

## Underdeck Luminaires, LED



### 1. Scope

This standard covers the requirements for light-emitting diode (LED) underdeck luminaires.

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

Stock No.	Description
014560	Underdeck luminaire, pendant-mount
014561	Underdeck luminaire, U-bracket-mount
014562	Underdeck luminaire, suspension-mount

### 2. Application

LED underdeck luminaires are suspension-mounted, pendant-mounted, or surface-mounted to underdeck structures.

LED underdeck luminaires are suitable for replacing 150-watt, 250, or 400-watt high-pressure sodium (HPS) underdeck and hanging lights.

LED underdeck luminaires are controlled by a remotely mounted, 20-year design life streetlight photocontrols specified in SCL 5731.17.

### 3. Industry Standards

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

**ANSI C62.41.2**; IEEE Recommended Practice on Characterization of Surges in Low-Voltage (1000 V and Less) AC Power Circuits)

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

**ANSI C136.15-2011**; American National Standard for Roadway and Area Lighting Equipment—Luminaire Field Identification

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**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

**Title 47 of the Code of Federal Regulations (CFR), Part 15**; Radio Frequency Devices

**UL 1598**; Luminaires

## 4. Requirements

### 4.1 Underdeck Light Performance

Operating temperature, range	
°C	-20 to +50
°F	-4 to +122
Correlated Color Temperature (CCT), nominal, °K, per ANSI/NEMA/ANSI C78.377	4000 ± 300
Color rendering index (CRI), minimum	70
L70 Lumen depreciation of LED light sources per IES LM-80, hours, minimum	100,000
Efficacy, lumens/watt, minimum, per IES LM-79, Section 11.0	111
Off-state power consumption, W, maximum	0.5
On-state power consumption, excluding control device, W, minimum	213
Luminous flux distribution at median driver current, lumens, minimum	23,490
Vibration withstand, minimum, per ANSI C136.31	Level 2 (bridge/overpass application)
Total harmonic distortion (THD)	< 20%

### 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	0.90
Surge protection	
High exposure (kV)	10
Low exposure (kV)	6

## 4.3 Construction

### 4.3.1. General

LED underdeck luminaires shall be designed and constructed to meet the requirements of ANSI C136.37.

Underdeck 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, and photo-control receptacle.

### 4.3.2. Fixture Housing

Weight, lb, maximum	21
External housing, ingress protection per IEC 60529	IP66
Optical chamber, ingress protection per IEC 60529	IP66

Underdeck luminaire housing shall be extruded aluminum with die-cast aluminum end caps.

The underdeck 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 provided with a control signal interface with operating range of 0 to 10 Vdc for dimming.

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

All other electrical components shall be UL Listed or UL Recognized for wet locations.

Fixture shall include a pigtail. Pigtail shall be a 16/3 cord, type STW-A, with a minimum length of 6 ft.

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

#### 4.3.4. Mounting

LED underdeck luminaires shall be designed to be compatible with suspension, U-Bracket, and pendant mounting hardware.

#### 4.3.5. Finish and Color

Luminaire housing finish shall be powder-coated gray.

Painted or finished luminaire components exposed to the environment shall exhibit no peeling or flaking after 2000 hours of salt spray testing.

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### 5. Testing

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

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### 6. Design Changes

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

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### 7. Marking

A readily visible label shall be permanently affixed to the outside (external) surface of each luminaire housing.

Label shall meet the requirements of ANSI C136.15.

Label shall be large per ANSI C136.15.

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
- Correlated color temperature (CCT)
- IES light distribution type
- Serial number

## 8. 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

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## 9. Issuance

EA

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## 10. Approved Manufacturers

Manufacturer:	Leotek
Catalog Number:	<b>ND4-96H-MV-NW-WS-GY-700-WL-P/U/S-SCL</b>
<i>where:</i>	
ND4 =	product
96H =	number/LED type, 96H
MW =	voltage, 120–277 V
NW=	nominal color temperature, 4000K
WS =	distribution, wide symmetric
GY =	finish, gray
700 =	options, factory set 700 mA
WL =	accessories, wattage label = “213”
P/U/S =	mounting method (select one for each product)
	P = pendant mount (Stock No. 014560)
	U = U-bracket mount (Stock No. 014561)
	S = suspension mount (Stock No. 014562)
SCL =	Leotek custom notation for Seattle City Light products

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## 11. References

**SCL Material Standard 5731.17**; “Streetlight Photocontrols, 20-Year Design Life”

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## 12. Sources

**Gorman, Kevin**; LED Conversion Program Manager and subject matter expert for 5719.40 (kevin.gorman@seattle.gov)

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