

Pedestrian Luminaires, LED, Post-Top, International



1. Scope

This standard covers the requirements for light-emitting diode (LED), post-top, International, pedestrian luminaires.

This standard applies to Seattle City Light (SCL) Stock No. 013683.

2. Application

International, LED, pedestrian luminaires are:

- Only installed on Stock No. 574030, gray fiberglass pedestrian streetlight poles.
- Only installed in the Chinatown-International District (CID), designated a historic district by the City of Seattle.

3. Industry Standards

LED pedestrian luminaires shall meet the applicable requirements of the following industry standards:

ANSI/NEMA/ANSLG C78.377-2008; Specifications for the Chromaticity of Solid State Lighting (SSL) Products

ANSI C136.10-2010; Locking-Type Photocontrol Devices and Mating Receptacles.

ANSI C136.31-2010; American National Standard for Roadway Lighting Equipment – Luminaire Vibration

ANSI C136.37-2011; American National Standard for Roadway and Area Lighting Equipment – Solid State Light Sources Used in Roadway and Area Lighting

ANSI C136.41-2013; Dimming Control Between an External Locking Type Photocontrol and Ballast or Driver

- ASTM B117-09**; Standard Practice for Operating Salt Spray (Fog) Apparatus
- ASTM D1654-08**; Standard Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments
- ASTM D523-08**; Standard Test Method for Specular Gloss
- ASTM G154-06**; Standard Practice for Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials
- C136.15–2011** (or latest); American National Standard for Roadway and Area Lighting Equipment – Internal Labeling of Luminaires
- C136.22–2004 (R2009)**; American National Standard for Roadway and Area Lighting Equipment – Ingress Protection (Resistance to Dust, Solid Objects and Moisture) for Luminaire Enclosures
- Federal Trade Commission (FTC) Green Guides, 16 CFR Part 260**; Guides for the Use of Environmental Marketing
- IEC 60529**; Degrees of protection provided by enclosures (IP Code), consolidated edition
- IEEE C62.41.2–2002**; IEEE Recommended Practice on Characterization of Surges in Low-Voltage (1000 V and less) AC Power Circuits
- IES LM-79-08**; Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products
- IES LM-80-08**; Approved Method: Measuring Lumen Maintenance of LED Lighting Sources
- IESNA TM-15-11** (revised); Luminaire Classification System for Outdoor Luminaires
- RoHS (European Union Directive 2002/95/EC for Restriction of Hazardous Substance)**
- Title 47 of the Code of Federal Regulations (CFR), Part 15**; Radio Frequency Devices
- UL 1598**; Luminaires

4. Requirements

4.1 Luminaire Performance

Operating temperature, range	
°C	-35 to +65
°F	-31 to +149
Correlated Color Temperature (CCT), nominal, °K, per ANSI/NEMA/ANSLG C78.377	3500
Color rendering index (CRI), minimum	70
L70 Lumen depreciation of LED light sources per IES LM-80, hours, minimum	100,000
Light distribution, IES	Type 5
Luminaire efficacy, lumens/watt minimum, per IES LM-79	100
Luminaire efficacy, type II distribution, lumens/watt, minimum	100
Off-state power consumption, W, maximum	0.5

4.2 Power Supply/Driver

Input voltage, functional range, 60 Hz, VAC	120 to 277
Dimming control signal interface operative range, VDC	0 to 10
Power factor, minimum	90

4.3 Construction

4.3.1. General

Luminaires shall be designed and constructed to meet the requirements of ANSI C136.37.

Luminaire features conforming to ANSI C136.37 shall include, but not be limited to the following: mounting provisions, latching and hinging, terminal blocks, dimming, ingress protection, wiring and grounding, and photocontrol receptacle.

Luminaires shall be compliant with RoHS (European Union Directive 2002/95/ED for Restriction of Hazardous Substance). Luminaires shall have less than the maximum concentration values of the following RoHS restricted substances:

- Mercury (Hg)
- Cadmium (Cd)
- Chromium VI (Cr +6)
- Polybrominated biphenyl (PBB)
- Polybrominated biphenyl ether (PBDE)
- Lead (Pb)

4.3.2. Fixture Housing

External housing, ingress protection per IEC 60529	IP65
Optical chamber, ingress protection per IEC 60529	IP66

Luminaire housing shall be cast aluminum and allow for tool-less entry.

Photocontrol receptacle shall be located at the base of the luminaire and allow for tool-less entry.

Luminaire cooling system shall consist of a passive heat sink without fans, pumps, or liquids.

All fasteners shall be stainless steel.

All polycarbonate and acrylic components shall be UV stabilized.

4.3.3. Electrical

Power supply/driver shall be UL recognized for dry and damp locations.

All other electrical components shall be UL listed or recognized for wet locations.

Luminaire photocontrol receptacle shall be designed and constructed to accept a standard plug type, locking, three-pole, three-wire, streetlight photocontrol, and shall be located at the base of the fixture.

Photocontrol receptacle shall have a minimum of five positions as defined in ANSI C136.41-2013. Two dimming contacts shall be connected to the 0-10 Vdc control signal interface on the power supply/driver with quick-disconnect connectors.

Rotational adjustment of the photocontrol shall be tool-less.

Luminaire circuitry shall include quick connect/disconnects to allow easy separation and removal of driver and power door.

A three-pole terminal block capable of accepting #14 to #6 AWG wire shall be mounted to the housing inside the electrical compartment.

Terminal block shall be capable of operation with a standard #2 flat blade screwdriver.

Luminaire shall meet the requirements of Title 47 of the Code of Federal Regulations (CFR), Part 15 – Radio Frequency Devices.

4.3.4. Mounting

Luminaires shall be designed for post-top mounting onto a pole with a top diameter of 3-1/2 inches.

Tenon mounting area opening shall be limited to 1/4-in over the range of tenon sizes and leveling adjustment to prevent entrance of wildlife as specified in ANSI C136.37.

4.3.5. Lens

Lens shall be lightly diffused and resistant to ultraviolet light deterioration.

Lens shall be smooth on the exterior to discourage unwanted growth.

4.4 Finish and Color

Fixture color	Thermal Red, RAL3000
Capital	Gold, 60-10206 King Standard Gold

Finish shall be a powder coating with a minimum thickness of 100 microns and shall meet salt spray requirements of ASTM B117 and the humidity resistance requirements of ASTM D2247.

5. Detailed Requirements

System power consumption (W)	40
Weight (lb)	50
EPA (ft ²)	3.5
Tenon mounting requirements, outside diameter (in) x length (in)	3.5 x 3.5
Dimensions, width (W) x height (H) (in)	20.1 x 40.5

6. Testing

Manufacturers shall provide test data that establishes compliance with the requirements of this material standard upon request.

Certificate of RoHS (European Union Directive 2002/95/EC for Restriction of Hazardous Substances in Electrical and Electronic Equipment) compliance shall be provided upon request.

7. Design Changes

Manufacturer shall inform SCL in writing of all design changes that could affect the product's understood or published capabilities.

8. Marking

8.1 Internal Labeling

A readily visible label shall be permanently affixed to the inside surface of each luminaire housing.

Internal label shall meet the requirements of ANSI C136.22.

Internal label shall include, but not be limited to, the following information:

- Manufacturer name and catalog number
- Month and year of manufacture
- Line input voltage
- Frequency, if other than 60 Hz
- Driver type (if applicable; may be on driver if readily visible)
- Photocontrol voltage if different from line input voltage
- Lamp type, wattage, and voltage, if applicable (may be on driver if readily visible)
- Descriptive wiring diagram showing input terminals, ballast, capacitors, starting aid, photocontrol receptacle, lamp, etc., as necessary
- Plant location
- Input power consumption
- Driver output current
- Driver output adjustment
- IEC IP rating
- Correlated color temperature (CCT)
- IES light distribution type
- IESNA TM-15 BUG ratings
- Serial number

8.2 Barcode

A barcode label shall be provided as specified in the purchase order.

8.3 Component Identification

All UL Listed components shall be labeled or recognized as such.

9. Packaging

Luminaires shall be individually packaged to prevent damage during shipping, inside storage, and casual handling prior to installation.

Each package shall be legibly marked with:

- Manufacturer name
- Manufacturer catalog number
- Product description
- Date of manufacture (month and year)
- Seattle City Light stock number
- Seattle City Light purchase order number

Accessories shall be individually packaged to prevent damage during shipping, inside storage, and casual handling prior to installation.

Each package shall be legibly marked with:

- Product description
- Seattle City Light stock number

10. Issuance

EA

11. Approved Manufacturers

Stock No. 013683

Manufacturer: King Luminaire
Catalog Number: K56-S-K24-P4AF-V-40(SSL)-7030-120:277-PR7-3.5K-Ball Finial (GOLD)-SM RAL3000

where:

K56 = model, K56
S = style, Tudor with spurs
K24 = pole adaptor, K24 capital
P4AF = optical system, P4 flat array acrylic frosted
V = light distribution, type 5
40 = wattage, 40 W
SSL = type, solid-state lighting
7030 = LED series, 7030
120:277 = voltage, 120–277 Vac
PR7 = options, 7-pin twist-lock photo receptacle
3.5K = CCT LED color temperature, 3500K
Ball Finial (GOLD) = painted ball color, Gold
SM RAL3000 = color code, smooth paint finish in Flame Red (RAL3000)

12. Sources

Aristo, Ed; King Luminaire Lighting Manufacturer Representative with Sea-Tac Lighting and Controls, LLC and subject matter expert for 5723.31

Borek, Tom; SCL Streetlight Engineer and subject matter expert for 5723.31

Chao, Yaochiem; SCL Standards Engineer and originator of 5723.31

King Luminaire; drawing no. **SEATTLE CITY LIGHT-8**; revision March 26, 2015

Li, Jesse; SCL Streetlight Engineer and subject matter expert for 5723.31