INCH-POUND
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COMMERCIAL ITEM DESCRIPTION

LIGHT EMITTING DIODES FOR USE AS INDICATOR LIGHTS

The General Services Administration has authorized the use of this commercial item description, for all federal agencies.

1. SCOPE. This Commercial Item Description (CID) covers the performance of solid-state light emitting diodes (LEDs) for use as indicator lights. The LEDs will provide indicator illumination in lieu of conventional incandescent indicator lamps. The form, fit and function of the LED will be comparable to the legacy incandescent lamps when being applied in retrofit applications.

2. CLASSIFICATION. The LEDs shall be designated in accordance with ANSI C79.1, MIL-DTL-3661, and MIL-DTL-6363 as specified (see 7.2).

3. SALIENT CHARACTERISTICS.

3.1 General requirements.

3.1.1 Materials. All materials used in the construction of the LED shall be suitable for a marine type environment. All metal parts of the LED shall be fabricated from corrosion-resistant materials or have a corrosion-resistant treatment.

3.1.1.1 Dissimilar metals. Contact of dissimilar metals shall be avoided.

3.1.1.2 Polarity. The LED shall be bipolar. The LED indicator shall operate whether or not the center contact is positively or negatively biased. The use of microelectronic components to achieve bipolarity is allowed so that the overall size of the LED does not exceed the dimensions of the legacy incandescent lamp the LED is replacing.

3.1.1.3 Color/chromaticity. LED colors shall be as specified (see 7.2) or in accordance with SAE-AS25050. Color matching shall be specified to match the color of the lens used with the legacy incandescent lamp. Each LED shall be provided with a colored band at the juncture of the base to lens denoting the color of the LED. Colors will be basic, solid, and permanent. Pastel coloring is not allowed.

3.1.1.4 Diffusion angle. The diffusion angle of the LED shall be 120 degrees or as specified (see 7.2) between the viewing angles of 10 through 120 degrees.

3.1.1.5 Illumination intensity. The illumination intensity of the LED shall be comparable to the incandescent indicator that the LED is replacing (see MIL-DTL-3661 and MIL-DTL-6363 luminance requirements). Multiple chip LEDs are allowable to increase the intensity of an LED light source.

3.1.1.6 Power requirements. A replacement LED shall consume power equal to or less than the power of the incandescent lamp the LED is replacing.

3.1.2 Environmental conditions. The LED shall be designed for shipboard use in a marine type environment. Typical environmental tests include those tests identified in MIL-DTL-3661, MIL-DTL-6363 and MIL-STD-202. Actual environmental test requirements shall be as specified (see 7.2).

Beneficial comments, recommendations, additions, deletions, clarifications, etc. and any data that may improve this document should be sent to: Commander, Naval Sea Systems Command, ATTN: SEA 05Q, 1333 Isaac Hull Avenue, SE, Stop 5160, Washington Navy Yard DC 20376-5160 or emailed to commandstandards@navsea.navy.mil, with the subject line "Document Comment". Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at http://assist.daps.dla.mil.

3.1.2.1 Ambient temperature. The LED shall operate in an ambient temperature range of 0 °F (-17.8 °C) to 122 °F (50 °C).

3.1.2.2 Shock. When specified (see 7.2), the LED shall be designed to withstand the high impact shock tests for grade A, type A equipment in accordance with MIL-S-901.

3.1.2.3 Vibration. When specified (see 7.2), the LED shall be designed to withstand a Type I vibration test in accordance with MIL-STD-167-1.

3.1.2.4 Humidity. The LED shall be designed to operate in humidity from 0 to 100% relative.

3.1.2.5 Electrostatic discharge. The LED should not be susceptible to electrostatic discharge (ESD) damage.

3.1.2.6 Salt spray (corrosion). When specified (see 7.2), salt spray tests shall be in accordance with MIL-DTL-3661 or MIL-DTL-6363.

3.1.2.7 Dimensions and tolerances. The LED dimensions shall be as specified (7.2), or match the dimensions of the legacy incandescent indicators as shown in MIL-DTL-6363 specification sheets ±0.002.

3.2 Performance.

3.2.1 Operating life/efficacy. The LED shall have a minimum operating life of 50,000 hours with 50% lumen maintenance factor applied and retain 80% of its initial illumination levels after 30,000 hours of operation.

3.3 Maintenance. The LED shall require minimal effort for removal and replacement.

3.4 Electrical requirements. The LED shall be rated for the shipboard voltage specified (see 7.2); typical shipboard electrical power is 115-volt AC ungrounded electrical service in accordance with MIL-STD-1399-300. The LED shall be designed such that the LED does not impose a ground upon the electrical power system from which it is energized.

3.4.1 Insulation resistance. The insulation resistance between all current-carrying and non-current-carrying parts of the LED shall be at least 1 megohm withstanding up to 500 VDC.

3.5 Night vision device (NVD) compatibility. When specified (see 7.2), the LED indicator shall be compatible with Night Vision Devices (NVDs) in accordance with MIL-STD-3009, and shall not cause users of such devices to become visually impaired when used in areas where the LED is operating.

4. REGULATORY REQUIREMENTS.

4.1 Recovered materials. The offeror/contractor is encouraged to use recovered materials to the maximum extent practicable, in accordance with paragraph 23.403 of the Federal Acquisition Regulation (FAR).

4.2 Toxicity. The materials used in construction of the LED shall have no toxic effect on the health of personnel when used for its intended purpose. Smoke produced during a fire involving the LED shall have no adverse effect on the health of personnel. Questions pertinent to this effect shall be referred by the contracting activity to the appropriate departmental medical service that will act as an advisor to the contracting activity. Regardless of any other requirements, materials and parts containing asbestos, mercury, lead, cadmium, chlorofluorocarbons (CFCs), vinyl chlorides, antimony trioxide, red phosphorous and halogenated compounds (materials that contain iodine, bromine, chlorine, and fluorine) shall not be used. The contractor shall have the toxicological product formulations and associated information of the materials available for review by the contracting activity to evaluate the safety of the material for the proposed use.

4.3 Environmental protection. The item shall meet all applicable Environmental Protection Agency (EPA) restrictions in effect on the date of the contract. These regulations apply to the emission of materials hazardous to the environment or the user's health and shall be adhered to during the manufacturing, service, transportation, storage, and operations/use of the item.