Revision 14
Aug 6, 2020

1. Scope

This Specification covers the requirements for furnishing and delivering end-mounted light-emitting diode (LED) street light luminaires.

2. Reference Standards

All characteristics, definitions, terminology, voltage designations and tests, except as otherwise specified herein, shall be in accordance with the following industry standards. When the following standards are superseded by an approved revision, the revision shall apply.

Industry Standards

IEEE C57.12.31-2010 IEEE Standard for Pole Mounted Equipment — Enclosure Integrity
ANSI C78.377-2008 Specifications for the Chromaticity of Solid-State Lighting (SSL) Products
ANSI C136.3-2005 (R2009) Luminaire Attachments
ANSI C136.10-2010 Locking-Type Photocontrol Devices and Mating Receptacles —Physical and Electrical Interchangeability and Testing
ANSI C136.15-2011 Luminaire Field Identification
ANSI C136.31-2010 Luminaire Vibration
ANSI C136.37-2011 Solid State Light Sources Used in Roadway and Area Lighting
ANSI C136.41-2014 Dimming Control Between and External Locking Type Photocontrol and Ballast or Driver
ANSI/IES LM-63-02(R2008) ANSI Approved Standard File Format for Electronic Transfer of Photometric Data and Related Information
IEC 60529 2.1 Degrees of Protection Provided by Enclosures (IP Code)
IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting
IES LM-80-2008 Measuring Lumen Maintenance of LED Light Sources
IES TM-15-2011 Luminaire Classification System for Outdoor Luminaires
IES TM-21-2011 Projecting Long-Term Lumen Maintenance of LED Light Sources

District Standards

Material Standard 1002415.1 LED Luminaire Number Decals
Material Standard DECALMAT5 3M 5200 Series Engineer Grade and Utility Grade Reflective Sheeting Decals

3. Material ID Numbers, Light Distribution & Bug Rating

Material ID 4000° K	Material ID 3000° K	Description	HPS Equivalent	Light Distribution	Max. BUG Rating
1002539	5000622	Luminaire, Street Light, LED 50W Nominal Type II	100W	Type II Short/Medium	B1-U0-G1
---	5000637	Luminaire, Street Light, LED 50W Nominal Type III	100W	Type III Short/Medium	B1-U0-G1
1002729	5000623	Luminaire, Street Light, LED 50W Nominal Type IV	100W	Type IV Short/Medium	B1-U0-G1
---	4000410	Luminaire, Area Light, LED 50W Nominal	100W	Type V Short	B2-U3-G2
---	4000411	Luminaire, Area Light, LED 50W Nominal (Camano Island)	100W	Type V Short	B2-U0-G1
1002905	5000625	Luminaire, Street Light, LED 100W Nominal Type II	200W	Type II Medium	B2-U0-G2
1002868	5000626	Luminaire, Street Light, LED 100W Nominal Type III	200W	Type III Medium	B2-U0-G2
1002875	5000627	Luminaire, Street Light, LED 140W Nominal Type II	250W	Type II Medium	B3-U0-G2
1002543	5000628	Luminaire, Street Light, LED 140W Nominal Type III	250W	Type III Medium	B3-U0-G2
1002904	5000629	Luminaire, Street Light, LED 275W Nominal Type III	400W	Type III Medium	B3-U0-G3

4. Luminaire Performance

Operating Temperature Range	-4°F to 122°F
Correlated Color Temperature (CCT)	3000°K ± 300°K
Color Rendering Index (CRI)	70 Min.
Lumen Depreciation @ 25°C (L70)	100,000 Hours Min.
Min. Efficacy	90 Lumens/Watt

5. Driver

The LED luminaire shall employ a constant current driver with the following characteristics:

Input Voltage, 60 Hz	120 - 277 VAC
Power Factor	> 0.90
Total Harmonic Distortion (THD)	< 20%
Surge Protection	10kV Min.
Dimming	0 - 10VDC

Optional features that may be specified at time of purchase include:

• Field adjustable drive current.

The driver shall comply with the requirements of FCC Title 47 CFR Part 15, Class A.

6. Construction

6.1 Housing

The luminaire housing shall be cast or extruded aluminum. All hardware shall be stainless steel.

6.2 Slipfitter

- Slipfitter shall be capable of accepting a 1-1/4" through 2" IP pipe tenon (1-5/8" to 2-3/8" OD) with maximum allowable insertion lengths of 7-1/2" and 10" respectively in accordance with Table 2 of ANSI C136.3, latest revision.
- The slipfitter shall provide a shoulder or stop to limit the depth of insertion of the pipe tenon during installation.
- The slipfitter shall have provisions for clamping the luminaire securely to the tenon and for leveling ± 5° with respect to horizontal.
- The slipfitter shall be equipped with a fixed-in-place wildlife guard capable of accepting both 1-1/4" and 2" IP tenons.

6.3 Door

The door shall be easily removable and shall allow for tool-less entry. Door shall be cast or extruded aluminum or UV resistant polycarbonate meeting UL 746C for outdoor usage.

6.4 Finish

Cast housing components shall have a light gray polyester powder coat finish. Extruded components shall be anodized. Finish shall meet the requirements of ANSI C57.31, latest revision.

6.5 Ingress Protection

The luminaire components shall have a minimum moisture ingress ratings as specified in IEC 60529:

Optical Chamber: IP66
Driver: IP42

6.6 Photocell Receptacle

The luminaire shall be provided with a 7 terminal locking type photoelectric control mounting receptacle in accordance with ANSI C136.10 & ANSI C136.41. Photocell receptical dimming contacts shall be factory connected to driver dimming leads (violet & gray) per ANSI C136.41. Photocell receptacle orientation shall be adjustable.

6.7 Terminal & Grounding Block

- Components shall be pre-wired to the terminal board requiring only supply power connections to clearly identified terminals.
- The wiring diagram shall be permanent, apparent, legible and affixed inside the luminaire.
- The terminal board shall be located so that there is adequate accessibility to it for connecting the supply leads when wearing gloves and without the removal or replacement of internal components.
- The terminal board shall be molded plastic, with protective barriers between each contact and the supply connection point shall have a dead back stop to prevent over-insertion of incoming supply leads.
- A clearly marked grounding block or connector shall be provided for grounding the noncurrent-carrying parts of the luminaire.

6.8 Backlight Control

An optional backlight control shield shall be available. This shield shall be easily installed or removed in the field.

6.9 Vibration Resistance

Luminaire shall be certified to ANSI C136.31 3G bridge and overpass vibration standards.

7. Marking

7.1 Nameplate

A durable, legible nameplate shall be permanently attached to the inside of the luminaire housing. Nameplate information shall include:

- Manufacturer's Name
- Model Number
- Date of Manufacture
- Input Voltage

7.2 External Decals

- The manufacturer shall install a permanently attached District serial number decal on the bottom outside of each luminaire door as indicated in Figure 1. The District will supply these decals to the manufacturer.
- The manufacture shall install a LED size code decal as indicated in Figure 1. The District will supply these decals to the manufacturer.
- District numberand size code decals may be rotated 90° counterclockwise if luminaire door size does not accommodate decal placement shown in Figure 1. Alternative decal placements may be acceptable with prior District Approval.

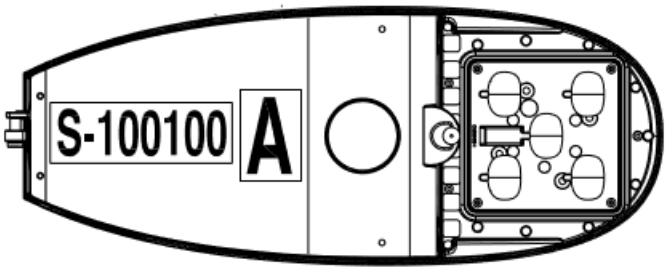

Figure 1

8. Certification and Test Reports

8.1 UL Listing

Luminaire shall be UL listed for use in wet locations and permanently identified as such.

8.2 RoHS

Luminaire shall be RoHS compliant.

8.3 Test Reports

For each approved luminaire the manufacturer shall submit LM-79 and LM-80 test reports and an IES photometric data file. If design changes alter the luminaires' photometrics, then the manufacturer must submit updated test reports and data files for District review.

9. Packaging

Luminaires shall be palletized on 40" x 48" 4-way standard pallets. No more than 50 luminaires shall be placed on a single pallet. Stacks of luminaires, including the pallet, must not exceed a maximum overall height of 52". Each luminaire box shall be marked with the manufacturer's catalog number and date of manufacture.

10. Warranty

The fixture and all of its components shall carry a minimum non-prorated warranty of 10 years from date of delivery.
Any fixture that fails during the warranty period, regardless of which component may have failed, will be returned to the factory for exchange. The replacement unit will carry its own new 10 year warranty from date of delivery.

11. Evaluation of Bids

All responsive bids will be evaluated as follows. For each luminaire MID the approved luminaire with the lowest energy consumption will set the baseline price. The price of all other bidder's luminaires will be adjusted by the difference in their energy consumption and the baseline multiplied by the Districts cost of energy to serve the street light over it's expected service life (currently $4.94/watt). Each luminaire's lumen output will then be divided by its adjusted price to arrive at a cost of light in lumens/$. The bid will be awarded to the luminaire with the lowest cost of light.