



MN/DOT Specification
Bridge Navigation Lanterns
LED Array 120 and 240 VAC
03/04/2014

1. LISTING REQUIREMENTS

- 1.1. Shall meet the light level performance requirements as clarified in the U.S. Coast Guard (USCG) Publication “A Guide to Bridge Lighting”.
- 1.2. Shall be in compliance with Code of Federal Regulations (CFR), Title 33, Part 118.
<http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&rgn=div5&view=text&node=33:1.0.1.3.26&idno=33>
- 1.3. Shall be tested to meet rigorous standards for electrical safety to ensure the product poses no shock hazard.

2. HOUSING:

- 2.1. Shall meet USCG Specification 205 or have an Ingress Protection (IP) rating of IP 66 or greater.
- 2.2. Shall have a UV resistant housing with an acrylic lens.
- 2.3. Shall have a lantern base molded of fiberglass reinforced polyester resin plastic or polycarbonate plastic with flange to co-act with the lens flange and form a sealable closure.
- 2.4. Shall have knurled thumb screws on the base flange to secure the lens to the lantern base.
- 2.5. Shall be a tool-less entry unit into the lantern base or be an enclosed integral unit.
 - 2.5.1.1. Tool-less entry unit shall have a lens housing that can be separated from lantern base to allow easy access to internal parts when properly mounted.
- 2.6. Shall have a lantern base with options as follows:
 - 2.6.1.1. 3-holes, 120 degrees apart.
 - 2.6.1.2. 4-hole, 90 degrees apart.

- 2.7. Shall have a 7-7/8 inch lantern base bolt circle mounting plate to allow attachment to a bridge type swivel swing-arm mounting assembly.
- 2.8. Shall provide a lantern base with a weatherproof sealable cable entry that also acts as a strain relief cable holder for a 3/C No. 14 AWG flexible cord.
- 2.9. Shall have a clear, 180 degree and 360 degree, 155 mm diameter UV resistant acrylic Fresnel lens with bird spike to house an LED array.
- 2.10. Shall have a lens with flange to co-act with the flange of the lantern base to form a sealable closure.
 - 2.10.1.1. The lens flange shall have a combination of internally threaded bosses or hubs to receive the lantern base knurled thumb screws thereby securing the lens to the lantern base.
- 2.11. Shall have a lens flange and a lantern base with a type of O-ring or gasket to prevent water entry between the lens and base.
- 2.12. In addition to a thumb screw the lens shall be secured to the lantern base through an integral hinge.
- 2.13. All metal hardware shall be non-corrosive.
- 2.14. All plastic hardware shall be cold and heat resistant, chemical resistant, and UV protected.
- 2.15. The entire lantern assembly shall weigh no more than 10 lbs.

3. ELECTRICAL REQUIREMENTS:

- 3.1. Shall operate 120 VAC (rms) or 240 VAC (rms).
- 3.2. Shall have a tunnel lug terminal block that will accommodate a 3/C 14 AWG flexible cord.
- 3.3. Shall have internal wiring that has third party certification by a nationally recognized testing laboratory.
- 3.4. Shall be equipped with a LED array with a minimum of 50,000 hour life and be bright enough to meet the visibility requirements of CFR 33, Part 118.
- 3.5. Shall provide LED arrays in all the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) approved colors and be color coded for easy installation when unlit.
<http://www.iala-aism.org/iala/index.php>

- 3.6. LED arrays shall be able to operate in temperatures from -40° F to 140° F (-40° C to 60 °C).
- 3.7. Tool-less entry unit shall have an easily replaceable LED array.
- 3.8. Shall have temperature compensated LED drive circuits to ensure uniform brightness with ambient temperature change.

4. WARRANTY:

- 4.1. The entire lantern assembly including electrical components shall have a 2 year minimum warranty.

5. MN/DOT ACCEPTANCE TESTING:

- 5.1. Lantern will be reviewed against each item listed on this specification. If the lantern is not in compliance with each item on this specification it will not be placed on the Lighting Approved Products List (APL).
- 5.2. Shall be installed by MN/DOT on a bridge swivel suspended-arm to verify light levels and light pattern that meet USCG requirements.
- 5.3. The Minnesota Department of Transportation reserves the right at its own expense to perform random sample testing on all shipments. Random sample testing will be completed within 60 days, and as soon as possible, after delivery. Mn/DOT shall determine the sampling parameters to be used for the random testing. If the units tested fail random testing the units will be removed from the MN/DOT Approved Products list for Lighting.
- 5.4. Once the lantern has been placed on the MN/DOT APL for Lighting no substitution of materials will be allowed unless the manufacturer has received written permission in advance from MN/DOT allowing the substitution.
- 5.5. MN/DOT must be notified of any change to the catalog number. This notification must include the reason for the change in catalog number. Failure to meet this requirement may cause the lantern to be eliminated from the MN/DOT Approved Products List (APL).