Alphabetical Order and Corresponding Manufacturer**

Acryking PH-710, Acryking PH-720, Acryking PH-800 and Acryking PH-800N5A coatings: See Mitsubishi Chemical Corporation

FUJIHARD HH2540U: See Fujikura Kasei Co., Ltd.

KUV-5000, KUV-6000: See KCC Corporation

UVHC5000, UVHC5000K, and UVHC5000K1: See Momentive Performance Materials.

UVT820V1, UVT820V2, UVT820V3, UVT820V4, UVT820V5, UVT820V6, UVT820V7 and UVT820V8: See Red Spot

PHOLUCID 130C: See Chugoku Marine Paints

**Coating Manufacturer in Alphabetical Order**

Information on PHOLUCID 130C coatings may be obtained by writing:

Chugoku Marine Paints, Ltd.
Tokyo Club Building,
2-6, Kasumigaseki 3-Chome
Chiyoda-Ku, Tokyo, 100-0013
Japan
Telephone: 81-3-3506-3971
Facsimile: +81-3-5511-8542  [www.cmp.co.jp](http://www.cmp.co.jp)

NOTE: PHOLUCID 130C was tested on Sabic LS1 clear only.

Information on FUJIHARD HH2540U coatings may be obtained by writing:

Fujikura Kasei Co., Ltd.
6-15 Shibakeon 2-Chome
Minato-Ku, Tokyo, 105-0011
Japan
[www.fkkasei.co.jp](http://www.fkkasei.co.jp)

Note: FUJIHARD HH2540U was tested on LS-2 111S Clear Only.

(Coating information continued the next page)
Information on KUV-5000 and KUV-6000 coatings may be obtained by writing:

KCC Corporation
83 Mabook-Dong, Giheung-Gu, Yongin-Si
Gyunggi-Do, South Korea
www.kccworld.co.kr

NOTE: KUV-5000 was tested on SABIC LS-1-111 and SABIC LS-2-111 clear only.

Acryking PH-710, Acryking PH-720, Acryking PH-800 and Acryking PH-800N5A coatings may be obtained by writing to the following address:

Mitsubishi Chemical Corporation
1-1 Marunouchi, 1-Chome,
Chiyoda–Ku, Tokyo 100-8253
Japan
www.m-chemical.co.jp

NOTE: Acryking PH-710, PH-720 and PH-800 was tested on SABIC LS-1-111 only.
Acryking PH-720, And PH-800 was tested on SABIC LS-2-111 only.

Information on UVHC5000, UVHC5000K, and UVHC5000K1 hard coat may be obtained by writing to the following address:

Momentive Performance Materials GmbH
Building V7
51368 Leverkusen
Germany

Momentive Performance Materials Inc.
260 Hudson River Road
Waterford, NY 12118
www.momentive.com

Note: UVHC5000 was tested on SABIC LS1 and LS2 clear only.

Information on UVT820V1, UVT820V2, UVT820V3, UVT820V4, UVT820V5, UVT820V6, UVT820V7 and UVT820V8 coatings may be obtained by writing to the following address:

Red Spot Paint & Varnish Co., Inc.
P.O. Box 418
Evansville, IN 47703-0418
www.redspot.com

Note: UVT820V1, UVT820V2, UVT820V3, UVT820V4, UVT820V5, UVT820V6, UVT820V7 and UVT820V8 was tested on LS1-111/LS2-111 Clear only
Coated SABIC Brazil plastics may only be treated with the following acceptable coatings applied to the molded lens:

**Coating in Alphabetical Order and Corresponding Manufacturer**

Acryking PH-710, Acryking PH-720, Acryking PH-800 and Acryking PH-800N5A coatings: See Mitsubishi Chemical Corporation

FUJIHARD HH2540U: See Fujikura Kasei Co., Ltd.

KUV-5000, KUV-6000: See KCC Corporation

UVHC5000, UVHC5000K, and UVHC5000K1: See Momentive Performance Materials.

UVT820V1, UVT820V2, UVT820V3, UVT820V4, UVT820V5, UVT820V6, UVT820V7 and UVT820V8: See Red Spot

PHOLUCID 130C: See Chugoku Marine Paints

**Coating Manufacturer in Alphabetical Order**

Information on PHOLUCID 130C coatings may be obtained by writing:

Chugoku Marine Paints, Ltd.
Tokyo Club Building,
2-6, Kasumigaseki 3-Chome
Chiyoda-Ku, Tokyo, 100-0013
Japan
Telephone: 81-3-3506-3971
Facsimile: +81-3-5511-8542 [www.cmp.co.jp](http://www.cmp.co.jp)

NOTE: PHOLUCID 130C was tested on Sabic LS1 clear only.

Information on FUJIHARD HH2540U coatings may be obtained by writing:

Fujikura Kasei Co., Ltd.
6-15 Shibakeon 2-Chome
Minato-Ku, Tokyo, 105-0011
Japan
[www.fkkasei.co.jp](http://www.fkkasei.co.jp)

Note: FUJIHARD HH2540U was tested on LS-2 111S Clear Only.
(Coating information continued the next page)
<table>
<thead>
<tr>
<th>TRADE NAME and MFR.</th>
<th>FLOW FORMULATION</th>
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<tr>
<td>KCC</td>
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</tr>
</tbody>
</table>

Information on KUV-5000 and KUV-6000 coatings may be obtained by writing:

KCC Corporation
83 Mabook-Dong, Giheung-Gu, Yongin-Si
Gyunggi-Do, South Korea
[www.kccworld.co.kr](http://www.kccworld.co.kr)

NOTE: KUV-5000 was tested on SABIC LS-1-111 and SABIC LS-2-111 clear only.

Acryking PH-710, Acryking PH-720, Acryking PH-800 and Acryking PH-800N5A coatings may be obtained by writing to the following address:

Mitsubishi Chemical Corporation
1-1 Marunouchi, 1-Chome,
Chiyoda–Ku, Tokyo 100-8253
Japan
[www.m-chemical.co.jp](http://www.m-chemical.co.jp)

NOTE: Acryking PH-710, PH-720 and PH-800 was tested on SABIC LS-1-111 only.
Acryking PH-720 Acryking PH-800 and Acryking PH-800N5A was tested on SABIC LS-2-111 only.

Information on UVHC5000, UVHC5000K, and UVHC5000K1 hard coat may be obtained by writing to the following address:

Momentive Performance Materials GmbH
Building V7
51368 Lverkusen
Germany
Momentive Performance Materials Inc.
260 Hudson River Road
Waterford, NY 12118
[www.momentive.com](http://www.momentive.com)

Note: UVHC5000 was tested on SABIC LS1 and LS2 clear only.

Information on UVT820V1, UVT820V2, UVT820V3, UVT820V4, UVT820V5, UVT820V6, UVT820V7 and UVT820V8 coatings may be obtained by writing to the following address:

Red Spot Paint & Varnish Co., Inc.
P.O. Box 418
Evansville, IN 47703-0418
[www.redspot.com](http://www.redspot.com)

Note: UVT820V1, UVT820V2, UVT820V3, UVT820V4, UVT820V5, UVT820V6, UVT820V7 and UVT820V8 was tested on LS1-111/LS2-111 Clear only.
Coated SABIC Nansha, China plastics may only be treated with the following acceptable coatings applied to the molded lens:

**Coating in Alphabetical Order and Corresponding Manufacturer**

- **Acryking PH-710, Acryking PH-720, Acryking PH-800 and Acryking PH-800N5A coatings:** See Mitsubishi Chemical Corporation
- **FUJIHARD HH2540U:** See Fujikura Kasei Co., Ltd.
- **KUV-5000, KUV-6000:** See KCC Corporation
- **UVHC5000, UVHC5000K, and UVHC5000K1:** See Momentive Performance Materials.
- **UVT820V1, UVT820V2, UVT820V3, UVT820V4, UVT820V5, UVT820V6, UVT820V7 and UVT820V8:** See Red Spot
- **PHOLUCID 130C:** See Chugoku Marine Paints

**Coating Manufacturer in Alphabetical Order**

Information on PHOLUCID 130C coatings may be obtained by writing:

Chugoku Marine Paints, Ltd.
Tokyo Club Building,
2-6, Kasumigaseki 3-Chome
Chiyoda-Ku, Tokyo, 100-0013
Japan
Telephone: 81-3-3506-3971
Facsimile: +81-3-5511-8542
www.cmp.co.jp

*NOTE: PHOLUCID 130C was tested on Sabic LS1 clear only.*

Information on FUJIHARD HH2540U coatings may be obtained by writing:

Fujikura Kasei Co., Ltd.
6-15 Shibakeon 2-Chome
Minato-Ku, Tokyo, 105-0011
Japan
www.fkkasei.co.jp

*Note: FUJIHARD HH2540U was tested on LS-2 111S Clear Only.*

(Coating information continued the next page)
Information on KUV-5000 and KUV-6000 coatings may be obtained by writing:

KCC Corporation
83 Mabook-Dong, Giheung-Gu, Yongin-Si
Gyunggi-Do, South Korea
www.kccworld.co.kr

NOTE: KUV-5000 was tested on SABIC LS-1-111 and SABIC LS-2-111 clear only.

Acryking PH-710, Acryking PH-720, Acryking PH-800 and Acryking PH-800N5A coatings may be obtained by writing to the following address:

Mitsubishi Chemical Corporation
1-1 Marunouchi, 1-Chome,
Chiyoda–Ku, Tokyo 100-8253
Japan
www.m-chemical.co.jp

NOTE: Acryking PH-710, PH-720 and PH-800 was tested on SABIC LS-1-111 only.
Acryking PH-720 and PH-800 was tested on SABIC LS-2-111 only.

Information on UVHC5000, UVHC5000K, and UVHC5000K1 hard coat may be obtained by writing to the following address:

Momentive Performance Materials GmbH
Building V7
51368 Lverkusen
Germany
Momentive Performance Materials Inc.
260 Hudson River Road
Waterford, NY 12118
www.momentive.com

Note: UVHC5000 was tested on SABIC LS1 and LS2 clear only.

Information on UVT820V1, UVT820V2, UVT820V3, UVT820V4, UVT820V5, UVT820V6, UVT820V7 and UVT820V8 coatings may be obtained by writing to the following address:

Red Spot Paint & Varnish Co., Inc.
P.O. Box 418
Evansville, IN 47703-0418
www.redspot.com

Note: UVT820V1, UVT820V2, UVT820V3, UVT820V4, UVT820V5, UVT820V6, UVT820V7 and UVT820V8 was tested on LS1-111/LS2-111 Clear only
Coated SABIC Shanghai, China plastics may only be treated with the following acceptable coatings applied to the molded lens:

Coating in Alphabetical Order and Corresponding Manufacturer

Acryking PH-710, Acryking PH-720, Acryking PH-800 and Acryking PH-800N5A coatings: See Mitsubishi Chemical Corporation

FUJIHARD HH2540U: See Fujikura Kasei Co., Ltd.

KUV-5000, KUV-6000: See KCC Corporation

UVHC5000, UVHC5000K, and UVHC5000K1: See Momentive Performance Materials.

UVT820V1, UVT820V2, UVT820V3, UVT820V4, UVT820V5, UVT820V6, UVT820V7 and UVT820V8: See Red Spot

PHOLUCID 130C: See Chugoku Marine Paints

Coating Manufacturer in Alphabetical Order

Information on PHOLUCID 130C coatings may be obtained by writing:

Chugoku Marine Paints, Ltd.
Tokyo Club Building,
2-6, Kasumigaseki 3-Chome
Chiyoda-Ku, Tokyo, 100-0013
Japan
Telephone: 81-3-3506-3971
Facsimile: +81-3-5511-8542
8542 www.cmp.co.jp

NOTE: PHOLUCID 130C was tested on Sabic LS1 clear only.

Information on FUJIHARD HH2540U coatings may be obtained by writing:

Fujikura Kasei Co., Ltd.
6-15 Shibakeon 2-Chome
Minato-Ku, Tokyo, 105-0011
Japan
www.fkkasei.co.jp

Note: FUJIHARD HH2540U was tested on LS-2 111S Clear Only.
(Coating information continued the next page)
Information on KUV-5000 and KUV-6000 coatings may be obtained by writing:

KCC Corporation  
83 Mabook-Dong, Giheung-Gu, Yongin-Si  
Gyunggi-Do, South Korea  
www.kccworld.co.kr

NOTE: KUV-5000 was tested on SABIC LS-1-111 and SABIC LS-2-111 clear only.

Acryking PH-710, Acryking PH-720, Acryking PH-800 and Acryking PH-800N5A coatings may be obtained by writing to the following address:

Mitsubishi Chemical Corporation  
1-1 Marunouchi, 1-Chome,  
Chiyoda–Ku, Tokyo 100-8253  
Japan  
www.m-chemical.co.jp

NOTE: Acryking PH-710, PH-720 and PH-800 was tested on SABIC LS-1-111 only.  
Acryking PH-720 and PH-800 was tested on SABIC LS-2-111 only.

Information on UVHC5000, UVHC5000K, and UVHC5000K1 hard coat may be obtained by writing to the following address:

Performance Materials Inc.  
Building V7  
51368 Leverkusen  
Germany  
www.momentive.com

Note: UVHC5000 was tested on SABIC LS1 and LS2 clear only.

Information on UVT820V1, UVT820V2, UVT820V3, UVT820V4, UVT820V5, UVT820V6, UVT820V7 and UVT820V8 coatings may be obtained by writing to the following address:

Red Spot Paint & Varnish Co., Inc.  
P.O. Box 418  
Evansville, IN 47703-0418  
www.redspot.com

Note: UVT820V1, UVT820V2, UVT820V3, UVT820V4, UVT820V5, UVT820V6, UVT820V7 and UVT820V8 was tested on LS1-111/LS2-111 Clear only
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<th>MFR.</th>
<th>TRADE NAME and FLOW FORMULATION</th>
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<td>111S</td>
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</table>

www.sabic-ip.com

Coated SABIC Europe plastics may only be treated with the following acceptable coatings applied to the molded lens:

Coating in Alphabetical Order and Corresponding Manufacturer

- Acrylic PH-710, Acrylic PH-720, Acrylic PH-800 and Acrylic PH-800N5A coatings: See Mitsubishi Chemical Corporation
- FUJIHARD HH2540U: See Fujikura Kasei Co., Ltd.
- KUV-5000, KUV-6000: See KCC Corporation
- UVHC5000, UVHC5000K, and UVHC5000K1: See Momentive Performance Materials.
- UVT820V1, UVT820V2, UVT820V3, UVT820V4, UVT820V5, UVT820V6, UVT820V7, UVT820V8: See Red Spot
- PHOLUCID 130C: See Chugoku Marine Paints

Information on PHOLUCID 130C coatings may be obtained by writing:

Chugoku Marine Paints, Ltd.
Tokyo Club Building,
2-6, Kasumigaseki 3-Chome
Chiyoda-Ku, Tokyo, 100-0013
Japan
Telephone: 81-3-3506-3971
Facsimile: +81-3-5511-8542
www.cmp.co.jp

NOTE: PHOLUCID 130C was tested on Sabic LS1 clear only.

Information on KUV-5000 and KUV-6000 coatings may be obtained by writing:

KCC Corporation
83 Mabook-Dong, Giheung-Gu, Yongin-Si
Gyunggi-Do, South Korea
www.kccworld.co.kr

NOTE: KUV-5000 was tested on SABIC LS-1-111 and SABIC LS-2-111 clear only.
(Coating information continued on the next page.)
TRADE NAME and MFR. FLOW FORMULATION TYPE OF RESIN NUMBER COLOR

Information on FUJIHARD HH2540U coatings may be obtained by writing:

Fujikura Kasei Co., Ltd.
6-15 Shibakeon 2-Chome
Minato-Ku, Tokyo, 105-0011
Japan
www.fkkasei.co.jp

Note: FUJIHARD HH2540U was tested on LS-2 111S Clear Only.

Acryking PH-710, Acryking PH-720, Acryking PH-800 and Acryking PH-800N5A coatings may be obtained by writing to the following address:

Mitsubishi Chemical Corporation
1-1 Marunouchi, 1-Chome,
Chiyoda–Ku, Tokyo 100-8253
Japan
www.m-chemical.co.jp

NOTE: Acryking PH-710, PH-720 and PH-800 was tested on SABIC LS-1-111 only.
Acryking PH-720 and PH-800 was tested on SABIC LS-2-111 only.

Information on UVHC5000, UVHC5000K, and UVHC5000K1 hard coat may be obtained by writing to the following address:

Momentive Performance Materials GmbH
Building V7
51368 Leverkusen
Germany

Momentive Performance Materials Inc.
260 Hudson River Road
Waterford, NY 12118
www.momentive.com

Note: UVHC5000 was tested on SABIC LS1 and LS2 clear only.

Information on UVT820V1, UVT820V2, UVT820V3, UVT820V4, UVT820V5, UVT820V6, UVT820V7 and UVT820V8 coatings may be obtained by writing to the following address:

Red Spot Paint & Varnish Co., Inc.
P.O. Box 418
Evansville, IN 47703-0418
www.redspot.com

Note: UVT820V1, UVT820V2, UVT820V3, UVT820V4, UVT820V5, UVT820V6, UVT820V7 and UVT820V8 was tested on LS1-111/LS2-111 Clear only
Coated SABIC Japan plastics may only be treated with the following acceptable coatings applied to the molded lens:

**Coating in Alphabetical Order and Corresponding Manufacturer**

Acryking PH-710, Acryking PH-720, Acryking PH-800 and Acryking PH-800N5A coatings: See Mitsubishi Chemical Corporation

FUJIHARD HH2540U: See Fujikura Kasei Co., Ltd.

KUV-5000, KUV-6000: See KCC Corporation

UVHC5000, UVHC5000K, and UVHC5000K1: See Momentive Performance Materials.

UVT820V1, UVT820V2, UVT820V3, UVT820V4, UVT820V5, UVT820V6, UVT820V7 and UVT820V8: See Red Spot

PHOLUCID 130C: See Chugoku Marine Paints

**Coating Manufacturer in Alphabetical Order**

Information on PHOLUCID 130C coatings may be obtained by writing:

Chugoku Marine Paints, Ltd.
Tokyo Club Building,
2-6, Kasumigaseki 3-Chome
Chiyoda-Ku, Tokyo, 100-0013
Japan
Telephone: 81-3-3506-3971
Facsimile: +81-3-5511-
8542 [www.cmp.co.jp](http://www.cmp.co.jp)

NOTE: PHOLUCID 130C was tested on Sabic LS1 clear only.

Information on KUV-5000 and KUV-6000 coatings may be obtained by writing:

KCC Corporation
83 Mabook-Dong, Giheung-Gu, Yongin-Si
Gyunggi-Do, South Korea
[www.kccworld.co.kr](http://www.kccworld.co.kr)

NOTE: KUV-5000 was tested on SABIC LS-1-111 and SABIC LS-2-111 clear only.

(Coating information continued the next page)
Information on FUJIHARD HH2540U coatings may be obtained by writing:

Fujikura Kasei Co., Ltd.
6-15 Shibakeon 2-Chome
Minato-Ku, Tokyo, 105-0011
Japan
www.fkkasei.co.jp

Note: FUJIHARD HH2540U was tested on LS-2 111S Clear Only.

Acryking PH-710, Acryking PH-720, and Acryking PH-800 coatings may be obtained by writing to the following address:

Mitsubishi Chemical Corporation
1-1 Marunouchi, 1-Chome,
Chiyoda–Ku, Tokyo 100-8253
Japan
www.m-chemical.co.jp

NOTE: Acryking PH-710, PH-720 and PH-800 was tested on SABIC LS-1-111 only.
Acryking PH-720 and PH-800 was tested on SABIC LS-2-111 only.

Information on UVHC5000, UVHC5000K, and UVHC5000K1 hard coat may be obtained by writing to the following address:

Momentive Performance Materials GmbH
Building V7
51368 Leverkusen
Germany

Momentive Performance Materials Inc.
260 Hudson River Road
Waterford, NY 12118
www.momentive.com

Note: UVHC5000 was tested on SABIC LS1 and LS2 clear only.

Information on UVT820V1, UVT820V2, UVT820V3, UVT820V4, UVT820V5, UVT820V6, UVT820V7 and UVT820V8 coatings may be obtained by writing to the following address:

Red Spot Paint & Varnish Co., Inc.
P.O. Box 418
Evansville, IN 47703-0418

www.redspot.com

Note: UVT820V1, UVT820V2, UVT820V3, UVT820V4, UVT820V5, UVT820V6, UVT820V7 and UVT820V8 was tested on LS1-111/LS2-111 Clear only
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<tr>
<th>TRADE NAME and FLOW FORMULATION</th>
<th>TYPE OF RESIN</th>
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<th>COLOR</th>
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<tr>
<td>SABIC LEXAN® LS-1</td>
<td>POLYCARBONATE</td>
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<td>Korea LEXAN® LS-2 (Coated Only)</td>
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<td>111S</td>
<td>White &amp;</td>
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</tbody>
</table>

Coated SABIC Korea plastics may only be treated with the following acceptable coatings applied to the molded lens:

**Coating in Alphabetical Order and Corresponding Manufacturer**

- Acryking PH-710, Acryking PH-720, and Acryking PH-800 coatings: See Mitsubishi Chemical Corporation
- FUJIHARD HH2540U: See Fujikura Kasei Co., Ltd.
- KUV-5000, KUV-6000: See KCC Corporation
- UVHC5000, UVHC5000K, and UVHC5000K1: See Momentive Performance Materials.
- UVT820V1, UVT820V2, UVT820V3, UVT820V4, UVT820V5, UVT820V6, UVT820V7, and UVT820V8: See Red Spot
- PHOLUCID 130C: See Chugoku Marine Paints

**Coating Manufacturer in Alphabetical Order**

Information on PHOLUCID 130C coatings may be obtained by writing:

Chugoku Marine Paints, Ltd.
Tokyo Club Building,
2-6, Kasumigaseki 3-Chome
Chiyoda-Ku, Tokyo, 100-0013
Japan
Telephone: 81-3-3506-3971
Facsimile: +81-3-5511-8542 [www.cmp.co.jp](http://www.cmp.co.jp)

NOTE: PHOLUCID 130C was tested on Sabic LS1 clear only.

Information on KUV-5000 and KUV-6000 coatings may be obtained by writing:

KCC Corporation
83 Mabook-Dong, Giheung-Gu, Yongin-Si
Gyunggi-Do, South Korea
[www.kccworld.co.kr](http://www.kccworld.co.kr)

NOTE: KUV-5000 was tested on SABIC LS-1-111 and SABIC LS-2-111 clear only.

(Coating information continued the next page)
Information on FUJIHARD HH2540U coatings may be obtained by writing:

Fujikura Kasei Co., Ltd.
6-15 Shibakeon 2-Chome
Minato-Ku, Tokyo, 105-0011
Japan
www.fkkasei.co.jp

Note: FUJIHARD HH2540U was tested on LS-2 111S Clear Only.

Acryking PH-710, Acryking PH-720, and Acryking PH-800 coatings may be obtained by writing to the following address:

Mitsubishi Chemical Corporation
1-1 Marunouchi, 1-Chome,
Chiyoda–Ku, Tokyo 100-8253
Japan
www.m-chemical.co.jp

NOTE: Acryking PH-710, PH-720 and PH-800 was tested on SABIC LS-1-111 only.
Acryking PH-720 and PH-800 was tested on SABIC LS-2-111 only.

Information on UVHC5000, UVHC5000K, and UVHC5000K1 hard coat may be obtained by writing to the following address:

Momentive Performance Materials GmbH
Building V7
51368 Leverkusen
Germany
www.momentive.com

Note: UVHC5000 was tested on SABIC LS1 and LS2 clear only.

Information on UVT820V1, UVT820V2, UVT820V3, UVT820V4, UVT820V5, UVT820V6, UVT820V7 and UVT820V8 coatings may be obtained by writing to the following address:

Red Spot Paint & Varnish Co., Inc.
P.O. Box 418
Evansville, IN 47703-0418
www.redspot.com

Note: UVT820V1, UVT820V2, UVT820V3, UVT820V4, UVT820V5, UVT820V6, UVT820V7 and UVT820V8 was tested on LS1-111/LS2-111 Clear only
Coated SABIC Singapore plastics may only be treated with the following acceptable coatings applied to the molded lens:

**Coating in Alphabetical Order and Corresponding Manufacturer**

- Acryking PH-710, Acryking PH-720, and Acryking PH-800 See Mitsubishi Chemical Corporation
- FUJIHARD HH2540U: See Fujikura Kasei Co., Ltd.
- KUV-5000, KUV-6000: See KCC Corporation
- UVHC5000, UVHC5000K, and UVHC5000K1: See Momentive Performance Materials.
- UVT820V1, UVT820V2, UVT820V3, UVT820V4, UVT820V5, UVT820V6, UVT820V7 and UVT820V8: See Red Spot
- PHOLUCID 130C: See Chugoku Marine Paints

**Coating Manufacturer in Alphabetical Order**

Information on PHOLUCID 130C coatings may be obtained by writing:

Chugoku Marine Paints, Ltd.
Tokyo Club Building,
2-6, Kasumigaseki 3-Chome
Chiyoda-Ku, Tokyo, 100-0013
Japan
Telephone: 81-3-3506-3971
Facsimile: +81-3-5511-8542 www.cmp.co.jp

NOTE: PHOLUCID 130C was tested on Sabic LS1 clear only.

Information on KUV-5000 and KUV-6000 coatings may be obtained by writing:

KCC Corporation
83 Mabook-Dong, Giheung-Gu, Yongin-Si
Gyunggi-Do, South Korea
www.kccworld.co.kr

NOTE: KUV-5000 was tested on SABIC LS-1-111 and SABIC LS-2-111 clear only.

(Coating information continued the next page)
Information on FUJIHARD HH2540U coatings may be obtained by writing:

Fujikura Kasei Co., Ltd.
6-15 Shibakeon 2-Chome
Minato-Ku, Tokyo, 105-0011
Japan
www.fkkasei.co.jp

Note: FUJIHARD HH2540U was tested on LS-2 111S Clear Only.

Acryking PH-710, Acryking PH-720, and Acryking PH-800 coatings may be obtained by writing to the following address:

Mitsubishi Chemical Corporation
1-1 Marunouchi, 1-Chome,
Chiyoda–Ku, Tokyo 100-8253
Japan
www.m-chemical.co.jp

NOTE: Acryking PH-710, PH-720 and PH-800 was tested on SABIC LS-1-111 only.
Acryking PH-720 and PH-800 was tested on SABIC LS-2-111 only.

Information on UVHC5000, UVHC5000K, and UVHC5000K1 hard coat may be obtained by writing to the following address:

Momentive Performance Materials GmbH
Building V7
51368 Lverkusen
Germany

Note: UVHC5000 was tested on SABIC LS1 and LS2 clear only.

Information on UVT820V1, UVT820V2, UVT820V3, UVT820V4, UVT820V5, UVT820V6, UVT820V7 and UVT820V8 coatings may be obtained by writing to the following address:

Red Spot Paint & Varnish Co., Inc.
P.O. Box 418
Evansville, IN 47703-0418
www.redspot.com

Note: UVT820V1, UVT820V2, UVT820V3, UVT820V4, UVT820V5, UVT820V6, UVT820V7 and UVT820V8 was tested on LS1-111/LS2-111 Clear only
<table>
<thead>
<tr>
<th>MFR.</th>
<th>TRADE NAME and FLOW FORMULATION</th>
<th>TYPE OF RESIN</th>
<th>NUMBER</th>
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<tr>
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<td>TRIREX 3022L1</td>
<td>POLYCARBONATE</td>
<td>100</td>
<td>Clear &amp;</td>
</tr>
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</table>

[www.samyang.com](http://www.samyang.com)

Coated Sam Yang Corporation plastics are only acceptable with the coatings listed below when properly applied to the molded lens.

**Coating in Alphabetical Order and Corresponding Manufacturer**

KUV-4000, KUV-5000: See KCC Corporation

**Coating Manufacturer in Alphabetical Order**

Information on KUV-4000 and KUV-5000 coating may be obtained by writing:

KCC Corporation 83 Mabook-Dong, Giheung-Gu, Yongin-Si Gyunggi-Do, South Korea [www.kccworld.co.kr](http://www.kccworld.co.kr)
Coating in Alphabetical Order and Corresponding Manufacturer

Acryking PH-511, Acryking PH-710, Acryking PH-720, Acryking PH-750 Acryking PH-800 and Acryking PH-800N5A: See Mitsubishi Chemical Corporation

FUJIHARD HH2540U: See Fujikura Kasei Co., Ltd.

KUV-5000: See KCC Corporation

UVHC5000, UVHC5000K, and UVHC5000K1: See Momentive Performance Materials.

Coating Manufacturer in Alphabetical Order

Information on FUJIHARD HH2540U coatings may be obtained by writing:

Fujikura Kasei Co., Ltd.
6-15 Shibakeon 2-Chome
Minato-Ku, Tokyo, 105-0011
Japan
www.fkkasei.co.jp

Note: FUJIHARD HH2540U was tested on PANLITE L1225Z 100M Clear Only.

Information on KUV-5000 coatings may be obtained by writing:

KCC Corporation
83 Mabook-Dong, Giheung-Gu, Yongin-Si
Gyunggi-Do, South Korea
www.kccworld.co.kr

Note: KUV-5000 was tested on Panlite L-1225Z clear only.

Acryking PH-511, Acryking PH-710, Acryking PH-720, Acryking PH-750 Acryking PH-800 and Acryking PH-800N5A coatings may be obtained by writing to the following address:

Mitsubishi Chemical Corporation
1-1 Marunouchi, 1-Chome,
Chiyoda–Ku, Tokyo 100-8253
Japan
www.m-chemical.co.jp

(Coating information continued the next page)
Information on UVHC5000, UVHC5000K, and UVHC5000K1 hard coat may be obtained by writing to the following address:

Momentive Performance Materials GmbH
Building V7
51368 Leverkusen
Germany

Momentive Performance Materials Inc.
260 Hudson River Road
Waterford, NY 12118
www.momentive.com

Note: UVHC5000 was tested on L-1225Z clear only.
Teijin Polycarbonate China Ltd.

Teijin Panlite L-1225Z POLYCARBONATE 100 Clear & 100M Clear &

www.teijin.co.jp

Coating in Alphabetical Order and Corresponding Manufacturer

Acryking PH-511, Acryking PH-710, Acryking PH-720, Acryking PH-750 Acryking PH-800 and Acryking PH-800N5A: See Mitsubishi Chemical Corporation

FUJIHARD HH2540U: See Fujikura Kasei Co., Ltd.

KUV-5000: See KCC Corporation

UVHC5000, UVHC5000K, and UVHC5000K1: See Momentive Performance Materials.

Coating Manufacturer in Alphabetical Order

Information on FUJIHARD HH2540U coatings may be obtained by writing:

Fujikura Kasei Co., Ltd.
6-15 Shibakeon 2-Chome
Minato-Ku, Tokyo, 105-0011
Japan
www.fkkasei.co.jp

Note: FUJIHARD HH2540U was tested on L1225Z 100M Clear Only.

Information on KUV-5000 coatings may be obtained by writing:

KCC Corporation
83 Mabook-Dong, Giheung-Gu, Yongin-Si
Gyunggi-Do, South Korea
www.kccworld.co.kr

Note: KUV-5000 was tested on Panlite L-1225Z clear only.

Acryking PH-511, Acryking PH-710, Acryking PH-720, Acryking PH-750 Acryking PH-800 and Acryking PH-800N5A coating may be obtained by writing to the following address:

Mitsubishi Chemical Corporation
1-1 Marunouchi, 1-Chome,
Chiyoda–Ku, Tokyo 100-8253
Japan
www.m-chemical.co.jp

(Coating information continued the next page)
### TRADE NAME and FLOW FORMULATION TYPE OF RESIN NUMBER COLOR

<table>
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<th>TRADE NAME and FLOW FORMULATION TYPE OF RESIN NUMBER COLOR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

Information on UVHC5000, UVHC5000K, and UVHC5000K1 hard coat may be obtained by writing to the following address:

Momentive Performance Materials GmbH
Building V7
51368 Leverkusen
Germany

Momentive Performance Materials Inc.
260 Hudson River Road
Waterford, NY 12118
www.momentive.com

Note: UVHC5000 was tested on L-1225Z clear only.
Teijin
Polycarbonate
Singapore PTE Ltd.

www.teijin.co.jp

Coating in Alphabetical Order and Corresponding Manufacturer

Acryking PH-511, Acryking PH-710, Acryking PH-720, Acryking PH-750 Acryking PH-800 and Acryking PH-800N5A: See Mitsubishi Chemical Corporation

FUJIHARD HH2540U: See Fujikura Kasei Co., Ltd.

KUV-5000: See KCC Corporation

UVHC5000, UVHC5000K, and UVHC5000K1: See Momentive Performance Materials.

Coating Manufacturer in Alphabetical Order

Information on FUJIHARD HH2540U coatings may be obtained by writing:

Fujikura Kasei Co., Ltd.
6-15 Shibakeon 2-Chome
Minato-Ku, Tokyo, 105-0011
Japan
www.fkkasei.co.jp

Note: FUJIHARD HH2540U was tested on L1225Z 100M Clear Only.

Information on KUV-5000 coatings may be obtained by writing:

KCC Corporation
83 Mabook-Dong, Giheung-Gu, Yongin-Si
Gyunggi-Do, South Korea
www.kccworld.co.kr

Note: KUV-5000 was tested on Panlite L-1225Z clear only.

Acryking PH-511, Acryking PH-710, Acryking PH-720, Acryking PH-750 Acryking PH-800 and Acryking PH-800N5A coating may be obtained by writing to the following address:

Mitsubishi Chemical Corporation
1-1 Marunouchi, 1-Chome,
Chiyoda–Ku, Tokyo 100-8253
Japan
www.m-chemical.co.jp

(Coating information continued the next page)
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<tr>
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Information on UVHC5000, UVHC5000K, and UVHC5000K1 hard coat may be obtained by writing to the following address:

Momentive Performance Materials GmbH  
Building V7  
51368 Leverkusen  
Germany

Momentive Performance Materials Inc.  
260 Hudson River Road  
Waterford, NY 12118  
www.momentive.com

Note: UVHC5000 was tested on L-1225Z clear only.
Coated Thai Polycarbonate Co., Ltd. Iupilon plastics may only be treated with the following coatings listed below.

**Coating in Alphabetical Order and Corresponding Manufacturer**

Acryking PH-710, Acryking PH-720, Acryking PH-800 and Acryking PH-800N5A: See Mitsubishi Chemical Corporation

FUJIHARD HH2540U: See Fujikura Kasei Co., Ltd.

**Coating Manufacturer in Alphabetical Order**

Information on FUJIHARD HH2540U coatings may be obtained by writing:

Fujikura Kasei Co., Ltd.
6-15 Shibakeon 2-Chome
Minato-Ku, Tokyo, 105-0011
Japan
www.fkkasei.co.jp

Information on Acryking PH-710, Acryking PH-720, and Acryking PH-800 coatings may be obtained by writing to the following company:

Mitsubishi Chemical Corporation
1-1 Marunouchi, 1-Chome,
Chiyoda–Ku, Tokyo 100-8253
Japan
www.m-chemical.co.jp
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Appendix A: AMECA Accredited Laboratory Information

Arizona Desert Testing  
21212 West Patton Road  
Wittman, Arizona  85361  
Tel: (623) 388-9500  
FAX: (623) 388-9007  
Website:  www.aztest.com

Atlas Weathering Services Group  
DSET Laboratories  
45601 N. 47th Avenue  
Phoenix, Arizona  85027-7042  
Tel: (623) 465-7356; (800) 255-DSET  
FAX: (623) 465-9409  
Website:  www.atlaswsg.com

As the entity is rotated, the text seems fine. Here is the rotational information:

Q-Lab Arizona Test Services  
24742 West Durango Street  
Buckeye, Arizona  85326  
Tel: (623) 386-5140  
FAX: (623) 386-5143  
Website:  www.q-lab.com

Q-Lab Florida Test Services and  
1005 S.W. 18th Avenue,  
P.O. Box 349490  
Homestead, Florida 33034  
Tel: (305) 245-5600  
FAX: (305) 245-5656  
Website:  www.q-lab.com

Atlas Weathering Services Group  
South Florida Test Services  
Everglades Division  
16100 S.W. 216th Street  
Miami, Florida 33170  
Tel: (305) 245-3659  
FAX: (305) 245-9122  
Website:  www.atlaswsg.com
Appendix B: Federal Standard and Notable Interpretation Documents For Plastics

Excerpts from Section 14 from FMVSS 108

S14.1.2 Plastic optical materials. All plastic materials used for optical parts such as lenses and reflectors on lamps or reflective devices required or allowed by this standard must conform to the material test requirements of S14.4.2.

S14.1.3 All coatings used on optical materials must have added to their formulations an optical brightener, whose presence is detectable by ultraviolet light, to aid in testing for their presence. Other equivalent industry accepted methods may be used as an alternative.

S14.4.2 Plastic optical materials tests. Accelerated weathering procedures are not permitted.

S14.4.2.1 Samples. Samples of materials shall be injection molded into polished metal molds to produce test specimens with two flat and parallel faces. Alternative techniques may be used to produce equivalent specimens.

S14.4.2.1.2 Test specimens shape may vary, but each exposed surface must contain a minimum uninterrupted area of 32 sq cm.

S14.4.2.1.3 Samples must be furnished in thicknesses of 1.6 ± 0.25 mm, 2.3 ± 0.25 mm, 3.2 ± 0.25 mm, and 6.4 ± 0.25 mm.

S14.4.2.1.4 All samples must conform to the applicable color test requirement of this standard prior to testing.

S14.4.2.1.5 A control sample, kept properly protected from influences which may change its appearance and properties of each thickness, must be retained.

S14.4.2.2 Outdoor exposure test.

S14.4.2.2.1 Outdoor exposure tests of 3 years in duration must be made on samples of all materials, including coated and uncoated versions, used for optical parts of devices covered by this standard. Tests are to be conducted in Florida and Arizona.

S14.4.2.2.2 Concentrations of polymer components and additives used in plastic materials may be changed without outdoor exposure testing provided the changes are within the limits of composition represented by higher and lower concentrations of these polymer components and additives previously tested to this section and found to meet its requirements.

S14.4.2.2.3 Procedure.

S14.4.2.2.3.1 One sample of each thickness of each material must be mounted at each exposure site so that at least a minimum uninterrupted area of 32 sq cm of the exposed upper surface of the sample is at an angle of 45° to the horizontal facing south. The sample must be mounted in the open no closer than 30 cm (11.8 in) to its background.

S14.4.2.2.3.2 During the exposure time the samples must be cleaned once every three months by washing with mild soap or detergent and water, and then rinsing with distilled water. Rubbing must be avoided.

S14.4.2.4 Performance requirements. Plastic lenses, other than those incorporating reflex reflectors, used for inner lenses or those covered by another material and not exposed directly to sunlight must meet the optical material test requirements when covered by the outer lens or other material.

S14.4.2.4.1 After completion of the outdoor exposure test the haze and loss of surface luster as measured by ASTM 1003 –92, Haze and Luminous Transmittance of Transparent Plastic, (incorporated by reference, see 571.108 S5.2 of this title) must not be greater than:

(a) 30% for materials used for outer lenses, other than those incorporating reflex reflectors;
(b) 7% for materials used for reflex reflectors and lenses used in front of reflex reflectors.

S14.4.2.4.2 After completion of the outdoor exposure test materials used for headlamp lenses must show no deterioration.

S14.4.2.4.3 After completion of the outdoor exposure test all materials, when compared with the unexposed control samples, must not show physical changes affecting performance such as
color bleeding, delamination, crazing, or cracking. Additionally materials used for reflex reflectors and lenses used in front of reflex reflectors must not show surface deterioration or dimensional changes.

S14.4.2.2.4.4 After completion of the outdoor exposure test all materials, when compared with the unexposed control samples, must not have their luminous transmittance accordance with ASTM E 308–66 (1973), Spectrophotometry and Description of Color in CIE 1931 System (incorporated by reference, see 571.108 S5.2 of this title) using CIE Illuminant A (2856K).

S14.4.2.2.4.5 After completion of the outdoor exposure test all materials must conform to the color test of this standard in the range of thickness stated by the material manufacturer.

S14.4.2.3 Heat test.

S14.4.2.3.1 Procedure. Two samples of each thickness of each material must be supported at the bottom, with at least 51 mm of the sample above the support, in the vertical position in such a manner that, on each side, the minimum uninterrupted area of exposed surface is not less than 3225 sq mm. The samples are placed in a circulating air oven at 79 ± 3 °C for two hours.

S14.4.2.3.2 Performance requirements. After completion of the heat exposure and cooling to room ambient temperature, a test specimen must show no change in shape and general appearance discernable to the naked eye when compared with an unexposed specimen and continue to conform to the applicable color test requirement of this standard.
Appendix C: Supplemental Lab Information
modifications for nitrogen oxides as precursors to ozone under §52.21.

* * * * *

[FR Doc. 2011–19897 Filed 8–5–11; 8:45 am]

BILLING CODE 6560–50–P

DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

49 CFR Part 571

[Docket No. NHTSA–2007–28322]

RIN 2127–AL00

Federal Motor Vehicle Safety Standards; Lamps, Reflective Devices, and Associated Equipment

AGENCY: National Highway Traffic Safety Administration (NHTSA), Department of Transportation (DOT).

ACTION: Final rule; response to petitions for reconsideration.

SUMMARY: On December 4, 2007, NHTSA published a final rule that amended the Federal motor vehicle safety standard for lamps, reflective devices, and associated equipment with an effective date of September 1, 2008. In response, the agency received thirteen petitions for reconsideration. The effective date of the final rule was delayed in subsequent notices to December 1, 2012. This document corrects several technical errors in the final rule and completes the agency’s response to the issues raised in the submitted petitions for reconsideration.

DATES: Effective Date: The final rule is effective December 1, 2012. The incorporation by reference of certain publications listed in the rule is approved by the Director of the Federal Register as of December 1, 2012.

Compliance Date: Voluntary early compliance is permitted beginning August 8, 2011.

Petitions for Reconsideration: Petitions for reconsideration of this final rule must be received not later than September 22, 2011.

ADDRESSES: Any petitions for reconsideration should refer to the docket number of this document and be submitted to: Administrator, National Highway Traffic Safety Administration, 1200 New Jersey Avenue, SE., West Building, Ground Floor, Docket Room W12–140, Washington, DC 20590.


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VI. Rulemaking Analyses and Notices

I. Executive Summary

On December 4, 2007 NHTSA published a final rule 1 that amended Federal Motor Vehicle Safety Standard (FMVSS) No. 108, Lamps, reflective devices, and associated equipment. That final rule reorganized the regulatory text and explicitly added to the text existing requirements from third-party standards that had previously been incorporated by reference. In rewriting the standard NHTSA sought not to make any substantive changes or impose new requirements on regulated parties. The objectives of the rewrite were to: (1) Make requirements easier to find and comprehend; (2) present performance requirements and test procedures together in one place, instead of obliging the user to locate the relevant provisions of third-party documents previously incorporated by reference; and (3) update FMVSS No. 108 to reflect significant letters of interpretation. The rewrite of FMVSS No. 108 was considered administrative in nature because the standard’s existing requirements and obligations were not increased, decreased, or substantively modified. The agency received several petitions for reconsideration which stated some aspects of the final rule failed to adhere to the agency’s stated goal of not substantively modifying the standard’s existing requirements. Also, the agency received petitions for reconsideration that identified formatting and grammatical errors. In addition to the petitions addressing the technical aspects of the standard, the agency also received a submission questioning the discussion of the preemptive effect of FMVSS No. 108 included in the preamble of the final rule. After careful review and consideration of the petitions for reconsideration, the agency is amending FMVSS No. 108 in order to correct technical errors within the final rule and is providing a partial response to petitions for reconsideration including the submission addressing the preemptive effect of the rule. The remaining items in the petitions for reconsideration, which include substantive issues and are not addressed within this partial response, will be addressed in a separate notice. We expect to publish that notice before the final rule effective date of December 1, 2012.

II. Background

NHTSA published a Notice of Proposed Rulemaking (NPRM) on December 30, 2005 2 proposing to reorganize FMVSS No. 108 and improve the clarity of the standard’s requirements, thereby increasing its utility for regulated parties. The proposed administrative rewrite attempted to make the standard more understandable by adopting a simplified numbering scheme to improve organization; by grouping related materials in a more logical and consistent sequence; and by reducing the certification burden of regulated parties who previously needed to review a few dozen third-party documents. From a regulatory perspective, it was the agency’s intention, as expressed in the NPRM, that the administrative rewrite of FMVSS No. 108 would neither result in any current obligations being diminished, nor any new obligations being imposed. In other words, the substantive requirements of the standard would be identical to those of the currently-applicable version of FMVSS No. 108 and underlying documents incorporated by reference. Therefore, we stated that regulated parties would not need to make any changes to their respective products or production processes if our proposal were made final.

The agency considered comments received on the NPRM and published a final rule on December 4, 2007. The final rule incorporated some of the comments received in response to the NPRM by further consolidating test procedures and performance requirements from multiple tables to single paragraphs, incorporating additional Society of Automotive Engineers (SAE) documents directly

1FR 68234, (Dec. 4, 2007).

into the regulatory text, and further consolidating marking requirements. The final rule also added additional tables and figures and changed the structure of the standard to present the requirements in a more standardized and user-friendly manner. The final rule amended FMVSS No. 108 by: (1) Reorganizing the regulatory text so that it provides a more straightforward and logical presentation of the applicable regulatory requirements; (2) incorporating important agency interpretations of the existing requirements; and (3) reducing reliance on third-party documents incorporated by reference. The preamble of the final rule again stated that it was not the agency’s intention to create any substantive changes to the standard through the administrative rewrite.

III. Petitions for Reconsideration

NHTSA received thirteen timely petitions for reconsideration from automotive manufacturers, lighting suppliers, motorcycle manufacturers, material manufacturers, a testing laboratory, and a trial bar association. The Alliance of Automobile Manufacturers (AAM), Ford Motor Company (Ford), Nissan North America (Nissan), Toyota Motor North America (Toyota), Koito Manufacturing Co. LTD (Koito), Valeo Lighting Systems (Valeo), Grote Industries LLC (Grote), Harley-Davidson Motor Company (Harley-Davidson), GE Consumer & Industrial—Lighting (GE), SABIC Innovative Plastics (SABIC), Calcoast, and American Association for Justice (AAJ) submitted petitions for reconsideration of the final rule. The Motor and Equipment Manufacturers Association (MEMA), the Transportation Safety Equipment Institute (TSEI), and the Motor Vehicle Lighting Council (MVLC), collectively the Associations, submitted a joint petition for reconsideration. Several of the petitions claimed that the final rule imposed new substantive requirements that were not previously included in the old standard. Many of the petitions pointed out grammatical and formatting issues contained in the final rule. The petitions also requested that the agency make additional technical changes and amend the format of some areas of the final rule to further advance the goals of the rewrite. Other petitions claimed that the final rule failed to accurately transpose previously referenced documents or interpretation letters into the regulation text. The petition submitted by AAJ challenged the preemptive language of the final rule preamble. The remaining petitions requested substantive changes to the rule. The matters raised in the petitions fall generally into four categories and will be answered as follows: (1) Requests that additional definitions be added to the final rule; (2) requests for technical amendments to the final rule to correct grammar, formatting, and technical issues; (3) claims that the agency added new substantive requirements to the standard during the rewrite; and (4) requests for amendments to the standard to improve readability or clarify certain language. The petitions requesting substantive amendments to the rule will be addressed in another notice.

A. Definitions

Several petitioners requested that the agency add new definitions to clarify terms used in the text of the final rule. AAM and Nissan requested that the definition of a clearance lamp be modified to remove the language containing the mounting and spacing requirements for the lamp. AAM and Nissan claimed that the mounting and spacing requirements are contained elsewhere in FMVSS No. 108, therefore, it was not necessary that these requirements be included in the definition. Nissan claimed that removing the mounting and spacing requirements would make the definition more consistent with the definitions of other lamps regulated by the standard. Similarly, both petitioners requested that language regarding mounting and spacing requirements be removed from the definitions of identification and side marker lamps. AAM and Nissan suggested a definition that would eliminate the mounting location description and spacing requirements from each of these three lamp definitions. The Associations, Grote, and Valeo suggested creating a definition for the term “lighted sections.” Each of these petitioners suggested the following definition: “A vehicle-based headlighting system which is composed of headlamps mounted on opposite sides of and symmetrical to the centerline of the vehicle.” Nissan suggested a definition for the term “multiple compartment lamp.” Nissan suggested the following definition: “Multiple compartment lamp means a device which gives its indication by two or more areas, illuminated by separate light sources, which are joined by one or more common parts, such as a housing or lens.” Nissan pointed out that this definition was similar to the definition used in an interpretation letter to Al Cunningham on November 3, 1988 that responded to his request for clarification as to the meaning of the term “multiple compartment lamp.”

The Associations pointed out that the agency placed the definitions for all of the various headlamp types, except “combination headlamp,” in the definition section of the final rule. They suggested the following definition be added to the definitions section: “Combination headlamp system: For a two lamp system, a combination of two different headlamps chosen from: Type F, an integral beam headlamp, or a replaceable bulb headlamp; and for a four lamp system, any combination of four different headlamps chosen from: Type F, an integral beam headlamp, or a replaceable bulb headlamp.” The Associations and Grote recommended replacing the terms “lamps section” or “compartments” with a universal term “lighted sections.”

B. Technical Amendments

The petitions requested various technical amendments to the standard to amend formatting and grammatical issues. Nissan stated that the agency referenced an American Society for Testing and Materials (ASTM) specification in the final rule in paragraph S14.5.3.2 yet this specification was not listed in paragraph S5.

Nissan pointed out a grammatical error in paragraph S6.4.4. Nissan suggested changing the phrase “* * * overall width, that are * * *” to “* * * overall width, that is * * *”.

AAM requested that the “DOT marking” requirement for headlamps located in paragraph S6.5.1 be moved to paragraph S6.5.3 so that it would be located with the other headlamp markings.

The Associations and AAM noted that paragraph S6.5.3 occurs twice, once marked Headlamp markings and once marked Trademark. They requested that the Trademark paragraph numbering change to S6.5.3.1.

AAM requested that the format of “SEALED BEAM,” as shown in paragraph S6.5.3.3.1, be standardized with the format as it appears in Table III, which is not fully capitalized. AAM requested that the phrase be modified to “Sealed Beam” in paragraph S6.5.3.3.1.

AAM stated that in paragraph S7.1.1.11, FMVSS No. 108’s revised text uses the term “compartment” even though the preamble to that rule stated

3 NHTSA also received several petitions for reconsideration after the January 18, 2008 deadline specified in the final rule. It is the agency’s policy to treat untimely petitions for reconsideration as petitions for rulemaking. See 49 CFR 553.35.

that this term would be used in the singular form.

AAM recommended adding a qualifying statement “provided that the requirements of S6.1.3.2 are met” to paragraphs S7.1.1.11.1, similar to the statements used in paragraphs S7.1.2.11.1, S7.2.2.11.1, and S7.3.11.1, in order to clarify the requirements for multiple compartment lamps.

Nissan requested that the phrase “generated by a 1.0 radius around * * *” be changed to “generated by a 1.0 degree radius around * * *” in paragraph S7.1.1.12.4.

AAM recommended a modification to paragraph S7.2.9, which deals with taillamp markings. AAM requested that the agency change the pointing statement in that paragraph to point to the specific subparagraph S6.5.1.2 rather than paragraph S6.5. AAM also requested that a more specific point be added for paragraphs S7.3.9, S7.4.9, S7.5.9, S7.6.9, S7.7.9, S7.8.9, S7.9.9, S7.10.9, S7.11.9, and S8.1.9.

Nissan pointed out that Table I–c be changed from pointing to Tables I (a–c) that state “No requirement,” to simply state within that text “No Requirement.” AAM pointed out that this is consistent with other areas of the regulatory text such as in paragraphs S7.7.7 and S7.7.8.

The Associations requested that the paragraph numbering be corrected in the subparagraphs of S7.9.14. They stated that the paragraph structure contains S7.9.14.1.1 and S7.9.14.1.2, however, it does not contain a paragraph S7.9.14.1.

Nissan noted a grammatical error in paragraph S14.2.1.5.2. It requested that the wording be modified from “** * of multiple compartment lamp or * * **” to “** * of multiple compartment lamps or * * **”.

Toyota requested that paragraph S14.3.1 be modified to use the abbreviation “in.” for the unit inch instead of the abbreviation “in” without a period.

GE and the Associations requested a modification to paragraph S14.6.9.1.1, which they pointed out incorrectly converts 176 degrees Fahrenheit to 60 degrees Celsius. They requested the Celsius number be changed to 80 degrees.

Nissan and AAM stated that within Table I–a, the subtitle Additional Lamps, Required on All Multipurpose Passenger Vehicles (MPV), Trucks, and Buses, 2032 MM or More in Overall Width appears twice. AAM and Nissan also requested that the activation criteria text be moved to the Device Activation column from the Mounting Height column for the lower beam headlamp, which is currently blank. In addition, Nissan requested that the activation specifications for the upper beam headlamp read: “Steady burning, except may be flashed for signaling purposes.” Nissan also requested that English units of measurement be added to Table III for the lower and upper beam headlamps. AAM requested that all measurements in Tables I–a, I–b, and I–c be displayed in both English and metric units. AAM requested that a horizontal line be placed above the DRL subtitle. Both Nissan and AAM requested that the mounting location and color information be moved to the appropriate column for reflex reflectors in Table I–a. Nissan asked that the subtitle for additional lamps required for wide vehicles change the word “truck” to “trucks.” AAM and Nissan requested that the turn signal truck tractor exception be moved to a new line.

AAM noted that a billing code is inappropriately located after Table I–c. AAM requested that, within the mounting location column for the upper beam headlamp, a note be added that states: “See additional requirements in S10.14.1, S10.17.1.2, and S10.17.1.3,” to reference additional mounting requirements for motorcycle headlamps. AAM also noted that the same column for the lower beam headlamp points to paragraph S6.1.4.2.1.3, however, this paragraph does not exist. The Associations and AAM requested that the word “between” be added to the turn signal minimum edge to edge distance.

AAM claimed that the term “Motorcycle Headlamp” in Table III should read “Motorcycle Replaceable Bulb Headlamp” so that it agrees with paragraph S10.17.2. AAM also suggested adding the word “Optional” in the markings of the Table III column for Lamps (Other Than Headlamps), Reflective Devices, and Associated Equipment. AAM also stated it found an incorrect pointing statement to S6.5.4.3 for the replaceable bulb headlamp in the Requirement column of Table III. AAM believed that the pointer should instead point to paragraph S6.5.3.4.1. AAM also pointed out that Table III does not contain the marking requirements for a replaceable lens headlamp called out in paragraph 5.8.11 of the existing FMVSS No. 108. Finally, AAM requested that the phrase “See requirements” be added to the sealed beam headlamp type designation in the Marking Location column.

For Table V–a, Nissan requested that the measurements for the required visibility for the backup lamp should be in both metric and English units.

The Associations, Nissan, and AAM pointed out that the alignment of lighting device functions to their corner points is incorrect in Table V–b. AAM requested the elimination of the billing code from the bottom of that table.

Nissan requested that the word “zone” be replaced with the word “group” in footnote 2 in Table VIII. Nissan also requested that the word “group” replace the word “zone” in footnote 4 of Table XII. Nissan made the same request of footnote 2 of Tables XIV and XV. Nissan requested that the agency amend footnote 2 of Table XVI to replace the word “zone” with the word “group.”

AAM requested that the agency amend footnote 6 of Table IX so that the photometric intensity requirements for stop lamps combined with taillamps correspond with SAE J1398 (MAY 1985), Stop Lamps for Use on Motor Vehicles 2032 mm or More in Overall Width, incorporated by reference in the currently applicable version of FMVSS No. 108. AAM stated that footnote 6 of Table IX should be changed to “values followed by a slash * * *” (in contrast to the current “Values preceded by a slash”) for the H–5L test point so that the standard required the correct photometric multiplier for wide vehicles.

In Table XV, Nissan noted that the test points columns should be listed as horizontal first and vertical second.

The Associations claimed that the final rule had an error in Figure 6, “Replaceable Light Source Detection Test Setup,” and requested that dimension “A” be replaced with the term “Light Center Length.” The Associations also requested that Figure 14 be changed. They stated that the material specification for the “Disc. arm Brace & Clamp” should appear as “SAE–AA–6061 T6 or equiv.” and the “Coil Spring and Level Clip” should appear as “Spring Steel SAE 1858 –Cadmium Plate.” Also, they stated that in Figure 14, “5.00 Bubble movement” should be replaced by “5.88 Bubble movement” and the screw “Typ. #18” should be “Typ. #10.” Finally, in Figure 14, the Associations suggested that the dimension of “100.33” should instead be “188.33.”

C. Claims of Substantive Amendment

Several of the petitions claimed that during the rewrite process the agency created new substantive requirements of FMVSS No. 108 when the agency incorporated SAE standards that petitioners claim were not fully incorporated or failed to accurately transpose the requirements of third party standards.
Valéo stated that paragraph S6.1.1.4 “would prohibit daytime running lights (DRLs) in combination with parking lights.” Valéo maintained that the existing regulatory text allowed DRLs to be incorporated with parking lamps and urged the agency to retain the existing provision. Valéo referenced paragraph S5.5.11(a) of the current standard, which states that any pair of lamps other than parking lamps or fog lamps may be wired as DRLs. Valéo claimed that the fact that parking lights cannot be used as DRLs is evident because parking lamps would not meet the photometric requirements of DRLs. Valéo claimed that there is no way to reconcile Table 1 of SAE J222 (DEC 1970), Parking Lamps, with the minimum requirement of 500 candela at point Horizontal-Vertical of the beam pattern required in the regulation text. Valéo pointed out that many vehicles currently use front turn signals that are optically combined with parking lamps as DRLs. Valéo requested that the agency clarify the wording of paragraph S6.1.1.4 to disallow a DRL consisting of the parking lamp alone, while allowing a DRL that is optically combined with the parking lamp.

Calcoast requested a modification to paragraph S6.1.3.2 to clarify the performance requirements for multiple lighted section lamps. This paragraph states that “when multiple lamp arrangements or multiple compartment rear turn signal lamps, stop lamps, or tail lamps are used, with only a portion of the compartments or lamps installed on a rigid part of the vehicle, that portion must meet at least the photometric requirements for the applicable single compartment lamp.” Calcoast stated that it is concerned that this language could be interpreted as allowing a multiple lighted section lamp that is part of a multiple lamp arrangement, such as a light-emitting diode (LED) lamp, that is mounted on the fixed portion of the vehicle to comply only with the single lighted section rules and not the multiple lighted section rules. Calcoast asserted that this implies that when a multiple lamp arrangement is used, there is no need to confirm that the multiple lamp arrangement meets all requirements for multiple compartment lamps. Calcoast suggested that the text state that the lighting system must comply with all the relevant rules no matter what position the moveable parts have been placed in.

Koito requested that paragraph S6.1.3.2 replace the phrase “rigid part of the vehicle” with the term “fixed body panel.” Koito noted that the term “rigid part of the vehicle” was correctly used in paragraph S6.1.3.1, however, it stated that it appears the term “fixed body panel” reflects the intent of the July 7, 2000 letter of interpretation to Gary King which states “body mounted lamps (rear turn signal, stop, or tail lamps) are the ones that must be designed to comply with FMVSS [No.] 108.”

Harley-Davidson requested that paragraph S6.2.3 be revised to clarify that the headlamp ornamentation prohibition in paragraph S6.2.3.1 does not apply to motorcycles. Harley-Davidson noted that the provision of FMVSS No. 108 prohibiting headlamp ornamentation is contained in paragraph S7.8.5 of the current standard, a paragraph Harley-Davidson claimed does not apply to motorcycles. Harley-Davidson referenced a December 6, 1999 interpretation letter to Piaggio & C.S.p.A.6 and a September 29, 2000 letter to Carter Engineering 7 to support its view on these issues.

AAM requested that the markings requirements in a scalloped beam headlamp remove the term “molded” in paragraph S6.5.3.3.1. AAM argued that the text of the currently applicable version of FMVSS No. 108 did not require the marking to be molded into the lens.

Ford and AAM requested that the hazard warning pilot indicator requirement be deleted from paragraph S6.6.2. They claimed that the current version of FMVSS No. 108 does not require a hazard pilot indicator light. They maintained that although SAE J910 (JAN 1966), Hazard Warning Signal Switch, incorporated by reference in the existing standard, recommends a pilot indicator, this provision was not directly incorporated into the currently applicable version of FMVSS No. 108. They argued that their view is supported by the explicit requirement in the existing regulation for a turn signal indicator lamp. They claimed that since a turn signal pilot indicator was specifically indentified in the regulatory text of FMVSS No. 108, not all the requirements of the referenced SAE standard were included in FMVSS No. 108. They maintained that the requirement for a hazard warning pilot indicator was one of the excluded requirements.

Both the Associations and Ford requested changes to paragraph S6.6.3, which specifies the orientation of the license plate holder. Ford requested that the paragraph be deleted, claiming that the rear license plate holder is not a lamp, reflective device, or piece of associated equipment and is not separately listed as an item in the Table I or Table III of the current rule, and therefore, is not regulated by FMVSS No. 108. Harley-Davidson suggested that this requirement does not apply to motorcycles. Harley-Davidson stated that paragraph S6.1.3.3 of the referenced SAE document SAE J587 (OCT 81), License Plate Illumination Devices, excludes motorcycles from that provision. Harley-Davidson also stated that the existing incorporation by reference only applies to the lamps, and not to the license plate holder.

The Associations and Ford requested a change to requirements for turn signal photometric multipliers contained in paragraphs S7.1.10.1 through S7.1.10.4. The Associations asserted that the currently applicable version of FMVSS No. 108 does not make any distinction between reflector-based, and non-reflector-based optics when calculating the turn signal spacing to other lamps. They requested that paragraphs S7.1.10.1, S7.1.10.2, S7.1.10.3 be replaced by the paragraph S5.3.1.7 of the current standard, which contains the currently applicable requirements for turn signal photometric multipliers. Ford referenced the preamble to a previous agency NPRM 8 incorporating an SAE standard on turn signals to support its claim that the graduated turn signal intensity requirements for turn signals located near auxiliary lamps in paragraph S7.1.10.4 were not included in the text of the currently applicable version of FMVSS No. 108. Ford requested that paragraphs S7.1.10.2, S7.1.10.3, S7.1.10.4 (b), (c), and (d) be deleted.

AAM requested that paragraph S9.3.4, which deals with turn signal pilot indicator size and color, be removed from the standard because AAM believed that the paragraph imposed new substantive requirements that were not contained in the currently applicable version of the standard. Although AAM noted that the initial proposal for a December 16, 1967 9 did require a turn signal indicator, and specified its size and color based on requirements in SAE J588d (JUN 1966), Turn Signal Lamps, AAM claimed that a subsequent revision to the standard on October 31, 1970 10 removed the size and color requirements. AAM claimed that the currently applicable version of FMVSS No. 108 only requires that the turn

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9 53 FR 35097, (Sep. 1, 1988).
signal pilot indicator indicate a turn signal outage in accordance with SAE J588d (JUN 1966) and does not specify size and color requirements for the indicator.

Harley-Davidson requested clarification and confirmation that the headlamp aimability requirements of paragraph S10.18 do not apply to motorcycles. Harley-Davidson claimed that paragraph S7.8 of the currently applicable version of the standard did not require aimability for motorcycle headlamps. Harley-Davidson referenced a letter of interpretation to Piaggio & C.S.P.A dated December 6, 1999 and also a letter to Carter Engineering dated September 29, 2000 to support its argument.

The Associations, Koito, and Calcoast requested that the agency amend paragraph S10.18.9.1.5.1, which specifies the distance at which the cutoff parameter must be measured, to allow measurement from distances greater than 10 m. Paragraph S10.18.9.1.5.1 requires that the cut off parameter be measured at a distance of 10 m with a 10 mm diameter photosensor. The Associations recommended deleting the last sentence of paragraph S10.18.9.1.5.1, or stating that 10 m is the minimum distance allowable for measuring the cutoff parameter. Koito recommended allowing a measuring distance of 18.3 m or more for measuring the cutoff parameter. Calcoast requested that the agency permit cutoff measurements at both 10 m and 25 m. All petitioners agreed that the diameter of the photosensor should appropriately correspond to the measuring distance.

Nissan requested that the inward force test specified in paragraph S14.6.12 be excluded for vehicle headlamp aiming device (VHAD) and visually-optically aimable (VOA) lamps. Nissan stated that the text of the currently applicable version of FMVSS No. 108 does not require VHAD and VOA lamps to conform to this test. Nissan also stated that the test requires an aiming plane, typically found only on externally aimed systems. Finally, Nissan claimed that the test itself is intended to assure that an externally aimable headlamp system can withstand the normal force applied to seat the suction cup onto the lens when affixing the mechanical aiming device.

The Associations and Grote petitioned the agency to add language to allow stop and turn signal lamps designed for use on vehicles 2032 mm or more in overall width, that meet the one lighted section photometric tables to be used on narrow vehicles. They claimed that SAE J1395 (APR 1985), Front and Rear Turn Signals for Use of Motor Vehicles 2032 mm or More in Overall Width, and SAE J1398 (MAY 1985) expressly allow this. To support this position the Associations cited an August 22, 1990 interpretation letter from the agency to Hella which stated:

Beginning December 1, 1990, Standard No. 108 will specify two different standards for turn signal lamps. If the lamp is intended for use on multipurpose passenger vehicles, trucks, buses, and tractors whose overall width is 80 inches or more, it must be designed to conform to the SAE Standard J1395. If the lamp is intended for use on Motor Vehicles 2032 mm or More in Overall Width, it must be designed to conform to SAE Standard J1395. Finally, the Associations stated that this petition will have a significant cost to the market segment.

Harley-Davidson requested that the minimum Effective Luminous Lens Area requirement for multiple compartment motorcycle stop lamps be added to Table IV-a. Harley-Davidson suggested this value should be 2,200 square mm. Harley-Davidson maintained that the current version of FMVSS No. 108 permits multiple compartment lamps or multiple lamps on motorcycles if the effective projected luminous lens area of each compartment is 2,200 square mm. Harley-Davidson stated that the agency confirmed this position in a April 21, 1997 letter of interpretation to Stanley Electric.

Nissan asked that the legacy visibility wording be changed for the turn, stop, and tail lamps in Table V-d. Nissan claimed that Table V-d uses different language than the SAE sub-referenced standard for these lamps on both narrow and wide vehicles. AAM requested that footnote 1 and footnote 4 be removed from Table VIII. Stop Lamp Photometry Requirements. AAM maintained that both of these footnotes contain requirements not previously included in FMVSS No. 108.

Nissan requested that the agency reconsider its decision not to amend the footnotes to the photometric tables for required signal lamps in response to comments received by the agency on the NPRM. Nissan stated that the footnotes to the photometric tables could be amended to provide greater clarity to the requirements of the standard

http://isearch.nhtsa.gov/saam/saam4773.html

In Table XIX, the Associations requested that the lower beam zone defined by the corner point 10U, 90U, 90L, 90R be modified to 10U, 90U, 45L, 45R. Valeo suggested modifying Table XIX(a)(b), and (c) by modifying the first row from 10U to 90U, 90L to 90R to only state 10U to 90U, eliminating the horizontal angles. Both Valeo and the Associations claimed that the horizontal range was not defined in the currently applicable standard.

D. Amendments to Improve Clarity

Commenters requested the following changes to clarify certain provisions of the standard and to further improve readability. Nissan requested that paragraph S6.1.3.4.2 be revised to read: “Accessibility. Each high mounted stop lamp must provide access for convenient replacement of the bulb without a tool specifically designed for that purpose.” Nissan suggested that this wording would incorporate a February 12, 1998 interpretation letter to Ford Motor Company to clarify the meaning of “special tool.”

Harley-Davidson requested that the agency clarify that dual motorcycle head lamps may be horizontally-mounted. Harley-Davidson stated that paragraph S6.1.3.5.1.3 of the rewrite seems to prohibit horizontally-mounted dual motorcycle headlamps. Harley-Davidson claimed that paragraph S7.9.6.2(c) of the current standard permits dual horizontal mounting. Harley-Davidson further claimed that paragraph S10.17.1.3.1 of the rewrite of FMVSS No. 108 continues to permit dual horizontally-mounted motorcycle headlamps.

Koito requested that the agency clarify paragraph S7.3.12.1, which deals with the ratio requirements between stop and tail lamp intensities. Koito requested that this paragraph be modified to say: “When a tail lamp on a multipurpose passenger vehicle, truck, trailer, or bus of 2,032 mm or more in overall width, is combined with a stop lamp, the luminous intensity of the stop lamps at each identified test point must be * * *.” Koito claimed that this will clarify that the ratio requirement is always applied between stop and tail lamp intensities on wide vehicles and that wide vehicles do not have the 560 mm and 410 mm classification used for narrow vehicles.

Nissan recommended adding a subject to the sentence in paragraph S8.2.1.5 so that the text reads: “Application location. Conspicuity systems need not

be * * * "Nissan stated that this is consistent with the other paragraphs of that section.

Nissan requested that paragraph S10.1.2 be modified to eliminate the duplicate requirements for motorcycle headlamp systems. Nissan recommended modifying that paragraph to read: “Each motorcycle must be equipped with a headlighting system conforming to S10.17.” This modification would eliminate the allowance of a one-half headlighting system within paragraph S10.1.2, because that allowance is set forth within paragraph S10.17, thereby removing redundant requirements.

Koito recommended clarifying the requirements for four headlamp systems by modifying paragraph S10.15.1 to read as follows: “A replaceable bulb headlighting system must consist of either two lamps, each containing either one or two replaceable light sources, or four lamps, each containing a single replaceable light source as specified for the application in Table II-d. A system must provide in total no more than two upper beams and two lower beams and must incorporate not more than two replaceable light sources in each headlamp.” Koito claimed that its recommended text will limit the number of light sources in each headlamp of a four headlamp system. Koito claimed, that as currently worded, the final rule will allow two replaceable light sources in each headlamp of a four headlamp system, which it further claimed is not consistent with the intent of the original requirement.

Toyota and Koito both requested a modification to paragraph S10.15.5 which deals with additional light sources in a replaceable bulb headlighting system. They requested the term “replaceable light sources” be replaced with the term “light sources” in this paragraph. They claimed that this expression should be the same as is used in paragraph S10.14.5 for integral beam headlighting systems. Toyota also recommended including the phrase “and are replaceable” at the end of that paragraph. Toyota also noted that this change was discussed in the preamble to the final rule, but was not properly included in the final rule text.

Nissan requested that paragraph S10.18.9.5, which deals with visual/ optical aiming headlamp photometry, be removed. Nissan claimed that this entire paragraph is redundant with paragraphs S10.13.3, S10.14.6, S10.15.6, S10.16.2, and Table II. Nissan stated that the requirements should only be stated once in the standard.

Nissan requested that paragraph S13.3, which deals with replaceable headlamp lens markings, be relocated within paragraph S6.5. Nissan stated that the DOT marking requirement in that paragraph is redundant with paragraph S6.5.1. Nissan stated the remaining marking requirements of paragraph S13.3 should be added to a new paragraph enumerated as paragraph S6.5.3.6. The Associations and SABIC requested a modification to paragraph S14.1.2, which deals with plastic optical materials. The Associations requested that the paragraph be modified to state: “Plastic optical materials. All plastic material used for optical parts such as lenses and reflex reflectors on lamps, or reflective devices required or allowed by this standard must conform to the material test requirements of S14.4.2, unless they are conspicuity treatments that are in accordance with S8.2.1 or S8.2.2.” SABIC requested that the paragraph be modified as follows: “Plastic optical material. All plastic materials used for transparent optical parts such as lenses and reflex reflectors on lamps or reflective devices required or allowed by this standard must conform to the material test requirements of S14.4.2.” Both petitioners pointed out the distinction between reflex reflectors and reflectors. The Associations further stated that conspicuity treatments were not part of the standard when this original language was placed in the standard.

Nissan requested a modification to paragraph S14.2.4.3, which specifies bulb requirements for DRL photometry testing. Nissan requested that this paragraph be revised to read: “Bulb requirements of paragraph S14.2.1.6 apply to DRL photometry, except for the need to operate at the rated mean spherical candela.” Nissan claimed that the text of the final rule, which states that bulbs are to be operated at their rated mean spherical candela, creates a conflict with the requirement in paragraph S14.2.4.1, which requires a fixed 12.8V input be applied to the modules or electrical control units during testing. Nissan also noted that it may not be possible to achieve a bulb’s mean rated spherical candela at 12.8V.

Koito asked for a clarification of the requirement in paragraph S14.4.2.1.3, which specifies testing for plastic optical materials. Koito noted that test sample thicknesses are stated to be 1.6 mm, 2.3 mm, 3.2 mm, and 6.4 mm. Koito also noted that the color required in paragraph S14.4.2.2.4.5 specifies that after completion of the outdoor exposure test, all materials must conform to the standard’s color test in the range of thickness stated by the manufacturer. Koito asked if material thickness of 7 mm can be certified if it was once tested in the four thicknesses stated above, and found satisfactory.

Nissan requested that some information contained in the text of the standard be incorporated into a new table. Nissan requested that the tabulated text in paragraph S14.9.3.1.2.3.1, Operating Limits, be titled “Table XXI” and relocated with the other tables instead of being located in its current position.

AAM further requested that Table I–a be broken into two tables that separate the requirements of narrow vehicles from those for wide vehicles.

AAM stated that the requirements for DRLs should not be located in Table I–a because the title of the table Required Lamps and Reflective Devices may confuse users trying to locate the requirements. AAM stated that Table I–a should contain a pointing statement to allow the user of the standard to locate the requirements for DRLs elsewhere.

Koito requested that the activation specifications for a high mounted stop lamp in Table I–a be changed to “Steady burning. Must only be activated upon application of the service brakes or may be activated by a device designed to retard the motion of the vehicle.” Koito claimed this change is necessary because, in its view, “a high mounted stop lamp is optional on the activation of a device designed to retard the motion of the vehicle.”

AAM further stated that the titles of Tables I–a, I–b, and I–c be amended to include the vehicles to which the tables apply. AAM stated that all of the tables having the same title, Required Lamps and Reflective Devices, does not improve the clarity of the standard.

The Associations, Grote, and Valeo requested that the maximum allowable photometric intensity in Table XII for backup lamps on vehicles equipped with a single back up lamp be changed from 300 to 300/600. They further requested the addition of a footnote that states: “the value before the slash (300 cd) applies to each lamp in a multiple lamp system; the value after the slash (600 cd) applies to a single lamp system.” The petitioners stated that FMVSS No. 108 requires backup lamps on vehicles equipped with a single backup lamp to be tested at twice the candela requirements. Industry believes this applies to maximum as well as minimum values.

Nissan suggested removing the term “test points” in footnote 1 of Table XIX, to clarify that all points with the specified boundary must meet the photometric requirements listed in the table. Finally, Nissan requested that all
the tables be presented in a complete manner without splitting a table across multiple pages.

IV. Agency Analysis and Response

A. Definitions

The agency has considered the requests from Nissan and AAM to modify the definition of clearance, identification, and side marker lamps. For each of these lamps, the agency has verified that the definitions were successfully translated from the applicable SAE document referenced in the currently applicable version of the standard. While the agency believes that the modifications requested by Nissan have the potential to further simplify the definitions of these lamps, modifying the definitions may change the meaning of these terms. The agency believes that it would be better to retain sporadic redundancies in the standard than to risk a substantive modification by changing the definitions of these lamps. Further, such a modification would be outside the scope of the administrative rewrite of the standard. Therefore, the agency is denying these requests.

The agency is denying the request by the Associations, Grote, and Valeo to add a definition for the term “headlamp system.” Since this definition did not exist in the existing regulation text, nor in the documents incorporated by reference, the agency considers this addition to be a substantive change not within the scope of the administrative rewrite of the standard.

Nissan requested that the agency incorporate a November 3, 1988 interpretation letter to Al Cunningham in order to clarify the definition of a “multiple compartment lamp.” The final rule definition of a multiple compartment lamp is a direct carry-over from text in paragraph S4 of the currently applicable version of FMVSS No. 108. In the NPRM, the agency invited input from interested parties regarding additional interpretations that should be considered for inclusion in the final rule, beyond those proposed by the agency. Nissan’s petition was not submitted at that time. It is the agency’s intention to take caution not to create a substantive change within this technical correction and partial response to petitions for reconsideration, therefore, we are denying this request by Nissan.

The agency is granting the Associations’ request to add a definition of a “combination headlamp.” They noted that other lamp types regulated within this standard are defined in the definition section, however, a combination headlamp is not defined except in Table II-b. The Associations suggested adding a definition that uses the system composition column descriptions from Table II-b in order to construct the following definition: “Combination Headlamp System: For a two lamp system, a combination of two different headlamps chosen from: Type F, an integral beam headlamp, or a replaceable bulb headlamp and for a four lamp system, any combination of four different headlamps chosen from: Type F, an integral beam headlamp, or a replaceable bulb headlamp.” This description is consistent with the existing text of the standard found in paragraphs S7.6.2, and S7.6.3 of the final rule. In order to maintain consistency within the standard, the agency will define a combination headlamp as opposed to a combination headlamp system. The definition is as follows: “Combination headlamp means a headlamp that is a combination of two different headlamp types chosen from a type F sealed beam headlamp, an integral beam headlamp, or a replaceable bulb headlamp.” The currently applicable standard does not include a stated definition for the term “combination headlamp,” however, the agency agrees that such a definition—limited to a combination headlamp rather than to such a system—does not impose any substantive change to the standard, and provides a more straightforward presentation of the requirements.

The Association’s request to define “combination headlamp” differs from the request in the petitions from Grote and Valeo to create a definition of “headlamp system.” The definition proposed by the Associations does not create new wording within the standard, it uses a description already contained in the standard, and places that description into the definition section. The definition of a “combination headlamp” is therefore added within paragraph S4 as requested by the Associations.

The agency is denying Grote and the Associations’ request to use the term “lighted sections” when referring to lamp sections or compartments. It has been the agency’s intent during the rewrite of FMVSS No. 108 not to change the language of the current standard or incorporated documents so as to avoid making unintended changes to the standard. Adopting the term “lighted sections” in place of “lamp sections” or “compartment” would alter the standard in a manner that is inconsistent with the goals of the rewrite.

B. Technical Amendments

The agency has considered and incorporated corrections in response to the requests to remedy typographical errors, or formatting errors found in the final rule. The agency has declined to make several technical corrections that will be discussed in greater detail in this section.

The agency agrees with Nissan that the ASTM C 150–56 specification is missing from paragraph S5. This specification has been added.

The agency has corrected the grammatical error identified by Nissan in paragraph S6.4.4. Paragraph S6.4.4 has been modified to read as published in this final rule.

The agency is denying the request by AAM to move paragraph S6.5.1, which contains the DOT marking requirements for headlamps. While we do note that other headlamp marking requirements are located in paragraphs S6.5.3, priority within organization will be maintained by keeping the three paragraphs, S6.5.1 DOT markings for headlamps, S6.5.1.1 which deals with DOT conspicuity markings, and S6.5.1.2 which describes the general allowance of placing the DOT marking on lamps other than headlamps, together. We believe it would be inappropriate to place the contents of paragraph S6.5.1.1 and paragraph S6.5.1.2 within the paragraphs of S6.5.3, because these paragraphs are not headlamp specific. Therefore, we are maintaining the current paragraph structure.

The paragraph that was mistakenly numbered S6.5.3. Trademark, has been corrected to S6.5.3.1, Trademark. Paragraph S6.5.3 no longer appears twice.

The agency is granting the AAM request that the format of the text “SEALED BEAM,” located in paragraph S6.5.3.3.1, be modified to lowercase letters that match the same text located in Table III. The text for paragraph S6.5.3.3.1 was derived from paragraph 2.1.1 in SAE 1383 APR 1985, Performance Requirements for Replacement Bulb Motor Vehicle Headlamps. In the SAE document the text is all lower case, appearing as “sealed beam.” The agency agrees that the letter case of the word “sealed beam” should be the same in Table III as in paragraph S6.5.3.3.1, therefore, both instances have been changed to the lowercase presentation “sealed beam.” The agency does note that in this particular case, we do not feel the actual presentation of lower case notation of the words “sealed beam” is vital to the public’s use of the standard,
or to the agency’s ability to enforce the existence of the marking.

In response to AAM’s request to change the plural term “compartment” to the singular term “compartment,” the agency has modified paragraph S7.1.1.11. The agency agrees that the singular form of the term is more appropriate. It now states “S7.1.1.11 Multiple compartment lamps and multiple lamps.”

Based on AAM’s request, paragraph S7.1.1.11.1 has been modified to read: “A multiple compartment lamp or multiple lamps may be used to meet the photometric requirements of a front turn signal lamp provided the requirements of S6.1.3.2 are met.” The agency believes the additional reference to paragraph S6.1.3.2 makes the standard more usable.

As Nissan requested, paragraph S7.1.1.12.4 has been corrected to state: "* * * * * the clearance lamp is located below the horizontal and within an area generally defined to a radius of approximately one degree radius around * * * * *" This modification corrects the missing word “degree.”

As AAM requested, the agency has changed the marking requirements for lamps other than headlamps to point to the specific subparagraph in paragraph 6.5. The agency has changed the pointing statement in the following paragraphs to provide the specificity requested by AAM: S7.1.1.9, S7.1.2.9, S7.2.9, S7.3.9, S7.4.9, S7.5.9, S7.6.9, S7.7.9, S7.8.9, S7.9.9, S7.11.9 and S8.1.9. The pointing statement for these paragraphs now points to paragraph S6.5.1.2 instead of paragraph S6.5. The agency has not changed the pointing statement in paragraph S7.10.9, which deals with DRL markings, because more than one subparagraph within S6.5 may apply to DRL markings. We believe these modified references will allow the users of the standard to find the paragraph of interest more efficiently.

As AAM requested, the agency has removed the references to Tables I–a, I–b, and I–c from paragraph S7.7.4 which now reads “No requirement.” The agency agrees that this construction is more usable, compared to referencing Tables I–a, I–b, and I–c which all state “No requirement.”

The agency has granted the Associations’ request that the paragraph numeration be corrected under paragraph S7.9.14. The structure has been corrected to S7.9.14.1 and S7.9.14.2.

The agency has granted Nissan’s request to change paragraph S14.2.1.5.2 to read “Luminous intensity measurements of multiple compartment lamps or multiple lamp arrangements are made either by:” in order to maintain consistent language throughout the sentence.

We have modified Paragraph S14.3.1, as requested by Toyota, in order to correctly abbreviate the unit “inch.” The abbreviation now includes a period after the letters in.

We have granted CE and the Associations request to modify paragraph S14.6.9.1.1 in order to correct a temperature conversion error. Paragraph S14.6.9.1.1 now lists 80°C as the metric equivalent of 176°F.

The agency has revised all tables to place requirements in the correct column, remove extraneous billing codes, correct the format of table headings and subheadings, and correct pointing statements as requested by petitioners.

Nissan requested that the agency add English units of measurement to the Mounting Height column for lower and upper beam headlamps in Table I–a. AAM also requested that the agency add English units of measurement to Tables I–a, I–b, and I–c. The agency notes that the mounting height requirements for upper and lower beam headlamps are listed in both metric and English units in the currently applicable version of FMVSS No. 108. Therefore, adding the English units of measurement does not create a substantive change to the standard. The agency grants Nissan’s request and has added the English units of measurement to the Mounting Height column of Table I–a for both upper and lower beam headlamps. The agency is also adding English units of measurement to the Mounting Height column of Table I–c for both upper and lower beams. The agency is denying AAM’s request to list all measurements in Tables I–a, I–b, and I–c in both English and metric units as the measurements are not listed in this manner in the currently applicable version of FMVSS No. 108. As stated in both the NPRM and the preamble to the final rule, the agency is attempting to refrain from making any substantive change to the requirements of the standard during the rewrite process. The agency believes that in the process of converting measurements from metric to English or vice versa it is possible to create a substantive change to the requirements of the standard.

We decline to adopt AAM’s proposal to add the word “Optional” to the Markings column of Table III for Lamps (Other Than Headlamps), Reflective Devices, and Associated Equipment because paragraph S6.5.1.2 referenced in that table adequately conveys the installer’s intent without redundant wording inside the table. This request is therefore denied.

AAM noted that Table III contained an incorrect reference paragraph for the marking requirements for replaceable bulb headlamps. The agency has changed the reference for replaceable bulb headlamp marking requirements to point to paragraph S6.5.3.4.

We decline to incorporate AAM’s request to add marking requirements for replacement lens headlamps to Table III because paragraph S5.8.11 of the existing standard contains requirements for instructions and a replacement seal, neither of which the agency considers appropriate to list among the marking requirements in Table III.

The agency is granting Nissan’s request to provide the required visibility measurements in both English and metric units for Table V–a. We have also corrected the alignment of lighting device functions to their corner points in Table V–b.

The agency is granting Nissan’s request to replace the word “zone” with the word “group” in footnote 2 of Tables VIII, XIV, and XV and footnote 4 of Table XII. Nissan also requested that the agency amend footnote 2 of Table XVI to replace the word “zone” with the word “group.” As neither Tables XVI–a, XVI–b, or XVI–c have a footnote 2, the agency is not in a position to grant this request.

AAM requested that the agency amend footnote 6 of Table IX to clarify that the minimum photometric intensity ratio for stop lamps combined with taillamps on wide vehicles for the H–5L test point was 3:1 not 5:1. The agency agrees that the photometric ratio for the H–5L test point for wide vehicles is 3:1. The agency is granting AAM’s request by amending footnote 6 of Table IX to read: “Values followed by a slash (/) apply only to lamps installed on multipurpose passenger vehicles, trucks, trailers, and buses of 2032 mm or more in overall width.”

The agency has revised Table XV so that the test points are listed as horizontal first and vertical second as requested by Nissan.

The Associations requested that Figure 8 measurement “A” be replaced with the term “Light Center Length.” This measurement and label “A” were directly translated from the text of Figure 8 in the currently applicable version of Standard No. 108. In the currently applicable version of Standard No. 108, the label “A” was used, furthermore, this distance is referenced in paragraphs S14.7.1.1.1, S14.7.1.1.2, and S14.7.1.1.3 as distance “A.”

Therefore, the agency is denying this request in order to avoid a potentially substantive change by introducing a new term into Figure 8.
The Associations also requested changes to Figure 14 that include changing the “Disc. Arm and Brace Clamp” material from SAE–AA–6061 to SAE–AA–6061. The agency agrees that this was listed incorrectly and has modified Figure 14 accordingly. They also requested that the “Coil Spring and Level clip” material be changed to “Spring Steel SAE 1858–Cadmium Plate.” The agency does not agree as “Spring Steel SAE 1050” is called out in the currently applicable version of this standard. Therefore, we are denying this request. Also, the agency has corrected the value of the bubble movement to 5.08 and changed the screw number to “TYP #10” in Figure 14 because these changes are consistent with the currently applicable version of the standard. The dimension of 100.33 was correctly translated from the currently applicable version of the standard so the agency is denying the Associations’ request to amend that value to 188.33.

CE noted several corrections in the sealed beam drawings that were moved into the part 564 docket. Corrections to these drawings will be made, and the docket will be updated.

C. Claims of Substantive Amendment

Several of the petitioners claimed that the agency made substantive changes to the requirements of the standard during the rewrite process or requested that the agency clarify portions of the text to ensure that the rewrite did not impose any new requirements. The agency made all efforts not to impose any new burdens on regulated parties or change the requirements of the standard in any way through the rewrite process. It is the agency’s position that the requirements of FMVSS No. 108 have not changed as a result of the rewrite.

In consideration of Valeo’s request to change the wording of paragraph S6.1.1.4 in order to make it clear that a DRL may be optically combined with a parking lamp in the final rule, the agency attempted to translate the text of the currently applicable version of FMVSS No. 108 without creating substantive changes. Paragraph S6.1.1.4 is derived from paragraph S5.5.11(a) of the existing standard.

The final rule split paragraph S5.5.11(a) into various parts without changing the activation requirements of DRLs. Some of the text was included in paragraph S6.1.1.4 of the final rule. Table I–a contains the remaining translation of the text of the currently applicable version of FMVSS No. 108 which activation language should be “Steady burning. Automatically activated as determined by the vehicle manufacturer and automatically deactivated when the headlamp control is in any on position.”

In order to avoid a substantive change to the requirements of FMVSS No. 108, the agency does not believe it is appropriate to incorporate any additional letters of interpretation at this time regarding the permissibility of optically combining parking lamps or fog lamps with DRLs. The agency, however, does understand that the final rule text may provide less clarity than the existing standard. Therefore, in order to more strictly adhere to the language in the existing standard, we are modifying paragraph S6.1.1.4 to retain the language allowing any pair of lamps except parking lamps or fog lamps to be wired as DRLs at the option of the manufacturer.

This modification does create a limited amount of redundant text contained in both paragraph S6.1.1.4 and Table I–a, however, the agency considers this small level of redundancy manageable. In this situation, in order to avoid unintended confusion due to a change in the language in the final rule.

The agency has considered Calcost’s request to modify paragraph S6.1.3.2 to clarify the requirements of multiple lamp arrangements and multiple compartment rear turns signal, stop lamp, and taillight combinations.

Calcost stated that this paragraph could be interpreted such as to allow a multiple lighted section lamp that is part of a multiple lamp arrangement and mounted on the fixed portion of the vehicle to meet only the single compartment lamp requirements.

Calcost indicated this situation might occur particularly in a lamp utilizing LED’s as the sources. The section of this paragraph under consideration is the phrase “that portion must meet at least the photometric requirements for the applicable single compartment lamp.”

In developing the NPRM, and ultimately the final rule, the agency relied on a July 12, 2000 interpretation letter to Gary King. The interpretation letter, however, does not specify that a multiple compartment lamp need only meet the single compartment requirements in the multiple lamp arrangement described in that interpretation. Accordingly, the agency believes that paragraph S6.1.3.2 of the final rule could be misinterpreted.

Therefore, in response to Calcost’s request, the paragraph has thus been modified to state: “S6.1.3.2 When multiple lamp arrangements for rear turn signal lamps, or taillights are used, with only a portion of the lamps installed on a fixed part of the vehicle, the lamp or lamps that are installed to the non-fixed part of the vehicle will be considered auxiliary lamps.” The agency believes this modified paragraph adheres to the guidance provided in the King interpretation letter and provides less opportunity for misinterpretation.

The revised paragraph S6.1.3.2 also includes the request from Koito to replace the term “rigid” with the term “fixed” as the agency agrees the term “fixed” more appropriately describes the situation discussed in the interpretation letter to Mr. King.

The agency agrees with Harley-Davidson’s claim that paragraph S6.2.3.1, which prohibits any styling, ornament or other feature on the front of the headlamp lens when the lamp is activated, does not apply to motorcycles. This paragraph was derived from the existing regulatory text in paragraph S7.8.5, which contains both the prohibition on styling and ornamentation on headlamp lenses and the requirement the headlamps have aiming devices. As Harley-Davidson pointed out, two letters of interpretation, a December 6, 1999 letter to Piaggio & C.S.p.A, and a September 29, 2000 letter to Carter Engineering, confirm that FMVSS No. 108 does not require motorcycle headlamps to have aiming mechanisms. Within the letter to Carter Engineering, NHTSA stated: “The aiming mechanism requirements of Standard No. 108 are imposed by S7.8, and as indicated previously, we do not intend S7.8.2 to apply to motorcycle headlamps. We intend that the paragraphs of S7.9 Motorcycles and their referenced materials cover motorcycle headlamps.”

This ornament prohibition was first added to the standard in 1989 and at that time was within the same paragraph as aimability requirements. Therefore, we have modified paragraph S6.2.3.1 as follows: “When activated in the steady burning state, headlamps (excluding headlamps mounted on motorcycles) must not have any styling ornament or other feature, such as a translucent cover or grill, in front of the lens.”

AAM requested a change to paragraph S6.5.3.3.1 so that the marking requirements for sealed beam headlamps need not be molded into the lens. We believe that AAM is incorrect in its assertion that the current standard does not require that marking be molded into the lens of sealed beam headlamps. The marking requirements from paragraph S6.5.3.3.1 were derived from current FMVSS No. 108 paragraph S7.3.1 which references SAE J1363.

14 54 FR 20079, (May 9, 1989).
Pilot Indicator Lamps—In vehicles equipped with right- and left-hand turn signal pilot indicators, both pilots and/or a separate pilot shall flash simultaneously while the vehicle hazard operating unit is turned on. In vehicles equipped with a single turn signal pilot indicator, a separate vehicular hazard pilot indicator shall flash and the turn signal pilot may flash while the vehicular hazard operating unit is turned on. If a separate vehicular hazard pilot indicator is used, it shall emit a red color and have a minimum area equivalent to a 0.5 in. diameter circle.

Therefore, Tables I and III, in conjunction with paragraph S5.1.1 of the current standard, require that vehicles equipped with hazard warning signal switches be equipped with a hazard warning signal pilot indicator. We do not agree with the assertion by AAM and Ford that the SAE requirements incorporated by reference for hazard warning lamps do not apply because they were not restated directly in the standard, as was the case with turn signal pilot indicators. Therefore, we are denying this request and retaining the language of paragraph S6.6.2 in its entirety.

The Associations, Ford, and Harley-Davidson requested changes to paragraphs S7.1.1.10.2, S7.1.1.10.3, S7.1.1.10.4(b), S7.1.1.10.4(c), and S7.1.1.10.4(d) which all deal with the measurement of, and requirements for, front turn signal lamp intensity based on the spatial relationship to any auxiliary lower beam or fog lamp. Ford stated that these requirements, which were derived from the existing standard by way of reference to SAE J588 (NOV 1984) and SAE J1395 (APR 1985), were not specifically incorporated fully into the standard by reference. Ford stated that the denial of an SAE petition for rulemaking, which stated, "NHTSA reference to SAE standards is not always absolute in that parts of SAE standards are referenced or exceptions are made to specific requirements in SAE standards where different or more stringent performance is necessary for safety purposes," demonstrates that it is well understood that not all requirements referenced in SAE standards are intended by the agency to be incorporated into the standard. Ford also cited the final rule preamble that incorporated SAE J588 (NOV 1984) and SAE J1395 (NOV 1984) into FMVSS No. 108.

Ford quoted that discussion as stating:

An additional difference between the new SAE turn signal specification and the ones currently contained in FMVSS No. 108 concerns intensity. If a turn signal lamp is closer than 4 inches (100 mm) to a lower beam headlamp, it must have 2.5 times the intensity otherwise required. The SAE applies the factor of 2.5 only if the turn signal is closer than 60 mm to the lower beam headlamp. NHTSA proposed retention of the current requirement. The SAE specification applies the photometric multiplier in three steps, from 60 mm to 100 mm.\(^{17}\)

The final statement in that discussion concluded, "[g]iven the advent and usage of higher intensity headlamps, there appears to be an even greater need than before to preserve the intensity ratio. NHTSA has done so by retaining the existing requirement."

We do not agree with Ford’s position. Ford’s argument that NHTSA’s incorporation of SAE standards is not always absolute is in reference to cases in which FMVSS No. 108 explicitly states requirements that are different than the SAE documents. In cases where NHTSA does not specifically exclude parts of SAE standards, the entire standard is incorporated by reference. In the rulemaking cited by Ford, neither within the preamble of that final rule, nor in the NPRM was there any discussion of exempting, or applying any intensity multipliers other than those appearing in the SAE document for auxiliary lamps. The key argument for the agency not to adopt the multipliers in the 1984 SAE standards deals with higher intensity headlamps and the spatial relationship of turn signals to those lamps and, thus, is inapplicable to intensity multipliers for turn signals located near auxiliary lamps. As stated in the preamble of the final rule, SAE J588 (NOV 1984) and SAE J1395 (APR 1985) contain additional photometric multiplier requirements beyond those required in paragraph S5.3.1.7 for turn signals located near auxiliary lamps.\(^{18}\) It is the agency’s position that the requirements in paragraph S5.3.1.7 were incorporated in conjunction with the requirements in SAE J588 (NOV 1984) and SAE J1395 (APR 1985) and do not preempt them. Therefore, the agency has not removed the paragraphs and denies Ford’s requests.

The Associations claimed the text of the currently applicable version of FMVSS No. 108 did not distinguish between non-reflector light sources and reflector light sources for the purposes

\(^{15}\) 32 FR 14004, (Mar. 29, 1976).

\(^{16}\) 61 FR 108037, (Dec. 16, 1996).

\(^{17}\) 55 FR 20158, (May 15, 1990).

\(^{18}\) 72 FR 68243, (Dec. 4, 2007).
of measuring the distance between a turn signal to a headlamp, or auxiliary lamp. They claimed that paragraph S5.3.1.7 in the existing FMVSS No. 108, which states, “on a motor vehicle on which the front turn signal lamp is less than 100 mm from the lighted edge of a lower beam headlamp, as measured from the optical center of the turn signal lamps, the multiplier applied to obtain the required minimum luminous intensities shall be 2.5,” supersedes section 5.1.5.4 of SAE J588 (NOV 1984). Therefore, the Associations requested that paragraphs S7.1.1.10.1 through S7.1.1.10.3 of the final rule be replaced with paragraph S5.3.1.7 of the currently-applicable version of FMVSS No. 108.

The agency agrees that the distance between a turn signal lamp and a lower beam headlamp should be measured from the optical center as specified in the text of the currently applicable version of FMVSS No. 108. However, the measurements between a turn signal lamp and an auxiliary lamp are incorporated from SAE J588 (NOV 1984) which included different measurement methods for turn signal lamps that incorporate reflector optics and turn signal lamps that primarily use lens optics. Considering this, paragraph S7.1.1.10.4(a) has been changed to state “where the spacing measurement as measured from the optical center of the turn signal lamp, to the lighted edge of a lower beam headlamp is less than 100 mm, the photometric multiplier must be 2.5.” As stated previously, SAE J588 (NOV 1984) contains requirements that are not contained in the currently applicable version of FMVSS No. 108. Therefore, we refrain from changing the method for measuring the distance between the turn signal and auxiliary lamps for determining the required photometric multiplier.

AAM claimed that the text of the currently applicable version of FMVSS No. 108 does not specify the size and color of turn signal pilot indicators and requested that paragraph S9.3.4 be removed. AAM asserted the two sentences contained in paragraph S9.5.6 of the currently applicable version of FMVSS No. 108 should be considered separately. AAM stated that the first sentence requires a vehicle equipped with a turn signal operating unit to also have an illuminated pilot indicator. Through the second sentence, the paragraph separately requires that the failure of one or more turn signal lamps to operate should be indicated according to the SAE Standard. Therefore, AAM claimed that the SAE standard recommendations for turn signal pilot indicator size and color are not requirements in FMVSS No. 108.

NHTSA finds that paragraph S5.5.6 of the current standard requires that the turn signal pilot indicator comply with all requirements for turn signal pilot indicators specified in SAE J588 (SEP 1970). Paragraph S9.3.4 of the final rule, which states, “[i]f an indicator is located inside the vehicle it must emit a green colored light and have a minimum area equivalent to a ⅛ in diameter circle,” was derived from the currently applicable version of the FMVSS No. 108 paragraph S5.5.6, which states that, “[e]ach vehicle equipped with a turn signal operating unit shall also have an illuminated pilot indicator. Failure of one or more turn signal lamps to operate shall be indicated in accordance with SAE J588 (SEP 1970) * * *” Furthermore, paragraph 4.5.2 of SAE J588 (SEP 1970) states that, “if the illuminated indicator is located inside the vehicle, for example in the instrument cluster, it should emit a green colored light and have a minimum area equivalent to a ¼ in. diameter circle.”

It is the view of the agency that the phrase “[failure of one or more turn signal lamps to operate shall be indicated in accordance with SAE J588 (SEP 1970)],” requires that the turn signal pilot indicator comply in all respects with SAE J588 (SEP 1970). SAE J588 (SEP 1970) contains requirements for pilot indicators to indicate that the turn signal system is off, size and color requirements for the indicator, and visibility requirements for the indicator based on driver eye position. An indicator of a size and color other than the indicator required in SAE J588 (SEP 1970) would not indicate failure of a turn signal lamp to operate in accordance with SAE J588 (1970) because the indicator would not meet the requirements laid out in that standard for size and color. It is the agency’s position that this sentence requires the pilot indicator to indicate that the turn signal is out via an indicator of the size and color and at the eye location specified in the standard. Therefore, no substantive change was imposed as the agency will consider compliance testing and we did this in the NPRM and again discussed the issue in the final rule. Therefore, paragraph S10.2 has been modified to state: “Headlamp aimability performance requirements (except for motorcycles).” Paragraph S10.2 is modified to state “Reserved.” The agency does note that in paragraph S14.2.5.5, Headlamp photometry measurements, the procedure does require that the headlamp be aimed during testing. Therefore, although the performance requirements of paragraph S10.18 do not apply to motorcycles, they must have the ability to meet the applicable photometric requirements using the testing procedure described in paragraph S14.2.5.

The Associations, Koito and Calcoast requested that the agency amend paragraph S10.18.9.1.5.1, which required that the cutoff parameter for headlamps be measured from a distance of 10 m from a photosensor with a 10 mm diameter because these requirements were not contained in the current version of the standard. The agency provided the measurement distance of 10 m from the photosensor having a diameter of 10 mm for measuring the cutoff parameter as guidance in a letter to Mr. Spingler on April 6, 2000. In the agency guidance letter to Mr. Spingler, the agency stated that it intended to incorporate the guidance provided in the letter into FMVSS No. 108 during the next rulemaking involving the standard. The NPRM to this final rule stated that the agency intended to incorporate the April 6, 2000 letter to Mr. Spingler into the revised version of FMVSS No. 108. We believe it is important to identify how the agency will consider compliance testing and we did this in the NPRM and again discussed the issue in the final rule. Therefore, paragraph S10.18.9.1.5 has not been modified and the petitions from the Associations, Koito, and Calcoast are denied. However, we do note that regulated parties are able to test at different distances if they choose, although NHTSA compliance tests will be done at 10 m. We note the petitioners may

submit data to support a change in the specified distance in a separate petition.

Nissan requested that the inward force test specified in paragraph S14.6.12 be excluded for VHAD and VOA lamps. Nissan stated that the text of the currently applicable version of FMVSS No. 108 did not require VHAD and VOA lamps to conform to this test. Further supporting Nissan’s claim, the preamble to a final rule published May 9, 1989 stated:

The deletion of inward force and torque deflection is appropriate for headlighting systems which do not use externally applied aimers, since these tests are intended to show resistance to the effects of the weight and application of external aimers. NHTSA believes that vehicle manufacturers will be cautious enough to design vehicles to withstand the likelihood of misaim in [the] event [the vehicle is pushed by hand], and, considering the deletion appropriate only for headlamps which do not have aiming pads for external mechanical aimers, has adopted the proposed modification of applicability of inward force and torque deflection tests.

Koito also pointed to the preamble of the May 9, 1989, final rule in arguing that the inward force only applies to headlamps that are capable of being externally aimed.

The agency agrees that the inward force test was only required for headlamps with external aimers in the text of the currently applicable version of FMVSS No. 108, therefore we have made the following modifications to the standard: “S10.13.4.1 Each sealed beam headlamp must be designed to conform to the performance requirements of the corrosion test, vibration test, inward force test (for lamps which are externally aimed only), torque deflection test (for lamps which are externally aimed only), headlamp connector test, headlamp wattage test, and aiming adjustment tests of S14.6.” “S10.14.7.1 Each integral beam headlamp must be designed to conform to the performance requirements of the corrosion test, vibration test, inward force test (for lamps which are externally aimed only), headlamp connector test, and aiming adjustment tests of S14.6.” “S10.15.7.1 Each replaceable bulb headlamp must be designed to conform to the performance requirements of the corrosion test, temperature cycle test, vibration test, inward force test (for lamps which are externally aimed only), headlamp connector test, and aiming adjustment tests of S14.6.”

The Associations and Grote requested that language be added to the standard to allow the use of turn signal and stop lamps designed for use on vehicles 2032 mm or more in overall width, which meet the one lighted section photometric values, on narrow vehicles other than passenger cars. The Associations noted that SAE J1395 (APR 1985), the standard applicable to turn signal lamps on wide vehicles, states that a lamp built to this standard may also be used on a narrow vehicle. The Associations pointed to an August 22, 1990 agency interpretation letter to Hella, which stated that SAE J1395 also provides that these lamps [turn signal lamps designed for use on vehicles 2032 mm or more in overall width] may be used on vehicles less than this width, except passenger cars,” to support its position.

We disagree with the interpretation of FMVSS No. 108 put forward by the Associations and Grote. We stated in the preamble of the final rule that there are no provisions in the existing standard that allow the use of wide vehicle stop and turn signal lamps on narrow vehicles in lieu of the clearly stated requirements for narrow vehicles in Table III of the existing standard. We consider the requirements for stop lamps and turn signal lamps used on narrow vehicles in the currently applicable version of FMVSS No. 108 to be clearly stated. There is no agency guidance stating that manufacturers of narrow vehicles may choose an alternative other than Table III for requirements for stop and turn signal lamps for use on narrow vehicles. Neither Table III, SAE J588 (NOV 84), or SAE J586 (FEB 84), Stop Lamps for Use on Motor Vehicles Less than 2032 mm in Overall Width, state that lighting from wide vehicles can also be used on narrow vehicles. For narrow vehicles, a lamp must meet the requirements for narrow vehicles as specified in Table III of the currently applicable version of the standard. Further, the agency stated in a May 22, 2003 letter of interpretation to Panor Corporation that turn signal and stop lamps designed for use on both narrow and wide vehicles must meet the requirements of SAE standards applicable to both narrow and wide vehicles. The letter to Panor stated that stop lamps to be used on both narrow and wide vehicles must meet both SAE J1398 (MAY 1985) and SAE J586 (MAY 1984) and turn signal lamps to be used on both narrow and wide vehicles must meet both SAE J1395 (APR 1985) and SAE J588 (NOV 1984). It is the agency’s position that the letter to Panor, not the letter to Hella, states the correct interpretation regarding the use of turn signal and stop lamps designed for wide vehicles on narrow vehicles.

Considering these factors, the petitions from the Associations and Grote are denied.

Harley-Davidson requested that the agency amend Table IV-a which contains the requirements for projected luminous lens area to allow a projected luminous lens area of 2200 square mm for multiple compartment stop lamps used on motorcycles. Harley-Davidson stated that an effective projected luminous lens area of 2200 square mm for multiple compartment stops lamps is permitted under the currently applicable version of FMVSS No. 108. The agency agrees that FMVSS No. 108 permits an effective projected luminous lens area of 2200 square mm for multiple compartment stops lamps used on motorcycles. Accordingly, the agency has amended Table IV-a to include a projected luminous area of 2200 square mm for multiple compartment stops lamps used on motorcycles. We are denying Nissan’s request to modify the legacy visibility wording for turn, stop, and taillamps within Table V-d because the language suggested by Nissan does not fully correspond with the requirements in the SAE standard referenced by the existing standard. For example, the wording suggested by Nissan might allow for a situation in which visibility, as defined by area, may be compromised within a position less than the required 45 degrees while the area requirement is met at 45 degrees. This situation is currently not permitted.

AAM stated that footnotes 1 and 4 of Table VIII, regarding the photometric intensity values between test points and the maximum intensity of taillamps respectively, were not previously incorporated into the current standard. AAM maintained that footnote 1 is not referenced in current version of FMVSS No. 108 or in SAE J585 (AUG 1977), Tail Lamps (Rear Position Lamps), and that footnote 4 was preempted by figures contained in the current version of FMVSS No. 108.

We are denying AAM’s request to remove footnote 1 and footnote 4 from Table VIII. As stated in the preamble of the final rule, Footnote 1 was added to Table VIII of the rewrite unchanged from the text of SAE J575 (AUG 1970), Test for Motor Vehicle Lighting Devices and Components, which was previously incorporated by reference in FMVSS No. 108.

The agency, however, is revising

21 54 FR 20067, (May 9, 1989).
footnote 4 such that it matches the text in paragraph S5.1.1.6 of the existing standard so as not to make substantive changes to the standard during the rewrite process.

The agency is denying Nissan’s request to amend the footnotes to photometric tables containing the requirements for signal lamps. In incorporating third-party documents into the text of the rewrite of the standard, the agency sought not to make any changes to the requirements contained in the third-party documents. We believe that this goal is best accomplished by directly incorporating the text from the third-party documents with minimal changes. While further changes to the standard may improve clarity, the agency believes that these changes are outside the scope of the rewrite.

In the preamble of the final rule the agency explained its views on the subject of grouped compliance.25 The footnotes to the photometric tables allow the failure of a test point in the group to be offset if other points in the group exceed their minimum by the required margin. The agency does not believe that the footnotes contradict the requirements in the photometric tables and declines to amend the footnotes for the reasons stated in the preamble of the final rule.

 Valeo and the Associations requested that the agency reconsider its decision to specify a 90L to 90R horizontal range defined in the area of 10U to 90U in the first row of Table XIX. The agency is denying the petitioner’s request. In the NPRM the agency stated that it planned to incorporate a July 2, 1999 letter of interpretation letter to Ford Motor Company to clarify the meaning of the phrase “special tools.”26 In response to petitions for reconsideration, we are not adding new footnotes or adding footnotes beyond those addressed in the NPRM and final rule.

Harley-Davidson requested that the agency clarify that it is permissible to mount dual motorcycle headlamps horizontally. We agree that paragraph S6.1.3.5.1.3 introduces ambiguity to the requirements for when motorcycle headlamps must be mounted vertically. Paragraph S6.1.3.5.1.3 of the rewrite is derived from paragraph S7.9.1(b) of the currently applicable version of FMVSS No. 108. Paragraph S7.9.1(b) states that a motorcycle headlamp system consisting of half of certain automobile headlamp systems must be mounted vertically. The requirement that a motorcycle headlamp system consisting of half of certain automobile headlamp systems must be mounted vertically. The requirement that a motorcycle headlamp system consisting of half of an automobile headlamp system be mounted vertically is also contained in paragraph S10.17(a) of the rewrite of FMVSS No. 108. Because the requirements of S6.1.3.5.1.3 are more clearly stated elsewhere in the rewrite, the agency considers paragraph S6.1.3.5.1.3 to be duplicative. Therefore, we are removing paragraph S6.1.3.5.1.3 from the rewrite of FMVSS No. 108.

Koito requested that paragraph S7.3.12.1, which specifies the requirements for the ratio of intensities between a stop lamp and a taillamp, be modified to clarify that SAE J1398 (MAY 1998), applicable to wide vehicles, does not have a 560 mm or 410 mm classification and always applies the ratio requirement when determining the appropriate photometric multiplier. We agree that there was no 560 mm or 410 mm classification for wide vehicles in the currently applicable version of FMVSS No. 108. However, the agency believes that the paragraphs of S7.3.12 are clear as written in the final rule. Because no class restrictions are placed within paragraph S7.3.12.1, the requirements apply to all vehicles regardless of width. While we do not believe that we need to modify this paragraph, we do note that Koito’s stated understanding of the issue is correct.

As Nissan requested, paragraph S6.2.1.5 has been modified to add a subject to the sentence. It now reads: “Application Location. Conspicuity systems need not be * * *”

Nissan requested that paragraph S10.1.2 be modified to eliminate the duplicate requirements for motorcycle headlamp systems. Paragraph S10.1.2 states: “Each motorcycle must be equipped with a headlighting system conforming to S10.17 of this standard or one half of any headlighting system of Table II which provides both a full upper beam and a full lower beam.” Paragraph S10.17 states: “a * * * * motorcycle headlighting system may consist of: (a) one half of any headlighting system of Table II which provides both a full upper beam and full lower beam, and is designed to conform to the * * * *.” The agency agrees that this language is needlessly redundant, and has modified paragraph S10.1.2 by removing the reference to headlighting systems comprising half of Table II headlighting systems. Paragraph S10.1.2 now states: “Each motorcycle must be equipped with a headlighting system conforming to S10.17 of this standard.”

Koito recommended modifying paragraph S10.15.1, dealing with replaceable bulb headlamp systems, which states: “Installation * * * *.* A system must provide in total not more than two upper beams and two lower beams and must incorporate not more than two replaceable light sources in each headlamp.” Koito claimed this text will allow for a four lamp system to contain two replaceable bulbs within each of the four lamps which is not the intention of the original requirement. The agency believes this paragraph clearly and accurately expresses the text of the currently applicable version of FMVSS No. 108. The text of the paragraph is substantially similar to that of paragraph S7.5(a) of the existing standard. NHTSA does not believe that a change to this paragraph is necessary and is denying this request by Koito.

Koito and Toyota both requested a modification to paragraph S10.15.5 which states: “Additional light sources. A replaceable bulb headlamp may incorporate replaceable light sources that are used for the purpose of motorcycle headlighting.” Both Koito and Toyota requested that the second use of the
apply to opaque materials used in light components. The Associations also requested that the word “reflex” be added before the word reflector. We note that paragraph S14.1.2 was transposed from paragraph S5.1.2 of the originally-applicable version of FMVSS No. 108 which states: “Plastic materials used for optical parts such as lenses and reflectors shall conform to SAE Recommended Practice J576 JUL 1991, except that:” The agency notes that neither the word “transparent,” nor the word “reflex” was in the text of the currently applicable version of FMVSS No. 108. We believe the word “transparent” could be interpreted such that the addition of this word would create a substantive modification to the requirement and that adding the term “reflex” would also stray from our intention to transpose existing language without making changes. Therefore, we are denying this request.

Nissan requested a modification to paragraph S14.2.4.3, dealing with DRL bulb photometric testing requirements. Nissan maintained that the requirements of this paragraph create conflict with paragraph S14.2.4.1. Paragraph S14.2.4.3 contains a pointing statement to paragraph S14.2.1.6 which states that bulbs are to be operated at their rated mean spherical candela during testing of DRL photometry requirements. Paragraph S14.2.4.1 requires that the bulbs be operated at a fixed 12.8 V input during DRL photometry testing. This creates a conflict within the regulatory text because the mean spherical candela may not be achieved at 12.8V. In order to eliminate this apparent contradiction, Nissan suggested modifying S14.2.4.3 to state “Bulb requirements of S14.2.1.6 apply to DRL photometry, except for the need to operate at the rated mean spherical candela.”

The agency agrees that the last statement in paragraph S14.2.1.6 requiring that bulbs be operated at their mean spherical candela during photometry testing does not apply to DRLs because this requirement is excluded by the “unless otherwise specified” clause within SAE J573e (AUG 1970). The requirement that bulbs be operated at their mean spherical candela does not apply to DRLs because of specific voltage callout in paragraph S11 of the currently applicable version of the standard. Accordingly, paragraph S14.2.4.3 has been modified by removing the reference to paragraph S14.2.1.6 and now reads as follows: “S14.2.4.3 Except for a lamp having a sealed-for-bulb, a lamp must meet the applicable requirements of this standard when tested with a bulb whose filament is positioned within ±.010 in. of the nominal design position specified in SAE J573d, Lamp bulbs and Sealed Units, December 1968, (incorporated by reference, see §71.108 S5.2 of this title) or specified by the bulb manufacturer.”

Koito requested a clarification of the requirement in S14.4.2.1.3 that specifies testing for plastic optical materials. Koito questioned if a material thickness of 7 mm can be certified if it was once tested in the four thicknesses required by this standard. The agency does not believe it is appropriate to address this interpretive question within this notice. However, we do note that the Koito request will be addressed in the follow-up notice.

Nissan requested that the table under paragraph S14.9.3.11.2.3.1 be given a title and relocated to the table section of the standard and referenced as Table XXI. We are denying this request. The table is part of paragraph S14.9.3.11.2.3.1, Operating limits. The agency feels that the requirements specified in the table are appropriately located with the other requirements applicable to semiautomatic headlamp beam switching device tests.

AAM requested that Table I–a be separated to create two new tables based on overall vehicle width. AAM stated that splitting Table I–a to create separate tables for narrow and wide vehicles would simplify the standard and make it easier to use. The agency is denying AAM’s request. We believe that it is appropriate to group the requirements for both wide vehicles and narrow vehicles together based on the commonality of the requirements for both wide and narrow vehicles.

AAM stated that the requirements for DRLs should not be included in Table I–a because DRLs are optional equipment and Table I–a is entitled Required Lamps and Reflective Devices. AAM believed that locating the requirements for DRLs in Table I–a detracts from the ease of usability of the standard. We disagree with AAM’s argument. The agency believes that Table I–a is the most appropriate location for the requirements for DRLs. Unlike other optional lamps and lighting equipment installed on vehicles, DRLs, when installed, are regulated according to all the categories contained in Table I–a. We believe that final rule clearly indicates that DRLs are optional equipment. Therefore, AAM’s request is denied.

Koito requested that the agency amend the device activation requirements for high mounted stop lamps contained in Table I–a. Koito requested that the agency clarify that
activation of the high mounted stop lamp upon application of a device
designed to retard the motion of the
vehicle is optional. We agree that
activation of the high mounted stop lamp is optional upon application of a
device designed to retard the motion of the
vehicle and have revised Table I–a
to note this distinction.

AAM requested that the titles of
Tables I–a, I–b, and I–c be changed to
include the vehicles to which the tables apply. NHTSA is denying this request.
We feel that the subheadings included in the tables clearly indicate the class of
vehicles to which the tables apply.

Value, Grote, and the Associations
requested that the agency modify Table
XII to clarify that when a single backup
lamp is used on a vehicle the maximum
photometric intensity allowed is 600
candela. The agency agrees and has
added the 600 candela value to Table
XII and a footnote stating: “the value
before the slash applies to each lamp in
a multiple lamp system; the value after
the slash applies to a single lamp
system.”

Nissan requested that the agency
modify footnote 1 in Tables XIX–a, XIX–
b, and XIX–c to clarify the photometry
requirements for the test areas specified in
the tables. The agency agrees and is
modifying footnote 1 in each of the
two tables to read: these test points are boundaries; intensity values within this
boundary must meet the listed
photometry requirement.

The agency has attempted to format
the tables of FMVSS No. 108 in the most
user friendly manner. Where the agency
was able to avoid splitting tables across
multiple pages, the agency has done so.
We believe that for some of the larger
tables contained in the standard,
modifications necessary to fit the tables
on to a signal page, such as shrunk
the text in the table, would make the
tables more difficult to use.

E. Preemptive Effect of FMVSS No. 108

AAJ argued that the agency remove
any reference to preemption of state tort
causes of action simply makes technical
and formatting errors in FMVSS No. 108.

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We believe that for some of the larger
tables contained in the standard,
modifications necessary to fit the tables
on to a signal page, such as shrunk
the text in the table, would make the
tables more difficult to use.

V. Rulemaking Analyses and Notices

A. Executive Order 12866, Executive
Order 13563, and DOT Regulatory
Policies and Procedures

NHTSA has considered the impact of
this rulemaking action under Executive
Order 12866, Executive Order 13563,
and the Department of Transportation’s
regulatory policies and procedures. This
rulemaking document was not reviewed by
the Office of Management and
Budget under E.O. 12866, “Regulatory
Planning and Review.” It is not
considered to be significant under E.O.
12866 or the Department’s regulatory
policies and procedures. This final rule
merely corrects technical and
typographical errors in FMVSS No. 108.
Today’s rule will not have any
measurable effect on costs or benefits
since the rule merely reorganizes and
clarifies existing requirements.

B. Privacy Act

Anyone is able to search the
electronic form of all comments
received into any of our dockets by the
name of the individual submitting the
comment (or signing the comment, if
submitted on behalf of an association,
business, labor union, etc.). You may
review DOT’s complete Privacy Act
Statement in the Federal Register
published on April 11, 2000 (Volume
65, Number 70; Pages 19477–78) or you
may visit http://docketsinfo.dot.gov/.

C. Other Rulemaking Analyses and
Notices

In the December 2007 final rule, the
agency discussed relevant requirements
related to the Regulatory Flexibility Act,
the National Environmental Policy Act,
Executive Order 13132 (Federalism), the
Unfunded Mandates Reform Act, Civil
Justice Reform, the National Technology
Transfer and Advancement Act, the
Paperwork Reduction Act, and
Executive Order 13045 (Protection of
Children from Environmental Health
and Safety Risks). Since that final rule
was an administrative rewrite of
existing requirements and since today’s
action simply makes technical
corrections to that final rule, today’s
rule does not affect the agency’s
analyses in those areas.

List of Subjects in 49 CFR Part 571

Imports, Incorporation by reference,
Motor vehicle safety, Motor vehicles,
and Tires.

In consideration of the foregoing,
NHTSA is amending 49 CFR Part 571 as
follows:


PART 571—FEDERAL MOTOR VEHICLE SAFETY STANDARDS

1. The authority citation for Part 571 continues to read as follows:


2. Section 571.108 is amended as follows:

a. By revising entry 17 in S5.2; paragraphs S6.1.1.4; S6.1.3.2; S6.2.3.1; S6.4.4; S6.5.3; S6.5.3.3.1; S6.5.3.6; S7.1.1.9; S7.1.1.10.4(a); S7.1.11.1; S7.1.1.11.1; S7.1.1.12.4; S7.1.2.9; S7.2.9; S7.3.9; S7.4.9; S7.5.9; S7.6.9; S7.7.4; S7.7.9; S7.8.9; S7.9.9; S7.14.9; S7.11.9; S8.1.9; S8.2.1.5; S10.1.2; S10.13.4.1; S10.14.7.1; S10.15.7.1; S10.18; S14.2.1.5.2; S14.2.4.3; S14.3.1; S14.6.9.1.1; Table I-a; Table I-b; Table I-c; Table III; Table IV-a; Table IV-b; Table IV-c; Table V-a; Table V-d; Table VIII; Table IX; Table XII; Table XIV; Table XV; Table XIX-a; Table XIX-b; Table XIX-c.

b. By adding a definition of "Combination headlamp system" in S4; entry 18 in S5.2; paragraph S6.5.3.1; c. By removing paragraph S6.1.3.5.1.3, removing and reserving paragraph S10.2, and removing paragraph S13.3; and d. By removing paragraphs S7.9.14.1.1 and S7.9.14.1.2, and adding paragraphs S7.9.14.1 and S7.9.14.2 in their place.

The revisions and additions to §571.108 read as follows:

§571.108 Standard No. 108; Lamps, reflective devices, and associated equipment.

S4 Definitions.

S6.1.1.4 Daytime running lamps. Any pair of lamps on the front of a passenger car, multipurpose passenger vehicle, truck, or bus, whether or not required by this standard, other than parking lamps or fog lamps, may be wired to be automatically activated, as determined by the manufacturer of the vehicle, in a steady burning state as daytime running lamps (DRLs) in accordance with S7.10.5.

S6.1.3.2 When multiple lamp arrangements for rear turn signal lamps, stop lamps, or taillamps are used, with only a portion of the lamps installed on a fixed part of the vehicle, the lamp or lamps that are installed to the non-fixed part of the vehicle will be considered auxiliary lamps.

S6.2.3.1 When activated in the steady burning state, headlamps (excluding headlamps mounted on motorcycles) must not have any styling ornament or other feature, such as a translucent cover or grill, in front of the lens.

S6.4.4 Legacy visibility alternative. As an alternative to S6.4.3, each passenger car and motorcycle, and each multipurpose passenger vehicle, truck, trailer, and bus that is of less than 2032 mm overall width, that is manufactured on or before September 1, 2011, and each multipurpose passenger vehicle, truck, trailer, and bus that is of 2032 mm or more overall width, that is manufactured on or before September 1, 2014, must have each lamp located so that it meets the visibility requirements specified in Table V-d.

S6.5.3 Headlamp markings.

S6.5.3.1 Trademark. The lens of each original and replacement equipment headlamp, and of each original and replacement equipment headlamp contributor must be marked with the name and/or trademark registered with the U.S. Patent and Trademark Office of the manufacturer of such headlamp or beam contributor, of its importer, or any manufacturer of a vehicle equipped with such headlamp or beam contributor. Nothing in this standard authorizes the marking of any such name and/or trademark by one who is not the owner, unless the owner has consented to it.

S6.5.3.2 Each replacement headlamp lens must also be marked with the manufacturer and the part or trade number of the headlamp for which it is intended, and with the name and/or trademark of the lens manufacturer or importer that is registered with the U.S. Patent and Trademark Office. Nothing in this standard authorizes the marking of any such name and/or trademark by one who is not the owner, unless the owner has consented to it.

S7.1.1.9 Markings. See S6.5.1.2.

S7.1.1.10 Spacing based photometric multipliers.

(a) Where the spacing measurement as measured from the optical center of the turn signal lamp, to the lighted edge of a lower beam headlamp is less than 100 mm the photometric multiplier must be 2.5.

S7.1.1.11 Multiple compartment lamps and multiple lamps.

S7.1.11.1 A multiple compartment lamp or multiple lamps may be used to meet the photometric requirements of a front turn signal lamp provided the requirements of S6.1.3.2 are met.

S7.1.1.12.4 Where the clearance lamp is combined with the turn signal lamp, and the maximum luminous intensity of the clearance lamp is located below horizontal and within an area generated by a 1.0 degree radius around a test point, the ratio for the test point may be computed using the lowest value of the clearance lamp luminous intensity within the generated area.

S7.1.2.9 Markings. See S6.5.1.2.

S7.2.9 Markings. See S6.5.1.2.

S7.3.9 Markings. See S6.5.1.2.

S7.4.9 Markings. See S6.5.1.2.

S7.5.9 Markings. See S6.5.1.2.

S7.6.9 Markings. See S6.5.1.2.

S7.7.4 Mounting height. No requirement.

S7.7.9 Markings. See S6.5.1.2.

S7.8.9 Markings. See S6.5.1.2.

S7.9.9 Markings. See S6.5.1.2.

S7.9.14 Physical tests.

S7.9.14.1 Each high-mounted stop lamp must be designed to conform to...
the performance requirements of the vibration test of S14.5, and the color test and plastic optical material test of S14.4.

S7.9.14.2 Each high-mounted stop lamp that is not mounted inside the vehicle must be designed to conform to the performance requirements of the moisture test, dust test, and corrosion test of S14.5.

* * * * *

S7.11.9 Markings. See. S6.5.1.2.

* * * * *

S8.1.9 Markings. See. S6.5.1.2.

* * * * *

S8.2.1.5 Application location.

Conspicuity systems need not be installed, as illustrated in Figure 12–2, on discontinuous surfaces such as outside ribs, stake post pickets on platform trailers, and external protruding beams, or to items of equipment such as door hinges and lamp bodies on trailers and body joints, stiffening beads, drip rails, and rolled surfaces on truck tractors.

* * * * *

S10.1.2 Each motorcycle must be equipped with a headlighting system conforming to S10.17 of this standard.

S10.2 [Reserved]

S10.13.4.1 Each sealed beam headlamp must be designed to conform to the performance requirements of the corrosion test, vibration test, inward force test (for lamps which are externally aimed only), headlamp connector test, and aiming adjustment tests of S14.6.

* * * * *

S10.15.7.1 Each replaceable bulb headlamp must be designed to conform to the performance requirements of the corrosion test, corrosion-connector test, dust test, temperature cycle test, humidity test, vibration test, inward force test (for lamps which are externally aimed only), headlamp connector test, and aiming adjustment tests of S14.6.

* * * * *

S10.18 Headlamp aimability performance requirements (except for motorcycles)

S14.2.1.5.2 Luminous intensity measurements of multiple compartment lamps or multiple lamp arrangements are made either by:

(a) Measuring all compartments together, provided that a line from the optical axis of each compartment or lamp to the center of the photometer sensing device does not make an angle more than 0.6° with the H–V axis, or

(b) Measuring each compartment or lamp separately by aligning its optical axis with the photometer and adding the value at each test point.

* * * * *

S14.2.4.3 Except for a lamp having a sealed-in bulb, a lamp must meet the applicable requirements of this standard when tested with a bulb whose filament is positioned within ±0.10 in. of the nominal design position specified in SAE J573d, Lamp bulbs and Sealed Units, December 1968, (incorporated by reference, paragraph S5.2 of this section) or specified by the bulb manufacturer.

* * * * *

S14.3.1 Procedure. The sample device must be tested for photometry using bulbs having each of four out-of-focus filament positions. Where conventional bulbs with two pin bayonet bases are used, tests must be made with the light source 0.060 in. above, below, ahead, and behind the designated position. If prefocused bulbs are used, the limiting positions at which tests are made must be 0.020 in. above, below, ahead, and behind the designated position. The sample device may be reaimed for each of the out-of-focus positions of the light source.

* * * * *

S14.6.9.1.1 An unfixedtured sample headlamp in its design mounting position is placed in water at a temperature of 176° ± 3° F (80° ± 3° C) for one hour. The headlamp is energized in its highest wattage mode, with the test voltage at 12.8 ± 0.1 V during immersion.

* * * * *

**Table I–a—REQUIRED LAMPS AND REFLECTIVE DEVICES**

<table>
<thead>
<tr>
<th>Lighting device</th>
<th>Number and color</th>
<th>Mounting location</th>
<th>Mounting height</th>
<th>Device activation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lower Beam Headlamps.</strong></td>
<td>White, of a headlighting system listed in Table II.</td>
<td>On the front, at the same height, symmetrically about the vertical centerline, as far apart as practicable.</td>
<td>Not less than 22 inches (55.9 cm) nor more than 54 inches (137.2 cm).</td>
<td>The wiring harness or connector assembly of each headlighting system must be designed so that only those light sources intended for meeting lower beam photometrics are energized when the beam selector switch is in the lower beam position, and that only those light sources intended for meeting upper beam photometrics are energized when the beam selector switch is in the upper beam position, except for certain systems listed in Table II. Steady burning, except that may be flashed for signaling purposes.</td>
</tr>
<tr>
<td><strong>Upper Beam Headlamps.</strong></td>
<td>White, of a headlighting system listed in Table II.</td>
<td>On the front, at the same height, symmetrically about the vertical centerline, as far apart as practicable.</td>
<td>Not less than 22 inches (55.9 cm) nor more than 54 inches (137.2 cm).</td>
<td></td>
</tr>
<tr>
<td>Lighting device</td>
<td>Number and color</td>
<td>Mounting location</td>
<td>Mounting height</td>
<td>Device activation</td>
</tr>
<tr>
<td>-------------------------</td>
<td>------------------</td>
<td>-------------------------------------------------------</td>
<td>--------------------------</td>
<td>-----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Turn Signal Lamps ....</td>
<td>2 Amber ..........</td>
<td>At or near the front, at the same height, symmetrically about the vertical centerline, as far apart as practicable.</td>
<td>Not less than 15 inches, nor more than 83 inches.</td>
<td>Flash when the turn signal flasher is activated by the turn signal operating unit.</td>
</tr>
<tr>
<td></td>
<td>2 Amber or red Truck tractor exception, see S6.1.1.3.</td>
<td>On the rear, at the same height, symmetrically about the vertical centerline, as far apart as practicable.</td>
<td>Not less than 15 inches, nor more than 83 inches.</td>
<td>Steady burning. Must be activated when the headlamps are activated in a steady burning state or the parking lamps on passenger cars and MPVs, trucks, and buses less than 80 inches in overall width are activated. May be activated when the headlamps are activated at less than full intensity as Daytime Running Lamps (DRL). Steady burning. Must be activated upon application of the service brakes. When optically combined with a turn signal lamp, the circuit must be such that the stop signal cannot be activated if the turn signal lamp is flashing. May also be activated by a device designed to retard the motion of the vehicle. Steady burning except may be flashed for signaling purposes. Must be activated when the headlamps are activated in a steady burning state or the parking lamps on passenger cars and MPVs, trucks, and buses less than 80 inches in overall width are activated.</td>
</tr>
<tr>
<td>Taillamps .............</td>
<td>2 Red .............</td>
<td>On the rear, at the same height, symmetrically about the vertical centerline, as far apart as practicable.</td>
<td>Not less than 15 inches, nor more than 72 inches.</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Stop Lamps .............</td>
<td>2 Red .............</td>
<td>On the rear, at the same height, symmetrically about the vertical centerline, as far apart as practicable.</td>
<td>Not less than 15 inches, nor more than 72 inches.</td>
<td>Steady burning. Must be activated when the headlamps are activated in a steady burning state or the parking lamps on passenger cars and MPVs, trucks, and buses less than 80 inches in overall width are activated. Steady burning except may be flashed for signaling purposes. Must be activated when the headlamps are activated in a steady burning state or the parking lamps on passenger cars and MPVs, trucks, and buses less than 80 inches in overall width are activated.</td>
</tr>
<tr>
<td>Side Marker Lamps ...</td>
<td>2 Amber ...........</td>
<td>On each side as far to the front as practicable.</td>
<td>Not less than 15 inches.</td>
<td>Steady burning. Must be activated when the headlamps are activated in a steady burning state or the parking lamps on passenger cars and MPVs, trucks, and buses less than 80 inches in overall width are activated. Steady burning except may be flashed for signaling purposes. Must be activated when the headlamps are activated in a steady burning state or the parking lamps on passenger cars and MPVs, trucks, and buses less than 80 inches in overall width are activated.</td>
</tr>
<tr>
<td></td>
<td>2 Red (not required on truck tractor).</td>
<td>On each side as far to the rear as practicable.</td>
<td>Not less than 15 inches, nor more than 60 inches.</td>
<td>Steady burning. Must be activated when the headlamps are activated in a steady burning state or the parking lamps on passenger cars and MPVs, trucks, and buses less than 80 inches in overall width are activated. Steady burning except may be flashed for signaling purposes. Must be activated when the headlamps are activated in a steady burning state or the parking lamps on passenger cars and MPVs, trucks, and buses less than 80 inches in overall width are activated.</td>
</tr>
<tr>
<td>Reflex Reflectors ......</td>
<td>2 Amber ...........</td>
<td>On each side as far to the front as practicable.</td>
<td>Not less than 15 inches, nor more than 60 inches.</td>
<td>Steady burning. Must be activated when the headlamps are activated in a steady burning state or the parking lamps on passenger cars and MPVs, trucks, and buses less than 80 inches in overall width are activated. Steady burning except may be flashed for signaling purposes. Must be activated when the headlamps are activated in a steady burning state or the parking lamps on passenger cars and MPVs, trucks, and buses less than 80 inches in overall width are activated.</td>
</tr>
<tr>
<td></td>
<td>2 Red (not required on truck tractor).</td>
<td>On each side as far to the rear as practicable.</td>
<td>Not less than 15 inches, nor more than 60 inches.</td>
<td>Steady burning. Must be activated when the headlamps are activated in a steady burning state or the parking lamps on passenger cars and MPVs, trucks, and buses less than 80 inches in overall width are activated. Steady burning except may be flashed for signaling purposes. Must be activated when the headlamps are activated in a steady burning state or the parking lamps on passenger cars and MPVs, trucks, and buses less than 80 inches in overall width are activated.</td>
</tr>
<tr>
<td></td>
<td>2 Red .............</td>
<td>On the rear, at the same height, symmetrically about the vertical centerline, as far apart as practicable.</td>
<td>Not less than 15 inches, nor more than 60 inches.</td>
<td>Steady burning. Must be activated when the headlamps are activated in a steady burning state or the parking lamps on passenger cars and MPVs, trucks, and buses less than 80 inches in overall width are activated. Steady burning except may be flashed for signaling purposes. Must be activated when the headlamps are activated in a steady burning state or the parking lamps on passenger cars and MPVs, trucks, and buses less than 80 inches in overall width are activated.</td>
</tr>
<tr>
<td>Backup Lamp ............</td>
<td>1 White Additional lamps permitted to meet requirements.</td>
<td>On the rear .............</td>
<td>No requirement ........</td>
<td>Steady burning. Must be activated when the ignition switch is energized and reverse gear is engaged. Must not be energized when the vehicle is in forward motion.</td>
</tr>
<tr>
<td>License Plate Lamp ...</td>
<td>1 White Additional lamps permitted to meet requirements.</td>
<td>On the rear to illuminate license plate from top or sides.</td>
<td>No requirement ........</td>
<td>Steady burning. Must be activated when the headlamps are activated in a steady burning state or when the parking lamps on passenger cars and MPVs, trucks, and buses less than 80 inches in overall width are activated.</td>
</tr>
</tbody>
</table>
### TABLE I–a—REQUIRED LAMPS AND REFLECTIVE DEVICES—Continued

<table>
<thead>
<tr>
<th>Lighting device</th>
<th>Number and color</th>
<th>Mounting location</th>
<th>Mounting height</th>
<th>Device activation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Additional Lamps Required on All Passenger Cars, and on Multipurpose Passenger Vehicles (MPV), Trucks, and Buses, Less Than 2032 MM in Overall Width</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parking lamps</td>
<td>2 Amber or white</td>
<td>On the front, at the same height, symmetrically about the vertical centerline, as far apart as practicable.</td>
<td>Not less than 15 inches, nor more than 72 inches.</td>
<td>Steady burning. Must be activated when the headlamps are activated in a steady burning state.</td>
</tr>
<tr>
<td><strong>Additional Lamp(s) Required on All Passenger Cars, and on Multipurpose Passenger Vehicles (MPV), Trucks, and Buses, Less Than 2032 MM in Overall Width and With a GVWR of 10,000 Lbs or Less</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High mounted stop lamp.</td>
<td>1 Red, or 2 red where exceptions apply. See Section 6.1.1.2.</td>
<td>On the rear including glazing, with the lamp center on the vertical centerline as viewed from the rear.</td>
<td>Not less than 34 inches except for passenger cars. See Section 6.1.4.1.</td>
<td>Steady burning. Must only be activated upon application of the service brakes or may be activated by a device designed to retard the motion of the vehicle.</td>
</tr>
<tr>
<td><strong>Additional Lamps and Reflective Devices Required on All Passenger Cars, Multipurpose Passenger Vehicles (MPV), Trucks, and Buses, 30 Feet or Longer</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intermediate side marker lamps.</td>
<td>2 Amber</td>
<td>On each side located at or near the midpoint between the front and rear side marker lamps.</td>
<td>Not less than 15 inches.</td>
<td>Steady burning except may be flashed for signaling purposes. Must be activated when the headlamps are activated in a steady burning state or when the parking lamps on passenger cars and MPVs, trucks, and buses less than 80 inches in overall width are activated. Not applicable.</td>
</tr>
<tr>
<td>Intermediate side reflex reflectors.</td>
<td>2 Amber</td>
<td>On each side located at or near the midpoint between the front and rear side reflex reflectors.</td>
<td>Not less than 15 inches, nor more than 60 inches.</td>
<td></td>
</tr>
<tr>
<td><strong>Additional Lamps Required on All Multipurpose Passenger Vehicles (MPV), Trucks, and Buses, 2032 MM or More in Overall Width</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clearance lamps</td>
<td>2 Amber</td>
<td>On the front to indicate the overall width of the vehicle, or width of cab on truck tractor, at the same height, symmetrically about the vertical centerline. May be located at a location other than the front if necessary to indicate the overall width of the vehicle, or for protection from damage during normal operation of the vehicle.</td>
<td>As near the top as practicable.</td>
<td>Steady burning.</td>
</tr>
<tr>
<td>Lighting device</td>
<td>Number and color</td>
<td>Mounting location</td>
<td>Mounting height</td>
<td>Device activation</td>
</tr>
<tr>
<td>-----------------</td>
<td>------------------</td>
<td>-------------------</td>
<td>-----------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>2 Red</td>
<td>Red</td>
<td>On the rear to indicate the overall width of the vehicle, at the same height, symmetrically about the vertical centerline. May be located at a location other than the rear if necessary to indicate the overall width of the vehicle, or for protection from damage during normal operation of the vehicle.</td>
<td>As near the top as practicable, except where the rear identification lamps are mounted at the extreme height of the vehicle. Practicability of locating lamps on the vehicle header is presumed when the header extends at least 25 mm (1 inch) above the rear doors.</td>
<td>Steady burning.</td>
</tr>
<tr>
<td>Identification lamps</td>
<td>3 Amber</td>
<td>On the front, at the same height, as close as practicable to the vertical centerline, with lamp centers spaced not less than 6 inches or more than 12 inches apart.</td>
<td>As near the top of the vehicle or top of the cab as practicable.</td>
<td>Steady burning.</td>
</tr>
<tr>
<td>3 Red (not required on truck tractor).</td>
<td>Amber</td>
<td>On the rear, at the same height, as close as practicable to the vertical centerline, with lamp centers spaced not less than 6 inches or more than 12 inches apart.</td>
<td>As high as practicable but at least above the windshield.</td>
<td>Flashing alternately between 60 to 120 cycles per minute, with an activation period sufficient to allow the lamp to reach full brightness, when actuated by a manual switch. Amber lamps, when installed, may only be activated by manual or foot operation, and must be automatically deactivated and the red lamps must be automatically activated when the bus entrance door is opened.</td>
</tr>
</tbody>
</table>

**Additional Lamps Required on All School Buses Except Multifunction School Activity Buses**

| Signal warning lamps | 2 Red plus 2 amber optional. | On the front of the cab as far apart as practicable, but in no case shall the spacing between lamps be less than 40 inches. Amber lamps, when installed, at the same height as and just inboard of the red lamp. | As high as practicable but at least above the top of any side window opening. | Flashing alternately between 60 to 120 cycles per minute, with an activation period sufficient to allow the lamp to reach full brightness, when actuated by a manual switch. Amber lamps, when installed, may only be activated by manual or foot operation, and must be automatically deactivated and the red lamps must be automatically activated when the bus entrance door is opened. |
| 2 Red plus 2 amber optional. | | As high as practicable but at least above the top of the red lamp. | | |
### TABLE I–a—REQUiRED LAMPS AND REFLECTIVE DEVICES—Continued

<table>
<thead>
<tr>
<th>Lighting device</th>
<th>Number and color</th>
<th>Mounting location</th>
<th>Mounting height</th>
<th>Device activation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Daytime Running Lamps Permitted But Not Required on Passenger Cars, Multipurpose Passenger Vehicles (MPV), Trucks, and Buses</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Daytime running lamp (DRL).</strong></td>
<td>2 identically colored either white, white to yellow, selective yellow, or yellow.</td>
<td>On the front, symmetrically disposed about the vertical centerline if not a pair of lamps required by this standard or if not optically combined with a pair of lamps required by this standard.</td>
<td>Not more than 1.067 meters above the road surface if not a pair of lamps required by this standard or if not optically combined with a pair of lamps required by this standard.</td>
<td>Steady burning. Automatically activated as determined by the vehicle manufacturer and automatically deactivated when the headlamp control is in any “on” position. Each DRL optically combined with a turn signal lamp must be automatically deactivated as a DRL when the turn signal lamp or hazard warning lamp is activated, and automatically reactivated as a DRL when the turn signal lamp or hazard warning lamp is deactivated. See S7.10.13(b) for additional height limitation.</td>
</tr>
</tbody>
</table>

### TABLE I–b—REQUiRED LAMPS AND REFLECTIVE DEVICES

<table>
<thead>
<tr>
<th>Lighting device</th>
<th>Number and color</th>
<th>Mounting location</th>
<th>Mounting height</th>
<th>Device activation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ALL TRAILERS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Turn Signal Lamps ....</strong></td>
<td>2 Red or amber ........</td>
<td>On the rear, at the same height, symmetrically about the vertical centerline, as far apart as practicable.</td>
<td>Not less than 15 inches, nor more than 83 inches.</td>
<td>Flash when the turn signal flasher is actuated by the turn signal operating unit.</td>
</tr>
<tr>
<td><strong>Taillamps .................</strong></td>
<td>2 Red or 1 red on trailers less than 30 inches wide.</td>
<td>On the rear, at the same height, symmetrically about the vertical centerline, as far apart as practicable. When a single lamp is installed it must be mounted at or near the vertical centerline.</td>
<td>Not less than 15 inches, nor more than 72 inches.</td>
<td>Steady burning.</td>
</tr>
<tr>
<td><strong>Stop Lamps .................</strong></td>
<td>2 Red, or 1 red on trailers less than 30 inches wide.</td>
<td>On the rear, at the same height, symmetrically about the vertical centerline, as far apart as practicable. When a single lamp is installed it must be mounted at or near the vertical centerline.</td>
<td>Not less than 15 inches, nor more than 72 inches.</td>
<td>Steady burning. Must be activated upon application of the service brakes. When optically combined with a turn signal lamp, the circuit must be such that the stop signal cannot be activated if the turn signal lamp is flashing. May also be activated by a device designed to retard the motion of the vehicle.</td>
</tr>
<tr>
<td><strong>Side Marker Lamps ...</strong></td>
<td>2 Amber ...................... None required on trailers less than 1829 mm [6 ft] in overall length including the trailer tongue.</td>
<td>On each side as far to the front as practicable exclusive of the trailer tongue.</td>
<td>Not less than 15 inches.</td>
<td>Steady burning except may be flashed for signaling purposes.</td>
</tr>
<tr>
<td></td>
<td>2 Red .........................</td>
<td>On each side as far to the rear as practicable.</td>
<td>Not less than 15 inches. Not more than 60 inches on trailers 2032 mm or more in overall width.</td>
<td></td>
</tr>
<tr>
<td>Lighting device</td>
<td>Number and color</td>
<td>Mounting location</td>
<td>Mounting height</td>
<td>Device activation</td>
</tr>
<tr>
<td>-----------------------------------------------------</td>
<td>------------------</td>
<td>------------------------------------------------------------------------------------</td>
<td>-----------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Reflex Reflectors. A trailer equipped with a conspicuity treatment in conformance with S8.2 of this standard need not be equipped with reflex reflectors if the conspicuity material is placed at the locations of the required reflex reflectors.</td>
<td>2 Amber ..........</td>
<td>On each side as far to the front as practicable exclusive of the trailer tongue.</td>
<td>Not less than 15 inches, nor more than 60 inches.</td>
<td>Not applicable.</td>
</tr>
<tr>
<td></td>
<td>2 Red ..........</td>
<td>On each side as far to the rear as practicable.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intermediate side marker lamps.</td>
<td>2 Red or 1 red on trailers less than 30 inches wide.</td>
<td>On the rear, at the same height, symmetrically about the vertical centerline, as far apart as practicable. When a single reflector is installed it must be mounted at or near the vertical centerline.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intermediate side reflex reflectors. A trailer equipped with a conspicuity treatment in conformance with S8.2 of this standard need not be equipped with reflex reflectors if the conspicuity material is placed at the locations of the required reflex reflectors.</td>
<td>1 White ..........</td>
<td>On the rear to illuminate license plate from top or sides.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>License Plate Lamp ...</td>
<td>Additional lamps permitted to meet requirements.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Additional Lamps and Reflective Devices Required on all Trailers 30 Feet or Longer**

<table>
<thead>
<tr>
<th>Lighting device</th>
<th>Number and color</th>
<th>Mounting location</th>
<th>Mounting height</th>
<th>Device activation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clearance lamps</td>
<td>2 Amber ..........</td>
<td>On the front to indicate the overall width of the vehicle, at the same height, symmetrically about the vertical centerline. May be located at a location other than the front if necessary to indicate the overall width of the vehicle, for protection from damage during normal operation of the vehicle.</td>
<td>As near the top as practicable.</td>
<td>Steady burning.</td>
</tr>
<tr>
<td></td>
<td>2 Red ..........</td>
<td>On the rear to indicate the overall width of the vehicle, at the same height, symmetrically about the vertical centerline. May be located at a location other than the rear if necessary to indicate the overall width of the vehicle, for protection from damage during normal operation of the vehicle.</td>
<td>As near the top as practicable, except where the rear identification lamps are mounted at the extreme height of the vehicle. Practicability of locating lamps on the vehicle header is presumed when the header extends at least 25 mm (1 inch) above the rear doors.</td>
<td>Steady burning.</td>
</tr>
<tr>
<td>Lighting device</td>
<td>Number and color</td>
<td>Mounting location</td>
<td>Mounting height</td>
<td>Device activation</td>
</tr>
<tr>
<td>-----------------</td>
<td>------------------</td>
<td>-------------------</td>
<td>-----------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Identification lamps</td>
<td>2 Amber to front and red to rear.</td>
<td>On a boat trailer the requirement for front and rear clearance lamps may be met by installation at or near the midpoint on each side of a dual facing lamp so as to indicate the extreme width. May be located at a location other than the front and the rear if necessary to indicate the overall width of the vehicle, or for protection from damage during normal operation of the vehicle.</td>
<td>As near the top as practicable.</td>
<td>Steady burning.</td>
</tr>
<tr>
<td></td>
<td>3 Red</td>
<td>On the rear, at the same height, as close as practicable to the vertical centerline, with lamp centers spaced not less than 6 inches or more than 12 inches apart.</td>
<td>As near the top as practicable.</td>
<td>Steady burning.</td>
</tr>
</tbody>
</table>

**TABLE I–c—REQUIRED LAMPS AND REFLECTIVE DEVICES**

<table>
<thead>
<tr>
<th>Lighting device</th>
<th>Number and color</th>
<th>Mounting location</th>
<th>Mounting height</th>
<th>Device activation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lower Beam Headlamps.</strong></td>
<td>White, of a headlighting system listed in S10.17.</td>
<td>On the front, at the same height, symmetrically about the vertical centerline, as far apart as practicable. See additional requirements in S10.17.1.1, S10.17.1.2, and S10.17.1.3.</td>
<td>Not less than 22 inches (55.9 cm) nor more than 54 inches (137.2 cm).</td>
<td>The wiring harness or connector assembly of each headlighting system must be designed so that only those light sources intended for meeting lower beam photometrics are energized when the beam selector switch is in the lower beam position, and that only those light sources intended for meeting upper beam photometrics are energized when the beam selector switch is in the upper beam position, except for certain systems listed in Table II. Steady burning, except that may be flashed for signaling purposes.</td>
</tr>
<tr>
<td><strong>Upper Beam Headlamps.</strong></td>
<td>White, of a headlighting system listed in S10.17.</td>
<td>On the front, at the same height, symmetrically about the vertical centerline, as far apart as practicable. See additional requirements in S10.17.1.1, S10.17.1.2, and S10.17.1.3.</td>
<td>Not less than 22 inches (55.9 cm) nor more than 54 inches (137.2 cm).</td>
<td>The upper beam or the lower beam, but not both, may be wired to modulate from a higher intensity to a lower intensity in accordance with S10.17.5.</td>
</tr>
<tr>
<td><strong>Turn Signal Lamps ....</strong></td>
<td>2 Amber. None required on a motor driven cycle whose speed attainable in 1 mile is 30 mph or less.</td>
<td>At or near the front, at the same height, symmetrically about the vertical centerline, and having a minimum horizontal separation distance (centerline of lamps) of 16 inches. Minimum edge to edge separation distance between a turn signal lamp and headlamp is 4 inches.</td>
<td>Not less than 15 inches, nor more than 83 inches.</td>
<td>Flash when the turn signal flasher is actuated by the turn signal operating unit.</td>
</tr>
<tr>
<td>Lighting device</td>
<td>Number and color</td>
<td>Mounting location</td>
<td>Mounting height</td>
<td>Device activation</td>
</tr>
<tr>
<td>-------------------------</td>
<td>------------------</td>
<td>-------------------</td>
<td>----------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Taillamps ..............</td>
<td>1 Red ............</td>
<td>On the rear, on the vertical centerline except that if two are used, they must be symmetrically disposed about the vertical centerline.</td>
<td>Not less than 15 inches, nor more than 72 inches.</td>
<td>Steady burning.</td>
</tr>
<tr>
<td>Stop Lamps .............</td>
<td>1 Red ............</td>
<td>On the rear, on the vertical centerline except that if two are used, they must be symmetrically disposed about the vertical centerline.</td>
<td>Not less than 15 inches, nor more than 72 inches.</td>
<td>Steady burning.</td>
</tr>
<tr>
<td>Reflex Reflectors ......</td>
<td>2 Amber ..........</td>
<td>On each side as far to the front as practicable.</td>
<td>Not less than 15 inches, nor more than 60 inches.</td>
<td>Not applicable.</td>
</tr>
<tr>
<td></td>
<td>2 Red ..........</td>
<td>On each side as far to the rear as practicable.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 Red ..........</td>
<td>On the rear, on the vertical centerline except that, if two are used on the rear, they must be symmetrically disposed about the vertical centerline.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>License Plate Lamp ...</td>
<td>1 White ..........</td>
<td>On the rear to illuminate license plate.</td>
<td>No requirement</td>
<td>Steady burning.</td>
</tr>
<tr>
<td>Additional lamps permitted to meet requirements.</td>
<td></td>
<td></td>
<td></td>
<td>Must be activated when the headlamps are activated in a steady burning state.</td>
</tr>
</tbody>
</table>
### TABLE III—MARKING REQUIREMENTS LOCATION

<table>
<thead>
<tr>
<th>Lamp, reflective device, or other component</th>
<th>Marking</th>
<th>Marking location</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HEADLAMPS, BEAM CONTRIBUTORS, OR HEADLAMP REPLACEABLE LENS.</strong></td>
<td>“DOT” ......................................................</td>
<td>Lens .........................................................</td>
<td>S6.5.1</td>
</tr>
<tr>
<td></td>
<td>Optical axis marking ................................</td>
<td>See requirement ......................................</td>
<td>S10.18.5</td>
</tr>
<tr>
<td></td>
<td>Manufacturer name and/or trademark ....</td>
<td>Lens .........................................................</td>
<td>S6.5.3</td>
</tr>
<tr>
<td></td>
<td>Voltage .....................................................</td>
<td>See requirement ......................................</td>
<td>S6.5.3</td>
</tr>
<tr>
<td></td>
<td>Part number or trade number ...</td>
<td>See requirement ......................................</td>
<td>S6.5.3</td>
</tr>
<tr>
<td><strong>HEADLAMP REPLACEABLE LENS ........</strong></td>
<td>Manufacturer identification ................................</td>
<td>Lens .........................................................</td>
<td>S6.5.3</td>
</tr>
<tr>
<td></td>
<td>Headlamp identification.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>REPLACEABLE BULB HEADLAMPS ......</strong></td>
<td>“U” or “L” (4 lamp system) .....................</td>
<td>Lens .........................................................</td>
<td>S10.15.4</td>
</tr>
<tr>
<td></td>
<td>Replaceable bulb type ..........</td>
<td>Lens .........................................................</td>
<td>S6.5.3.4</td>
</tr>
<tr>
<td><strong>SEALED BEAM HEADLAMPS ..........</strong></td>
<td>“sealed beam” ........................................</td>
<td>Lens .........................................................</td>
<td>S6.5.3.3</td>
</tr>
<tr>
<td></td>
<td>Type designation .....................................</td>
<td>See requirements ....................................</td>
<td>S6.5.3.3</td>
</tr>
<tr>
<td><strong>INTEGRAL BEAM HEADLAMPS ..........</strong></td>
<td>“U” or “L” (4 lamp system) .....................</td>
<td>Lens .........................................................</td>
<td>S10.14.4</td>
</tr>
<tr>
<td></td>
<td>“motorcycle” ........................................</td>
<td>Lens .........................................................</td>
<td>S10.17.2</td>
</tr>
<tr>
<td><strong>VISUALLY/OPTICALLY AIMED HEADLAMPS.</strong></td>
<td>“VOR” or “VOL” or “VO” .................................</td>
<td>Lens .........................................................</td>
<td>S10.18.9.6</td>
</tr>
<tr>
<td></td>
<td>Aim pad location &amp; “H” or “V”</td>
<td>Lens .........................................................</td>
<td>S10.18.7.1</td>
</tr>
<tr>
<td></td>
<td>Aiming scale(s) ........................................</td>
<td>See requirement ......................................</td>
<td>S10.18.8</td>
</tr>
<tr>
<td><strong>EXTERNALLY AIMED HEADLAMPS ......</strong></td>
<td>Replaceable light source designation ....</td>
<td>See requirement.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Manufacturer name and/or trademark</td>
<td>See requirement.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Manufacturer name or logo .....................</td>
<td>See requirement ......................................</td>
<td>S11.1</td>
</tr>
<tr>
<td></td>
<td>Part number.</td>
<td>See requirement.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Light source identification.</td>
<td>See requirement.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rated laboratory life.</td>
<td>See requirement.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>High voltage warning.</td>
<td>See requirement.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Output in watts and volts.</td>
<td>See requirement.</td>
<td></td>
</tr>
<tr>
<td><strong>LAMPS (OTHER THAN HEADLAMPS), REFLECTIVE DEVICES, AND ASSOCIATED EQUIPMENT.</strong></td>
<td>“DOT” ......................................................</td>
<td>See requirement ......................................</td>
<td>S6.5.1.2</td>
</tr>
<tr>
<td><strong>DAYTIME RUNNING LAMPS (DRL) ........</strong></td>
<td>“DRL” .....................................................</td>
<td>Lens .........................................................</td>
<td>S6.5.2</td>
</tr>
<tr>
<td></td>
<td>“DOT–C” .....................................................</td>
<td>Exposed surface ......................................</td>
<td>S8.2.2.1</td>
</tr>
<tr>
<td></td>
<td>“DOT–C2” or “DOT–C3” or “DOT–C4” ..</td>
<td>Exposed surface ......................................</td>
<td>S8.2.1.3</td>
</tr>
</tbody>
</table>

### TABLE IV—a—EFFECTIVE PROJECTED LUMINOUS LENS AREA REQUIREMENTS

<table>
<thead>
<tr>
<th>Lighting device</th>
<th>Passenger cars, multipurpose passenger vehicles, trucks, trailers, and buses of less than 2032 mm in overall width</th>
<th>Multipurpose passenger vehicles, trucks, trailers, and buses 2032 mm or more in overall width</th>
<th>Motorcycles minimum effective projected luminous lens area (sq mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Each compartment or lamp</td>
<td>Combined compartments or lamps</td>
<td>Each compartment or lamp</td>
</tr>
<tr>
<td><strong>Front turn signal lamp</strong></td>
<td>2200</td>
<td></td>
<td>2200</td>
</tr>
<tr>
<td><strong>Rear turn signal lamp</strong></td>
<td>5000</td>
<td>2200</td>
<td>5000</td>
</tr>
<tr>
<td><strong>Stop lamp</strong></td>
<td>5000</td>
<td>2200</td>
<td>5000</td>
</tr>
</tbody>
</table>

1 A motor driven cycle whose speed attainable in 1 mile is 30 mph or less may be equipped with a stop lamp whose minimum effective projected luminous lens area is not less than 2258 sq mm.
### TABLE IV–b—Effective Projected Luminous Lens Area Requirements

<table>
<thead>
<tr>
<th>Lighting device</th>
<th>Passenger cars, multipurpose passenger vehicles, trucks, and buses of less than 2032 mm in overall width and with a GVWR of 10,000 lbs or less using a single lamp minimum effective projected luminous lens area (sq mm)</th>
<th>Multipurpose passenger vehicles, trucks, and buses of less than 2032 mm in overall width and with a GVWR of 10,000 lbs or less using dual lamps of identical size and shape minimum effective projected luminous lens area each lamp (sq mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-mounted stop lamp</td>
<td>2903</td>
<td>1452</td>
</tr>
</tbody>
</table>

### TABLE IV–c—Effective Projected Luminous Lens Area Requirements

<table>
<thead>
<tr>
<th>Lighting device</th>
<th>School bus minimum effective projected luminous lens area each lamp (sq mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>School bus signal lamp</td>
<td>12,258</td>
</tr>
</tbody>
</table>

### TABLE V–a—Visibility Requirements of Installed Lighting Devices

<table>
<thead>
<tr>
<th>Lighting device</th>
<th>Required visibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backup lamp</td>
<td>Lamps must be mounted so that the optical center of at least one lamp is visible from any eye point elevation from at least 1828 mm (6 ft) to 610 mm (2 ft) above the horizontal plane on which the vehicle is standing; and from any position in the area, rearward of a vertical plane perpendicular to the longitudinal axis of the vehicle, 914 mm (3 ft), to the rear of the vehicle and extending 914 mm (3 ft) beyond each side of the vehicle.</td>
</tr>
<tr>
<td>High-mounted stop lamp</td>
<td>Signal must be visible to the rear through a horizontal angle from 45° to the left to 45° to the right of the longitudinal axis of the vehicle. (Single lamp or two lamps together where required by S6.1.1.2 of this standard).</td>
</tr>
<tr>
<td>School bus signal lamp</td>
<td>Signal of front lamps to the front and rear lamps to the rear must be unobstructed within area bounded by 5° up to 10° down and 30° left to 30° right.</td>
</tr>
</tbody>
</table>

### TABLE V–d—Visibility Requirements of Installed Lighting Devices (Legacy Visibility Alternative)

<table>
<thead>
<tr>
<th>Lighting device</th>
<th>Required visibility 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turn signal lamp</td>
<td>Unobstructed minimum effective projected luminous lens area of 1250 sq mm through horizontal angle of H–V to H–45° OB.</td>
</tr>
<tr>
<td>Stop lamp</td>
<td>Unobstructed minimum effective projected luminous lens area of 1250 sq mm through horizontal angle of H–45° IB to H–45° OB. Where more than one lamp or optical area is lighted on each side of the vehicle, only one such area on each side need comply.</td>
</tr>
<tr>
<td>Taillamp</td>
<td>Unobstructed minimum effective projected luminous lens area of 2 sq in through horizontal angle of H–45° IB to H–45° OB. Where more than one lamp or optical area is lighted on each side of the vehicle, only one such area on each side need comply.</td>
</tr>
</tbody>
</table>

1 IB indicates an inboard direction (toward the vehicle's longitudinal centerline) and OB indicates an outboard direction.
## TABLE VIII: TAILLAMP PHOTOMETRY REQUIREMENTS

<table>
<thead>
<tr>
<th>GROUP NUMBER</th>
<th>TEST POINT (degrees)</th>
<th>PHOTOMETRIC INTENSITY&lt;sup&gt;(1)(2)(4)&lt;/sup&gt; (cd)</th>
<th>GROUP MINIMUM PHOTOMETRIC INTENSITY&lt;sup&gt;(1)(2)&lt;/sup&gt; (cd)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lighted Sections</td>
<td>Lighted Sections</td>
<td>Lighted Sections</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>20L</td>
<td></td>
<td>1.4</td>
</tr>
<tr>
<td></td>
<td>5U</td>
<td>0.3</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>5D</td>
<td>0.3</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>5L</td>
<td>0.4</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>10U</td>
<td>0.4</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>10D&lt;sup&gt;(3)&lt;/sup&gt;</td>
<td>0.4</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>10L</td>
<td></td>
<td>2.4</td>
</tr>
<tr>
<td></td>
<td>5U</td>
<td>0.8</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>5L</td>
<td>0.8</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>V</td>
<td></td>
<td>9.6</td>
</tr>
<tr>
<td></td>
<td>5U</td>
<td>1.8</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>5L</td>
<td>2.0</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>V</td>
<td>2.0</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>5R</td>
<td>2.0</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>5D</td>
<td>1.8</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>10R</td>
<td></td>
<td>2.4</td>
</tr>
<tr>
<td></td>
<td>5U</td>
<td>0.8</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>5L</td>
<td>0.8</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>5R</td>
<td></td>
<td>1.4</td>
</tr>
<tr>
<td></td>
<td>10U</td>
<td>0.4</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>10D&lt;sup&gt;(3)&lt;/sup&gt;</td>
<td>0.4</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>5U</td>
<td>0.3</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>5D</td>
<td>0.3</td>
<td>-</td>
</tr>
</tbody>
</table>

<sup>(1)</sup> The photometric intensity values between test points must not be less than the lower specified minimum value of the two closest adjacent test points on a horizontal or vertical line.

<sup>(2)</sup> If the sum of intensity values for all points in the group is not less than the specified total value for the group, the measured intensity value for each individual test point is not required to meet the minimum value.

<sup>(3)</sup> Where taillamps are mounted with their axis of reference less than 750 mm above the road surface, photometry requirements below 5° down may be met at 5° down rather than at the specified required downward angle.

<sup>(4)</sup> A taillamp shall not exceed the maximum intensity at H or above.
<table>
<thead>
<tr>
<th>GROUP NUMBER</th>
<th>TEST POINT (degrees)</th>
<th>MINIMUM PHOTOMETRIC INTENSITY RATIO WHERE COMBINED WITH A TAIL LAMP&lt;sup&gt;(5)&lt;/sup&gt;</th>
<th>MINIMUM PHOTOMETRIC INTENSITY&lt;sup&gt;(1)(2)&lt;/sup&gt; (cd)</th>
<th>GROUP MINIMUM PHOTOMETRIC INTENSITY (cd)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Lighted Sections</td>
<td>Lighted Sections</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>1</td>
<td>20L</td>
<td>5U</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5D</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10U</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10D&lt;sup&gt;(4)&lt;/sup&gt;</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td>2</td>
<td>10L</td>
<td>5U</td>
<td>3</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H</td>
<td>3</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5D</td>
<td>3</td>
<td>30</td>
</tr>
<tr>
<td>3</td>
<td>V</td>
<td>5U</td>
<td>5</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5L</td>
<td>H</td>
<td>3/5&lt;sup&gt;(6)&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>V</td>
<td>5</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5R</td>
<td>5</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td></td>
<td>V</td>
<td>5D</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>10R</td>
<td>5U</td>
<td>3</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H</td>
<td>3</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5D</td>
<td>3</td>
<td>30</td>
</tr>
<tr>
<td>5</td>
<td>5R</td>
<td>10U</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10D&lt;sup&gt;(4)&lt;/sup&gt;</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20R</td>
<td>5U</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5D</td>
<td>3</td>
<td>10</td>
</tr>
</tbody>
</table>

**MAXIMUM PHOTOMETRIC INTENSITY<sup>(3)</sup>**

|                | 300 | 360 | 420 |

---

<sup>(1)</sup> The measured values at each test point must not be less than 60% of the minimum value.

<sup>(2)</sup> The photometric intensity values between test points must not be less than the lower specified minimum value of the two closest adjacent test points on a horizontal or vertical line.

<sup>(3)</sup> The maximum photometric intensity must not occur over any area larger than that generated by a 0.5° radius within a solid angle defined by the test point range.
(4) Where stop lamps are mounted with their axis of reference less than 750 mm above the road surface, photometry requirements below 5° down may be met at 5° down rather than at the specified required downward angle.

(5) When a taillamp is combined with a stop lamp and the maximum luminous intensity of the taillamp is located below horizontal and within an area generated by a 0.5° radius around a test point (1.0° radius on lamps installed on a vehicle 2032 mm or more in overall width), the ratio for the test point may be computed by using the lowest value of the taillamp luminous intensity within the generated area.

(6) Values followed by a slash (/) apply only to lamps installed on multipurpose passenger vehicles, trucks, trailers, and buses of 2032 mm or more in overall width.
## TABLE XII: BACKUP LAMP PHOTOMETRY REQUIREMENTS

<table>
<thead>
<tr>
<th>GROUP NUMBER</th>
<th>TEST POINT (degrees)</th>
<th>MAXIMUM PHOTOMETRIC INTENSITY (cd) ANY SINGLE LAMP</th>
<th>TWO LAMP SYSTEMS – EACH LAMP</th>
<th>SINGLE LAMP SYSTEM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(cd)</td>
<td>MINIMUM PHOTOMETRIC INTENSITY (cd)&lt;sup&gt;(3)&lt;/sup&gt;</td>
<td>GROUP MINIMUM PHOTOMETRIC INTENSITY (cd)</td>
</tr>
<tr>
<td>1&lt;sup&gt;(2)(3)&lt;/sup&gt;</td>
<td>45L</td>
<td>5U 300/600&lt;sup&gt;(5)&lt;/sup&gt;</td>
<td>15</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H 300/600&lt;sup&gt;(5)&lt;/sup&gt;</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5D -</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>2&lt;sup&gt;(2)(3)&lt;/sup&gt;</td>
<td>30L</td>
<td>H 300/600&lt;sup&gt;(5)&lt;/sup&gt;</td>
<td>25</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5D -</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>10L</td>
<td>10U 300/600&lt;sup&gt;(5)&lt;/sup&gt;</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5U 300/600&lt;sup&gt;(5)&lt;/sup&gt;</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>V 10U 300/600&lt;sup&gt;(5)&lt;/sup&gt;</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5U 300/600&lt;sup&gt;(5)&lt;/sup&gt;</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10R 10U 300/600&lt;sup&gt;(5)&lt;/sup&gt;</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5U 300/600&lt;sup&gt;(5)&lt;/sup&gt;</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>10L</td>
<td>H 300/600&lt;sup&gt;(5)&lt;/sup&gt;</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5D -</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>V H 300/600&lt;sup&gt;(5)&lt;/sup&gt;</td>
<td>80</td>
<td>360</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5D -</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10R H 300/600&lt;sup&gt;(5)&lt;/sup&gt;</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5D -</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>5&lt;sup&gt;(2)(3)&lt;/sup&gt;</td>
<td>30R</td>
<td>H 300/600&lt;sup&gt;(5)&lt;/sup&gt;</td>
<td>25</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5D -</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>6&lt;sup&gt;(2)(3)&lt;/sup&gt;</td>
<td>45R</td>
<td>5U 300/600&lt;sup&gt;(5)&lt;/sup&gt;</td>
<td>15</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H 300/600&lt;sup&gt;(5)&lt;/sup&gt;</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5D -</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

<sup>(1)</sup> The photometric intensity values between test points must not be less than the lower specified minimum value of the two closest adjacent test points on a horizontal or vertical line.

<sup>(2)</sup> When two lamps of the same or symmetrically opposite design are used, the tested photometric values along the vertical axis and the averages of the tested photometric values for the same horizontal test point left and right of vertical for one lamp must be used to determine compliance with the requirements.

<sup>(3)</sup> When two lamps of differing designs are used, they must be tested individually and the tested photometric values added to determine the combined units compliance with twice the stated requirements.

<sup>(4)</sup> If the sum of intensity values for all points in the group is not less than the specified total value for the group, the measured intensity value for each individual test point is not required to meet the minimum value.

<sup>(5)</sup> The value before the slash applies to each lamp in a multiple lamp system; the value after the slash applies to a single lamp system.

****
### TABLE XIV: PARKING LAMP PHOTOMETRY REQUIREMENTS

<table>
<thead>
<tr>
<th>GROUP NUMBER</th>
<th>TEST POINT (degrees)</th>
<th>MINIMUM PHOTOMETRIC INTENSITY&lt;sup&gt;(1)(2)&lt;/sup&gt; (cd)</th>
<th>MAXIMUM PHOTOMETRIC INTENSITY&lt;sup&gt;(2)&lt;/sup&gt; (cd)</th>
<th>GROUP MINIMUM PHOTOMETRIC INTENSITY&lt;sup&gt;(2)&lt;/sup&gt; (cd)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>20L</td>
<td>5U 0.4</td>
<td>125</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5D 0.4</td>
<td>250</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10U 0.8</td>
<td>125</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10D&lt;sup&gt;(3)&lt;/sup&gt; 0.8</td>
<td>250</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>10L</td>
<td>5U 0.8</td>
<td>125</td>
<td>3.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H 1.4</td>
<td>125</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5D 0.8</td>
<td>250</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>V</td>
<td>5U 2.8</td>
<td>125</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5L 3.6</td>
<td>125</td>
<td>16.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>V 4.0</td>
<td>125</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5R 3.6</td>
<td>125</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>V 5D 2.8</td>
<td>250</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>10R</td>
<td>5U 0.8</td>
<td>125</td>
<td>3.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H 1.4</td>
<td>125</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5D 0.8</td>
<td>250</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>5R</td>
<td>10U 0.8</td>
<td>125</td>
<td>2.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10D&lt;sup&gt;(3)&lt;/sup&gt; 0.8</td>
<td>250</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5U 0.4</td>
<td>125</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5D 0.4</td>
<td>250</td>
<td></td>
</tr>
</tbody>
</table>

<sup>(1)</sup> The photometric intensity values between test points must not be less than the lower specified minimum value of the two closest adjacent test points on a horizontal or vertical line.

<sup>(2)</sup> If the sum of intensity values for all points in the group is not less than the specified total value for the group, the measured intensity value for each individual test point is not required to meet the minimum value.

<sup>(3)</sup> Where parking lamps are mounted with their axis of reference less than 750 mm above the road surface, photometry requirements below 5° down may be met at 5° down rather than at the specified required downward angle.
<table>
<thead>
<tr>
<th>GROUP NUMBER</th>
<th>TEST POINT (degrees)</th>
<th>MINIMUM PHOTOMETRIC INTENSITY (cd)</th>
<th>GROUP MINIMUM PHOTOMETRIC INTENSITY (cd)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>V 5U</td>
<td>25</td>
<td>125</td>
</tr>
<tr>
<td></td>
<td>5L H</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td></td>
<td>V H</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5R H</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td></td>
<td>V 5D</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>5R 5U</td>
<td>25</td>
<td>98</td>
</tr>
<tr>
<td></td>
<td>10R 5U</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10R H</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10R 5D</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5R 5D</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>5L 5U</td>
<td>25</td>
<td>98</td>
</tr>
<tr>
<td></td>
<td>10L 5U</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10L H</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10L 5D</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5L 5D</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>10L 10U</td>
<td>8</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>V 10U</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10R 10U</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

**Maximum Photometric Intensity**

<table>
<thead>
<tr>
<th><strong>(4)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>160</strong></td>
</tr>
</tbody>
</table>

---

(1) The photometric intensity values between test points must not be less than the lower specified minimum value of the two closest adjacent test points on a horizontal or vertical line.

(2) The photometric intensity at each test point must not be less than 60% of the specified minimum value when considering overall group photometry tables.

(3) Where a pair of lamps identical in size and shape are used due to vehicle construction, they together must meet photometric requirements.

(4) The maximum photometric intensity must not occur over any area larger than that generated by a 0.25° radius within a solid cone angle within the rectangle bounded by test points 10U-10L, 10U-10R, 5D-10L, and 5D-10R.

*****
<table>
<thead>
<tr>
<th>Test Point (degrees)</th>
<th>Lower Beam # 1M (LB1M)</th>
<th>Lower Beam # 1V (LB1V)</th>
<th>Lower Beam # 2M (LB2M)</th>
<th>Lower Beam # 2V (LB2V)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Maximum Photometric Intensity (cd)</td>
<td>Minimum Photometric Intensity (cd)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) 10U to 90U</td>
<td>125</td>
<td>-</td>
<td>125</td>
<td>-</td>
</tr>
<tr>
<td>4U 8L &amp; 8R</td>
<td>-</td>
<td>64</td>
<td>-</td>
<td>64</td>
</tr>
<tr>
<td>2U 4L</td>
<td>-</td>
<td>135</td>
<td>-</td>
<td>135</td>
</tr>
<tr>
<td>1.5U 1R to 3R</td>
<td>-</td>
<td>200</td>
<td>-</td>
<td>200</td>
</tr>
<tr>
<td>1.5U 1R to R</td>
<td>1,400</td>
<td>-</td>
<td>1,400</td>
<td>-</td>
</tr>
<tr>
<td>1U 1.5L to L</td>
<td>700</td>
<td>-</td>
<td>700</td>
<td>-</td>
</tr>
<tr>
<td>0.5U 1.5L to L</td>
<td>1,000</td>
<td>-</td>
<td>1,000</td>
<td>-</td>
</tr>
<tr>
<td>0.5U 1R to 3R</td>
<td>2,700</td>
<td>500</td>
<td>2,700</td>
<td>500</td>
</tr>
<tr>
<td>H V</td>
<td>5,000</td>
<td>-</td>
<td>5,000</td>
<td>-</td>
</tr>
<tr>
<td>H 4L</td>
<td>-</td>
<td>135</td>
<td>-</td>
<td>135</td>
</tr>
<tr>
<td>H 8L</td>
<td>-</td>
<td>64</td>
<td>-</td>
<td>64</td>
</tr>
<tr>
<td>0.5D 1.5L to L</td>
<td>3,000</td>
<td>-</td>
<td>-</td>
<td>3,000</td>
</tr>
<tr>
<td>0.5D 1.5L to L</td>
<td>20,000</td>
<td>10,000</td>
<td>-</td>
<td>20,000</td>
</tr>
<tr>
<td>0.6D 1.3R</td>
<td>-</td>
<td>-</td>
<td>10,000</td>
<td>-</td>
</tr>
<tr>
<td>0.86D V</td>
<td>-</td>
<td>-</td>
<td>4,500</td>
<td>-</td>
</tr>
<tr>
<td>0.86D 3.5L</td>
<td>-</td>
<td>-</td>
<td>12,000</td>
<td>1,800</td>
</tr>
<tr>
<td>1D 6L</td>
<td>-</td>
<td>1,000</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1.5D 2R</td>
<td>-</td>
<td>15,000</td>
<td>-</td>
<td>15,000</td>
</tr>
<tr>
<td>1.5D 9L &amp; 9R</td>
<td>-</td>
<td>1,000</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2D 9L &amp; 9R</td>
<td>-</td>
<td>-</td>
<td>1,250</td>
<td>-</td>
</tr>
<tr>
<td>2D 15L &amp; 15R</td>
<td>-</td>
<td>850</td>
<td>-</td>
<td>1,000</td>
</tr>
<tr>
<td>2.5D V</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2.5D 12L &amp; 12R</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4D V</td>
<td>7,000</td>
<td>-</td>
<td>10,000</td>
<td>-</td>
</tr>
<tr>
<td>4D 4R</td>
<td>12,500</td>
<td>-</td>
<td>12,500</td>
<td>-</td>
</tr>
<tr>
<td>4D 20L &amp; 20R</td>
<td>-</td>
<td>-</td>
<td>300</td>
<td>-</td>
</tr>
</tbody>
</table>

(1) These test points are boundaries, intensity values within this boundary must meet the listed photometry requirement.
### Table XIX-b: Headlamp Lower Beam Photometry Requirements

<table>
<thead>
<tr>
<th>Test Point (degrees)</th>
<th>Lower Beam #3 M (LB3M)</th>
<th>Lower Beam #3V (LB3V)</th>
<th>Lower Beam #4M (LB4M)</th>
<th>Lower Beam #5M (LB5M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) 10U to 90U</td>
<td>125</td>
<td>-</td>
<td>125</td>
<td>-</td>
</tr>
<tr>
<td>(1) 90L to 90R</td>
<td>125</td>
<td>-</td>
<td>125</td>
<td>-</td>
</tr>
<tr>
<td>4U 8L &amp; 8R</td>
<td>-</td>
<td>64</td>
<td>-</td>
<td>64</td>
</tr>
<tr>
<td>2U 4L</td>
<td>-</td>
<td>135</td>
<td>-</td>
<td>135</td>
</tr>
<tr>
<td>1.5U 1R to 3R</td>
<td>-</td>
<td>200</td>
<td>-</td>
<td>200</td>
</tr>
<tr>
<td>1.5U 1R to R</td>
<td>1,400</td>
<td>-</td>
<td>1,400</td>
<td>-</td>
</tr>
<tr>
<td>1U 1.5L to L</td>
<td>700</td>
<td>-</td>
<td>700</td>
<td>-</td>
</tr>
<tr>
<td>0.5U 1.5L to L</td>
<td>1,000</td>
<td>-</td>
<td>1,000</td>
<td>-</td>
</tr>
<tr>
<td>0.5U 1R to 3R</td>
<td>2,700</td>
<td>500</td>
<td>2,700</td>
<td>500</td>
</tr>
<tr>
<td>H V</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>H 4L</td>
<td>-</td>
<td>135</td>
<td>-</td>
<td>135</td>
</tr>
<tr>
<td>H 8L</td>
<td>-</td>
<td>64</td>
<td>-</td>
<td>64</td>
</tr>
<tr>
<td>0.5D 1.5L to L</td>
<td>2,500</td>
<td>-</td>
<td>2,500</td>
<td>-</td>
</tr>
<tr>
<td>0.5D 1.5R</td>
<td>20,000</td>
<td>8,000</td>
<td>20,000</td>
<td>8,000</td>
</tr>
<tr>
<td>0.6D 1.3R</td>
<td>-</td>
<td>-</td>
<td>10,000</td>
<td>-</td>
</tr>
<tr>
<td>0.86D V</td>
<td>-</td>
<td>-</td>
<td>4,500</td>
<td>-</td>
</tr>
<tr>
<td>0.86D 3.5L</td>
<td>-</td>
<td>12,000</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1D 6L</td>
<td>-</td>
<td>750</td>
<td>-</td>
<td>750</td>
</tr>
<tr>
<td>1.5D 2R</td>
<td>-</td>
<td>15,000</td>
<td>-</td>
<td>15,000</td>
</tr>
<tr>
<td>1.5D 9L &amp; 9R</td>
<td>-</td>
<td>750</td>
<td>-</td>
<td>750</td>
</tr>
<tr>
<td>2D 9L &amp; 9R</td>
<td>-</td>
<td>-</td>
<td>1,250</td>
<td>-</td>
</tr>
<tr>
<td>2D 15L &amp; 15R</td>
<td>-</td>
<td>700</td>
<td>-</td>
<td>700</td>
</tr>
<tr>
<td>2.5D V</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2.5D 12L &amp; 12R</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2,500</td>
</tr>
<tr>
<td>4D V</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4D 4R</td>
<td>12,500</td>
<td>-</td>
<td>12,500</td>
<td>-</td>
</tr>
<tr>
<td>4D 20L &amp; 20R</td>
<td>-</td>
<td>-</td>
<td>300</td>
<td>-</td>
</tr>
</tbody>
</table>

(1) These test points are boundaries, intensity values within this boundary must meet the listed photometry requirement.
### TABLE XIX-e: HEADLAMP LOWER BEAM PHOTOMETRY REQUIREMENTS

<table>
<thead>
<tr>
<th>TEST POINT (degrees)</th>
<th>LOWER BEAM # 4 V (LB4V)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MAXIMUM PHOTOMETRIC INTENSITY (cd)</td>
</tr>
<tr>
<td>(1) 10U to 90U</td>
<td>(1) 90L to 90R</td>
</tr>
<tr>
<td>4U</td>
<td>8L &amp; 8R</td>
</tr>
<tr>
<td>2U</td>
<td>4L</td>
</tr>
<tr>
<td>1.5U</td>
<td>1R to 3R</td>
</tr>
<tr>
<td>1.5U</td>
<td>1R to R</td>
</tr>
<tr>
<td>1U</td>
<td>1.5L to L</td>
</tr>
<tr>
<td>0.5U</td>
<td>1.5L to L</td>
</tr>
<tr>
<td>0.5U</td>
<td>1R to 3R</td>
</tr>
<tr>
<td>H</td>
<td>V</td>
</tr>
<tr>
<td>H</td>
<td>4L</td>
</tr>
<tr>
<td>H</td>
<td>8L</td>
</tr>
<tr>
<td>0.5D</td>
<td>1.5L to L</td>
</tr>
<tr>
<td>0.5D</td>
<td>1.5R</td>
</tr>
<tr>
<td>0.6D</td>
<td>1.3R</td>
</tr>
<tr>
<td>0.86D</td>
<td>V</td>
</tr>
<tr>
<td>0.86D</td>
<td>3.5L</td>
</tr>
<tr>
<td>1D</td>
<td>6L</td>
</tr>
<tr>
<td>1.5D</td>
<td>2R</td>
</tr>
<tr>
<td>1.5D</td>
<td>9L &amp; 9R</td>
</tr>
<tr>
<td>2D</td>
<td>9L &amp; 9R</td>
</tr>
<tr>
<td>2D</td>
<td>15L &amp; 15R</td>
</tr>
<tr>
<td>2.5D</td>
<td>V</td>
</tr>
<tr>
<td>2.5D</td>
<td>12L &amp; 12R</td>
</tr>
<tr>
<td>4D</td>
<td>V</td>
</tr>
<tr>
<td>4D</td>
<td>4R</td>
</tr>
<tr>
<td>4D</td>
<td>20L &amp; 20R</td>
</tr>
</tbody>
</table>

*(1) These test points are boundaries, intensity values within this boundary must meet the listed photometry requirement.*

David L. Strickland,
Administrator.

[FR Doc. 2011–19595 Filed 8–5–11; 8:45 am]

BILLING CODE 4910–69–C
Mr. Shigeyoshi Aihara  
Project Manager  
Regulation and Compliance  
Engineering Administration Department  
Ichikoh Industries, Ltd.  
80 Itado Ishihara City  
Kanagawa Pref.  
250-1192 Japan  

Dear Mr. Aihara:

This is in reply to your letter of June 10, 1999, presented at a meeting with NHTSA representatives that day, asking for an interpretation of S5.1.2 of Federal Motor Vehicle Safety Standard No. 108. I am sorry that we were unable to provide you a response by July 6 as you requested in your letter of June 28 to Taylor Vinson of this Office.

Your company has developed a new rear turn signal lamp, consisting of an outer plastic lens, an inner cap, and an uncolored filament bulb. The color of the lens is "pale (light) pink color, and, this plastic material complies with the requirements of SAE J576c . . . excluding the color requirement." You tell us that the trichromaticity coordinates of the plastic material used in the outer lens do not fall within either the red or the white areas of the chromaticity chart of SAE J578c. However, when illuminated, the lamp provides an amber color that fall within the coordinates specified in SAE J578c. You have asked whether this design is acceptable under S5.1.2 relating to plastic materials used in optical parts of motor vehicle lighting devices.

Although this does not affect our answer to your question, please note, in Standard No. 108, that SAE Recommended Practice J576c of 1970 has been replaced by SAE J576 JUL91 as the applicable standard for plastic materials used in lighting devices. However, J578c remains the Federal standard for color.

We regret to inform you that this design is not acceptable. Although S1, Scope, of SAE J578c states that "The specification applies to the overall effective color of light emitted by the device," regardless of the color of its lens, both SAE J576 JUL91 and Standard No. 108 apply the color requirement to plastic components of lamps as well. S5.1.2(e) of Standard No. 108 requires the trichromatic coordinates of the plastic samples, tested according to that paragraph, to conform to the requirements of SAE J578c. Paragraphs 4.1 and 4.2.2 of SAE J576 JUL91 also require conformance of plastic samples to the chromaticity coordinate requirements of SAE J578c. This standard specifies color coordinates only for red, white, yellow (amber), green, and blue. Because the lens of your lamp does not meet any of the coordinates of SAE J578c, Standard No. 108 does not permit its use.

At the meeting, we noted that the inner lens was a greenish color. It, too, must comply with the color coordinate requirements of paragraphs 4.1 and 4.2.2 of SAE J576 JUL91.

At that time, you also asked if it were acceptable to use a plastic fabricated from the mix of two resins, each of which complied with the requirements of SAE J576. You cannot assume, when two complying resins are blended, that the resulting plastic will also comply with SAE J576 JUL91, and we recommend that you test the blended plastic to ensure that it meets all the specifications of S5.1.2 and SAE J576 JUL91. This would be the case whether it was the intent to create a new color, or whether the rejected molded parts are reground and plastics of differing compositions are mixed and recycled into newly-molded lamp lenses. As we said in the preamble to the 1995 final rule amending S5.1.2, "it is incumbent upon the vehicle or equipment manufacturer . . . not to change the composition of the plastics materials [obtained from the plastics manufacturer] in a manner that would cause it to be noncomplying." 60 FR 46066, copy enclosed.
Sincerely,
Frank Seales, Jr.
Chief Counsel
Enclosure
ref:108
d.8/27/99
Dear Sir:

Koito would like to thank you in advance for your consideration of our request for an interpretation and clarification of the Federal Motor Vehicle Safety Standard (FMVSS) No. 108 concerning the necessity of carrying out a 3-year outdoor exposure test in a certain combination of plastic and coating material as explained below.

The Question: Necessity of carrying out a 3-year outdoor exposure test when "material A", which is suitable for direct exposure of FMVSS108 §5.1.2 (b), is used with a covering lens "material B", also suitable for direct exposure of FMVSS108 §5.1.2 (b), and a coating material "a" which was originally on the exterior surface of "material A" is moved to the exterior surface of "material B".

We are contemplating a new combination of plastic lens and coating material for use in an inner lens optics of automotive lamps. In this hypothetical new combination, "material A" (polycarbonate), which is suitable for direct exposure of FMVSS108 §5.1.2 (b) after completion of the 3-year outdoor exposure test when used with coating material "a", is going to be used in the inner lens. "Material B" (polycarbonate), which is also suitable for direct exposure of FMVSS108 §5.1.2 (b), but without coating, is going to be used in the outer lens. Despite that both materials meet FMVSS108 §5.1.2(b) in direct exposure condition, coating material "a" which was originally on the exterior surface of the inner lens "material A" when performing a 3-year exposure test is going to be moved onto the exterior surface of the outer lens "material B", and material A loses the coating "a" from its own surface. (See Figure-1)
We construe that no further testing of this hypothetical material / coating combination is required for the evaluation of the cumulative haze. Inner lens "material A" is still used with the coating material "a", although the coating itself is moved onto the exterior surface of the outer lens "material B". Also, in view of the vast reduction in ultraviolet exposure of inner lens which is afforded by the outer lens "material B", the inner lens "material A" would experience negligible haze when protected by an outer lens. This will further support the argument that haze performance of this material / coating combination is already ensured by the direct exposure of both materials A and B which were confirmed satisfactory to the FMVSS108 S5.1.2 (b) criteria after completion of the 3-year outdoor exposure tests.

Koito Manufacturing thanks you in advance for your early confirmation on this matter.

Sincerely,

Kiminori Hyodo
Deputy General Manager, Regulation & Certification
Koito Manufacturing Co., Ltd.
Dear Mr. Hyodo:

This responds to your recent letter, in which you asked whether it would be necessary to carry out a three-year, outdoor exposure test on a new combination of plastic lens and coating material under Federal Motor Vehicle Safety Standard (FMVSS) No. 108, Lamps, Reflective Devices, and Associated Equipment. Specifically, your letter stated that you plan to use two existing types of polycarbonate materials, each of which independently meets the requirements of S5.1.2 of Standard No. 108 (i.e., Material A with a coating, and Material B without a coating). However, we understand that you now intend to combine these materials, such that Material A is used as an inner lens without a coating, and Material B is used as an outer lens with the same coating that had been applied to Material A. In response to your question, FMVSS No. 108 does not specifically require manufacturers to conduct testing, but it is the manufacturer’s responsibility to produce a product that complies with all applicable requirements of our standard when tested in accordance with the standard, and to properly certify compliance.

By way of background, the National Highway Traffic Safety Administration (NHTSA) is authorized to issue FMVSSs that set performance requirements for new motor vehicles and items of motor vehicle equipment. NHTSA does not provide approval of motor vehicles or motor vehicle equipment. Instead, it is the responsibility of manufacturers to self-certify that their products conform to all applicable safety standards that are in effect on the date of manufacture (see 49 U.S.C. 30115 and 49 CFR Part 567, Certification).

We note further that the agency’s safety standards specify the test conditions and procedures that NHTSA will use to evaluate the performance of the vehicle or equipment being tested for compliance with the particular safety standard. NHTSA follows the test procedures and conditions applicable and in effect at the time of certification when conducting its compliance testing.
A manufacturer is responsible for ensuring that its product complies with applicable standards when tested in accordance with NHTSA procedures. A manufacturer may choose a valid means other than NHTSA performance test procedures for evaluating its products to determine whether the vehicle or equipment will comply with the safety standards when tested by the agency according to the procedures specified by the standard and to provide a basis for its certification of compliance.

If the agency has reason to believe that an apparent noncompliance exists in a vehicle or item of motor vehicle equipment, the manufacturer is asked to show the basis for its certification that the vehicle or equipment complies with the relevant safety standard(s). If in fact the vehicle or equipment does not comply with a Federal motor vehicle safety standard when tested according to procedures specified by the standard, the manufacturer will have to recall the product to bring it into compliance at no charge to the customer.

In addition, the manufacturer will be subject to civil penalties, unless it can establish that it had no reason to know, despite exercising "reasonable care" in the design and manufacture of the product to ensure compliance, that the product did not in fact comply with the safety standard(s) (49 U.S.C. 30115(a) and 30165). This agency has long said that it is unable to judge what efforts would constitute "reasonable care" in advance of the actual circumstances in which a noncompliance occurs.

As you are aware, the requirements for lighting equipment are contained in FMVSS No. 108, which provides in relevant part:

S5.1.2 Plastic materials used for optical parts such as lenses and reflectors shall conform to SAE Recommended Practice J576 [Society of Automotive Engineers (SAE) Recommended Practice J576, Plastic Materials for Use in Optical Parts Such as Lenses and Reflex Reflectors of Motor Vehicle Lighting Devices] JUL91, except that:

(a) Plastic lenses (other than those incorporating reflex reflectors) used for inner lenses or those covered by another material and not exposed directly to sunlight shall meet the requirements of paragraphs 3.3 and 4.2 of SAE J576 JUL91 when covered by the outer lens or other material;
(b) After the outdoor exposure test, the haze and loss of surface luster of plastic materials (other than those incorporating reflex reflectors) used for outer lenses shall not be greater than 30 percent haze as measured by ASTM D 1003-92, *Haze and Luminous Transmittance of Transparent Plastic*;

(g) All outdoor exposure tests shall be 3 years in duration, whether the material is exposed or protected. Accelerated weathering procedures are not permitted.

We note that neither SAE J576 nor Standard No. 108 specifically requires use of a coating.

Thus, the standard sets forth the test that NHTSA follows in conducting compliance testing. Specifically, under SAE J576 (incorporated by reference in FMVSS No. 108), the agency will subject plastic materials used for optical parts to an unaccelerated, three-year outdoor exposure test.

In short, Koito must ensure that its lamps as manufactured conform to all applicable requirements of FMVSS No 108, including that the plastic materials meet the exposure test requirements under S5.1.2. Again, our standards do not compel manufacturers to test the motor vehicles or motor vehicle equipment that they produce under NHTSA’s test procedures, although many choose to do so in order to provide a basis for their certification. However, if the agency subjected the lamp in question to compliance testing, the lamp’s plastic materials would need to meet the requirements of FMVSS No. 108, as certified.

If you have further questions, please feel free to contact Eric Stas of my staff at this address or by telephone at (202) 366-2992.

Sincerely,

Stephen P. Wood
Acting Chief Counsel
May 27, 2004

Mr. Kenneth N. Weinstein,
Associate Administrator
Office of Safety Assurance
NATIONAL HIGHWAY TRAFFIC SAFETY
ADMINISTRATION
400 Seventh St., S.W.
Washington, DC 20590

Dear Mr. Weinstein:


573.6(c)(1)

Name of manufacturer: Honda Motor Co., Ltd. (HMC)

Manufacturer's agent: William R. Wilton
American Honda Motor Co., Inc. (AHM)
1919 Torrance Blvd.
Torrance, CA 90501-2746

Name of tail lamp manufacturer: Koito Manufacturing Co., Ltd.

573.6(c)(2)

Identification of potentially affected vehicles:

<table>
<thead>
<tr>
<th>Make/Model</th>
<th>Description</th>
<th>VIN/Dates of Manufacture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Honda S2000</td>
<td>Certain 2000 models</td>
<td>JHMAP114<em>YT000049 – JHMAP114</em>YT007115 June 8, 1999 to April 5, 2000</td>
</tr>
</tbody>
</table>

Description of the basis for the determination of the recall population:
The 2000 model year was the introductory year of the S2000. The affected lenses of the side marker lamp and side reflex reflector in the tail lamp assembly were identified based on manufacturing records. The VIN range and manufacturing dates are inclusive of all vehicles that could potentially have a noncomplying lens installed by the factory.

573.6(c)(3)

Total number of vehicles potentially affected: 7,067

573.6(c)(4)

Percentage of affected vehicles that contain the noncompliance: Unknown
573.6(c)(5)
Noncompliance description:

Summary
The lens of the side marker lamp and side reflex reflector in the tail lamp assembly were manufactured with incorrect dye that, under the circumstances of use, does not retain its color over time and, therefore, does not comply with the requirements of Federal Motor Vehicle Safety Standard No. 108, "Lamps, Reflective Devices, and Associated Equipment."

Detail
The lens of the side marker lamp and side reflex reflector in the tail lamp assembly were manufactured using Diazole-base dye instead of Perinone-base dye. The chemical unit of Diazole-base dye, when used in the circumstances of the S2000, is more susceptible to UV and high temperature decomposition. As a result, the red color could fade, which does not comply with the deterioration requirement of Federal Motor Vehicle Safety Standard No. 108, "Lamps, Reflective Devices, and Associated Equipment."

573.6(c)(7)
Determination of noncompliance:
On June 17, 2003, HMC received a report that the color of the tail lamp side marker lens had faded. HMC initiated an investigation. According to Koito's accelerated test, the lens was projected to comply with the deterioration requirement of FMVSS 108. On May 14, 2004, Honda and Koito met with NHTSA to discuss compliance implications. In accordance with NHTSA's opinion, HMC determined the existence of a noncompliance.

573.6(c)(8)(i)
Program for remediating the noncompliance:
The owners of all affected vehicles will be notified by mail to take their vehicle to an authorized Honda dealer. The dealer will replace all affected tail lamp assemblies, free of charge.

573.6(c)(8)(ii)
The estimated date to e-mail preliminary notification to dealers: Jun. 4, 2004
The estimated date to provide service bulletin to dealers: Jun. 18, 2004
The estimated date to begin sending notices to owners: Jul. 7, 2004
The estimated date of completion of the notification: Jul. 7, 2004

573.6(c)(9)
Representative copies of all notices, bulletins and other communications:
A copy of the dealer service bulletin and text of the final customer notification letter will be submitted to your office as soon as possible.

573.6(c)(10)
Proposed owner notification letter submission:
A draft of the owner notification letter will be submitted to your office as soon as possible.
573.6(c)(11)

Manufacturer's campaign number:

The number will be submitted to your office as soon as possible.

Sincerely,

AMERICAN HONDA MOTOR CO., INC.

[Signature]

William R. Willen
Managing Counsel
Product Regulatory Office

WRW:ke
Weaverville is located within the prohibited co-channel minimum distance separation of 280.8 kilometers (174.5 miles) to the Sacramento-Stockton television market, one of the designated television markets affected by the Commission's current freeze on allotments and applications pending the outcome of an inquiry into the use of advanced television systems in broadcasting. (See Order, Advanced Television Systems and Their Impact on Existing Television Broadcasting Service, 52 Fed. Reg. 28346, July 29, 1987). However, Channel 32 is allotted to Weaverville in compliance with the terms of the freeze Order at a restricted site. Interested parties should note that any application submitted for Channel 32 at Weaverville which does not specify a site beyond the "freeze zone" governing the allotment will not be accepted for filing.

List of Subjects in 47 CFR Part 73
Television broadcasting.
Part 73 of title 47 of the Code of Federal Regulations is amended as follows:

PART 73—[AMENDED]
1. The authority citation for part 73 continues to read as follows:

§73.606 [Amended]
2. Section 73.606(b), the Table of TV Allotments under California, is amended by adding Weaverville, Channel 32.
Federal Communications Commission.
John A. Karousos,
Chief, Allocations Branch, Policy and Rules Division, Mass Media Bureau.

DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration

49 CFR Part 571
[Docket No. 94–37; Notice 2]
RIN 2127–AF 22

Federal Motor Vehicle Safety Standards; Lamps, Reflective Devices and Associated Equipment
AGENCY: National Highway Traffic Safety Administration (NHTSA), DOT.
ACTION: Final rule.

SUMMARY: This notice adopts amendments to the Federal Motor Vehicle Safety Standard on lighting to replace the currently incorporated SAE J576c with the more recent SAE J576 JUL91 as the referenced standard on plastics materials, to replace ASTM D 1003–61 with the more recent ASTM D 1003–92 in the test procedures, and to allow alternative processing techniques, sample sizes and thickness tolerances to those presently specified. These amendments represent the choice of Option 1 from the notice of proposed rulemaking published in November 1994.

DATES: The effective date of the final rule is March 1, 1996.


SUPPLEMENTARY INFORMATION: Heraeus DSET Laboratories, Inc. ("DSET"), of Phoenix, Arizona, petitioned NHTSA for rulemaking to amend Federal Motor Vehicle Safety Standard No. 108, Lamps, Reflective Devices, and Associated Equipment. Specifically, DSET asked that paragraph S5.1.2 be amended "to update the test specimen processing requirements of plastic material used for optical parts such as lenses and reflectors." Currently, these materials are required to conform to Society of Automotive Engineers (SAE) Recommended Practice J576c, May 1970. DSET wants NHTSA to allow alternative processing techniques besides injection molding to produce test specimens, to allow test specimen sizes other than a 3 inch diameter disc and to change the specimen thickness tolerances from ±0.005 inch to ±0.010 inch.

Those requirements for injection molding and for the diameter and thickness of the test specimen are set forth in J576c, May 1970. NHTSA granted the petition and published a notice of proposed rulemaking in response to it on November 2, 1994 (59 FR 54881). The notice proposed two alternative amendments of S5.1.2 as means of implementing its grant of DSET's petition. The agency asked commenters for their views on each of the alternatives.

Option 1. This option would substitute SAE J576 JUL91 for SAE J576c, May 1970, and make conforming amendments in the text of S5.1.2. Option 1 would also replace American Society for Testing and Materials (ASTM) D 1003–61 with ASTM D 1003–92 with respect to measurement of haze (which, as currently specified, would not exceed 7 percent). A specimen thickness tolerance of ±0.25 mm (0.010 in.) would also be allowed as there is no technical reason to limit the test specimen thickness tolerance to ±0.005 in., and the value proposed by NHTSA as recommended by DSET appears to be a more reasonable tolerance for test specimens.

Option 2. This option would retain the current SAE and ASTM specifications but would allow processing techniques other than injection molding to produce equivalent test specimens, test specimens other than a disc of 3-inch diameter, and a test specimen thickness tolerance of ±0.010 inch.

Seven comments were received, five of which supported Option 1. These were from Flexile Corporation ("Flexile"), Transportation Safety Equipment Institute ("TSEI"), Robert Bosch, GmbH ("Bosch"), American Automobile Manufacturers Association ("AAMA"), and Ford Motor Company ("Ford"). Miles, Inc. opposed Option 1 and supported Option 2. The Plastics Division of General Electric Corporation ("GE") did not express a preference for either alternative.

Each of the commenters supporting Option 1 had a different concern. Flexile suggested that NHTSA adopt the base number of each SAE and ASTM standard/recommended practice, with the suffix notation "Latest Revision." In the company's view, this would eliminate the need to revise older materials and ensure that the safety standards reflect contemporary industry practice.

While this is an attractive notion, there are legal constraints against it. The SAE and ASTM materials per se are only guidelines and advisory in nature. Once they are incorporated into the Federal motor vehicle safety standards, they become "the law of the land", and a manufacturer must comply with them or face civil sanctions. Under the Administrative Procedure Act, a regulation imposing a substantive burden cannot be adopted in the absence of adequate public notice and an opportunity to comment. Under the approach suggested by Flexile, automatic updating of the safety standards to incorporate the latest SAE and ASTM revisions would occur with no prior public notice or opportunity to comment, and hence violate the Administrative Procedure Act. Further, NHTSA has found that many updated and revised materials change the previous materials in substantive ways. Some changes may not be in the interests of safety; the elimination of the heat test from SAE J576 JUL91 is one example of this. Other changes may increase, rather than reduce, a substantive burden upon industry. Regulated persons and the public must...
be apprised of these changes before they are adopted.

NHTSA may, however, adopt an updated version without prior notice where there appears to be no substantive change since such an adoption is in the nature of a technical amendment. The agency is adopting an updated version in this final rule on the basis of a comment from TSEI. Under proposed paragraph S5.1.2(e), after exposure to the heat test, the samples shall conform to the color requirements of SAE J578c, October 1966. TSEI pointed out that current paragraph S5.1.5 references SAE J578c, February 1977. It recommended that NHTSA change both references to the specification of J578 MAY 88.

NHTSA has compared the 1988 and 1977 versions of J578 with that of 1966. It finds no substantive difference between the 1966 and 1977 versions. The 1988 version, however, contains a third method of color measurement to be used "as a referee approach when the commonly used methods produce questionable results." In addition, the Appendix in the latter has added a section of "Color Measurements of Gaseous Discharge Lighting Devices." NHTSA ought to have comment on these changes before adopting SAE J578 MAY 88, and, for this reason, has not followed TSEI's suggestion. On the other hand, because of the lack of substantive change between the other two versions, paragraph S5.1.2(e) is added with an update of the J578 reference to 1977 from the 1966 version which was proposed.

The wording of present paragraph S5.2.1 concerned Ford and AAMA. Under this paragraph, phrases such as "It is recommended that" and "should be," which appear in materials incorporated by reference, are to be read as setting forth mandatory requirements. Ford and AAMA commented that these phrases should not be interpreted as applying to SAE J576 JUL 91. In NHTSA's view, the result of adopting Ford's and AAMA's comments would be to make compliance of plastic materials used for optical parts a voluntary affair. This would defeat the purpose of the rulemaking.

Proposed paragraph S5.1.2(e) would require test samples, after the heat test, to "show no discernable change in shape and general appearance when compared with an unexposed specimen." This language comes from J576 itself, with the exception that the SAE uses "significant" rather than "discernable." Ford and AAMA objected to this substitution, arguing that it would establish a higher standard to be met by plastics, and that there is no need to change language that has been a requirement for years. They recommended use of the word "significant." In their view, a change that is "discernable" is not necessarily that is "significant."

In its proposal, NHTSA had no intention of increasing the burden on any regulated party. The agency proposed the word "discernable" with care, because it is objective, while "significant" is not. Motor vehicle safety standards are required by law to be "objective", 49 U.S.C. 30111(a). The agency has concluded that "discernable" is more appropriate for a requirement specifically expressed in the text of Standard No. 108 (as compared with one incorporated by reference). However, NHTSA wishes to make clear that it views the words as essentially synonymous in this context. If a post-test change in shape or general appearance is discernable, NHTSA considers that to be significant. Such a change indicates the potential for degradation of a lens in use, with a corresponding effect upon color and photometrics of the lamp on which it is installed. To add even greater objectivity, the final rule expresses the requirement as "discernable to the naked eye." Should a change be discernable to the naked eye after testing, and a manufacturer believe that such a change is not "significant," the manufacturer may file a Part 573 Noncompliance Notification Report simultaneously with an application to NHTSA for a determination that the change resulting from that testing is inconsequential to motor vehicle safety.

GE did not choose between the alternatives in its comment. It did, however, recommend the adoption of SAE J576 JUL 91 in its entirety, and that NHTSA not carry over the heat test from the previous version of J576. In its view, the heat tests of J575 are adequate until further work is done on thermal issues suitable for incorporation into J576.

Hearing the comments in response to the NPRM, NHTSA is amending Standard No. 108 to add the new paragraphs proposed, maintaining the performance requirements required of plastic materials by SAE J576c, for the heat test and specifying positioning of test samples during the test. These have been omitted by the SAE from J576 JUL 91. NHTSA has chosen to retain the existing heat test as one that is familiar to industry and one which meets the need for motor vehicle safety. It is not intended to establish a margin of safety between the temperatures at which plastic reflectors and lenses may fail from internal heat, and temperatures on the exterior surface induced by exposure to sunlight. Lamp manufacturers use J575 or similar tests to determine whether the particular design characteristics of their lamps require use of premium materials in the lenses. It is a test of the finished lens as installed on the lamp, rather than a test of the materials used in finished products. Use of material with insufficient high temperature performance can result in reflectors that lose color and reflectivity.

The positioning of test samples will allow the sample to drop if its strength is adversely affected by the test.

In order to retain the current 3-year outdoor exposure time test requirements for plastic lenses used or covered by another material and not exposed directly to sunlight, NHTSA is adding a new paragraph S5.1.2(g) to specify that paragraph 3.3.3.1 of SAE J576 JUL 91 does not apply as regards protected materials. For the same reason, NHTSA is not adopting paragraph 3.3.3.2. of SAE J576 JUL 91 which allows an accelerated 6-month outdoor exposure test time. New paragraph S5.1.2(g) will not change the stringency or flexibility of the standard as it exists, but will ensure that the integrity of plastic materials is maintained by not permitting a lesser exposure time for materials which may be protected when in use.

Miles, Inc., a manufacturer of polycarbonate resin used as a material in lenses and reflectors, objected to Option 1. In its view, this alternative places an additional testing burden on the resin manufacturer, as compared with the present requirements. For this reason, it supported Option 2. Specificaly, Miles objects to SAE J576 JUL 91 because of Section 3.1 Materials to be Tested. This section reads:

"Outdoor exposure tests shall be made on each material * * * offered for use in optical parts * * *. Concentrations of polymer components and additives such as plasticizer, lubricants, colorants, weathering stabilizers, and antioxidants in plastic materials and/or coatings may be changed without outdoor exposure testing if the changes are within the limits of composition represented by higher and lower concentrations of these polymer components and additives have been tested in accordance with 3.3 and found to meet the requirements of Section 4."

Miles interprets this language to mean that changes in dye concentrations would only be permissible if samples containing lower and higher concentrations of dyes had been exposure tested. Miles believes that this, in effect, would double the samples to
be tested when compared with the present requirements. The present requirements are those of section 3.1 of SAE J576c, May 1970. These state, in pertinent part, that “[a] test of one color and formulation shall cover variations in dye concentration, but shall not cover changes in dyes materials or changes in polymers.” Miles interprets this as meaning that a new exposure test need not be conducted under the 1970 version if the only change in the product is a variation in dye concentration. Its present practice is to test for exposure materials incorporating new dyes only at the expected concentration level of the dye. One exposure test covers each new dye, but Miles will accept the test results as valid when there are small variations in dye concentration.

Miles is correct that SAE J576c allows a single test to cover variations in dye concentration. SAE J576 JUL 91 may be interpreted as calling for the testing of two samples by specifying that dye concentration of the material to be used in motor vehicle optical parts must fall within the upper and lower limits of dye concentrations tested if there are variations in dye concentration. Miles believes the newer requirement will double its testing burden.

NHTSA does not agree that this is the inevitable result of the adoption of this portion of SAE J576 JUL 91. What paragraph S5.1.2 is intended to ensure is that lenses and reflectors, as manufactured for use on motor vehicles, are fabricated from plastic materials that meet SAE J576. The key issue is whether the equipment satisfies the performance requirements of the standard, not the number of tests conducted on the materials used in the equipment. Ultimately, the manufacturer of the vehicle in certifying compliance with all applicable Federal motor vehicle safety standards, is certifying that the lenses and reflectors on the vehicle are made from plastics materials that meet J576. If the lens or reflector is manufactured as replacement equipment, the certification responsibility is that of the manufacturer of the equipment. Thus, it is incumbent upon the vehicle or equipment manufacturer to assure itself that the materials it obtains from the plastics manufacturer comply with SAE J576 (and, furthermore, not to change the composition of the plastics materials so obtained in a manner that would cause it to be noncomplying). The documentation needed for such assurance, including the quantum of testing performed by the plastics manufacturer and by the vehicle or equipment manufacturer, is a decision that each equipment or vehicle manufacturer must make under the particular circumstances. NHTSA, of course, expects manufacturers to exercise reasonable care in certifying their products, and, in the event of a noncompliance, the manufacturer may claim that it had no reason to know, despite exercising reasonable care, that the vehicle or equipment failed to comply. However, the allocation of that responsibility is a matter of contract between the manufacturer with the Federal certification responsibility and its plastic materials supplier. Plastic materials are not completed items of motor vehicle equipment subject to Standard No. 108 so the Federal certification responsibility does not fall upon Miles. If Miles or other materials manufacturers are satisfied, based on their extensive experience with dyes, that changes in dye concentration would not cause the plastic material to fail the specified performance requirements, they may be able to persuade their purchasers that additional testing is not needed.

Effective Date

The effective date of the final rule is March 1, 1996.

Rulemaking Analyses and Notices

Executive Order 12866 and DOT Regulatory Policies and Procedures. This final rule was not reviewed under Executive Order 12866. It has been determined that the rulemaking action is not significant under Department of Transportation regulatory policies and procedures. The purpose of the rulemaking action is to update testing procedures. Since the final rule will have no significant cost or other impacts, preparation of a full regulatory evaluation is not warranted.

National Environmental Policy Act. NHTSA has analyzed this rulemaking action for the purposes of the National Environmental Policy Act. The final rule will not have a significant effect upon the environment. The composition of plastic materials used in optical parts will not change from those presently in production.

Regulatory Flexibility Act. The agency has also considered the impacts of this rulemaking action in relation to the Regulatory Flexibility Act. I certify that this rulemaking action does not have a significant economic impact upon a substantial number of small entities. Accordingly, no regulatory flexibility analysis has been prepared. Manufacturers of motor vehicles and motor vehicle equipment, those affected by the rulemaking action, are generally not small businesses within the meaning of the Regulatory Flexibility Act. Further, small organizations and governmental jurisdictions will not be significantly affected because the price of new vehicles and vehicle equipment will not be impacted.

Executive Order 12612 (Federalism). This rulemaking action has also been analyzed in accordance with the principles and criteria contained in Executive Order 12612, and NHTSA has determined that this rulemaking action does not have sufficient Federalism implications to warrant the preparation of a federalism assessment.

Civil Justice. The final rule will not have any retroactive effect. Under 49 U.S.C. 30103, whenever a Federal motor vehicle safety standard is in effect, a state may not adopt or maintain a safety standard applicable to the same aspect of performance which is not identical to the Federal standard. 49 U.S.C. 30161 sets forth a procedure for judicial review of final rules establishing, amending or revoking Federal motor vehicle safety standards. That section does not require submission of a petition for reconsideration or other administrative proceedings before parties may file suit in court.

List of Subjects in 49 CFR Part 571

Imports, Motor vehicle safety, Motor vehicles

PART 571—FEDERAL MOTOR VEHICLE SAFETY STANDARDS

In consideration of the foregoing, 49 CFR part 571 is amended as follows:

1. The authority citation for part 571 continues to read as follows:

Authority: 49 U.S.C. 322, 30111, 30115, 30117 and 30166; delegation of authority at 49 CFR 1.50.

2. Section 571.108 is amended by revising paragraph S5.1.2, to read as follows:


* * * * *

S5.1.2 Plastic materials used for optical parts such as lenses and reflectors shall conform to SAE Recommended Practice J576 JUL 91, except that:

(a) Plastic lenses (other than those incorporating reflex reflectors) used for inner lenses or those covered by another material and not exposed directly to sunlight shall meet the requirements of paragraphs 3.3 and 4.2 of SAE J576 JULY91 when covered by the outer lens or other material;

(b) After the outdoor exposure test, the haze and loss of surface luster of
plastic materials (other than those incorporating reflex reflectors) used for outer lenses shall not be greater than 30 percent haze as measured by ASTM D 1003-92, Haze and Luminous Transmittance of Transparent Plastic; 

(c) After the outdoor exposure test, plastic materials used for reflex reflectors and for lenses used in front of reflex reflectors shall not show surface deterioration, crazing, dimensional changes, color bleeding, delamination, loss of surface luster, or haze that exceeds 7 percent as measured under ASTM D 1003-92.

(d) The thickness of the test specimens specified in paragraph 3.2.2 of SAE J576c may vary by as much as ±0.25 mm.

(e) After exposure to the heat test as specified in subparagraph (f) of this paragraph, and after cooling to room ambient temperature, a test specimen shall show no change in shape and general appearance discernable to the naked eye when compared with an unexposed specimen. The trichromatic coefficients of the samples shall conform to the requirements of SAE J576c, "Color Specification for Electric Signal Lighting Devices", February 1977.

(f) Two samples of each thickness of each plastic material are used in the heat test. Each sample is supported at the bottom, with at least 51 mm. of the sample above the support, in the vertical position in such a manner that, on each side, the minimum uninterrupted area of exposed surface is not less than 3225 sq. mm. The samples are placed for two hours in a circulating air oven at 79 ± 3 degrees C.

(g) All outdoor exposure tests shall be 3 years in duration, whether the material is exposed or protected. Accelerated weathering procedures are not permitted.

* * * * *

Issued on August 29, 1995.

Ricardo Martinez,
Administrator.

[FR Doc. 95-21865 Filed 9-1-95; 8:45 am]  
BILLING CODE 4910-99-P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 672

[Docket No. 950206041-5041-01; I.D. 082995A]

Groundfish of the Gulf of Alaska; Pacific Cod with Jig and Pot Gear for Processing by the Inshore Component in the Central Regulatory Area

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Modification of a closure.

SUMMARY: NMFS is opening directed fishing for Pacific cod by vessels catching Pacific cod with jig and pot gear for processing by the inshore component in the Central Regulatory Area of the Gulf of Alaska (GOA). This action is necessary to use the total allowable catch (TAC) for Pacific cod in this area.

EFFECTIVE DATE: 12 noon, Alaska local time (A.l.t.), September 1, 1995, until 12 midnight, A.l.t., December 31, 1995.

FURTHER INFORMATION CONTACT: Andrew N. Smoker, 907-586-7228.

SUPPLEMENTARY INFORMATION: The groundfish fishery in the GOA exclusive economic zone is managed by NMFS according to the Fishery Management Plan for Groundfish of the Gulf of Alaska (FMP) prepared by the North Pacific Fishery Management Council under authority of the Magnuson Fishery Conservation and Management Act. Fishing by U.S. vessels is governed by regulations implementing the FMP at 50 CFR parts 620 and 672.

In accordance with § 622.20(c)(1)(ii), the allocation of Pacific cod for the inshore component in the Central Regulatory Area of the GOA was established by the Final 1995 Harvest Specifications of Groundfish (60 FR 8470, February 14, 1995) as 41,085 metric tons (mt). The directed fishery for Pacific cod by vessels catching Pacific cod for processing by the inshore component in the Central Regulatory Area of the GOA was closed under § 622.20(c)(2)(i) on March 22, 1995, in order to reserve amounts anticipated to be needed for incidental catch in other fisheries (60 FR 15521, March 24, 1995). NMFS has determined that as of August 8, 1995, 4,313 mt remain unharvested.

The Director, Alaska Region, NMFS, has determined that the 1995 TAC for Pacific cod for processing by the inshore component in the Central Regulatory Area of the GOA has not been reached. Therefore, NMFS is terminating the previous closure and is opening directed fishing for Pacific cod by vessels catching Pacific cod for processing by the inshore component in the Central Regulatory Area of the GOA. All other closures remain in full force and effect.

This action opens the directed fishery for Pacific cod by vessels catching Pacific cod with jig and pot gear for processing by the inshore component in the Central Regulatory Area of the GOA. Directed fishing for groundfish with hook-and-line and trawl gear is currently prohibited (60 FR 26694, May 18, 1995; 60 FR 37600, July 21, 1995; 60 FR 37601, July 21, 1995).

Classification

This action is taken under 50 CFR 672.20 and is exempt from review under E.O. 12866.

Authority: 16 U.S.C. 1801 et seq.


Richard H. Schaefer,
Director, Office of Fisheries Conservation and Management, National Marine Fisheries Service.

[FR Doc. 95-21948 Filed 8-30-95; 3:43 pm]
BILLING CODE 3510-22-F

50 CFR Part 672

[Docket No. 950206041-5041-01; I.D. 082995A]

Groundfish of the Gulf of Alaska; Trawling in the Western Regulatory Area

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Inseason adjustment; request for comments.

SUMMARY: NMFS issues an inseason adjustment closing the season for all groundfish by vessels using trawl gear, except fishing for pollock by vessels using pelagic trawl gear, in the Western Regulatory Area of the Gulf of Alaska (GOA). This action is necessary to prevent overfishing of Pacific ocean perch (POP).

DATES: Effective 12 noon, Alaska local time (A.l.t.), September 1, 1995, until 12 midnight, A.l.t., December 31, 1995. Comments must be received no later than 4:30 p.m., A.l.t., September 18, 1995.

ADDRESSES: Comments may be sent to Ronald J. Berg, Chief, Fisheries Management Division, Alaska Region, NMFS, P.O. Box 21668, Juneau, AK 99802, Attn. Lori Gravel, or be delivered
Mr. Shigeyoshi Aihara
Project Manager
Regulation and Compliance
Engineering Administration Department
Ichikoh Industries, Ltd.
80 Itado Ishehara City
Kanagawa Pref.
250-1192 Japan

Dear Mr. Aihara:

This is in reply to your letter of June 10, 1999, presented at a meeting with NHTSA representatives that day, asking for an interpretation of S5.1.2 of Federal Motor Vehicle Safety Standard No. 108. I am sorry that we were unable to provide you a response by July 6 as you requested in your letter of June 28 to Taylor Vinson of this Office.

Your company has developed a new rear turn signal lamp, consisting of an outer plastic lens, an inner cap, and an uncolored filament bulb. The color of the lens is "pale (light) pink color, and, this plastic material complies with the requirements of SAE J576c ... excluding the color requirement." You tell us that the trichromaticity coordinates of the plastic material used in the outer lens do not fall within either the red or the white areas of the chromaticity chart of SAE J578c. However, when illuminated, the lamp provides an amber color that fall within the coordinates specified in SAE J578c. You have asked whether this design is acceptable under S5.1.2 relating to plastic materials used in optical parts of motor vehicle lighting devices.

Although this does not affect our answer to your question, please note, in Standard No. 108, that SAE Recommended Practice J576c of 1970 has been replaced by SAE J576 JUL91 as the applicable standard for plastic materials used in lighting devices. However, J578c remains the Federal standard for color.

We regret to inform you that this design is not acceptable. Although S1, Scope, of SAE J578c states that "The specification applies to the overall effective color of light emitted by the device," regardless of the color of its lens, both SAE J576 JUL91 and Standard No. 108 apply the color requirement to plastic components of lamps as well. S5.1.2(e) of Standard No. 108 requires the trichromatic coordinates of the plastic samples, tested according to that paragraph, to conform to the requirements of SAE J578c. Paragraphs 4.1 and 4.2.2 of SAE J576 JUL91 also require conformance of plastic samples to the chromaticity coordinate requirements of SAE J578c. This standard specifies color coordinates only for red, white, yellow (amber), green, and blue. Because the lens of your lamp does not meet any of the coordinates of SAE J578c, Standard No. 108 does not permit its use.

At the meeting, we noted that the inner lens was a greenish color. It, too, must comply with the color coordinate requirements of paragraphs 4.1 and 4.2.2 of SAE J576 JUL91.

At that time, you also asked if it were acceptable to use a plastic fabricated from the mix of two resins, each of which complied with the requirements of SAE J576. You cannot assume, when two complying resins are blended, that the resulting plastic will also comply with SAE J576 JUL191, and we recommend that you test the blended plastic to ensure that it meets all the specifications of S5.1.2 and SAE J576 JUL191. This would be the case whether it was the intent to create a new color, or whether the rejected molded parts are reground and plastics of differing compositions are mixed and recycled into newly-molded lamp lenses. As we said in the preamble to the 1995 final rule amending S5.1.2, "it is incumbent upon the vehicle or equipment manufacturer . . . not to change the composition of the plastics materials [obtained from the plastics manufacturer] in a manner that would cause it to be noncomplying." 60 FR 46066, copy enclosed.

Sincerely,
Frank Seales, Jr.
Chief Counsel
Enclosure
ref:108
d.8/27/99
Mr. Kiminori Hyodo  
Deputy General Manager, Regulation & Certification  
Koito Manufacturing Co., Ltd.  
4-8-3, Takanawa  
Minato-Ku Tokyo  
Japan

Dear Mr. Hyodo:

This responds to your letter, in which you ask about test requirements for plastic materials for use in lenses under Federal Motor Vehicle Safety Standard (FMVSS) No. 108, Lamps, Reflective Devices, and Associated Equipment. Specifically, you asked whether you could exclude the presence of metal particles contained within a plastic lens from the outdoor exposure test incorporated by reference into Standard No. 108. You also asked what the term “lens” means under §5.1.2 of FMVSS No. 108. Our responses are presented below.

By way of background, the National Highway Traffic Safety Administration (NHTSA) is authorized to issue FMVSSs that set performance requirements for new motor vehicles and items of motor vehicle equipment (see 49 U.S.C. Chapter 301). NHTSA does not provide approvals of motor vehicles or motor vehicle equipment. Instead, manufacturers are required to self-certify that their products conform to all applicable safety standards that are in effect on the date of manufacture. NHTSA selects a sampling of new vehicles and regulated equipment each year to determine their compliance with applicable FMVSSs. If our testing or examination reveals an apparent noncompliance, we may require the manufacturer to remedy the noncompliance, and may initiate an enforcement proceeding if necessary to ensure that the manufacturer takes appropriate action.

Do the metal particles need to be included in the “haze test?”

Your first question relates to the presence of a layer of metal particles on the lens. According to your letter, a process called “half-metalization” allows you to create a semitransparent metallic layer on your lens, between the lens and a protective coating. This half-metalized layer effectively reduces light transmission to about 30% of a non-metalized lens.
As you state in your letter, FMVSS No. 108 requires that optical parts be certified to comply with the testing procedures in SAE Recommended Practice J576 (JUL 91), "Plastic Materials for use in Optical Parts such as Lenses and Reflex Reflectors of Motor Vehicle Lighting Devices," incorporated by reference into paragraph S5.1.2 of the standard. Part of this practice specifies that materials be subject to a three year outdoor exposure test. Your specific question asked if you could exclude the presence of the metal particles from the three year exposure test. In asking this question, you state that metals are inorganic and do not excite plastics and also, since half-metalization is applied on the inner surface and protected by the coating, it would not be oxidized.

In responding to your question as to whether you can exclude the metal particles from the test, we note that each of this agency's safety standards specifies the test conditions and procedures that this agency will use to evaluate the performance of the vehicle or equipment being tested for compliance with the particular safety standard. NHTSA follows these specified test procedures and conditions when conducting its compliance testing.

Manufacturers are not required to test their products in the manner specified in the relevant safety standard, or even to test the product at all, as their basis for certifying that the product complies with all relevant standards. A manufacturer may choose any valid means of evaluating its products to determine whether the vehicle or equipment will comply with the safety standards when tested by the agency according to the procedures specified in the standard and to provide a basis for its certification of compliance.

If we tested this product, the outdoor exposure test would include the presence of the metal particles. There is nothing in FMVSS No. 108, including the relevant items incorporated by reference, that specifies excluding the particles. We also note that much like protective coatings, these particles have a substantial effect on the transparency and endurance of the lens, and we therefore believe they should be included as part of the lens in all relevant test requirements.

**Definition of the term "lens"**

Your second question concerned the definition of the term "lens" under S5.1.2 of FMVSS No. 108, and whether that definition would include a half-metalized area surrounding the effective projected luminous lens area. You stated that the non-metalized portion of the lens would meet all photometric requirements of the standard, and that it would be surrounded by a half-metalized portion of the lens, which would emit only a small amount of light for decorative purposes.

The term "lens," while not explicitly defined in Standard No. 108, is commonly understood within automotive lighting lamp applications as a component of a lamp that as installed allows light to pass through it. For the purposes of S5.1.2, all plastic portions of this component that allow light to pass through it are part of the "lens," subject to the haze test, including the half-metalized area that you state would emit a small amount of light.
Are the non-EPLLA portions of the lens subject to the S5.1.2 requirements?

You followed up your second question by asking, “when half-metalization is applied only to the part surrounding the effective projected luminous lens area, would it be excluded from [the] S5.1.2 requirement?” Our answer is no.

It is our opinion that all portions of the lens, including the half-metalized areas that only emit small amounts of light for decorative purposes, are subject to the requirements of S5.1.2, which specify haze and weathering requirements similar to those described in SAE Recommended Practice J576.

The language of S5.1.2 reads, “Plastic materials used for optical parts such as lenses and reflectors shall conform to [SAE J576]....” When testing plastic materials, however, the agency does not simply test a plastic plaque alone. Instead, the plastic plaque is tested with its coating, which frequently is necessary to protect the plastic from the effects of weathering. The coating on the plastic is an integral feature in protecting the plastic from moisture, ultraviolet light, and other agents.

You described your lens as having a semitransparent metallic layer between the lens and the coating. In addition to the effect this has on the transparency of that portion of the lens, it may also affect the weathering aspects. For example, if the metal layer affected the bonding of the coating to the plastic, it could have substantial affect on whether the lens could tolerate weathering.

Because, as described above, the lens is a single piece, if even a decorative, half-metalized portion of the lens were to fail the weathering requirements in S5.1.2, it could have a substantial affect on the entire lens. For example, moisture could enter the lens, affecting the non-metalized portion’s transparency.

For these reasons, when testing the lens you described, the half-metalized portion of the lamp design described in your letter would be included as an item subject to the testing requirements of S5.1.2 of FMVSS No. 108.

If you have any further questions, please contact Ari Scott of my staff at (202) 366-2992.

Sincerely yours,

Stephen P. Wood
Acting Chief Counsel
Dear Mr. Anthony M. Cooke,

Koito would like to thank you in advance for your consideration of our request for an interpretation and clarification of the Federal Motor Vehicle Safety Standard (FMVSS) No. 108 concerning the necessity of carrying out a 3-year outdoor exposure test in a certain combination of plastic and protective coating material with metal particles in between.

Description:
We are contemplating a new technique called "half-metalization (evaporation)", which is to be applied on the inner surface of a plastic lens of automotive lamps. "Half-metalization" is an expanded application of metal evaporation which is widely used for the surface treatment of lamp reflectors. In this new technique, careful conditioning of the metal density enables us to make a specular appearance of the lens surface, where the light transmission would be lowered to e.g. 30% of a non-metalized lens.

As you see in the figure above, in a microscopic view, the metal particles placed between the plastic and protective coating create partial maskings on the lens, whereas the light passes from the non-masked part only. However, when used in a lamp, this reduced transmission will be balanced out by other designing factors so that the lamp satisfies all the FMVSS108 requirements (e.g. photometric, color) applicable to it.

Question No.1: Can we exclude the presence of metal particles from the target of SAE J576 3-year outdoor exposure test?

FMVSS 108 requires that plastic materials used for optical parts must be in compliance with SAE J576 JUL91 (S5.1.2.) including the 3-year outdoor exposure test. We basically understand that the target of 3-year outdoor exposure test (i.e. measurement of luminous transmittance, haze, and compliance with SAE J578 chromaticity and appearance requirement as required under S4.2 of SAE J576 JUL91) is a combination of plastic and coating, whereas if they comply with the 3-year outdoor exposure requirement, the metal particles on the lens (where the light does not pass) can be excluded from the test. In this case, however, the lamp using half-metalized lens must be designed to satisfy all the applicable requirements (e.g. photometric and color) required by FMVSS108.

Supporting this discussion, we can say that metals are inorganic and do not excite plastics. Also, since half-metalization is applied on the inner surface and protected by the coating, it would not be oxidized.
**Question No.2:** What the term "lens" means under S5.1.2. of FMVSS108?

S5.1.2. of FMVSS108 requires that plastic materials used for optical parts such as lenses and reflectors shall conform to SAE J576 JUL91. Does the term "lens" under S5.1.2. indicate the effective part of the lens (corresponding to the effective projected luminous lens area) only, or whole part of the lens?

In conjunction with above question, when half-metalization is applied only to the part surrounding the effective projected luminous lens area, would it be excluded from S5.1.2. requirement? (In this case, of course, photometric requirements will be met by the effective projected luminous lens area only, and the half-metalized part slightly emits light for decorative purpose.)

Effective Projected Luminous Lens Area (Without half-metalization): Photometric requirements will be met by this part only.

Half-metalization: Slightly emits light for decorative purpose.

*Figure 2: Half-metalization outside EPLLA>*

Koito Manufacturing thanks you in advance for your early confirmation on this matter.

Sincerely,

Kiminori Hyodo
Deputy General Manager, Regulation & Homologation
Koito Manufacturing Co., Ltd.
were amended in 2005. Reinstating the specific language in the regulations will therefore not increase the paperwork burden on those manufacturers.

H. Executive Order 13045

Executive Order 13045 applies to any rule that (1) is determined to be “economically significant” as defined under E.O. 12866, and (2) concerns an environmental, health, or safety risk that NHTSA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, we must evaluate the environmental health or safety effects of the planned rule on children, and explain why the planned rule is preferable to other potentially effective and reasonably feasible alternatives considered by us. This rulemaking is not economically significant and does not concern an environmental, health, or safety risk.

I. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (NTTAA), Public Law 104–113, section 12(d) (15 U.S.C. 272) directs NHTSA to use voluntary consensus standards in its regulatory activities unless doing so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (e.g., materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies, such as the Society of Automotive Engineers (SAE). The NTTAA directs the agency to provide Congress, through the OMB, with explanations when we decide not to use available and applicable voluntary consensus standards.

In this final rule, we are adding to 49 CFR 576.4(g)(5) the requirement that manufacturers include in the certification labels that they affix to certain types of motor vehicles a statement certifying that the vehicle conforms to all applicable Federal motor vehicle safety standards in effect on the date of manufacture shown above. “The expression “U.S.” or “U.S.A.” may be inserted before the word “Federal”.

Issued on: November 28, 2012.

Daniel C. Smith,
Senior Associate Administrator for Vehicle Safety.

For legal issues: Mr. Thomas Healy, Office of the Chief Counsel, NHTSA, 1200 New Jersey Avenue SE, West Building, Washington, DC 20590 (Telephone: (202) 366–6987) (Fax: (202) 366–7002).

SUPPLEMENTARY INFORMATION:

I. Background

FMVSS No. 108, Lamps, Reflective Devices and Associated Equipment, has been in existence since 1968. The standard had been amended on an ad hoc basis over time resulting in a patchwork organization of the standard. NHTSA published a final rule on December 4, 2007, amending FMVSS No. 108 by reorganizing the regulatory text so that it provides a more straightforward and logical presentation of the applicable regulatory requirements; incorporating important agency interpretations of the existing requirements; and reducing reliance on third-party documents incorporated by reference. The preamble of the final rule stated that the rewrite of FMVSS No. 108 was administrative in nature and would have no impact on the substantive requirements of the standard. The December 4, 2007 final rule made several changes to the proposal contained in the Notice of Proposed Rulemaking for that rule including removing the blue and green color boundary requirements from paragraph S14.4.1.3.2 and eliminating references to three additional SAE documents.

SABIC Innovative Plastics US LLC (SABIC–IP) sent a letter to NHTSA on August 11, 2008, after the final rule comment period was over. In this letter, SABIC–IP stated that the agency did not allow for public comment when it made the decision to remove the blue and green color boundaries from the standard. SABIC–IP further stated that in removing the blue and green color boundaries from paragraph S14.4.1.3.2, the agency substantially changed the requirements of FMVSS No. 108 during the rewrite process. On July 13, 2011, NHTSA published a NPRM 2 initiating this rulemaking to replace the color boundaries that were removed during the administrative rewrite of the standard. In the NPRM, the agency explained that while neither blue nor green are directly permitted by the standard, it is possible to use these color boundaries to certify a material to the outdoor exposure test. Once individually certified to the three year outdoor exposure test, the blue and clear material could be mixed to produce a clear material with a blue tint, which could then be used in a lamp lens provided the lamp itself emits light within the white color boundary. Under the standard, the mixed material can be certified to the outdoor exposure test without an additional three years of testing. The pre-rewrite version of the standard contained two tests for determining compliance with the color requirements in the standard, the Visual Method or the Tristimulus Method. The blue and green color boundary definitions that were removed are part of the color requirements of the Tristimulus method procedure. The NPRM proposed to amend FMVSS No. 108 to restore the color boundary definitions for green, restricted blue and signal blue so that the requirements of the rewrite coincide with those of the old standard.

II. Public Comments on NPRM

NHTSA received four public comments in response to the Notice of Proposed Rulemaking for this rulemaking.3 All of the comments supported reinstating the color boundary definitions for green, restricted blue and signal blue to FMVSS No. 108. The Alliance of Automobile Manufacturers (the “Alliance”) supported the rulemaking but stated that the agency omitted the color requirements for green and blue when tested according to the visual method. The Alliance claimed that these requirements from SAE J878c Color Specification for Electric Signal Lighting Devices, (FEB 1977) (the third party standard from which the color boundaries were derived) were incorporated into the NPRM proposing the reorganization of the standard but were not incorporated into the December 4, 2007 Final Rule. The Alliance recommended that these requirements be reinstated into the standard as sections 14.4.1.3.2.4 and 14.4.1.3.2.5.

SABIC–IP submitted a comment urging the agency to remove the blue and green color boundaries to FMVSS No. 108. SABIC–IP also requested that the agency clarify that polymers and additives would not have to be retested to the three year outdoor exposure test after the effective date of the administrative rewrite before being combined to create new materials. SABIC–IP stated that the rewrite of the standard creates ambiguity as to whether combinations of individually certified materials can continue to be mixed to create new material and then certified to the outdoor exposure test without an additional three years of testing as was permitted under the pre-rewrite version of the standard. SABIC–IP requested that NHTSA amend paragraph S14.4.2.2.2 to state that materials and additives used in plastics could be changed without outdoor exposure testing if the materials had previously been tested to FMVSS No. 108 and found to meet the requirements. Paragraph S14.4.2.2.2 currently states that materials and additives used in plastics can be changed without outdoor exposure testing if the materials have previously been tested to “this section” and found to meet the requirements. SABIC–IP believes that it is possible to interpret the use of the words “this section” in paragraph S14.4.2.2.2 to require that materials be retested to the outdoor exposure test in the new paragraph S14.4.2.2.2, published in December 2007, before they can be used to create new materials. SABIC–IP stated that this interpretation would go against the stated goal of the rewrite of the standard to refrain from making any substantive change to the requirements.

SABIC–IP also asked the agency to clarify that the lower concentration of additive used to create a new material according to S14.4.2.2.2 paragraph can be represented by a composition of zero.

III. Agency Decision

Since it was not the agency’s intention to create any substantive modifications to the standard, we have decided to amend FMVSS No. 108 to add the color boundary definitions for green, restricted blue and signal blue to the Tristimulus method procedure as proposed in the NPRM and to include the two missing color requirements from the visual method procedure so that the requirements of the rewrite coincide with those of the old standard.

We have decided not to amend paragraph S14.4.2.2.2 of FMVSS No. 108 as requested by SABIC–IP over the course of the rewrite rulemaking. We attempted, where ever possible, to avoid changes to the language of the standard. We note that the phrase “this section” refers to the requirements of paragraph S14.4.2.2 in general, not to a specific version of the standard. Thus, so long as the additives and polymers have previously been tested and found to comply with the same substantive requirements as they appear in FMVSS No. 108, they can be added to create new materials without additional outdoor exposure testing. However, if the requirements of S14.4.2.2 were changed, previously tested additives and polymers would no longer have been tested to “this section” and would have to be retested to the outdoor exposure test before being used to create new materials under paragraph S14.4.2.2.2.

The agency will respond to SABIC–IP’s comment about the lower concentration of additive used to create new materials being represented by a composition of zero in a letter of interpretation from the NHTSA Office of Chief Counsel.

IV. Effective Date

The National Highway and Motor Vehicle Safety Act states that an FMVSS issued by NHTSA cannot become effective before 180 days after the standard is issued unless the agency makes a good cause finding that a different effective date is in the public interest. Additionally, the Administrative Procedure Act (5 U.S.C. 553(d)) requires that a rule be published 30 days prior to its effective date unless one of three exceptions applies. One of these exceptions is when the agency finds good cause for a shorter period. We have determined that it is in the public interest for this final rule to have an immediate effective date so that the effective date of this final rule coincides as closely as possible with the effective date of the 2007 rewrite of the standard. An effective date for this final rule that

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3 The Alliance of Automobile Manufacturers, SABIC–IP and two private individuals submitted comments in response to the NPRM.
closely coincides with the 2007 rewrite of the standard will ensure that the requirements of FMVSS No. 108 remain consistent so as to avoid unnecessary changes in the requirements of the standard that would force regulated parties to change their compliance strategies, potentially imposing costs on manufacturers while not improving safety.

V. Regulatory Notices and Analyses

A. Executive Order 12866, Executive Order 13563, and DOT Regulatory Policies and Procedures

NHTSA has considered the impact of this rulemaking action under Executive Order 12866, Executive Order 13563, and the DOT’s regulatory policies and procedures. The final rule was not reviewed by the Office of Management and Budget (OMB) under E.O. 12866, “Regulatory Planning and Review.” It is not considered to be significant under E.O. 12866 or the Department’s regulatory policies and procedures. This Final Rule restores existing requirements to the standard thereby maintaining flexibility in compliance for manufacturers who choose to use these colors to certify materials to the outdoor exposure test. Because this Final Rule merely restores existing requirements it is not expected to have any costs. The agency expects some minor unquantifiable benefits to manufacturers due to the continued availability of the green and blue color boundaries to certify to the outdoor exposure test. Because there are not any costs associated with this rulemaking and only minor unquantifiable benefits, we have not prepared a separate economic analysis for this rulemaking.

B. Executive Order 13609: Promoting International Regulatory Cooperation

The policy statement in section 1 of Executive Order 13609 provides, in part:

The regulatory approaches taken by foreign governments may differ from those taken by U.S. regulatory agencies to address similar issues. In some cases, the differences between the regulatory approaches of U.S. agencies and those of their foreign counterparts might not be necessary and might impair the ability of American businesses to export and compete internationally. In meeting shared challenges involving health, safety, labor, security, environment, and other issues, international regulatory cooperation can identify approaches that are at least as protective as those that are or would be adopted in the absence of such cooperation. International regulatory cooperation can also reduce, eliminate, or prevent unnecessary differences in regulatory requirements.

NHTSA is not aware of any conflicting regulatory approach taken by a foreign government concerning the subject matter of this rulemaking.

C. Regulatory Flexibility Act

In compliance with the Regulatory Flexibility Act, 5 U.S.C. 601 et seq., NHTSA has evaluated the effects of this action on small entities. I hereby certify that this rule would not have a significant impact on a substantial number of small entities. The final rule would affect manufacturers of motor vehicle light equipment, but the entities that qualify as small businesses would not be significantly affected by this rulemaking because the agency is restoring requirements that previously existed in an older version of the regulation. This rulemaking is not expected to affect the cost of manufacturing motor vehicle lighting equipment.

D. Executive Order 13132

NHTSA has examined today’s rule pursuant to Executive Order 13132 (64 FR 43255, August 10, 1999) and concluded that no additional consultation with States, local governments or their representatives is mandated beyond the rulemaking process. The agency has concluded that the rulemaking would not have sufficient federalism implications to warrant consultation with State and local officials or the preparation of a federalism summary impact statement. The final rule would not have “substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.”

NHTSA rules can preempt in two ways. First, the National Traffic and Motor Vehicle Safety Act contains an express preemption provision: “When a motor vehicle safety standard is in effect under this chapter, a State or a political subdivision of a State may prescribe or continue in effect a standard applicable to the same aspect of performance of a motor vehicle or motor vehicle equipment only if the standard is identical to the standard prescribed under this chapter.” 49 U.S.C. 30103(b)(1). It is this statutory command by Congress that preempts any non-identical State legislative and administrative law addressing the same aspect of performance.

The express preemption provision set forth above is subject to a savings clause under which “[c]ompliance with a motor vehicle safety standard prescribed under this chapter does not exempt a person from liability at common law.” 49 U.S.C. 30103(e).

Pursuant to Executive Order 13132 and 12988, NHTSA has considered whether this rule could or should preempt State common law causes of action. The agency’s ability to announce its conclusion regarding the preemptive effect of one of its rules reduces the likelihood that preemption will be an issue in any subsequent tort litigation.

To this end, the agency has examined the nature (e.g., the language and structure of the regulatory text) and objectives of today’s rule and finds that this rule, like many NHTSA rules, prescribes only a minimum safety standard. As such, NHTSA does not intend that this rule preempt state tort law that would otherwise impose a higher standard on motor vehicle manufacturers than that established by today’s rule. Establishment of a higher standard by means of State tort law would not conflict with the minimum standard announced here. Without any conflict, there could not be any implied preemption of a State common law tort cause of action.

E. National Environmental Policy Act

NHTSA has analyzed this final rule for the purposes of the National Environmental Policy Act. The agency has determined that implementation of this action would not have any
significant impact on the quality of the human environment.

**F. Paperwork Reduction Act**

Under the procedures established by the Paperwork Reduction Act of 1995, a person is not required to respond to a collection of information by a Federal agency unless the collection displays a valid OMB control number. This final rule would not establish any new information collection requirements.

**G. National Technology Transfer and Advancement Act**

Under the National Technology Transfer and Advancement Act of 1995 (NTTAA) (Public Law 104–113), “all Federal agencies and departments shall use technical standards that are developed or adopted by voluntary consensus standards bodies, using such technical standards as a means to carry out policy objectives or activities determined by the agencies and departments.” This Final Rule would not adopt or reference any new industry or consensus standards that were not already present in FMVSS No. 108.

**H. Civil Justice Reform**

With respect to the review of the promulgation of a new regulation, section 3(b) of Executive Order 12988, “Civil Justice Reform” (61 FR 4729, February 7, 1996) requires that Executive agencies make every reasonable effort to ensure that the regulation: (1) Clearly specifies the requirements of the rule and identifies the intended regulatory impact on various classes of entities; (2) provides a clear legal standard for affected conduct, while promoting simplification and burden reduction; (3) provides a clear legal standard for affected conduct, while promoting simplification and burden reduction; (4) clearly specifies the retroactive effect, if any; (5) adequately defines key terms; and (6) addresses other important issues affecting clarity and general draftsmanship under any regulatory action listed in the Unified Agenda of Federal Regulations. The Regulatory Information Service Center publishes the Unified Agenda in April and October of each year. You may use the RIN contained in the heading at the beginning of this document to find this action in the Unified Agenda.

**L. Privacy Act**

Anyone is able to search the electronic form of all comments received into any of our dockets by the name of the individual submitting the comment (or signing the comment, if submitted on behalf of an association, business, labor union, etc.). You may review DOT’s complete Privacy Act Statement in the Federal Register published on April 11, 2000 (70 FR 19477–19478).

**List of Subjects in 49 CFR Part 571**

Imports, Motor vehicle safety, Motor vehicles, and Tires.

In consideration of the foregoing, NHTSA amends 49 CFR part 571 as set forth below.

**PART 571—FEDERAL MOTOR VEHICLE SAFETY STANDARDS**

1. The authority citation for Part 571 continues to read as follows:

Authority: 49 U.S.C. 322, 30111, 30115, 30117 and 30166; delegation of authority at 49 CFR 1.50.

2. Section 571.108 is amended by adding paragraphs S14.4.1.3.2.4, S14.4.1.3.2.5, S14.4.1.4.2.4, S14.1.4.2.5, and S14.4.1.4.2.6 to read as follows:

§ 571.108 Standard No.108; Lamps, reflective devices, and associated equipment.

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**DEPARTMENT OF COMMERCE**

**National Oceanic and Atmospheric Administration**

50 CFR Part 648

[Docket No. 120321209–2643–02]

RIN 0648–BC08

**Fisheries of the Northeastern United States; Atlantic Mackerel, Squid, and Butterfish Fisheries; Framework Adjustment 5**

**AGENCY:** National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

**ACTION:** Final rule.

**SUMMARY:** NMFS is broadening the scope of individuals and entities approved to complete vessel fish hold capacity certifications for vessels issued Tier 1 and 2 limited access Atlantic mackerel permits under the Atlantic...
SECTION 23—ENVIRONMENT, ENERGY AND WATER EFFICIENCY, RENEWABLE ENERGY TECHNOLOGIES, OCCUPATIONAL SAFETY, AND DRUG-FREE WORKPLACE

§23.404 [Amended]
4. Amend section 23.404 by removing from paragraph (e)(1) the words “(including plant, animal, and marine materials)”.

5. Amend section 23.405 by revising paragraph (a)(2) and adding (a)(3) to read as follows:

§23.405 Procedures.
(a) * * *
(2) Biobased products. Contracting officers should refer to USDA’s list of USDA-designated items (available through the Internet at http://www.biopreferred.gov) and to their agencies’ affirmative procurement program when purchasing supplies that contain biobased material or when purchasing services that could include supplies that contain biobased material.

(3) When acquiring recovered material or biobased products, the contracting officer may request information or data on such products, including on the recycled or biobased content or related standards of the products (see 11.302(c)).

§23.406 [Amended]

PART 52—SOLICITATION PROVISIONS AND CONTRACT CLAUSES

§52.223–2 Affirmative Procurement of Biobased Products Under Service and Construction Contracts

* * * * *
Affirmative Procurement of Biobased Products Under Service and Construction Contracts (Date)

* * * * *
(c) In the performance of this contract, the Contractor shall—
(1) Report to the cognizant Contracting Officer and the agency environmental manager on the product types and dollar value of any USDA-designated biobased products purchased by the Contractor during the previous year, between October 1 and September 30, in this contract;
(2) Submit this report no later than—
(i) October 31 of each year during contract performance; and
(ii) At the end of contract performance; and
(iii) Contact the cognizant environmental manager to obtain the preferred submittal format, if that format is not specified in this contract.
(d) The cognizant environmental manager for this contract is:
[Contracting Officer shall insert full name, phone number, and email address or Web site for reporting.]

[FR Doc. 2011–17453 Filed 7–12–11; 8:45 am]
BILLING CODE 6820–EP–P

DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

49 CFR Part 571
[Docket No. NHTSA–2011–0101]
RIN 2127–AK99

Federal Motor Vehicle Safety Standards; Lamps, Reflective Devices, and Associated Equipment

AGENCY: Department of Transportation (DOT), National Highway Traffic Safety Administration (NHTSA).

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: NHTSA is proposing to restore the blue and green color boundaries to Federal Motor Vehicle Safety Standard (FMVSS) No. 108, Lamps, Reflective Devices and Associated Equipment, that were removed when the agency published a final rule reorganizing the standard on December 4, 2007.

DATES: Comments to this proposal must be received on or before September 12, 2011.

ADDRESSES: You may submit comments, identified by the docket number in the heading of this document, by any of the following methods:

• Federal eRulemaking Portal: Go to http://www.regulations.gov. Follow the instructions for submitting comments on the electronic docket site by clicking on “Help” or “FAQ.”
• Mail: Docket Management Facility, M–30, U.S. Department of Transportation, 1200 New Jersey Avenue, SE., West Building, Ground Floor, Room W12–140, Washington, DC 20590.
• Hand Delivery: U.S. Department of Transportation, 1200 New Jersey Avenue, SE., West Building, Ground Floor, Room W12–140, between 9 a.m. and 5 p.m. Eastern Time, Monday through Friday, except Federal holidays.
• Fax: 202–493–2251.

Regardless of how you submit comments, you should mention the docket number of this document.

You may call the Docket Management Facility at 202–366–9826.

Instructions: For detailed instructions on submitting comments and additional information on the rulemaking process, see the Public Participation heading of the Supplementary Information section of this document. Note that all comments received will be posted without change to http://www.regulations.gov, including any personal information provided.
Privacy Act: Anyone is able to search the electronic form of all comments received into any of our dockets by the name of the individual submitting the comment (or signing the comment, if submitted on behalf of an association, business, labor union, etc.). You may review DOT’s complete Privacy Act Statement in the Federal Register published on April 11, 2000 (65 FR 19477–78) or you may visit http://www.dot.gov/privacy.html.

Docket: For access to the docket to read background documents or comments received, go to http://www.regulations.gov, or the street address listed above. Follow the online instructions for accessing the dockets.

FOR FURTHER INFORMATION CONTACT: For technical issues: Mr. Markus Price, Office of Crash Avoidance Standards, NHTSA, 1200 New Jersey Avenue, SE., West Building, Washington, DC 20590 (Telephone: (202) 366–0098) (Fax: (202) 366–7002).

For legal issues: Mr. Thomas Healy, Office of the Chief Counsel, NHTSA, 1200 New Jersey Avenue, SE., West Building, Washington, DC 20590 (Telephone: (202) 366–2992) (Fax: (202) 366–3820).

SUPPLEMENTARY INFORMATION:

I. Background

NHTSA published a NPRM on December 30, 20051 to reorganize FMVSS No. 108 and improve the clarity of the standard’s requirements thereby increasing its utility for regulated parties. It was the agency’s goal during the rewrite process to make no substantive changes to the requirements of the standard.

FMVSS No. 108 has been in existence since 1968. The standard had been amended on an ad hoc basis over time resulting in a patchwork organization of the standard. Regulated parties had stated that the standard was difficult to interpret because of its organization. In response to these concerns the agency sought to rewrite the standard to make it more understandable by adopting a simplified numbering scheme, to improve organization by grouping related materials in a more logical and consistent sequence, and to reduce the certification burden of regulated parties who previously needed to review a few dozen third-party documents. The agency issued the December 30, 2005, NPRM in an attempt to address these concerns.

Based on the comments received in response to the NPRM, NHTSA published a final rule on December 4, 2007,2 amending FMVSS No. 108 by reorganizing the regulatory text so that it provides a more straightforward and logical presentation of the applicable regulatory requirements; incorporating important agency interpretations of the existing requirements; and reducing reliance on third-party documents incorporated by reference. The preamble of the final rule again stated that the rewrite of FMVSS No. 108 was administrative in nature and would have no impact on the substantive requirements of the standard. The final rule made several changes to the proposal contained in the NPRM including removing the blue and green color boundary requirements from paragraph S14.4.1.3.2.

On August 11, 2008, SABIC Innovative Plastics sent a letter to NHTSA claiming that the agency did not allow for public comment when it made the decision to remove the blue and green color boundaries from the standard. SABIC further argued that in removing the blue and green color boundaries from paragraph S14.4.1.3.2, the agency substantively changed the requirements of FMVSS No. 108 during the rewrite process.

II. Green and Blue Color Boundaries

Previous to the rewrite of the standard, paragraph S5.1.5 of FMVSS No. 108 required that the color of all lamps required by the standard comply with SAE J578c, Color Specification for Electric Signal Lighting Devices, (FEB 1977). SAE J578c contained color boundary definitions for red, yellow, white, green, restricted blue, and signal blue light. The NPRM included the boundary definition for the colors blue and green, but left out restricted blue. In the final rule the agency removed the color boundary definitions for green and blue from paragraph S14.4.1.3.2, retaining only the definitions for the red, yellow, and white color boundaries. The agency is aware that, although neither blue nor green are directly used within the standard, it is possible to use these color boundaries to certify a material to the outdoor exposure test located in the paragraphs of S14.4.2.2. Prior to the reorganization final rule, a manufacturer could separately certify both a clear (white) material and a blue material to the haze test. The blue material alone could not be used in a lamp because the lamp itself would not emit the color of light required by the standard (only white, amber, and red lights are permitted). Once individually certified to the three year haze test, however, the blue and clear material could be mixed to produce a clear material with a blue tint, which could then be used in a lamp lens provided the lamp itself emits light within the white color boundary. Under the standard, the mixed material can be certified to the haze test without an additional three years of testing.

The agency recognizes that removing the color definitions for blue and green creates a substantive change to the requirements of FMVSS No. 108. Since it was not the agency’s intention to create any substantive modifications to the standard, as stated in the NPRM and preamble of the final rule, the agency is proposing to amend FMVSS No. 108 to add color boundary definitions for green, restricted blue and signal blue so that the requirements of the rewrite coincide with those of the old standard. Further, the agency notes that these additional color boundary definitions have no impact on color that any lamp must emit. The agency is not proposing to change the color requirements for any lamp mandated by FMVSS No. 108.

III. Costs, Benefits, and the Proposed Compliance Date

Because this proposal only restores an existing requirement to the standard, the agency does not anticipate that there would be any costs or benefits associated with this rulemaking action. Accordingly, the agency did not conduct a separate economic analysis for this rulemaking.

The agency proposes an effective date of December 1, 2012, should a final rule be issued, to coincide with the effective date of the FMVSS No. 108 administrative rewrite.

IV. Public Participation

How do I prepare and submit comments?

Your comments must be written and in English. To ensure that your comments are correctly filed in the Docket, please include the docket number of this document in your comments. Your comments must not be more than 15 pages long.3 We established this limit to encourage you to write your primary comments in a concise fashion. However, you may attach necessary additional documents to your comments. There is no limit on the length of the attachments.

Please submit your comments by any of the following methods:

• Federal eRulemaking Portal: go to http://www.regulations.gov. Follow the instructions for submitting comments on the electronic docket site by clicking on “Help” or “FAQ.”

1 70 FR 77454, (Dec. 30, 2005).

2 72 FR 68234, (Dec. 4, 2007).

3 See 49 CFR 551.21.
• Mail: Docket Management Facility, M–30, U.S. Department of Transportation, West Building, Ground Floor, Rm. W12–140, 1200 New Jersey Avenue, SE., Washington, DC 20590.
• Hand Delivery or Courier: West Building Ground Floor, Room W12–140, 1200 New Jersey Avenue, SE., between 9 a.m. and 5 p.m. Eastern Time, Monday through Friday, except Federal holidays.
• Fax: (202) 493–2251.

If you are submitting comments electronically as a PDF (Adobe) file, we ask that the documents submitted be scanned using an Optical Character Recognition (OCR) process, thus allowing the agency to search and copy certain portions of your submissions. 4

Please note that pursuant to the Data Quality Act, in order for substantive data to be relied upon and used by the agency, it must meet the information quality standards set forth in the Office of Management and Budget (OMB) and DOT Data Quality Act guidelines. Accordingly, we encourage you to consult the guidelines in preparing your comments. OMB’s guidelines may be accessed at http://www.whitehouse.gov/omb/fedreg/reproducible.html. DOT’s guidelines may be accessed at http://dmses.dot.gov/submit/DataQualityGuidelines.pdf.

How can I be sure that my comments were received?

If you submit your comments by mail and wish Docket Management to notify you upon its receipt of your comments, enclose a self-addressed, stamped postcard in the envelope containing your comments. Upon receiving your comments, Docket Management will return the postcard by mail.

How do I submit confidential business information?

If you wish to submit any information under a claim of confidentiality, you should submit three copies of your complete submission, including the information you claim to be confidential business information, to the Chief Counsel, NHTSA, at the address given above under FOR FURTHER INFORMATION CONTACT. When you send a comment containing information claimed to be confidential business information, you should include a cover letter setting forth the information specified in your confidential business information regulation. 5

In addition, you should submit a copy, from which you have deleted the claimed confidential business information, to the Docket by one of the methods set forth above.

Will the agency consider late comments?

We will consider all comments received before the close of business on the comment closing date indicated above under DATES. To the extent possible, we will also consider comments received after that date. Therefore, if interested persons believe that any new information the agency places in the docket affects their comments, they may submit comments after the closing date concerning how the agency should consider that information for the final rule.

If a comment is received too late for us to consider in developing a final rule (assuming that one is issued), we will consider that comment as an informal suggestion for future rulemaking action.

How can I read the comments submitted by other people?

You may read the materials placed in the docket for this document (e.g., the comments submitted in response to this document by other interested persons) at any time by going to http://www.regulations.gov. Follow the online instructions for accessing the dockets. You may also read the materials at the Docket Management Facility by going to the street address given above under ADDRESSES. The Docket Management Facility is open between 9 a.m. and 5 p.m. Eastern Time, Monday through Friday, except Federal holidays.

V. Regulatory Notices and Analyses

A. Executive Order 12866, Executive Order 13563, and DOT Regulatory Policies and Procedures

NHTSA has considered the impact of this rulemaking action under Executive Order 12866, Executive Order 13563, and the Department of Transportation’s regulatory policies and procedures. This rulemaking document was not reviewed by the Office of Management and Budget under E.O. 12866, “Regulatory Planning and Review.” It is not considered to be significant under E.O. 12866 or the Department’s regulatory policies and procedures.

B. National Environmental Policy Act

We have reviewed this proposal for the purposes of the National Environmental Policy Act and determined that it would not have a significant impact on the quality of the human environment.

C. Regulatory Flexibility Act

Pursuant to the Regulatory Flexibility Act (5 U.S.C. 601 et seg., as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996), whenever an agency is required to publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effect of the rule on small entities (i.e., small businesses, small organizations, and small governmental jurisdictions). The Small Business Administration’s regulations at 13 CFR part 121 define a small business, in part, as a business entity “which operates primarily within the United States.” 13 CFR 121.105(a).

No regulatory flexibility analysis is required if the head of an agency certifies the rule will not have a significant economic impact on a substantial number of small entities.

NHTSA has considered the effects of the proposed rule under the Regulatory Flexibility Act. I certify that this proposed rule would not have a significant economic impact on a substantial number of small entities. This proposal restores the green and blue color boundaries contained in the currently applicable version of FMVSS No. 108 to the administrative rewrite of FMVSS No. 108 which has not yet taken effect. Accordingly, we do not anticipate that this proposal would have a significant economic impact on a substantial number of small entities.

D. Executive Order 13132 (Federalism)

NHTSA has examined today’s final rule pursuant to Executive Order 13132 (64 FR 43255, August 10, 1999) and concluded that no additional consultation with States, local governments or their representatives is mandated beyond the rulemaking process. The agency has concluded that the rulemaking would not have sufficient federalism implications to warrant consultation with State and local officials or the preparation of a federalism summary impact statement. The final rule would not have “substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.”

E. Executive Order 12988 (Civil Justice Reform)

Pursuant to Executive Order 12988, “Civil Justice Reform,” NHTSA has

4 Optical character recognition (OCR) is the process of converting an image of text, such as a scanned paper document or electronic fax file, into computer-editable text.
5 See 49 CFR part 512.
considered whether this rulemaking would have any retroactive effect. This proposed rule does not have any retroactive effect.

F. Unfunded Mandates Reform Act

Section 202 of the Unfunded Mandates Reform Act of 1995 (UMRA) requires Federal agencies to prepare a written assessment of the costs, benefits, and other effects of a proposed or final rule that includes a Federal mandate likely to result in the expenditure by State, local, or tribal governments, in the aggregate, or by the private sector, of more than $100 million in any one year (adjusted for inflation with base year of 1995).

Before promulgating a rule for which a written statement is needed, section 205 of the UMRA generally requires NHTSA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective, or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows NHTSA to adopt an alternative other than the least costly, most cost-effective, or least burdensome alternative if the agency publishes with the final rule an explanation why that alternative was not adopted.

This proposed rule is not anticipated to result in the expenditure by state, local, or tribal governments, in the aggregate, or by the private sector in excess of $100 million annually. The cost impact of this proposed rule is expected to be $. Therefore, the agency has not prepared an economic assessment pursuant to the Unfunded Mandate Reform Act.

G. Paperwork Reduction Act

Under the procedures established by the Paperwork Reduction Act of 1995 (PRA), a person is not required to respond to a collection of information by a Federal agency unless the collection displays a valid OMB control number. Therefore, the proposed rule does not contain any collection of information requirements requiring review under the PRA.

H. Executive Order 13045

Executive Order 13045 applies to any rule that: (1) Is determined to be economically significant as defined under E.O. 12866, and is likely to have a significant adverse effect on the supply, distribution, or use of energy; or (2) that is designated by the Administrator of the Office of Information and Regulatory Affairs as a significant energy action. If the regulatory action meets both criteria, we must evaluate the environmental health or safety effects of the proposed rule on children, and explain why the proposed regulation is preferable to other potentially effective and reasonably feasible alternatives considered by us.

This proposed rule does not pose such a risk for children. The primary effects of this proposal are to amend the lighting standard to restore the green and blue color boundaries.

I. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act (NTTAA) requires NHTSA to evaluate and use existing voluntary consensus standards in its regulatory activities unless doing so would be inconsistent with applicable law (e.g., the statutory provisions regarding NHTSA’s vehicle safety authority) or otherwise impractical.

Voluntary consensus standards are technical standards developed or adopted by voluntary consensus standards bodies. Technical standards are defined by the NTTAA as “performance-based or design-specific technical specification and related management systems practices.” They pertain to “products and processes, such as size, strength, or technical performance of a product, process or material.”

Examples of organizations generally regarded as voluntary consensus standards bodies include the American Society for Testing and Materials (ASTM), the Society of Automotive Engineers (SAE), and the American National Standards Institute (ANSI). If NHTSA does not use available and potentially applicable voluntary consensus standards, we are required by the Act to provide Congress, through OMB, an explanation of the reasons for not using such standards.

This proposal would not adopt or reference any new industry or consensus standards that were not already present in FMVSS No. 108.

J. Executive Order 13211

Executive Order 13211 applies to any rule that: (1) Is determined to be economically significant as defined under E.O. 12866, and is likely to have a significant adverse effect on the supply, distribution, or use of energy; or (2) that is designated by the Administrator of the Office of Information and Regulatory Affairs as a significant energy action. If the regulatory action meets either criterion, we must evaluate the adverse energy effects of the proposed rule and explain why the proposed regulation is preferable to other potentially effective and reasonably feasible alternatives considered by NHTSA.

This proposal restores the green and blue color boundaries contained in the currently applicable version of FMVSS No. 108 to the administrative rewrite of FMVSS No. 108 which has not yet taken effect. Therefore, this proposed rule will not have any adverse energy effects.

Accordingly, this proposed rulemaking action is not designated as a significant energy action.

K. Regulation Identifier Number (RIN)

The Department of Transportation assigns a regulation identifier number (RIN) to each regulatory action listed in the Unified Agenda of Federal Regulations. The Regulatory Information Service Center publishes the Unified Agenda in April and October of each year. You may use the RIN contained in the heading at the beginning of this document to find this action in the Unified Agenda.

L. Plain Language

Executive Order 12866 requires each agency to write all rules in plain language. Application of the principles of plain language includes consideration of the following questions:

- Have we organized the material to suit the public’s needs?
- Are the requirements in the rule clearly stated?
- Does the rule contain technical language or jargon that isn’t clear?
- Would a different format (grouping and order of sections, use of headings, paragraphing) make the rule easier to understand?
- Would more (but shorter) sections be better?
- Could we improve clarity by adding tables, lists, or diagrams?
- What else could we do to make the rule easier to understand?

If you have any responses to these questions, please include them in your comments on this proposal.

M. Privacy Act

Anyone is able to search the electronic form of all comments received into any of our dockets by the name of the individual submitting the comment (or signing the comment, if submitted on behalf of an organization, business, labor union, etc.). You may review DOT’s complete Privacy Act statement in the Federal Register published on April 11, 2006 (Volume 65, Number 70; Pages 19477–78) or you...
In consideration of the foregoing, NHTSA proposes to amend 49 CFR part 571 as set forth below.

PART 571—FEDERAL MOTOR VEHICLE SAFETY STANDARDS

1. The authority citation for part 571 continues to read as follows:

§ 571.108 [Amended]

Section 571.108 is amended effective December 1, 2012 by adding paragraphs S14.4.1.4.2.4, S14.1.4.2.5, and S14.4.1.4.2.6 to read as follows:

* * * * *

S14.4.1.4.2.4 Green. The color of light emitted must fall within the following boundaries:
   y = 0.73 − 0.73x (yellow boundary);
   y = 0.50 − 0.50x (blue boundary);
   x = 0.63y − 0.04 (white boundary).

S14.4.1.4.2.5 Restricted Blue. The color of light emitted must fall within the following boundaries:
   y = 0.32 (green boundary);
   x = 0.40 − y (white boundary);
   x = 0.16 (white boundary);
   x = 0.13 + 0.60y (violet boundary).

S14.4.1.4.2.6 Signal Blue. The color of light emitted must fall within the following boundaries:
   y = 0.32 (green boundary);
   x = 0.40 − y (white boundary);
   x = 0.13 + 0.60y (violet boundary).

* * * * *

Issued on: July 7, 2011.
Christopher J. Bonanti,
Associate Administrator for Rulemaking.
[FR Doc. 2011–17658 Filed 7–12–11; 8:45 am]
BILLING CODE 4910–59–P
October 22, 2013

The Honorable David L. Strickland
Administrator
National Highway Traffic Safety Administration
1200 New Jersey Avenue S.E., West Building
Washington D.C. 20590-0001

RE: Notice of update of SAE J576 to include specification for Diffusion Polymers for automotive lighting applications

Dear Administrator Strickland:

The purpose of this letter is to provide notification of an update to SAE J576-Plastic Material or Materials for Use in Optical Parts Such as Lenses and Reflex Reflectors of Motor Vehicle Lighting Devices, effective February 2010. This updated version of J576 includes a method to evaluate “degradation in performance caused by weathering exposure of diffusion material(s) that cannot be measured by current test methods.”

The changes in SAE J576 (FEB 2010) provide for the use of controlled light scattering plastic materials, herein referred to as Diffusing Plastic Materials. Diffusing Plastic Materials intentionally scatter transmitted light to specific intended levels as defined in SAE J576 (FEB 2010) as having an initial unexposed haze value greater than 30% when measured in accordance with ASTM D1003. The ASTM D1003 scope does not allow for materials with measured values greater than 30%. Diffusing Plastic Materials cannot be evaluated for durability using the conventional “increase of haze” methodology since measurement of haze of Diffusing Plastic Materials is not within the scope of ASTM D1003. This new evaluation methodology is limited to Diffusing Plastic Materials only and requires a more stringent maintenance of luminous transmittance. All other existing exposure, testing and requirements remain unchanged for all materials. No other changes have been made or allowed in the February 2010 revision for transparent plastic materials. Definitions have been incorporated as necessary to define this Diffusing Plastic Materials.
SAE and the SAE Lighting Systems Group believe that this revised document strives to maintain the relevance of standards within the context of changing technologies in the automotive lighting field that could not be anticipated or addressed at the time of the publication of the existing text (SAE J576 JUL91). SAE and the SAE Lighting Systems Group further believe that if and when NHTSA amends the current FMVSS lighting standard, referencing SAE J576 (FEB 2010) would benefit the safety of the public as well as that of the automotive industry.

Sincerely,

Jack Pokrzywa
Business Unit Leader
Global Ground Vehicle Standards

cc: Mr. Timothy P. Mellon, Director, Government Affairs, SAE International
    Mr. Bart P. Terburg, Chairman, SAE Lighting Systems Group
Mr. Jim Wilson
Marketing Director, Lighting
Sabic Innovative Plastics
Two Towne Square
Southfield, MI 48076

Dear Mr. Wilson:

This responds to your letter regarding requirements for inner lenses in Federal Motor Vehicle Safety Standard (FMVSS) No. 108, Lamps, Reflective Devices, and Associated Equipment. Specifically, you asked whether inner lenses are subject to certain performance requirements of the version of FMVSS No. 108 that are scheduled to take effect on December 1, 2009. The answer is that inner lenses are required to meet the haze test requirements, similar to the way they are in the currently applicable version of FMVSS No. 108.

By way of background, the National Highway Traffic Safety Administration (NHTSA) is authorized by the National Traffic and Motor Vehicle Safety Act (Safety Act) to issue FMVSSs that set performance requirements for new motor vehicles and new items of motor vehicle equipment (see 49 U.S.C. Chapter 301). NHTSA does not provide approvals of motor vehicles or motor vehicle equipment. Instead, manufacturers are required to self-certify that their products conform to all applicable safety standards that are in effect on the date of manufacture. NHTSA selects a sampling of new vehicles and equipment each year to determine their compliance with applicable FMVSSs. If our testing or examination reveals an apparent noncompliance, we may require the manufacturer to remedy the noncompliance, and may initiate an enforcement proceeding if necessary to ensure that the manufacturer takes appropriate action.

In your letter, you state you seek confirmation that FMVSS No. 108 does not require plastic materials used for inner lenses to meet the performance requirements in S14.4.2.2.4 when they are covered by outer material meeting the requirements of that section and not exposed directly to sunlight. Neither the currently applicable version of FMVSS No. 108, nor the version of the standard that becomes effective on December 1, 2009 (hereinafter, “the rewrite”), supports that position.
For reference, paragraph S5.1.2 of FMVSS No. 108 reads as follows:

S5.1.2 Plastic materials used for optical parts such as lenses and reflectors shall conform to SAE Recommended Practice J576 JUL91, except that:
(a) Plastic lenses (other than those incorporating reflex reflectors) used for inner lenses or those covered by another material and not exposed directly to sunlight shall meet the requirements of paragraphs 3.3 and 4.2 of SAE J576 JUL91 when covered by the outer lens or other material; [emphasis added]

We interpret this requirement as follows. The requirement in S5.1.2 which states that plastic materials shall conform to SAE J576 JUL91 is the general requirement. The subparagraphs ((a) through (g)), are exceptions to this requirement. Therefore, the exception described in subparagraph (a) requires plastic lenses used for inner lenses to meet the specifications of paragraphs 3.3 and 4.2 of SAE J576 JUL91 while covered by the outer lens. This is instead of being required to meet these specifications while directly exposed to sunlight. The inner lenses are not, as you suggest, fully excluded from the general test requirements in S5.1.2.

We believe that the relevant paragraph S14.4.2.2.4 in the rewrite is substantively identical. For reference, that paragraph reads as follows:

S14.4.2.2.4 Performance requirements. Plastic lenses, other than those incorporating reflex reflectors, used for inner lenses or those covered by another material and not exposed directly to sunlight must meet the optical material test requirements when covered by the outer lens or other material.

We interpret this paragraph to establish the same requirements as paragraph S5.1.2 and S5.1.2(a) in the current standard. With regard to plastic used for inner lenses, and not exposed directly to sunlight, they must “meet the optical material test requirements” when covered by the outer lens. This is the same as is currently required by FMVSS No. 108.

You also provide an analysis as to why you believe that inner lenses are not required to be certified to the specifications of S5.1.2. We respond to that analysis below.

In your letter, you state that in a 1970 final rule (35 FR 16840, October 31, 1970), NHTSA “made clear that inner lenses would be considered to be protected when covered by an outer lens and not directly exposed to sunlight.” We have reviewed the final rule at

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1 For reference, paragraphs 3.3 and 4.2 of SAE Recommended Practice J576, “Plastic Materials for Use in Optical Parts such as Lenses and Reflex Reflectors of Motor Vehicle Lighting Devices,” revised July 1991, relate to the “Outdoor Exposure Tests” and the “After Outdoor Exposure” requirements, respectively. SAE J576 has been incorporated by reference into FMVSS No. 108.

2 The language in paragraph 3.3 of SAE J576 JUL91 does not specify that protected inner lenses can be covered by the outer lens during the outdoor exposure tests. It specifies a shorter, but otherwise similar, outdoor exposure test than the one for exposed outer lenses.
issue and have not found a relevant difference between that version and the current version. It too states that “[p]lastic materials used as inner lenses... and not exposed directly to sunlight shall meet the requirements of paragraphs 3.4 and 4.2 of SAE J576b when covered by the outer lens or other material.”

Finally, we note you argued that “the fact that inner lenses are ‘protected’ is critical when applying the SAE Recommended Practice upon which the standard is based.” We agree that the lenses you describe in this letter would be considered “protected.” However, merely because a lens is protected does not mean it is not subject to a weathering test. Instead, according to the SAE Recommended Practice referenced in FMVSS No. 108 (SAE J576 JUL91), protected lenses are subject to test requirements – albeit less stringent requirements than “exposed” lenses (a 6-month weathering period, instead of 3 years).

If you have any further questions, please contact Ari Scott of my staff at (202) 366-2992.

Sincerely,

O. Kevin Vincent
Chief Counsel

---

3 70 FR 16843.
THE GLOBAL LEADER IN
PRODUCT DURABILITY, PERFORMANCE & WEATHERING TESTING INSTRUMENTS & SERVICES
Atlas’ flagship accelerated weathering instruments offer superior performance, innovative features, and large capacity.

- Water-cooled xenon arc lamps and advanced filter technology deliver the best simulation of natural sunlight
- Best-in-class uniformity for irradiance, temperature, relative humidity and spray
- Intuitive touch screen controls
- Custom testing capabilities

Ci Series Weather-Ometers

These premium air-cooled accelerated weathering instruments offer an array of options to meet virtually all global weathering and lightfastness testing requirements.

- Designed with state-of-the-art controls
- On-rack radio-controlled sensor technology for superior monitoring of light and temperature
- High water and power efficiency

Xenotest® Instruments

The most sophisticated and versatile corrosion and salt fog cabinets available. Capable of replicating automatic cycling between several environmental conditions to reduce the need to move or otherwise handle test specimens.

- Design maximizes testing volume
- Large solution reservoir
- Optional features allow for simulation of several environmental conditions

Corrosion Cabinets

An economical fluorescent/UV weathering test instrument for product screening at lower operating costs.

- Simple touch screen operation and control in several languages
- Patented irradiance calibration safety access ports
- Remote Ethernet data acquisition application
- Recirculating spray water option

SUNTEST® Family

Atlas flammability chambers offer unmatched accuracy, repeatability and safety when determining the burn rates and resistance of various materials.

- All chambers are easy to install and operate
- Specimen holders available to accommodate a variety of material types
- Chambers are available for appliance, aircraft and automotive applications

Flammability Chambers

Atlas Custom Systems designs and builds custom solar simulation systems such as walk-in chambers or full-scale test facilities. These full scale test facilities use a series of highly coordinated metal halide lights to provide uniform radiant energy to meet the demanding testing needs of many industries.

Solar Simulation Systems

A group of integrated, easy-to-use test chambers for various solar and environmental applications. These instruments combine environmental simulation with metal halide lighting technology and are ideal for testing medium to large sized automotive, plastics, electronics and 3D components, finished products as well as PV modules.

Solar Environmental Chambers

Atlas/KHS technical lighting systems are designed for high-speed photography and video. These systems are ideal for crash testing and other safety experiments, custom designed to match the complex illumination requirements of various test configurations. Available with conventional HMI light sources or the latest LED technology, these lighting systems offer an array of solutions for analytical testing of high speed events.

Technical Lighting Systems
Our mission is to help our customers worldwide provide the most reliable and durable product solutions through our combined experience and expertise in weathering instruments and testing, custom capabilities, consulting and global support.

## Services

### Natural & Accelerated Weathering Testing • Evaluations • Consulting • Technical Support • Client Education

### Natural Weathering Services

Atlas offers outdoor weathering sites worldwide to ensure factors from a variety of climates can be tested.
- Static Exposure Testing
- Sun Tracking Exposure Testing
- EMMAQUA® Accelerated Outdoor Testing
- Ultra-Accelerated Weathering Testing
- Automotive Exposure Testing (Samples, Components, Complete Vehicles)

### Accelerated Laboratory Weathering Services

Atlas Weathering Services Group operates one of the largest networks of ISO/IEC 17025 accredited accelerated weathering testing laboratories in the world. Our indoor exposure labs offer artificial accelerated weathering tests and a variety of other environmental test programs, all designed to accurately simulate true end-use conditions and meet global weathering standards.

### Evaluation Services

Atlas offers a wide range of evaluation and measurement services for your specimens during and after the weathering process.
- Instrumental Color/Gloss Measurements
- Visual Evaluations
- Photography/IR Imaging
- Emittance
- Spectral Transmittance/Reflectance
- Solar Reflectance Index
- Additional Optical Property Measurements

### Consulting Solutions

Atlas Consulting Solutions offers design and implementation of environmental durability testing methods, programs, and strategies. Our international group of weathering experts help you achieve your objectives through all stages of the value chain from materials to components, systems to end-use products.

### Worldwide Technical Support

Proper maintenance is critical in order for your instrument to operate at peak performance. Atlas’ AMECARE Performance Services Program ensures that your instrument will operate optimally at all times. Benefits include:
- Preventative maintenance inspections
- Scheduled ISO accredited calibrations (where available)
- Detailed service reports with professional assessment of key components

### Client Education & Training

Atlas offers an array of resources designed to advance your weathering education and provide you with the knowledge you need to successfully meet your testing requirements. Events include:
- Seminars
- Workshops
- Webcasts
- In-House Programs
- Technical Conferences

### Solar Industry Solutions

Atlas offers a complete portfolio of testing services to evaluate the performance, durability and reliability of solar cells, modules, complete arrays, concentrated solar power products and solar thermal collectors. Atlas also offers its proprietary Atlas 25® long-term durability testing program for solar modules.
Ultra-Accelerated EMMA®
THE BENEFITS OF ULTRA-ACCELERATED TESTING

What is the Ultra-Accelerated EMMA®?

The Ultra-Accelerated EMMA (UA-EMMA) is Atlas’ latest advancement in natural exposure testing. This new outdoor testing device delivers approximately 10-12 years of equivalent radiation exposure as would be received in a standard outdoor testing rack in South Florida in a single year.

The system achieves this accelerated exposure through a patented “cool mirror” technology that has very high reflectance in the UV and near visible wavelength ranges while attenuating reflectance in the longer wavelength visible and IR portions of the solar spectrum.

What are the Advantages?

The new UA-EMMA system allows for greatly accelerated testing while fulfilling three critical testing requirements:

- Exposes many different types of materials to ultra-high UV irradiance
- Maintains high fidelity to the natural solar UV spectrum
- Keeps specimens at acceptable exposure temperatures

Ideal Materials for UA-EMMA® Testing

- Materials that require a long service life
- Transparent and glazed materials
- Temperature sensitive materials such as PVC
- Coatings applied to metal panels
- Materials that perform well in EMMA or EMMAQUA exposure testing

EMMAQUA® Weathering Standards

The table below lists selected standards for EMMAQUA exposure. For details, refer to the individual standards. Test methods which are proprietary to individual companies and which also specify Fresnel-based exposure methods are not listed here.

<table>
<thead>
<tr>
<th>EMMAQUA STANDARD</th>
<th>SCOPE</th>
<th>COUNTRY</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO 877-3</td>
<td>Plastics</td>
<td>International</td>
</tr>
<tr>
<td>ASTM D3841</td>
<td>Glass-fiber reinforced polyester</td>
<td>USA</td>
</tr>
<tr>
<td>ASTM D4141</td>
<td>Coatings</td>
<td>USA</td>
</tr>
<tr>
<td>ASTM D4364</td>
<td>Plastics</td>
<td>USA</td>
</tr>
<tr>
<td>ASTM D5722</td>
<td>Coated hardboard</td>
<td>USA</td>
</tr>
<tr>
<td>ASTM E1596</td>
<td>PV modules</td>
<td>USA</td>
</tr>
<tr>
<td>ASTM G90</td>
<td>Non-metallic materials</td>
<td>USA</td>
</tr>
<tr>
<td>SAE J576</td>
<td>Optical automotive plastics</td>
<td>USA</td>
</tr>
<tr>
<td>SAE J1981</td>
<td>Automotive exterior</td>
<td>USA</td>
</tr>
<tr>
<td>SAE-AMS-T-22985</td>
<td>Preservation sealing tape</td>
<td>USA</td>
</tr>
<tr>
<td>JS Z2381</td>
<td>General</td>
<td>Japan</td>
</tr>
</tbody>
</table>

Applications

- Adhesives
- Agricultural Films
- Automotive Exteriors
- Building Materials
- Elastomers
- Glass (Architectural & Automotive)
- Packaging
- Paints & Coatings
- Plastics
- Roofing
- Sealants

The first EMMAQUA® device, constructed with a wooden frame and sheet metal skin, is patented, manufactured and placed into service.

Atlas’ DSET Laboratories relocates from Phoenix to New River, Arizona. The EMMAQUA device is redesigned with a steel framework and more efficient spray delivery system.

EMMAQUA+, the next generation of accelerated weathering devices, is introduced. Advancements include individual cycle programming, black panel temperature control, and altazimuth solar tracking for more efficient delivery of full-spectrum solar energy.

The MQ3K is launched, utilizing state-of-the-art technology in computer-controlled cycle programming, more accurate altazimuth solar tracking, one-touch start/stop, error sensing feedback and the most-specular mirrors available.

Atlas introduces four patented suites of Temperature-Controlled EMMAQUA: Static, Night, Dynamic Temperature and Variable Irradiance Control. This breakthrough allows for the testing of materials that are sensitive to thermal buildup.

Atlas introduces the UA-EMMA, the latest advancement in outdoor accelerated testing. This device couples the EMMA platform with a new patented mirror system, optimizing real-world correlation.
Global Support, Weathering Exposure Sites & Laboratories

Corporate Offices
Chicago, Illinois USA • Linsengericht, Germany • Shanghai, China • São Paulo, Brazil
Élancourt, France • Mörfelden-Walldorf, Germany • Bangalore, India • Leicester, United Kingdom

Outdoor Exposure Sites & Laboratories
Miami, Florida USA • Phoenix, Arizona USA • Sanary, France • Chicago, Illinois USA • Duisburg, Germany • Leicester, United Kingdom
Hoek van Holland, The Netherlands • Chennai, India • Prescott, Arizona USA • Loveland, Colorado USA • Medina, Ohio USA
Keys, Florida USA • Jacksonville, Florida USA • Alberta, Michigan USA • Hainan, China • Guangzhou, China
Seosan, Korea • Miyakojima, Okinawa, Japan • Choshi, Japan • Kirishima, Japan
Singapore • Melbourne, Australia • Townsville, Australia • Novorossiysk, Russia
Gelendzhik, Russia • Moscow, Russia

Local Sales & Service Support
To contact your local Atlas Sales representative please visit http://atlas-mts.com/contact/local-representatives/
For general inquiries please contact us at atlas.info@ametek.com

www.atlas-mts.com

Specifications and features of products and services are subject to change without notice.

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Real Weathering Test Solutions

DEPLOYING PRECISION AND SPEED FOR REAL-WORLD RESULTS

AZTEST
arizona desert testing llc
Welcome to Arizona Desert Testing, LLC (AZTEST), where capability, climate and client service deliver rapid and accurate weathering test results.

From accelerated to natural, exterior to interior, our range of weathering solutions provide data-driven and empirical findings to evaluate product and material performance.

It is a fact that time and the elements take their toll on products; ensure yours pass the test with our spectrum of weathering services.
The Arizona desert is an ideal environment for weathering studies. Blistering heat, extreme aridity and near-constant sunshine combine to create a virtually unmatched outdoor laboratory for benchmarking product durability under harsh conditions.

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<th>AZTEST complete service suite</th>
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</table>
ACUVEX®
for exterior materials

AZTEST’s proprietary ACUVEX® for Exterior Materials—Accurate Controlled Ultra Violet Exposure—is an engineered solution that accelerates the effects of material weathering. Its innovative design concentrates sunlight for maximum intensity and measures the related effects on materials.

HOW ACUVEX WORKS
Each ACUVEX tracker contains 10 specular—highly reflective—mirrors that focus sunlight onto an air-cooled specimen area as required by ASTM G90—Standard Practice for Performing Accelerated Outdoor Weathering Using Concentrated Natural Sunlight. Specimens face the mirrors and are mounted upside down onto a specimen target area. Tracker units consist of two ACUVEX test machines mounted on a single tracker, which moves in azimuth (rotation) and elevation to keep the specimen area in focus. Temperatures are maintained by a fan blowing ambient air over the specimen surfaces.

Because of AZTEST’s technology and the desert climate, ACUVEX specimens receive about five times more ultraviolet radiation in a year as compared to a southern Florida outdoor exposure.
HOW ACUVEX® TESTS WATER EFFECTS

High-purity water sprays are used to simulate the effects of more humid climates like Florida. The water must contain less than 1.0 ppm TDS (total dissolved solids) and less than 0.2 ppm silica to comply with ASTM G90. ACUVEX spray cycles are shown below:

<table>
<thead>
<tr>
<th>SPRAY CYCLE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>CYCLE 1*</td>
<td>8-minute water sprays every hour during the day with three 8-minute water sprays at night</td>
</tr>
<tr>
<td>CYCLE 2*</td>
<td>No water sprays</td>
</tr>
<tr>
<td>CYCLE 3*</td>
<td>3-minute water sprays every 15 minutes at night</td>
</tr>
<tr>
<td>AZTEST Extended</td>
<td>8-minute water sprays every hour during the day with 3-minute water sprays every 15 minutes at night</td>
</tr>
</tbody>
</table>

*As listed in ASTM G90

ACUVEX NATURAL SUNLIGHT

The graph depicts the relative spectrum of natural sunlight compared to ACUVEX. When contrasted with other accelerated weathering test methods, ACUVEX—which complies with ASTM G90—provides the closest match to natural sunlight in ultraviolet terms.

This graph portrays the absolute spectrum of natural sunlight compared to ACUVEX. With the ACUVEX unit, radiation intensity at the specimen surface is much greater than with natural sunlight exposure—providing faster tests.
HOW ACUVEX® CONTROLS AND CAPTURES DATA

Each ACUVEX tracker in the exposure field contains a dedicated onboard computer to control all operation phases, powered by a DC power supply with battery backup. Totally automatic, trackers safely shut down during power outages until power returns. Each tracker’s computer receives input from solar cells and turns on motors to automatically keep specimens in focus during the day. Other automatic functions include controlling water sprays, switching tracking on and off, and continuously monitoring machine operation.

At AZTEST, our ACUVEX trackers, field weather station, and office computers are connected via a dedicated network. Emergency conditions are reported to office computers, facilitating fast repairs to minimize downtime. Conditions recorded at each test machine are archived to provide a history of exposure conditions. Each ACUVEX tracker has a black and white panel thermometer (as shown at left) mounted in the specimen area alongside test specimens. These are used to monitor machine operations and record exposure-test history.

HOW ACUVEX SUPPORTS DIVERSE TESTING REQUIREMENTS

Specimens generally are flat with a maximum dimension of 15 cm, (6 in), along one edge. A typical specimen size is 7.5 x 13 cm (3 x 5 in). However, many sizes can be accommodated as long as one dimension does not exceed 15 cm (6 in). Specimens larger than 15 cm (6 in) can often be accommodated with special mounting.

Specimen thickness is usually 3 mm (1/8 in) or less, but thicker specimens can be accommodated with special mounting. Specimens are mounted unbacked, which allows both front and back surfaces to be cooled; however, backed mounting can be used to provide higher specimen temperatures.

HOW TO ESTIMATE TEST TIME AND COST

Each product’s testing is as unique as its profile— to best estimate cost and duration of a specific ACUVEX test exposure, go to:

www.aztest.com/acucal

This online calculator will provide a close assessment of your requirements as shown below:
ASTM D5722/ SOAK-FREEZE-THAW TESTING
To test pre-finished hardboard and simulate Midwestern US climates, ASTM Committee D01.52 developed test procedure ASTM D5722, "Performing Accelerated Outdoor Weathering of Factory-Coated Embossed Hardboard Using Concentrated Natural Sunlight and a Soak-Freeze-Thaw Procedure."

Testing subjects samples to a series of daily soak-freeze-thaw cycles that include:
   1. Daily exposure using ASTM G90 Cycle 1
   2. A one-hour soak using de-ionized water
   3. A 12-hour freeze at or near -18° C (0° F)
   4. A one-hour thaw under ambient conditions

The cycle pattern was chosen because of its good correlation to field failures in climates with freeze-thaw cycles.

Contact AZTEST Customer Service at wsales@aztest.com for more information on how AZTEST can meet your specific test requirements.
AZTEST® Enclosures for automotive interior parts and materials

AZTEST Enclosures for Automotive Interior Materials provide vital data and real-world results for interior weathering performance. Automotive interior materials can reach soaring temperatures—exceeding 110 °C (230° F) on a summer day in Arizona. Heat and the altered light spectrum from window glass, significantly affects interiors. Add in time, and the effects are both measurable and dramatic.

AZTEST’s accelerated weathering test cabinets simulate vehicle interiors and are adjusted to create specific conditions to analyze product performance. AZTEST offers approximately 300 test cabinets ideally suited for evaluating the weatherability of automotive interior materials. In addition, AZTEST is the solar-exposure laboratory for GM interior validation testing and meets automotive standards that include GMW3417, GM2617M, and FORD DVM0020.

HOW AZTEST ENCLOSURES WORK
Enclosures are sealed, under-glass test fixtures designed with temperature-limiting fans to control the maximum black panel temperature. Black-panel temperature is regulated by a black sensor, which continuously monitors temperatures. As sunlight enters the enclosure, the temperatures of both the cabinet and specimens rise. If the preset temperature is exceeded, recirculating fans automatically cool the interior. Temperatures generally are set in a range from 85° C to 110° C.
HOW AZTEST® ENCLOSURES WORK— continued
Standard test cabinets placed on sun-tracking mounts follow the sun in azimuth (rotation) to accelerate the weathering process. Enclosures generally are set at a fixed tilt angle (usually 51 degrees from the horizontal) and tracked as they follow the sun in azimuth. This approach provides more solar radiation and faster tests compared to fixed-angle exposures. Plus, azimuth tracking reduces test times without compromising test accuracy— representing a fast and economical alternative to xenon-arc weathering tests.

TEMPERATURE-NORMALIZED RADIATION
AZTEST deploys a unique methodology to normalize solar radiant exposure based on temperature. As the sensors measure internal temperatures, TNR (Temperature Normalized Radiation) is calculated with the following equation:

\[
TNR = \sum_{\text{start}}^{\text{end}} R \cdot e^{(13.643 - \left[\frac{5000}{(T+273.15)}\right])}
\]

This technique minimizes differences for tests run at different times of the year. For a detailed description of this equation, go to www.aztest.com.

HOW AZTEST ENCLOSURES SUPPORT DIVERSE TESTING REQUIREMENTS
Two types of specimens are evaluated in the test enclosures— small, flat automotive interior trim specimens and full-size automotive interior parts, including instrument panels, door panels, fabrics, leather, seat cushions, package trays, seat belts, and steering wheels.

All specimens are mounted to within 50 to 100 mm (2 in to 4 in) from the glass cover. To test in accordance with GMW 3417 and GM9538P, the glass covers are either clear tempered or clear laminated, depending on the test component’s location in the vehicle.
ADVANCED FEATURES
Every enclosure in the test field is monitored by dedicated onboard computers that control all phases of operation. Each is powered by a DC power supply. Totally automatic, enclosures safely shut down during power outages until power returns. Each enclosure computer receives input from solar cells and turns on motors to automatically keep specimens in focus during the day. Other automatic functions include maintaining black-panel temperatures, switching tracking on and off, and continuously monitoring machine operation.

The AZTEST® enclosures, field weather station, and office computers are connected via a dedicated network. Emergency conditions are reported to office computers, facilitating fast repairs to minimize downtime. Conditions recorded at each test machine are archived to provide a history of exposure conditions.

HOW TO MEET AUTOMOTIVE VALIDATION STANDARDS
AZTEST is the Solar Exposure Laboratory for performing testing in accordance with GMW 3417 and GM 9538P. For these applications, test enclosures are configured as follows:

- Follow-the-sun operation in azimuth with a fixed altitude tilt angle of 51°
- Circulating fans that switch on when black panel temperature reaches 85°C, 93°C, 102°C, or 110°C, depending on the parts type and location in a vehicle
- Exposure timing based on TNR Langley's (Temperature Normalized Radiation)
- Clear laminated or clear tempered glass cover

TYPICAL TEST TIMES FOR SELECTED INTERIOR PARTS (based on GM 2617M)

<table>
<thead>
<tr>
<th>PART</th>
<th>REQUIREMENT</th>
<th>TYPICAL TEST DURATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instrument Panel</td>
<td>100,000 TNR Langleys at 102°C</td>
<td>4.5 to 7 months</td>
</tr>
<tr>
<td>Door Panel Upper / Armrest</td>
<td>50,000 TNR Langleys at 85°C</td>
<td>4 to 6 months</td>
</tr>
<tr>
<td>Door Panel Vertical</td>
<td>5,000 TNR Langleys at 85°C</td>
<td>less than one month</td>
</tr>
<tr>
<td>Console (horizontal portion)</td>
<td>30,000 TNR Langleys at 93°C</td>
<td>2 to 3 months</td>
</tr>
<tr>
<td>Overhead Parts</td>
<td>10,000 TNR Langleys at 85°C</td>
<td>1 to 1.5 months</td>
</tr>
</tbody>
</table>
ACCELERATED AZTEST MIRRORED ENCLOSURES

AZTEST® offers Mirrored Enclosures for further acceleration. Developed by personnel at GM’s Desert Proving Grounds, mirrored enclosures offer significantly faster acceleration over standard enclosures.

This technique allows specimens to accumulate TNR Langleys or MJ/m² nearly two times faster than normal azimuth tracking enclosures. Because of the additional light energy provided to specimens, these enclosures typically are operated only at black-panel temperatures greater than or equal to 102°C. Results on these enclosures are generally accepted by GM for hard plastics.

Contact AZTEST Customer Service at wsales@aztest.com for more information on how AZTEST can meet your specific test requirements.
Natural Outdoor Weathering

AZTEST’s desert location offers excellent opportunities for natural weathering evaluations. Extremely hot and dry, the Arizona environment is the standard climatic measurement for any outdoor weathering needs. Natural weathering is the only true benchmark for weathering tests. Although very good, accelerated tests can never exactly simulate reactions to real outdoor settings with their inherent climatic changes. Natural weathering not only tests environmental effects, but also respects environmental integrity—using far less electricity than artificial weathering.

NATURAL WEATHERING STANDARDS
Our testing procedures meet numerous requirements for outdoor weathering, including these industry standards: ASTM G7, G24, D1435, D4141, SAE J576, SAE J1976, GM 9163P, GMW 14873, Ford B1-160, and ISO 877. Outdoor exposure tests are typically performed on aluminum exposure racks capable of handling specimens of various dimensions.
TYPES OF NATURAL WEATHERING

Direct Weathering
Direct weathering exposes specimens directly to the elements. Specimens are mounted on aluminum exposure racks capable of handling various dimensions and evaluated per industry standards. Factors that affect exposure findings include specimen backing, orientation, and test duration.

Under Glass Weathering
Under glass weathering specimens are mounted under or behind glass. Specimens usually are samples of test materials used inside a building or automobile. Test materials are exposed in cabinets, which protects them from rainfall while letting sunlight pass through a sheet of glass. The glass filters the sunlight, removing (at a minimum) shorter ultraviolet wavelengths in solar radiation. Enclosures are either well-ventilated or sealed, depending on customer requirements. Some of the factors that affect exposure findings include glass type, specimen backing, orientation, and test duration.

Backing
Backing has a direct effect upon material temperature. The common backing types are:

<table>
<thead>
<tr>
<th>BACKING TYPE</th>
<th>TYPICAL USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNBACKED</td>
<td>Coil coatings, sign material, automotive</td>
</tr>
<tr>
<td>BACKED</td>
<td>Siding, roofing, building products, automotive</td>
</tr>
<tr>
<td>EXPANDED METAL</td>
<td>Automotive</td>
</tr>
<tr>
<td>BLACK BOX</td>
<td>Automotive</td>
</tr>
</tbody>
</table>
EXPOSURE ANGLES
Specimens can be exposed at any angle facing south. The following table lists the most common exposure angles used in weathering tests:

<table>
<thead>
<tr>
<th>ANGLE*</th>
<th>TYPICAL APPLICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>5°</td>
<td>Most automotive specifications</td>
</tr>
<tr>
<td>34°</td>
<td>Same as site latitude: generally the most accumulated radiant exposure in a typical year among the common exposure angles</td>
</tr>
<tr>
<td>45°</td>
<td>Most popular exposure angle</td>
</tr>
<tr>
<td>90°</td>
<td>Siding and other materials used at vertical orientation</td>
</tr>
<tr>
<td>Variable 14° - 34° - 54°</td>
<td>Maximizes radiant exposure with four angle changes per year with an overall increase over 34° of about 15 %</td>
</tr>
</tbody>
</table>

* Measured from the horizontal, facing south

EXPOSURE DURATION
The duration of weathering is based on elapsed time (days, weeks, months, or years), or based on accumulated radiant exposure—either total (all wavelengths) or ultraviolet. Periodic inspections, measurements and/or returns are recommended.

FLORIDA WEATHERING
AZTEST can arrange for exposure tests in Florida and other locations. Contact wsales@aztest for more information.
SAE J576 TESTING
AZTEST provides SAE J576 compliant testing services to meet automotive plastic lens material requirements as required by the Federal Motor Vehicle Safety Standard No. 571.108.

SAE J576 also allows accelerated testing in accordance with ASTM D 4364. This standard is based on ASTM Standard G 90, “Standard Practice for Performing Accelerated Outdoor Weathering of Nonmetallic Materials Using Concentrated Natural Sunlight.”

Accelerated and Natural Arizona and Florida Weathering tests are available, including all the required instrumental measurement and visual evaluations.

Federal Motor Vehicle Safety Standard No. 571.108, Lamps, Reflective Devices, and Associated Equipment requires the following tests:

<table>
<thead>
<tr>
<th>TEST</th>
<th>REQUIREMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material Thickness</td>
<td>Required thickness 1.6 mm, 2.3 mm, 3.2 mm, 6.4 mm</td>
</tr>
<tr>
<td>Heat Test</td>
<td>2 hours in circulating oven at 79 ± 3° C</td>
</tr>
<tr>
<td>Outdoor Weathering</td>
<td>3 years Arizona and Florida — SAE J576</td>
</tr>
<tr>
<td>Haze</td>
<td>After weathering, haze cannot exceed 30% as measured by ASTM D1003 for plastic materials used for outer lenses; 7% for plastic materials used as reflex reflectors or for lenses used in front of reflex reflectors.</td>
</tr>
<tr>
<td>Luminous Transmittance</td>
<td>After weathering, the luminous transmittance measured in accordance with ASTM E308 shall not have changed more than 25% compared to unexposed measurements.</td>
</tr>
<tr>
<td>Color</td>
<td>Must meet SAE J578 color specification before and after weathering</td>
</tr>
<tr>
<td>Visual Evaluations</td>
<td>After weathering, must not have color bleeding, delamination, crazing, or cracking. Materials used for reflex reflectors and for materials used in front of reflex materials must not have surface deterioration or dimensional changes.</td>
</tr>
<tr>
<td>Minimum number of specimens per material, coating and color type</td>
<td>20 specimens (Five of each thickness).</td>
</tr>
</tbody>
</table>
COLOR AND GLOSS MEASUREMENTS
AZTEST performs color measurements using a Hunterlab Ultrascan XE spectrophotometer. This instrument features:

- Dual beam optics
- Integrating sphere
- Pulsed Xenon light source
- Capability to measure transparent, translucent, and opaque materials
- Small area (6 mm - 1/4 inch) optional view area
- Improved accuracy and repeatability
- Integrated color measurement software

Typically, color measurements are first performed prior to exposure and then re-assessed after weathering exposure to determine color change. AZTEST can perform color measurements with any common illuminant scale and observer, as well as report measurements using standard scales, including XYZ, CIE Lab, and Hunter Lab. Color measurements also can be performed using portable X-Rite spectrophotometers.

In addition, AZTEST performs gloss measurements using Byk-Gardner and Hunterlab gloss meters with available geometries of 20°, 60° and 85°.

INSPECTIONS
AZTEST visual inspections are performed in accordance with ASTM and ISO standards. The following criteria (if appropriate) can be included in inspection reports:

- General Appearance
- Checking/Cracking
- Chalking (ASTM and ISO)
- Blistering
- Erosion
- Dirt Retention
- Flaking/Scaling

Digital photography is available as part of AZTEST inspection services.

SPECIAL PROJECTS
AZTEST is well-versed in conducting special projects that include the following:

- Temperature measurements
- Custom facility design such as:
  - Test Cabinets
  - Solar Simulators
  - Accelerated Weathering Facilities
  - Conventional Test Racks
- Driving evaluations
- Software development
Internet Data Access

AZTEST clients have the option of password-protected Internet access to their test data through our secure Web site. Clients can perform the following operations:

- Get current “real-time” program status
- View results from color gloss and visual inspection evaluations
- View scanned documents
- View digital start and end of test photographs
- Reset passwords

Client confidentiality of data is protected through our SSL (secure socket layer) Web site and password-protected system.

ISO 17025 Accreditation

AZTEST’s Wittmann location is fully accredited by A2LA (American Association for Laboratory Accreditation) to ISO Guide 17025 (Certificate # 1507.01). For a copy of our A2LA Scope of Accreditation, go to www.aztest.com. AZTEST also is accredited by AMECA, the Automotive Manufacturers Equipment Compliance Agency for testing automotive lighting to FMVSS 571.108 and SAE J 576.
How To Order

Contact AZTEST Customer Service at wsales@aztest.com for more information on how AZTEST can meet your specific test requirements. The sales team will provide guidance on how to create a test, ship your samples and set parameters to evaluate products.

TO CREATE AN ORDER:
• Go to www.aztest.com
• Click on “Download” at the top of the home page
• Select “Order Forms” from the drop down menu
• Select order form format
• Complete and submit to wsales@aztest.com

GUIDELINES FOR ORDERING, PACKING AND SHIPPING*

From US locations—
• Carefully package test samples for shipment
• Non-fabric specimens should be wrapped in a soft paper product (we recommend Kimtech Kimwipes Delicate Task Wipers)
• Do not use newspaper
• Wrap entire package in bubble wrap and secure with tape
• Place package in sturdy box or container and fill gaps with packing material

From international locations—
• Follow US location packaging instructions above
• Complete a Commercial Invoice to accompany samples
• Assign a $1.00 value on shipping documents (we recommend sample description as follows: “Test Samples. No Commercial Value”)

SEND PACKAGED SPECIMENS, ORDER FORM (OPTIONAL) AND PURCHASE ORDER TO:

Arizona Desert Testing LLC
21212 West Patton Road
Wittmann, Arizona 85361
USA

To contact AZTEST:

call: +1-623-388-9500
fax: +1-623-388-9007
e-mail: wsales@aztest.com
visit: www.aztest.com
write: 21212 West Patton Road
Wittmann, Arizona 85361
USA

*INSTRUCTIONS ALSO AVAILABLE AT WWW.AZTEST.COM
Will Your Products Last?

Sunlight, heat and moisture can cause serious product deterioration – such as color change, cracking, peeling, oxidation, or loss of strength. Damage from weathering or corrosion occurs both outdoors and indoors, and its severity can vary greatly in different climates. Even materials that are resistant to sunlight alone or to moisture alone often fail when exposed to sunlight and moisture in combination. Do you know how well your products will last in every location where they are used?

Don’t Guess When You Can Test

Reliable weathering and corrosion data can help you avoid unexpected product failures. Testing can increase your profitability when used for selecting new or less expensive materials, improving existing materials, and evaluating how changes in formulations affect product durability.

Natural outdoor weathering and corrosion testing gives the most realistic prediction of product performance, with a longer test duration. Accelerated outdoor testing and accelerated laboratory testing give faster results. Many companies use both natural and accelerated testing in order to compare the data and ensure the reliability of the test program.

Weathering & Corrosion Testing

Q-Lab offers standard testing service packages for the automotive, building products, coatings and finishes, plastics, textile and other industries. You may design your own test, or work with us to develop a custom test.
Q-Lab Weathering Research Service

Q-Lab Weathering Research Service provides internationally recognized outdoor and laboratory weathering and corrosion test services in Florida and Arizona. In addition, Q-Lab offers visual and instrument evaluations, as well as offering custom test program design and special project development.

**Experienced and reliable**
Q-Lab provides the highest quality contract weathering testing services. Our natural weathering site opened in 1959. Today, our scientists, engineers and technicians participate in ASTM, ISO and other professional organizations in creating standard test methods and procedures.

**Instant credibility**
When Q-Lab does your testing, the results have instant credibility with your customers and colleagues. Q-Lab conducts all exposure tests and evaluations in accordance with appropriate test methods from ASTM, ISO, BSI, DIN, JIS, SAE, and other recognized organizations.

**Low cost**
Q-Lab’s state-of-the-art exposure and material evaluation services are available at a surprisingly affordable price.
Q-Lab's Florida site is the southernmost commercial exposure location in the United States. This site has high-intensity sunlight, high annual UV, high year-around temperatures, abundant rainfall, and very high humidity. When combined, these factors create the harsh climate that makes Miami the ideal location for testing exterior durability.

This moist, humid climate has been proven especially useful for certain types of testing:
- Moisture sensitivity of products like coatings, building materials, and some plastics
- Mildew resistance
- Corrosion testing

### Florida Site Climate Profile

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Latitude</strong></td>
<td>25° 27' North</td>
</tr>
<tr>
<td><strong>Longitude</strong></td>
<td>80° 20' West</td>
</tr>
<tr>
<td><strong>Elevation</strong></td>
<td>70 feet</td>
</tr>
<tr>
<td><strong>Typical Annual Solar Energy</strong></td>
<td>Direct, 25° South</td>
</tr>
<tr>
<td><strong>Temperature (Air)</strong></td>
<td></td>
</tr>
<tr>
<td>Average Summer Maximum</td>
<td>32°C, 90°F</td>
</tr>
<tr>
<td>Annual Average Maximum</td>
<td>28°C, 82°F</td>
</tr>
<tr>
<td>Annual Average Minimum</td>
<td>21°C, 70°F</td>
</tr>
<tr>
<td>Average</td>
<td>24°C, 76°F</td>
</tr>
<tr>
<td><strong>Average Humidity</strong></td>
<td></td>
</tr>
<tr>
<td>Summer Max.</td>
<td>93% RH</td>
</tr>
<tr>
<td>Maximum</td>
<td>80% RH</td>
</tr>
<tr>
<td>Minimum</td>
<td>61% RH</td>
</tr>
<tr>
<td>Annual</td>
<td>70% RH</td>
</tr>
<tr>
<td><strong>Rainfall</strong></td>
<td></td>
</tr>
<tr>
<td>Monthly Max.</td>
<td>237 mm, 9.5 inches</td>
</tr>
<tr>
<td>Monthly Min.</td>
<td>46 mm, 1.8 inches</td>
</tr>
<tr>
<td>Monthly Avg.</td>
<td>152 mm, 6.1 inches</td>
</tr>
<tr>
<td>Total/Year</td>
<td>1,420 mm, 56.8 inches</td>
</tr>
<tr>
<td>Rain Days/Year</td>
<td>111</td>
</tr>
</tbody>
</table>

Florida subtropical exposures subject test specimens to wet, humid conditions. Many architectural and automotive materials are tested here.
Q-Lab Arizona

Desert Sunshine Exposures

Arizona is a benchmark location for outdoor durability tests because of its high-intensity sunlight and high year-around temperatures.

Compared with Florida, the Arizona test site offers about 20% more sunlight, higher annual temperatures, and lower humidity. During the summer, the air temperature may reach 115°F (46°C) and a black body sensor may reach over 160°F (71°C).

This extreme climate has been proven useful for certain types of testing and materials:
- Color and gloss of coatings
- Color stability, heat aging, and physical properties of plastics
- Coatings on plastics
- Lightfastness and tensile strength of textiles

### Arizona Site Climate Profile

<table>
<thead>
<tr>
<th>Latitude</th>
<th>Longitude</th>
<th>Elevation</th>
<th>TUV</th>
<th>Total</th>
<th>% Sun</th>
</tr>
</thead>
<tbody>
<tr>
<td>33° 23' North</td>
<td>112° 35' West</td>
<td>1055 feet</td>
<td>334 MJ/m²</td>
<td>8,004 MJ/m²</td>
<td>85%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Temperature (Air)</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Summer Maximum</td>
<td>40°C (105°F)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual Average Maximum</td>
<td>30°C (86°F)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual Average Minimum</td>
<td>13°C (56°F)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>21°C (70°F)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Average Humidity</th>
<th>Rainfall</th>
<th>mm</th>
<th>inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer Max.</td>
<td>28% RH</td>
<td>28</td>
<td>1.1</td>
</tr>
<tr>
<td>Maximum</td>
<td>49% RH</td>
<td>2</td>
<td>0.1</td>
</tr>
<tr>
<td>Minimum</td>
<td>21% RH</td>
<td>16</td>
<td>0.6</td>
</tr>
<tr>
<td>Annual</td>
<td>35% RH</td>
<td>186</td>
<td>7.4</td>
</tr>
<tr>
<td>Total/Year</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rain Days/Year</td>
<td></td>
<td>32</td>
<td></td>
</tr>
</tbody>
</table>
Will Your Products Last Outdoors?

Products designed for outdoor use should be tested in Florida and/or Arizona before being entered into the marketplace. Test specimens can be almost any material or shape including painted panels, building materials, textiles, plastics, metal parts, or complex assemblies. Q-Lab has nearly 50 years of experience in evaluating the durability of a wide array of outdoor products, from the simplest child's toy to sophisticated automotive components.

Exposure tests are performed on test panels and on actual parts. Test methods and the size, shape and material of specimens determine which type of direct exposure testing is right for your products.
Natural Outdoor Weathering

- Most Realistic Results
- Inexpensive and Reliable

Various specimen mounting and exposure techniques are available for natural outdoor exposure testing.

**Direct Exposure.** Direct exposures are used to test many exterior-use materials, such as industrial coatings. Specimens are securely mounted with their front surface facing the sun. Different exposure angles and mounting methods are used for different applications.

**Under Glass.** These exposures are used to test interior-use materials, such as textiles and printing inks. Specimens are under 3 mm window glass to filter out short-wave UV. Exposures are typically at 45º.

**Black Box.** Tests reproduce conditions found on the trunk or hood surfaces of a vehicle, including higher temperatures and wet times. Under glass black box exposures are used to test interior automotive materials.

**AIM (Automotive Interior Materials) Box.** These under glass exposures simulate the environment inside an automobile and are suitable for mounting larger components like dashboards. Some AIM boxes feature solar tracking.

**Salt-Accelerated Outdoor Corrosion.** Direct exposures with salt spray can produce fast and realistic corrosion, particularly for coated metals.

**Mildew Tests.** In this Florida exposure, panels are typically positioned at a 90º north to reduce sunlight, decrease surface temperatures, and increase moisture. In addition, specimens may be placed near or under vegetation to promote growth.

The specimen mounting technique and exposure angle have a significant effect on solar energy dosage, specimen temperature, and time of wetness. For a full description please request LL-9025, *Outdoor Weathering: Basic Exposure Procedures*, or contact Q-Lab to discuss which option is suitable for your test program.

---

**Florida & Arizona Weathering Test Methods**
- Direct & Under Glass Exposures (ASTM G7, G24, D1435)
- Black Box (ASTM D4141; GM 9163P)
- AIM Box (GM 9538P, 7455M, 7454M, 3619M; GMW 3417)

**Outdoor Corrosion Exposure Test Methods**
- Natural Atmospheric (ASTM G50)
- Salt Accelerated - SCAB (ASTM D6675)

*Contact Q-Lab Weathering Research Service for a complete list
Accelerated Outdoor Weathering

- Faster Test Results
- Full Spectrum Natural Sunlight

Sometimes you can’t wait for months or years to find out how well your products will perform outdoors. If you need faster answers, but don’t want to use artificial laboratory devices that only simulate sunlight, the Q-Trac Natural Sunlight Concentrator may be the answer. It gives quick, realistic results with natural sunlight as the light source.

The Q-Trac is an accelerated outdoor weathering tester that uses a series of 10 mirrors to reflect and concentrate full spectrum sunlight onto test specimens. Rotating on its base, it automatically tracks the sun throughout the day. This solar concentrating system maximizes the amount of sunlight exposure that your test specimen receives.

The Q-Trac also has a water spray system that can be programmed to perform various cycles to simulate Florida weathering or create thermal shock.

Q-Trac Natural Sunlight Concentrators at Q-Lab Arizona give realistic test results in less time than natural exposures. They change position throughout the day to follow the sun.

Applications

Several standardized cycles – including desert, spray, freeze/thaw and interior (behind glass) – are available to test different materials and end-use applications. Customized exposures also may be designed.

The Q-Trac is useful for testing products including coatings, plastics and reinforced plastics, automotive materials, building materials, textiles, inks, sealants, and geosynthetics. Many correlation studies indicate that natural sunlight concentrators are particularly useful for testing coil coatings, powder coatings, automotive coatings, and several plastics.

Cost-Effective

The Q-Trac produces real-world results in a fraction of the time of natural exposures. This means that a new formulation or product can be brought to market faster, so you can take advantage of competitive opportunities.

Accelerated Exposures

Materials tested on the Q-Trac are exposed to much more sunlight than those on a conventional outdoor exposure rack. A test specimen mounted on the Q-Trac receives an average of 5 times more UV than it would in Florida, because of the intensifying effect of the mirrors. Depending on the test starting time, you can get the equivalent of 3 years of Florida UV exposure in just 6 months.

Accelerated Natural Weathering Test Methods*

- Q-Trac Natural Sunlight Concentrator (ASTM G90, D4141, D4364; SAE J1961)
- Solar Tracking Exposures

*Contact Q-Lab Weathering Research Service for a complete list
Following the Sun

The Q-Trac automatically follows the sun from morning until night. Dual-axis tracking allows it to move in any direction for both seasonal and daily adjustments.

Q-Trac Natural Sunlight Concentrator

The Q-Trac uses a series of 10 mirrors to reflect full-spectrum sunlight and concentrate it onto your test specimens. This solar concentrating system maximizes the amount of sunlight exposure for test specimens.

Mirrors reflect sunlight onto test specimens.

Test specimens are mounted opposite the mirrors.

Cross Section

Accelerated Natural Weathering Test Methods*

- Q-Trac Natural Sunlight Concentrator (ASTM G90, D4141, D4364; SAE J1961)
- Solar Tracking Exposures

*Contact Q-Lab Weathering Research Service for a complete list.
Contract Laboratory Testing Services

- Accelerated Weathering & Light Stability
- Salt Spray & Cyclic Corrosion Testing
- Easy, Inexpensive, Industry-Standard

For those who are interested in accelerated testing, we offer a full range of laboratory testing services. Q-Lab Florida has a fully equipped accelerated weathering and corrosion laboratory.

Q-Lab weathering and corrosion tests are used for quality control, material certification, exterior durability studies and predictions. Because you buy the test results, not the test equipment, these exposure and evaluation services are very affordable.

Fast Results. Although actual outdoor exposures are the ideal way to test your products, sometimes you can’t afford to wait a year or two for real-time test results. We can give you fast, reliable weatherability data using QUV, Q-Sun, Q-Fog and QCT laboratory testers. Backed by decades of outdoor testing experience, Q-Lab can help you set up a successful accelerated laboratory testing program.

Standard Exposures. All tests and evaluations are performed to appropriate ASTM, ISO, SAE, AATCC, or other standard procedures. Custom exposures are also available.

Third-Party Verification. Q-Lab can act as an unbiased third party wherever third-party verification of test results is required.

In addition to outdoor testing, Q-Lab Weathering Research Service has a fully equipped accelerated weathering and corrosion laboratory in Florida.

Flexible. Q-Lab has a number of instruments available, allowing us to perform the most current and most widely specified range of environmental tests.

Laboratory Accelerated Weathering Test Methods*
- QUV Exposures (ASTM G154, D4587; SAE J2020; ISO 4892)
- Xenon Arc Exposures (ASTM G155, D2565; ISO 4892; AATCC TM 16, TM 169)

Laboratory Corrosion Test Methods*
- Salt Spray (ASTM B117)
- Prohesion (ASTM G85)
- Automotive Cyclic Corrosion Tests (GMW 14872; CCT-1, CCT-4)
- Weathering Corrosion Cycle (ASTM D5894)

*Contact Q-Lab Weathering Research Service for a complete list

Q-Sun Xenon Test Chambers provide the most realistic simulation of full spectrum sunlight.

The QUV Accelerated Weathering Tester simulates the highly damaging effects of sunlight, rain and dew.

Cyclic corrosion testing in the Q-Fog gives more realistic results than conventional salt spray because it reproduces conditions similar to actual atmospheric exposures.
Evaluation of Weathering Effects

It is important to quantify the results of any exposure testing program. Typically, customers are interested in the amount of change their material experiences during the exposure. Change in some properties, like color or gloss, can be measured with instruments. Other changes – like cracking, peeling, chalking, blistering, or rusting – can be evaluated visually and rated according to standard scales.

**Visual Evaluations**

Our staff members are actively involved in standards organizations and are familiar with evaluation techniques and reporting scales. Visual evaluation reports detail all defects observed, including cracking, blistering, peeling, chalking, adhesion, color change and corrosion. All visual ratings are made under standard lighting conditions to provide accurate, repeatable results.

**Instrumental Measurements**

Instrumental measurements of appearance and surface characteristics include gloss, distinctness of image, and color. These are used in place of, or in addition to, the visual ratings. Electro-optical measurements are now required by many standards, and provide the data from which statistical calculations can be made.

**Mechanical Tests**

Mechanical tests on physical properties are necessary for many products and materials. These tests include impact, pencil hardness, tape adhesion, tape chalk, bend, abrasion and adhesion.

**Frequency and Reporting**

Evaluations and measurements can be scheduled on any time-frame. The property of interest is measured or rated prior to exposure. Evaluations are then performed on a monthly or quarterly basis to quantify the progress of the test specimen. Reports are used to chart the time/degradation progress. Q-Lab offers mailed reports and electronic data reports in PDF or Excel spreadsheet formats.

**Additional Services**

A complete test program often includes other special services or handling. Common services include washing, polishing, scribing and specimen weighing.

**VISUAL EVALUATIONS**

<table>
<thead>
<tr>
<th>Defect</th>
<th>Applicable Methods</th>
<th>Defect</th>
<th>Applicable Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chalk</td>
<td>ASTM D4214</td>
<td>Dirt Retention</td>
<td>ASTM D3274</td>
</tr>
<tr>
<td>Blistering</td>
<td>ASTM D714</td>
<td>Color Change</td>
<td>ASTM D2616</td>
</tr>
<tr>
<td>Cracking</td>
<td>ASTM D661</td>
<td>Adhesion</td>
<td>ASTM D3359</td>
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<td>Checking</td>
<td>ASTM D660</td>
<td>Corrosion</td>
<td>ASTM D610</td>
</tr>
<tr>
<td>Flaking/scaling</td>
<td>ASTM D772</td>
<td>Filiform Corrosion</td>
<td>ASTM D2803</td>
</tr>
<tr>
<td>Erosion</td>
<td>ASTM D662</td>
<td></td>
<td>ISO 4628-10</td>
</tr>
<tr>
<td>Mildew</td>
<td>ASTM D3274</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Impact testing at Q-Lab Florida.**

**Checking correct illumination with a lux meter before a visual evaluation.**

**Evaluating a test surface requires careful handling of the specimen.**

**Washing specimens ensures that surface contaminants will not affect test results.**
Let Us Meet Your Testing Challenges

Testing services from Q-Lab give you the flexibility to meet industry standards, or to conduct your own proprietary testing program, at a very affordable cost.

In addition to regular outdoor exposures or accelerated laboratory testing, we can design customized tests for predicting product performance under actual service conditions. Our experienced staff can provide the reliable data you need to make critical decisions.

Whatever your testing challenges, we are here to help you.

Q-Lab Weathering Research Service

Let Us Meet Your Testing Challenges

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