

Pedestrian Luminaires, LED, Side-Mount, Modern



1. Scope

This standard covers the requirements for modern light-emitting diode (LED), side-mount, pedestrian luminaires.

This standard applies to the following Seattle City Light (SCL) stock numbers:

Stock No.	Color	Description
014382	Dark bronze	Arieta side-mount LED luminaire
014383	Gray	Arieta side-mount LED luminaire
014395	Black	House side shield, field installable
014300	Dark bronze	Arieta round pole adapter (RPA)
014301	Light gray	Arieta round pole adapter (RPA)

2. Application

Modern, LED, side-mount, pedestrian luminaires are:

- Intended for replacement of 100-watt high-pressure sodium (HPS) shoebox-type luminaires
- Designed to be side-mounted on 4-inch square poles
- Installed in City-designated areas and SCL-designated streetlight districts
- Equipped with built-in photocontrol housing with tool-less access for a standard, three-pin photocontrol
- Controlled by 20-year design life streetlight photocontrols as specified in SCL 5693.10

Round pole adapters (RPA) are used to mount flat bracket luminaires to round poles.

In 2018, Seattle City Light began a transition from 4000°K CCT luminaires to 3000°K.

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Handwritten signature of John Shipek, Standards Supervisor.

Handwritten signature of Andrew Strong, Unit Director.

3. Industry Standards

LED streetlight 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; UL

4. Requirements

4.1 Luminaire Performance

Operating temperature, range	
°C	-40 to +40
°F	-40 to +104
Correlated Color Temperature (CCT), nominal, °K, per ANSI/NEMA/ANSI C78.377	3000 ± 200
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 3
Luminaire efficacy, lumens/watt, minimum, per IES LM-79, Section 11.0	100
Off-state power consumption, W, maximum	0.5
Vibration withstand, minimum, per ANSI C136.31	Level 2 (bridge/overpass application)

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:

- Mounting provisions
- Latching and hinging
- Terminal blocks
- Dimming
- Ingress protection
- Wiring and grounding
- Field-installable house side shields
- Full-field adjustable (FFA) capability
- 7-pin photo-control receptacle

Luminaires shall be RoHS (European Union Directive 2002/95/ED for Restriction of Hazardous Substance) compliant. 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

Luminaire weight, lb, maximum	20
Effective projected area (EPA), ft ² , maximum	0.8
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.

All tool-less fasteners and latches shall be die-cast aluminum and have the same finish as the luminaire housing.

All aesthetic exterior fasteners shall be corrosion resistant, die cast aluminum; painted the same color as the luminaire housing. Internal fasteners shall be stainless steel.

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

Photocontrol mounting shall accommodate all SCL-approved photocontrols as stated in SCL 5693.10.

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

All polycarbonate 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 photo control, 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.

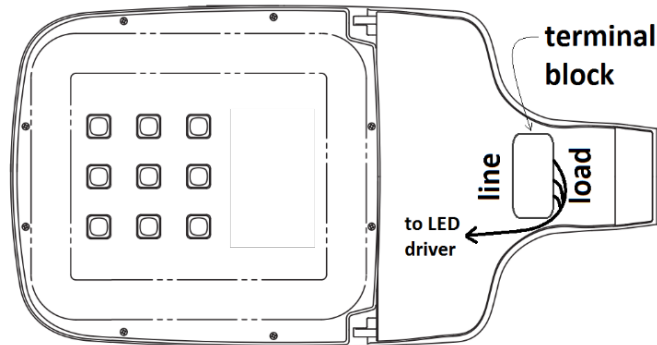
Luminaires shall meet the requirements of Title 47 of the Code of Federal Regulations (CFR), Part 15 – Radio Frequency Devices.

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

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

The terminal block shall be rotated such that the line side is oriented toward the LED array. See Figure 4.3.

Figure 4.3. Terminal Block Orientation



4.3.4 Mounting

Luminaires shall be designed for side-mounting onto a 4-inch square pole.

4.3.5 Finish and Color

Finish on housing shall be a powder coating with a minimum thickness of 100 microns and shall meet salt spray requirements of ASTM B 117 and the humidity resistance requirements of ASTM D 2247.

5. Detailed Requirements

Physical and electrical details for specific luminaires are provided below.

System power consumption, W	46
Weight, lb	16
EPA, ft ²	0.47

6. Testing

Manufacturer 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) compliance shall be provided upon request.

7. Design Changes

Manufacturer shall inform Seattle City Light in writing of all design changes that could affect the understood or published capabilities of the product.

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 Hertz
- 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, and the like, 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

Stock unit: EA

11. Approved Manufacturers

Stock No. 014382

Manufacturer: Leotek

Catalog Number: AR13-6M2-MV-WW-3-DB-530-PCR7-WL-FFA-RTB

where:

AR13 = product, AR13

6M2 = LED number and type

MV = voltage, 120 277 Vac

WW = color temperature, 3000K

3 = light distribution, type 3

DB = finish, dark bronze

530 = drive current, 530 mA

PCR7 = options, 7-pin photocell receptacle, pre-wired

WL = options, utility wattage label

FFA = full field adjustability

RTB = rotated terminal block

Stock No. 014383

Manufacturer: Leotek

Catalog Number: AR13-6M2-MV-WW-3-GY-530-PCR7-WL-FFA-RTB

where:

AR13 = product, AR13

6M2 = LED number and type

MV = voltage, 120-277 Vac

WW = color temperature, 3000K

3 = light distribution, type 3

GY = finish, gray

530 = drive current, 530 mA

PCR7 = options, 7-pin photocell receptacle, pre-wired

WL = options, utility wattage label

FFA = full field adjustability

RTB = rotated terminal block

Stock No. 014395, Field-Installable House Side Shield

Manufacturer: Leotek

Catalog Number: HSSAR13-6BK

Description: Flush-mounted house-side shield for LED streetlight luminaires

Application: Installed on LED streetlight luminaires to cut light off at 1/2 mounting height behind luminaire. One shield per luminaire. Streetlight Engineering must pre-approve all installations of luminaire shields. Contact Streetlight Engineering for details.

Stock No. 014300, Round Pole Adapter

Manufacturer: Leotek

Catalog Number: RPADB

where:

RPA = round pole adapter

DB = finish, dark bronze

Stock No. 014301, Round Pole Adapter

Manufacturer: Leotek

Catalog Number: RPAGY

where:

RPA = round pole adapter

GY = finish, light gray

12. References

SCL Material Standard 5693.10; “Streetlight Photocontrols, 20-Year Design Life”

13. Sources

Chao, Yaochiem; SCL Standards Engineer and originator of 5723.23

Leotek AR 13 M2 Series Specification Data Sheet for Stock No. 014383 – Gray;
April 12, 2018

**Leotek AR 13 M2 Series Specification Data Sheet for Stock No. 014382 – Dark
Bronze;** April 12, 2018

Leotek drawing for House Side Shield HSSAR13-6BK; April 12, 2018

Li, Jesse; SCL Streetlight Engineer and subject matter expert for 5723.23