

## Description

The Halo ML56 LED Downlighting System is a series of modular LED Light Modules for use with designated 5" or 6" ML56 LED trims in new construction, remodel and retrofit installation. Compatible with Halo 5" H550 and 6" H750, H2750 Series LED housings. And in retrofit of existing housings the ML56 Series fits 5" or 6" Halo, All-Pro, and others. ML56 system offers shallow trims for installation in Halo, All-Pro and others shallow housings. ML56 Light Modules are offered in 600 Series, 900 Series, and 1200 Series, 80CRI or 90CRI, and four color temperatures 2700K, 3000K, 3500K, 4000K. ML56 Light Modules are universal voltage 120V – 277V and dimmable at 120V. The ML56 lens provides uniform diffuse illumination standard.

| Catalog #   | Type |
|-------------|------|
| Project     | Date |
| Comments    |      |
| Prepared by |      |

## Specification Features

### Mechanical

#### Light Module

- Module includes LED package, LED driver, heat sink, and lens
- Durable die-cast aluminum construction.
- Heat sink designed to conduct heat away from the LED keeping the junction temperatures below specified maximums, including insulated ceiling environments

#### Lens

- Impact-resistant polycarbonate
- Convex form for lamp-like appearance
- High lumen transmission
- Diffusing for even illumination

#### Mounting

- Light Modules attach to reflector and baffle trims via locking tabs, and attach to eyeballs via keyed twist-to-lock mating bosses
- The complete light module and trim assembly installs into housings with precision formed torsion springs located on the trim
- Friction Blade mounting is an alternate option using the accessory 6" Friction Blade Kit model ML56CLIP (order separately). Friction blades provide alternative to torsion springs for retrofit in 6" housings without torsion mounting tabs. The stainless steel friction blades allow the ML56 to be installed in a wider range of housings, and allow rotation in the housing aperture (360 degrees).

#### Housing Compatibility

A complete ML56 system includes a LED Light Module, LED trim, and a compatible housing (new construction, remodel, or existing retrofit). Housing compatibility in the ML56 System is determined by the ML56 trim dimensions. ML56 trims are available in 5" and 6" aperture (5" = 59x series and 6" = 69x series trims). Refer to Housing – Trim Section in this document.

#### LED

- 900 Series = 900 design lumens typical.
- Delivered lumens vary depending upon 5" or 6", color temperature, and trim finish.
- Color Temperature options: 2700K, 3000K, 3500K, 4000K

- CRI: 80
- L70 at 50,000 hours, projected in accordance with IES TM-21
- LED is a chip on board design consisting of a multiple LED package to create one virtual light source for a productive "cone of light"

#### Color Specification & Quality Standards

- A tight chromaticity specification ensures LED color uniformity, sustainable Color Rendering Index (CRI) and Correlated Color Temperature (CCT) over the useful life of the LED
- LED color uniformity of 3 SDCM exceeds ENERGY STAR® color standards per ANSI C78.377- 2008.
- Every Halo LED Light Module is quality tested and performance measured, and then serialized in a permanent record to register lumens, wattage, CRI and CCT.
- Halo LED serialized testing and measurement process ensures color and lumen consistency on a per-unit basis, and validates long-term product consistency over time
- Halo ML56 LED Light Modules include lumen, CRI, and CCT designations in the model number
- Example: **ML5609830**  
**56** = 5" / 6" aperture series  
**09** = 900 lumen series  
**8** = >80 CRI  
**30** = 3000K nominal CCT

#### Electrical Power Connections

- LED connector is a non-screw base luminaire disconnect offering easy installation with the matching Halo 5" H550 series and 6" H750 and H2750 series housings (housing selected depends upon LED trim 5" or 6").
- LED Connector is a non-screw base, and where required to qualify as a high-efficacy luminaire.
- The included E26 medium screw-base Edison adapter provides easy retrofit of incandescent housings (see Housing Section).

#### Ground Connection

Separate grounding cable included on the module for attachment to the housing during installation.

#### LED Driver

- Driver is universal voltage 120V-277V, and may be controlled from a switch in this range of main inputs (switchable at 120V, 220V, 230V, 240V, and 277V)
- Driver is dimmable at 120V operation when connected to a compatible dimmer.
- Driver is a high efficiency, electronic power supply providing DC power to the LED.
- Driver meets FCC EMI/RFI Consumer Level limits on 120V main inputs, and is compliant for use in residential and commercial installations.
- Driver features high power factor, low THD, and has integral thermal protection in the event of over temperature or internal failure.
- Driver is replaceable, if replacement should be required.

#### Dimming

Designed for dimming capability to nominal 5% in normal operation with standard 120V Leading Edge (LE) and Trailing Edge (TE) phase control dimmers. (Consult dimmer manufacturer for dimmer compatibility and details. Note, some dimmers require a neutral in the wallbox.)

#### Warranty

Cooper Lighting Solutions provides a (5) five year limited warranty on the Halo ML56 LED Light Module.

#### LED Module in New or Retrofit Existing Construction – Housings other than Halo or All-Pro

- If used in recessed housings other than Halo or All-Pro the Cooper Lighting Solutions 5-year limited warranty applies to the LED Light Module and Trim only.
- As with any electrical installation, a qualified electrician must ensure compatibility of use with a particular housing; this includes all applicable national and local electrical and building codes. Installer is responsible to properly and securely retain the LED Module and LED Trim in the housing at time of installation.



## ML56 LED System

### 900 Series / 80 CRI

**ML5609827**

**ML5609830**

**ML5609835**

**ML5609840**

**5-Inch and 6-Inch  
900 Lumen LED  
Light Module for  
New Construction,  
Remodel and Retrofit**

**For use with 59x and 69x  
Series Trims**

**FOR USE IN  
INSULATED CEILING  
AND NON-INSULATED  
CEILING RATED  
HOUSINGS**

**HIGH EFFICACY LED  
WITH INTEGRAL  
DRIVER - DIMMABLE**

#### Energy Data

##### ML56 900/80 Series

(Values at non-dimming line voltage)

Minimum Starting Temp: -30°C (-22°F)

EMI/RFI: FCC Title 47 CFR, Part 15, (Consumer)

Sound Rating: Class A

Input Voltage: UNV 120V-277V

Power Factor: >0.95 @ 120V and >0.9 @ 277V

Input Frequency: 50/60Hz

THD: <20%

Max. Rated Wattage: 14W

Input Power: 13.4W

Input Current at 120V: 0.15A

Input Current at 277V: 0.08A

Driver Compliance: UL8750, Class II rated

Maximum IC (Insulated Ceiling) Ambient  
Continuous Operating Temperature: 25°C (77°F)

Maximum Non-IC Ambient Continuous  
Operating Temperature: 40°C (104°F)



**ML5609827**  
5" or 6" LED 900 Series



**ML5609830**  
5" or 6" LED 900 Series



**ML5609835**  
5" or 6" LED 900 Series



**ML5609840**  
5" or 6" LED 900 Series

## Compliance

- cULus listed 1598 Luminaire (Halo and All-Pro housings)
- UL Classified when used in retrofit (refer to housing section)
- cULus listed for damp locations
- cULus Wet location listed with baffle and reflector trims only
- Airtight certified per ASTM E283 (not exceeding 2.0 CFM under 57 Pascals pressure difference)
- IP66 ingress protection rated with baffle and reflector trims only
- RoHS compliant
- May be used in IC (insulated ceiling) housings in direct contact with insulation\* and combustible material
- Can be used as a California Title 24 compliant Non-Residential LED Luminaire
- Can be used for International Energy Conservation Code (IECC) high efficiency luminaire compliance.
- Can be used for Washington State Energy Code compliance
- ENERGY STAR® certified luminaire - consult ENERGY STAR® Certified product list
- EMI/RFI per FCC 47CFR Part 15 Class B Consumer limits (commercial and residential compliant)
- Photometric testing in accordance with IES LM-79
- Lumen maintenance projections in accordance with IES LM-80 and TM-21
- CE Mark - "Conformité Européenne" conformity with the Council of European Communities Directives, meeting internationally recognized compliance when used with Halo H550, H750, and H2750 Series LED housings only

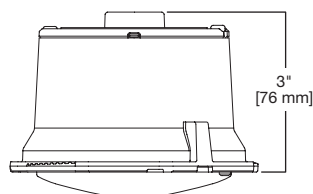
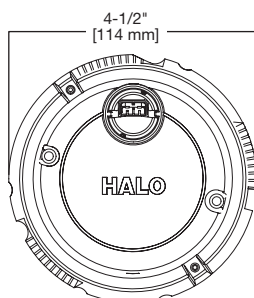
\* Not for use with housings in direct contact with spray foam insulation.



Refer to ENERGY STAR® Certified Products List.

Can be used to comply with California Title 24 Non-Residential Lighting Controls requirements as a LED Luminaire

## Dimensions



## Ordering Information

Sample Number: **ML5609830 593WB**

Order LED Module and trim separately.

A complete system also includes a compatible housing (new construction, remodel, or existing retrofit). Housing aperture size in the ML56 System is determined by the ML56 trim dimensions. ML56 trims are available in 5" and 6" aperture (5" = 59xx series and 6" = 69xx series trims). Refer to Housing Section in this document.

### ML56 LED Light Modules 900 Series / 80 CRI

**ML5609827**= 5"/6" LED light module, 900 lumen, 80CRI, 2700K  
**ML5609830**= 5"/6" LED light module, 900 lumen, 80CRI, 3000K  
**ML5609835**= 5"/6" LED light module, 900 lumen, 80CRI, 3500K  
**ML5609840**= 5"/6" LED light module, 900 lumen, 80CRI, 4000K

### ML56 LED 5" and 6" Trims

#### 590 Series - 5" LED Trims

**591WB**=5" LED trim, polymer "dead-front", shallow white baffle & flange – shallow and standard housings (For use with 600 Series LED light modules only)  
**592SC**=5" LED trim, specular reflector & white flange  
**592H**=5" LED trim, haze reflector & white flange  
**592W**=5" LED trim, white reflector & flange  
**593WB**=5" LED trim, white micro-step baffle & flange  
**593BB**=5" LED trim, black micro-step baffle & white flange  
**593SNB**=5" LED trim, satin nickel micro-step baffle & flange  
**593TBZB**=5" LED trim, tuscan bronze micro-step baffle & flange  
**594WB**=5" LED directional trim, white eyeball, baffle & flange – shallow and standard housings  
**594SNB**=5" LED directional trim, satin nickel eyeball, baffle & flange – shallow and standard housings  
**594TBZB**=5" LED directional trim, tuscan bronze eyeball, baffle & flange – shallow and standard housings  
**595WW**=5" LED trim, wall wash - specular reflector, repositionable specular kick reflector, white flange  
**596WB**=5" LED trim, white shallow baffle & flange – shallow and standard housings

#### 690 Series - 6" LED Trims

**691WB**=6" LED trim, polymer "dead-front", white shallow baffle & flange – shallow and standard housings (For use with 600 Series LED light modules only)  
**692SC**=6" LED trim, specular reflector & white flange  
**692H**=6" LED trim, haze reflector & white flange  
**692W**=6" LED trim, white reflector & flange  
**693WB**=6" LED trim, white micro-step baffle & flange  
**693BB**=6" LED trim, black micro-step baffle & white flange  
**693SNB**=6" LED trim, satin nickel micro-step baffle & flange  
**693TBZB**=6" LED trim, tuscan bronze micro-step baffle & flange  
**694WB**=6" LED directional trim, white eyeball, baffle & flange – shallow and standard housings  
**694SNB**=6" LED directional trim, satin nickel eyeball, baffle & flange – shallow and standard housings  
**694TBZB**=6" LED directional trim, tuscan bronze eyeball, baffle & flange – shallow and standard housings  
**695WW**=6" LED trim, wall wash - specular reflector, repositionable specular kick reflector, white flange  
**696WB**=6" LED trim, white shallow baffle & flange – for use with shallow and standard housings

### ML56 System Accessories


**ML56CLIP**=Friction clip mounting kit - for retrofitting non-torsion spring housings, 6" clips\*  
**WW595SC**=5" Wall wash insert - kick reflector for 595WW (1-included with trim) double or corner wall wash\*\*  
**WW695SC**=6" Wall wash insert - kick reflector for 695WW (1-included with trim) double or corner wall wash\*\*  
**TRM590WH**=5" LED oversize trim ring for use with 59\* series trims, white 6.3" I.D., 7.5" O.D. Ring slips over LED trim. Inset design allows 5" trim to fit into oversize ring for an even trim surface  
**TRM690WH**=6" LED oversize trim ring for use with 69\* series trims, white 6.9" I.D., 9.5" O.D. Ring slips over LED trim. Inset design allows 6" trim to fit into oversize ring for an even trim surface

\*ML56CLIP is compatible with 6" baffle and reflector trims only (691, 692, 693, 695, 696 series).  
 For eyeball trim (694 series) use ML7RAB retrofit adapter band.


\*\*Wall Wash Trims 595WW and 695WW Feature an exclusive Repositionable Kick Reflector for fine-tuning adjustment of the wall wash effect. The WW595SC and WW695SC are Repositionable Kick Reflectors sold separately for addition to the Wall Wash Trim when a double or corner wall wash is needed, or for replacement of original kick reflector included with the trim.

## Lighting Facts


### ML5609827

| PRODUCT SPECIFICATIONS  |              |
|---|--------------|
| Lumens (Light Output)   | <b>934</b>   |
| Watts   | <b>13.4</b>  |
| Lumens Per Watt (Efficacy)  | <b>69.7</b>  |
| Color Accuracy (CRI)  | <b>81</b>    |
| Light Color (CCT)<br>Correlated Color Temperature (CCT)                             | <b>2700K</b> |
|  |              |
| MODEL# ML5609827  |              |


### ML5609830

| PRODUCT SPECIFICATIONS  |              |
|---|--------------|
| Lumens (Light Output)   | <b>1009</b>  |
| Watts   | <b>13.4</b>  |
| Lumens Per Watt (Efficacy)  | <b>75.3</b>  |
| Color Accuracy (CRI)  | <b>82</b>    |
| Light Color (CCT)<br>Correlated Color Temperature (CCT)                             | <b>3000K</b> |
|  |              |
| MODEL# ML5609830  |              |

### ML5609835

| PRODUCT SPECIFICATIONS   |              |
|--|--------------|
| Lumens (Light Output)  | <b>1024</b>  |
| Watts  | <b>13.4</b>  |
| Lumens Per Watt (Efficacy)   | <b>76.4</b>  |
| Color Accuracy (CRI)   | <b>83</b>    |
| Light Color (CCT)<br>Correlated Color Temperature (CCT)                              | <b>3500K</b> |
|  |              |
| MODEL# ML5609835   |              |

### ML5609840

| PRODUCT SPECIFICATIONS  |              |
|---|--------------|
| Lumens (Light Output)   | <b>1045</b>  |
| Watts   | <b>13.4</b>  |
| Lumens Per Watt (Efficacy)  | <b>78.0</b>  |
| Color Accuracy (CRI)  | <b>82</b>    |
| Light Color (CCT)<br>Correlated Color Temperature (CCT)                               | <b>4000K</b> |
|  |              |
| MODEL# ML5609840  |              |

## Housing – Trim Compatibility

Housing aperture size in the ML56 System is determined by the ML56 trim dimensions. ML56 trims are available in 5" and 6" aperture (5" = 59xx series and 6" = 69xx series trims). Refer to ML56 TRIMS in this document. (Note "X" in the trim model number denotes finish code.)

## Housing – Compatibility

The ML56 LED light module - trim combination is cULus Listed or UL Classified for use with any 5" or 6" diameter recessed housing constructed of steel or aluminum with an internal volume that exceeds 115 in<sup>3</sup> in addition to those noted below.

## Halo and All-Pro UL Listed Compatibility

**6" Trims: 691X, 692X, 693X, 694X, 695X, 696X**

(Note shallow housings for use with 691X, 694X, 696X trims only)

### HALO - LED Housings with LED Luminaire Connector - High-Efficacy Compliant

| Brand | Housing Type      | Catalog Number | Description  |
|-------|-------------------|----------------|--|
| Halo  | Standard Housings | H750ICAT       | 6" LED, Insulated Ceiling, Air-Tite, New Construction Housing                                    |
|       |                   | H750RICAT      | 6" LED, Insulated Ceiling, Air-Tite, Remodel Housing   |
|       |                   | H750T          | 6" LED, Non-IC, Air-Tite, New Construction Housing   |
|       |                   | H750TCP        | 6" LED, Non-IC, New Construction/Remodel Chicago Plenum Housing                                  |
|       |                   | H750TD010      | 6" LED, Non-IC, Air-Tite, New Construction Housing   |
|       |                   | H750RTD010     | 6" LED, Non-IC, Air-Tite, Remodel Housing  |
|       |                   | H750TCPD010    | 6" LED, Non-IC, New Construction/Remodel Chicago Plenum Housing                                  |
|       |                   | H750RINTD010   | 6" LED, Non-IC, Air-Tite, Remodel Housing (International CE Mark and UL/cUL Listed)              |
| Halo  | Shallow Housings  | H2750ICAT      | 6" LED, Shallow, Insulated Ceiling, Air-Tite, New Constr. (use with 691X, 694X, 696X trims only) |

### HALO and All-Pro - Incandescent E26 Screwbase Housings

| Brand   | Housing Type      | Catalog Number | Description   |
|---------|-------------------|----------------|---|
| Halo    | Standard Housings | H7ICAT         | 6" Insulated Ceiling, Air-Tite New Construction Housing   |
|         |                   | H7RICAT        | 6" Insulated Ceiling, Air-Tite Remodel Housing  |
|         |                   | H7ICT          | 6" Insulated Ceiling, New Construction Housing  |
|         |                   | H7RICT         | 6" Insulated Ceiling, Remodel Housing   |
|         |                   | H7ICATNB       | 6" Insulated Ceiling, Air-Tite New Construction Housing, No Socket Bracket                      |
|         |                   | H7ICTNB        | 6" Insulated Ceiling, New Construction Housing, No Socket Bracket                               |
|         |                   | H7T            | 6" Non-IC, New Construction Housing   |
|         |                   | H7RT           | 6" Non-IC, Remodel Housing  |
|         |                   | H7TNB          | 6" Non-IC, New Construction Housing, No Socket Bracket  |
|         |                   | H7TCP          | 6" Non-IC, Chicago Plenum, New Construction/Remodel Housing                                     |
|         |                   | H7UICAT        | 6" Insulated Ceiling, Universal New Construction Housing  |
|         |                   | H7UICAT        | 6" Insulated Ceiling, Universal, Air-Tite, New Construction Housing                             |
| All-Pro | Standard Housings | E1700AT        | 6" Insulated Ceiling, Air-Tite New Construction Housing   |
|         |                   | E1700RAT       | 6" Insulated Ceiling, Air-Tite Remodel Housing  |
|         |                   | E1700          | 6" Insulated Ceiling, New Construction Housing  |
|         |                   | E1700R         | 6" Insulated Ceiling, Remodel Housing   |
|         |                   | E1700ATNB      | 6" Insulated Ceiling, Air-Tite New Construction Housing, No Socket Bracket                      |
|         |                   | E1700NB        | 6" Insulated Ceiling, New Construction Housing, No Socket Bracket                               |
|         |                   | E1700U         | 6" Insulated Ceiling, Universal New Construction Housing  |
|         |                   | E1700UAT       | 6" Insulated Ceiling, Universal, Air-Tite, New Construction Housing                             |
|         |                   | ET700          | 6" Non-IC, New Construction Housing   |
|         |                   | ET700R         | 6" Non-IC, Remodel Housing  |
| Halo    | Shallow Housings  | H27ICAT        | 6" Shallow, Insulated Ceiling, Air-Tite New Construction (use with 691X, 694X, 696X trims only) |
|         |                   | H27RICAT       | 6" Shallow, Insulated Ceiling, Air-Tite Remodel Housing (use with 691X, 694X, 696X trims only)  |
|         |                   | H27ICT         | 6" Shallow, Insulated Ceiling, New Construction Housing (use with 691X, 694X, 696X trims only)  |
|         |                   | H27RICT        | 6" Shallow, Insulated Ceiling, Remodel Housing (use with 691X, 694X, 696X trims only)           |
|         |                   | H27T           | 6" Shallow, Non-IC, New Construction Housing (use with 691X, 694X, 696X trims only)             |
|         |                   | H27RT          | 6" Shallow, Non-IC, Remodel Housing (use with 691X, 694X, 696X trims only)                      |
| All-Pro | Shallow Housings  | E12700AT       | 6" Shallow, Insulated Ceiling, Air-Tite New Construction (use with 691X, 694X, 696X trims only) |
|         |                   | E12700         | 6" Shallow, Insulated Ceiling, New Construction Housing (use with 691X, 694X, 696X trims only)  |
|         |                   | E12700R        | 6" Shallow, Insulated Ceiling, Air-Tite Remodel Housing (use with 691X, 694X, 696X trims only)  |
|         |                   | ET2700         | 6" Shallow, Non-IC, New Construction Housing (use with 691X, 694X, 696X trims only)             |
|         |                   | ET2700R        | 6" Shallow, Non-IC, Remodel Housing (use with 691X, 694X, 696X trims only)                      |

## Halo LED Retrofit Enclosures

| Brand | Type     | Catalog Number | Description   |
|-------|----------|----------------|---|
| Halo  | Retrofit | ML7BXRFK       | 6" Retrofit Enclosure, Non-IC, BX Whip                  |
|       |          | ML7E26RFK      | 6" Retrofit Enclosure, Non-IC, E26 Screw base Interface |

**Housing Compatibility - Continued****5" Trims: 591X, 592X, 593X, 594X, 595X, 596X**

(Note shallow housings for use with 591X, 594X, 596X trims only)

**HALO - LED Housings with LED Luminaire Connector - High-Efficacy Compliant**

| Brand | Housing Type      | Catalog Number | Description   |
|-------|-------------------|----------------|---|
| Halo  | Standard Housings | H50ICAT        | 5" LED, Insulated Ceiling, Air-Tite, New Construction Housing |
|       |                   | H50RICAT       | 5" LED, Insulated Ceiling, Air-Tite, Remodel Housing          |

**HALO and All-Pro - Incandescent E26 Screwbase Housings**

| Brand   | Housing Type      | Catalog Number | Description   |
|---------|-------------------|----------------|---|
| Halo    | Standard Housings | H5ICAT         | 5" Insulated Ceiling, Air-Tite New Construction Housing   |
|         |                   | H5RICAT        | 5" Insulated Ceiling, Air-Tite Remodel Housing  |
|         |                   | H5T            | 5" Non-IC, New Construction Housing   |
|         |                   | H5RT           | 5" Non-IC, Remodel Housing  |
|         |                   | H5TM           | 5" Non-IC, New Construction Housing (Canada)  |
| All-Pro | Standard Housings | EI500AT        | 5" Insulated Ceiling, Air-Tite New Construction Housing   |
|         |                   | EI500RAT       | 5" Insulated Ceiling, Air-Tite Remodel Housing  |
|         |                   | ET500          | 5" Non-IC, New Construction Housing   |
|         |                   | ET500R         | 5" Non-IC, Remodel Housing  |
| Halo    | Shallow Housings  | H25ICAT        | 5" Shallow, Insulated Ceiling, Air-Tite New Construction (use with 591X, 594X, 596X trims only) |

**Housings - UL Classified for Retrofit Compatibility****6" Trims: 691X, 692X, 693X, 694X, 695X, 696X**

(Note shallow housings for use with 691X, 694X, 696X trims only)

| Brand               | Housing Type      | Description  |
|---------------------|-------------------|--|
| Juno                | Standard Housings | IC22, IC22R, IC22W, IC22S, IC23, IC23W, TC2, TC2R, IC2 |
|                     | Shallow Housings  | IC21, IC21R (use with 691X, 694X, 696X trims only)     |
| Capri               | Standard Housings | CR1, PR1, QL1  |
|                     | Shallow Housings  | R9ASIC/PS9RM (use with 691X, 694X, 696X trims only)    |
| Elco                |                   | HL7ICA (EL7ICA)  |
| Lithonia            | Standard Housings | LC6, L7X   |
|                     | Shallow Housings  | L7XP (use with 691X, 694X, 696X trims only)            |
| Thomas              |                   | PS1  |
| Commercial Electric |                   | C7ICA, H3  |
| Progress            | Standard Housing  | P87-AT †*  |
|                     | Shallow Housing   | P86TG (use with 691X, 694X, 696X trims only)           |
| Lightolier          |                   | 1104ICS †*, 1104ICR †*                                 |

† Requires replacement of torsion springs with Friction Clips. Order Friction Clip Kit separately: ML56CLIP

\* ML56CLIP is compatible with only baffle and reflector trims

**5" Trims: 591X, 596X**

| Brand | Housing Type      | Catalog Number           |
|-------|-------------------|--------------------------|
| Juno  | Standard Housings | IC20, IC25S, IC25W, TC20 |

## ML56 900 Series Compliance Table

80 CRI LED Modules with ML56 Trims

|          | ML5609827             | ML5609830             | ML5609835             | ML5609840             |
|----------|-----------------------|-----------------------|-----------------------|-----------------------|
| 593BB    | WSEC, IECC            | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC |
| 693BB    | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC |
| 593TBZB  | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC |
| 693TBZB  | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC |
| 593SNB   | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC |
| 693SNB   | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC |
| 592H     | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC |
| 593WB    | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC |
| 592W     | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC |
| 595WW    | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC |
| 592SC    | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC |
| 692H     | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC |
| 695WW    | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC |
| 693WB    | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC |
| 692SC    | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC |
| 596WB    | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC |
| 692W     | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC |
| 594TBZB  | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC |
| 694TBZB  | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC |
| 594SNB   | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC |
| 696WB    | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC |
| 694SNB   | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC |
| 694WB    | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC |
| 594WB    | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC |
| 594WB-30 | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC |
| 694WB-30 | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC |

### Code Descriptions:

ES = ENERGY STAR® Certified Luminaire

T24NR = May be used for California Title 24 Non-Residential LED luminaire

IECC = International Energy Conservation Code "High Efficacy"

WSEC = Washington State Energy Code - "High Efficacy" Luminaire

## ML56 900 Series Lumen Table

80 CRI LED Modules with ML56 trims

|                | Trim Catalog # | ML5609827 |      | ML5609830 |      | ML5609835 |      | ML5609840 |      |
|----------------|----------------|-----------|------|-----------|------|-----------|------|-----------|------|
|                |                | Lumens    | LPW  | Lumens    | LPW  | Lumens    | LPW  | Lumens    | LPW  |
| 0° Tilt Angle  | 593BB          | 602.9     | 45.0 | 651.3     | 48.6 | 661.0     | 49.3 | 674.5     | 50.3 |
|                | 693BB          | 676.2     | 50.5 | 730.5     | 54.5 | 741.3     | 55.3 | 756.5     | 56.5 |
|                | 593TBZB        | 686.3     | 51.2 | 741.4     | 55.3 | 752.4     | 56.2 | 767.8     | 57.3 |
|                | 693TBZB        | 714.1     | 53.3 | 771.4     | 57.6 | 782.9     | 58.4 | 799.0     | 59.6 |
|                | 593SNB         | 757.1     | 56.5 | 817.8     | 61.0 | 830.0     | 61.9 | 847.0     | 63.2 |
|                | 693SNB         | 789.9     | 58.9 | 853.3     | 63.7 | 866.0     | 64.6 | 883.8     | 66.0 |
|                | 592H           | 846.8     | 63.2 | 914.8     | 68.3 | 928.4     | 69.3 | 947.4     | 70.7 |
|                | 593WB          | 887.2     | 66.2 | 958.5     | 71.5 | 972.7     | 72.6 | 992.7     | 74.1 |
|                | 592W           | 894.8     | 66.8 | 966.7     | 72.1 | 981.0     | 73.2 | 1001.2    | 74.7 |
|                | 595WW          | 916.3     | 68.4 | 989.9     | 73.9 | 1004.6    | 75.0 | 1025.2    | 76.5 |
|                | 592SC          | 917.6     | 68.5 | 991.3     | 74.0 | 1006.0    | 75.1 | 1026.6    | 76.6 |
|                | 692H           | 921.4     | 68.8 | 995.3     | 74.3 | 1010.1    | 75.4 | 1030.9    | 76.9 |
|                | 695WW          | 922.6     | 68.9 | 996.7     | 74.4 | 1011.5    | 75.5 | 1032.3    | 77.0 |
|                | 693WB          | 934.0     | 69.7 | 1009.0    | 75.3 | 1024.0    | 76.4 | 1045.0    | 78.0 |
|                | 692SC          | 946.6     | 70.6 | 1022.7    | 76.3 | 1037.9    | 77.5 | 1059.1    | 79.0 |
|                | 596WB          | 946.6     | 70.6 | 1022.7    | 76.3 | 1037.9    | 77.5 | 1059.1    | 79.0 |
|                | 692W           | 947.9     | 70.7 | 1024.0    | 76.4 | 1039.2    | 77.6 | 1060.6    | 79.1 |
|                | 594TBZB        | 954.2     | 71.2 | 1030.8    | 76.9 | 1046.2    | 78.1 | 1067.6    | 79.7 |
|                | 694TBZB        | 959.3     | 71.6 | 1036.3    | 77.3 | 1051.7    | 78.5 | 1073.3    | 80.1 |
|                | 594SNB         | 959.3     | 71.6 | 1036.3    | 77.3 | 1051.7    | 78.5 | 1073.3    | 80.1 |
|                | 696WB          | 975.7     | 72.8 | 1054.1    | 78.7 | 1069.7    | 79.8 | 1091.7    | 81.5 |
|                | 694SNB         | 977.0     | 72.9 | 1055.4    | 78.8 | 1071.1    | 79.9 | 1093.1    | 81.6 |
|                | 694WB          | 1017.4    | 75.9 | 1099.1    | 82.0 | 1115.5    | 83.2 | 1138.3    | 84.9 |
|                | 594WB          | 1018.7    | 76.0 | 1100.5    | 82.1 | 1116.8    | 83.3 | 1139.7    | 85.1 |
| 30° Tilt Angle | 594WB-30       | 987.1     | 73.7 | 1066.3    | 79.6 | 1082.2    | 80.8 | 1104.4    | 82.4 |
|                | 694WB-30       | 959.3     | 71.6 | 1036.3    | 77.3 | 1051.7    | 78.5 | 1073.3    | 80.1 |

Photometric tests are per IES measurement standards. Tests represent typical fixture performance. Field results may vary.



## Photometry 5" Trims • 900 Series • 80 CRI

### Multiplier Table

| CCT Option     | 2700 K | 3000 K | 3500 K | 4000 K |
|----------------|--------|--------|--------|--------|
| CCT Multiplier | 0.93   | 1.00   | 1.02   | 1.04   |

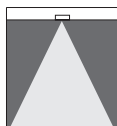
Table based upon testing with 3000°K color temperature, 80CRI.

Multipliers may be used to determine relative lumen values with other color temperatures.

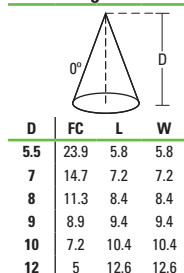
### 5" Trims • 900 Series • 80 CRI

#### ML5609830-592SC

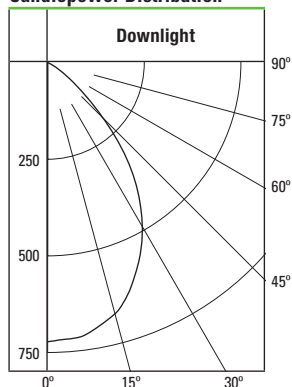
|              |                                  |
|--------------|----------------------------------|
| Test Number  | P130004                          |
| Light Module | 900 Series, 80CRI                |
| Trim         | 5" Aperture, Specular Clear Trim |
| Lumens       | 991                              |
| Efficacy     | 74 Lm/W                          |
| SC           | 1.06                             |



#### Cone of Light



#### Candlepower Distribution

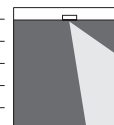


#### Zonal Lumen Summary

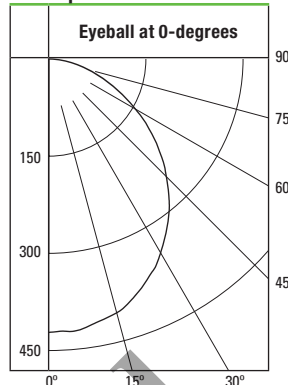
| Zone   | Lumens | %Fixture |
|--------|--------|----------|
| 0-30   | 513    | 51.8     |
| 0-40   | 765    | 77.2     |
| 0-60   | 979    | 98.8     |
| 0-90   | 991    | 100      |
| 90-180 | 0      | 0        |
| 0-180  | 991    | 100      |

#### ML5609830-594WB

|              |                                  |
|--------------|----------------------------------|
| Test Number  | P130060                          |
| Light Module | 900 Series, 80CRI                |
| Trim         | 5" Aperture, Directional Eyeball |
| Lumens       | 1100                             |
| Efficacy     | 82.1 Lm/W                        |
| SC           | 1.22                             |



#### Candlepower Distribution



#### Zonal Lumen Summary

| Zone   | Lumens | %Fixture |
|--------|--------|----------|
| 0-30   | 324    | 29.5     |
| 0-40   | 523    | 47.6     |
| 0-60   | 892    | 81       |
| 0-90   | 1100   | 100      |
| 90-180 | 0      | 0        |
| 0-180  | 1100   | 100      |

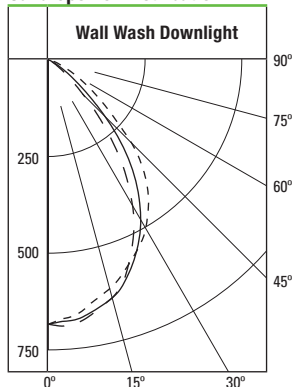
#### 30° Horizontal Plane

| D   | FC   | L    | W    | CB  |
|-----|------|------|------|-----|
| 5.5 | 12.3 | 6.6  | 6.6  | 3.2 |
| 7   | 7.6  | 8.3  | 8.6  | 4   |
| 8   | 5.8  | 9.6  | 9.8  | 4.6 |
| 9   | 4.6  | 10.7 | 11   | 5.2 |
| 10  | 3.7  | 11.9 | 12.2 | 5.8 |
| 12  | 2.6  | 14.3 | 14.6 | 6.9 |

#### 30° Vertical Plane

| D  | FC    | L   | W   | CB   |
|----|-------|-----|-----|------|
| 1' | 240.2 | 1.1 | 1.2 | 1.7  |
| 2' | 60.1  | 2.2 | 2.6 | 3.5  |
| 3' | 26.7  | 3.3 | 3.8 | 5.2  |
| 4' | 15    | 4.5 | 5.2 | 6.9  |
| 5' | 9.6   | 5.6 | 6.6 | 8.7  |
| 6' | 6.7   | 6.7 | 7.8 | 10.4 |

#### Candlepower Distribution

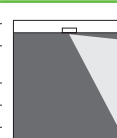


#### Legend

|          |     |      |
|----------|-----|------|
| 0-deg:   | --- | Wall |
| 90-deg:  | --- | Side |
| 180-deg: | --- | Room |

#### ML5609830-595WW

|              |   |
|--------------|---|
| Test Number  | P130084   |
| Light Module | 900 Series, 80CRI   |
| Trim         | 5" Aperture, Wall Wash with Specular Clear Trim and Specular Clear Kick Reflector |
| Lumens       | 990   |
| Efficacy     | 73.9 Lm/W   |
| SC           | 1.06  |



#### Zonal Lumen Summary

| Zone   | Lumens | %Fixture |
|--------|--------|----------|
| 0-30   | 486    | 49.1     |
| 0-40   | 732    | 73.9     |
| 0-60   | 964    | 97.4     |
| 0-90   | 990    | 100      |
| 90-180 | 0      | 0        |
| 0-180  | 990    | 100      |

#### Single Unit Footcandles

| 2.5' From Wall (Distance From Fixture Along Wall) | DD   | 1'   | 2'  | 3'  | 4'  | 5'  | 6'  |
|---|------|------|-----|-----|-----|-----|-----|
| 1'  | 4    | 2.7  | 1   | 0.3 | 0.1 | 0   | 0   |
| 2'  | 14.1 | 10.3 | 4.4 | 1.3 | 0.4 | 0.1 | 0   |
| 3'  | 16.4 | 13.6 | 7.4 | 2.9 | 1.1 | 0.4 | 0.1 |
| 4'  | 11.5 | 10.4 | 7.4 | 4   | 1.8 | 0.8 | 0.3 |
| 5'  | 7.6  | 7.1  | 5.7 | 3.8 | 2.2 | 1.1 | 0.5 |
| 6'  | 5.1  | 4.9  | 4.2 | 3.1 | 2.2 | 1.3 | 0.7 |
| 7'  | 3.5  | 3.4  | 3   | 2.4 | 1.8 | 1.3 | 0.8 |
| 8'  | 2.5  | 2.5  | 2.3 | 1.9 | 1.5 | 1.1 | 0.8 |
| 9'  | 1.9  | 1.8  | 1.7 | 1.5 | 1.2 | 1   | 0.7 |
| 10'   | 1.4  | 1.4  | 1.3 | 1.2 | 1   | 0.8 | 0.7 |

#### Multiple Unit Footcandles

| 2.5' From Wall (Distance From Fixture Along Wall) | DD   | --3'-- | --4'-- |
|---|------|--------|--------|
| 1'  | 4.3  | 3.3    | 4.3    |
| 2'  | 15.4 | 14     | 15.4   |
| 3'  | 19.3 | 20.9   | 19.3   |
| 4'  | 15.5 | 17.7   | 15.5   |
| 5'  | 11.4 | 12.7   | 11.4   |
| 6'  | 8.2  | 9      | 8.2    |
| 7'  | 6    | 6.4    | 6      |
| 8'  | 4.4  | 4.7    | 4.4    |
| 9'  | 3.3  | 3.5    | 3.3    |
| 10'   | 2.6  | 2.7    | 2.6    |

Photometric tests are per IES measurement standards. Tests represent typical fixture performance. Field results may vary.

# Photometry 6" Trims • 900 Series • 80 CRI

## Multiplier Table

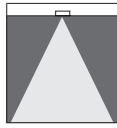
| CCT Option     | 2700 K | 3000 K | 3500 K | 4000 K |
|----------------|--------|--------|--------|--------|
| CCT Multiplier | 0.93   | 1.00   | 1.02   | 1.04   |

Table based upon testing with 3000°K color temperature, 80CRI.

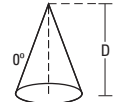
Multipliers may be used to determine relative lumen values with other color temperatures.

## ML5609830-692SC

|              |                                  |
|--------------|----------------------------------|
| Test Number  | P130100                          |
| Light Module | 900 Series, 80CRI                |
| Trim         | 6" Aperture, Specular Clear Trim |
| Lumens       | 1023                             |
| Efficacy     | 76.3 Lm/W                        |
| SC           | 0.66                             |

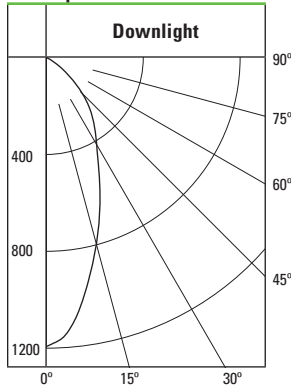


## Cone of Light



| D   | FC   | L   | W   |
|-----|------|-----|-----|
| 5.5 | 39.4 | 3.6 | 3.6 |
| 7   | 24.4 | 4.6 | 4.6 |
| 8   | 18.6 | 5.2 | 5.2 |
| 9   | 14.7 | 5.8 | 5.8 |
| 10  | 11.9 | 6.6 | 6.6 |
| 12  | 8.3  | 7.8 | 7.8 |

## Candlepower Distribution

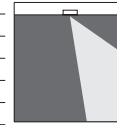


## Zonal Lumen Summary

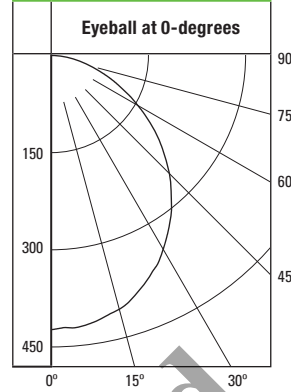
| Zone   | Lumens | %Fixture |
|--------|--------|----------|
| 0-30   | 562    | 54.9     |
| 0-40   | 778    | 76.1     |
| 0-60   | 1009   | 98.7     |
| 0-90   | 1023   | 100      |
| 90-180 | 0      | 0        |
| 0-180  | 1023   | 100      |

## ML5609830-694WB

|              |                                  |
|--------------|----------------------------------|
| Test Number  | P130156                          |
| Light Module | 900 Series, 80CRI                |
| Trim         | 6" Aperture, Directional Eyeball |
| Lumens       | 1099                             |
| Efficacy     | 82 Lm/W                          |
| SC           | 1.21                             |



## Candlepower Distribution

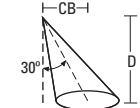


## Zonal Lumen Summary

| Zone   | Lumens | %Fixture |
|--------|--------|----------|
| 0-30   | 324    | 29.5     |
| 0-40   | 523    | 47.6     |
| 0-60   | 891    | 81.1     |
| 0-90   | 1099   | 100      |
| 90-180 | 0      | 0        |
| 0-180  | 1099   | 100      |

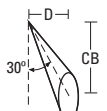
## 30° Horizontal Plane

| D   | FC   | L    | W    | CB  |
|-----|------|------|------|-----|
| 5.5 | 12.3 | 6.6  | 6.6  | 3.2 |
| 7   | 7.6  | 8.3  | 8.6  | 4   |
| 8   | 5.8  | 9.6  | 9.8  | 4.6 |
| 9   | 4.6  | 10.7 | 11   | 5.2 |
| 10  | 3.7  | 12   | 12.2 | 5.8 |
| 12  | 2.6  | 14.3 | 14.6 | 6.9 |

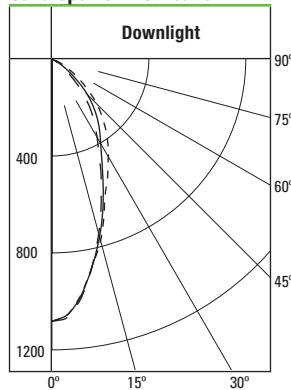


## 30° Vertical Plane

| D  | FC    | L   | W   | CB   |
|----|-------|-----|-----|------|
| 1' | 240.2 | 1.1 | 1.2 | 1.7  |
| 2' | 60.1  | 2.2 | 2.6 | 3.5  |
| 3' | 26.7  | 3.3 | 3.8 | 5.2  |
| 4' | 15    | 4.5 | 5.2 | 6.9  |
| 5' | 9.6   | 5.6 | 6.6 | 8.7  |
| 6' | 6.7   | 6.7 | 7.8 | 10.4 |

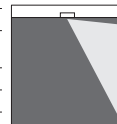


## Candlepower Distribution



## ML5609830-695WW

|              |   |
|--------------|---|
| Test Number  | P130180   |
| Light Module | 900 Series, 80CRI   |
| Trim         | 6" Aperture, Wall Wash with Specular Clear Trim and Specular Clear Kick Reflector |
| Lumens       | 997   |
| Efficacy     | 74.4 Lm/W   |
| SC           | 0.69  |



## Zonal Lumen Summary

| Zone   | Lumens | %Fixture |
|--------|--------|----------|
| 0-30   | 533    | 53.5     |
| 0-40   | 745    | 74.8     |
| 0-60   | 974    | 97.7     |
| 0-90   | 997    | 100      |
| 90-180 | 0      | 0        |
| 0-180  | 997    | 100      |

## Single Unit Footcandles

2.5' From Wall (Distance From Fixture Along Wall)

| DD  | ●    | 1'   | 2'  | 3'  | 4'  | 5'  | 6'  |
|-----|------|------|-----|-----|-----|-----|-----|
| 1'  | 3    | 1.7  | 0.6 | 0.2 | 0.1 | 0   | 0   |
| 2'  | 13   | 9.3  | 4   | 1.3 | 0.3 | 0.1 | 0   |
| 3'  | 13.9 | 11.3 | 6.6 | 2.9 | 1.1 | 0.4 | 0.1 |
| 4'  | 10.5 | 9    | 6.2 | 3.6 | 1.8 | 0.8 | 0.3 |
| 5'  | 7.4  | 6.6  | 5   | 3.3 | 2   | 1.1 | 0.5 |
| 6'  | 5.3  | 4.8  | 3.8 | 2.7 | 1.8 | 1.2 | 0.7 |
| 7'  | 3.9  | 3.6  | 3   | 2.2 | 1.6 | 1.1 | 0.7 |
| 8'  | 3    | 2.8  | 2.3 | 1.8 | 1.3 | 1   | 0.7 |
| 9'  | 2.3  | 2.2  | 1.9 | 1.5 | 1.1 | 0.8 | 0.6 |
| 10' | 1.8  | 1.7  | 1.5 | 1.2 | 1   | 0.7 | 0.6 |

## Multiple Unit Footcandles

2.5' From Wall (Distance From Fixture Along Wall)

| DD  | --3'-- | --4'-- |
|-----|--------|--------|
| 1'  | 3.2    | 2.2    |
| 2'  | 14.3   | 13     |
| 3'  | 16.9   | 18.2   |
| 4'  | 14.1   | 15.5   |
| 5'  | 10.7   | 11.7   |
| 6'  | 8      | 8.8    |
| 7'  | 6.2    | 6.7    |
| 8'  | 4.8    | 5.2    |
| 9'  | 3.8    | 4.1    |
| 10' | 3      | 3.3    |

## Legend

|          |     |      |
|----------|-----|------|
| 0-deg:   | --- | Wall |
| 90-deg:  | --- | Side |
| 180-deg: | --- | Room |

Photometric tests are per IES measurement standards. Tests represent typical fixture performance. Field results may vary.