

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 | | |
| Comments | | Date |
| 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 eye-balls 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" = 59xx series and 6" = 69xx series trims). Refer to Housing – Trim Section in this document.

LED

- 600 Series = 600 design lumens typical.
- Delivered lumens vary depending upon CRI, 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: **ML5606830**
56 = 5" / 6" aperture series
06 = 600 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 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 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

600 Series / 80 CRI

- ML5606827**
- ML5606830**
- ML5606835**
- ML5606840**

**5-Inch and 6-Inch
600 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 600/80 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: 10W |
| Input Power: 9.0W |
| 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) |



ML5606827
5" or 6" LED 600 Series



ML5606830
5" or 6" LED 600 Series



ML5606835
5" or 6" LED 600 Series



ML5606840
5" or 6" LED 600 Series

Compliance

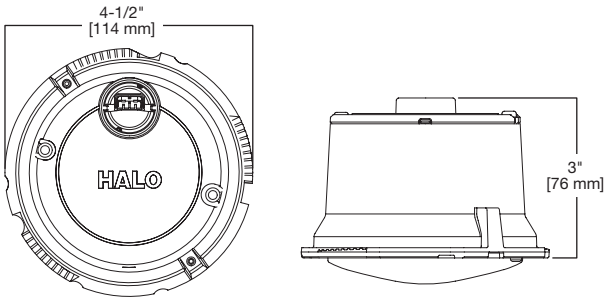
- cULus listed 1598 Luminaire (Halo and All-Pro housings)
- UL Classified when used in retrofit (refer to housing section)
- cULus listed for damp locations
- cULus Wet location listed with baffle and reflector trims only
- Airtight certified per ASTM E283 (not exceeding 2.0 CFM under 57 Pascals pressure 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 Européene” 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: **ML5606830 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 600 Series / 80 CRI

- ML5606827**= 5"/6" LED light module, 600 lumen, 80CRI, 2700K
- ML5606830**= 5"/6" LED light module, 600 lumen, 80CRI, 3000K
- ML5606835**= 5"/6" LED light module, 600 lumen, 80CRI, 3500K
- ML5606840**= 5"/6" LED light module, 600 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

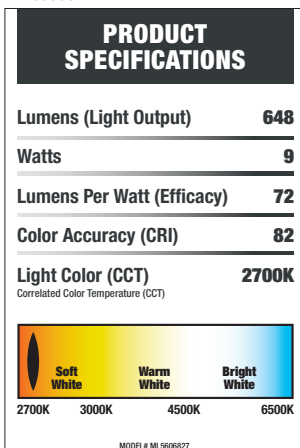
*ML56CLIP is compatible with 6" baffle and reflector trims only (691, 692, 693, 695, 696 series).

For eyeball trim (694 series) use ML7RAB retrofit adapter band.

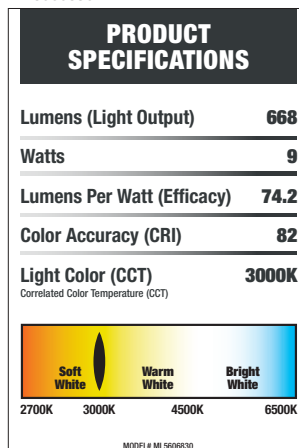
**Wall wash trims 595WW and 695WW feature an exclusive repositionable kick reflector for fine-tuning adjustment of the wall wash effect. The WW595SC and WW695SC are repositionable kick reflectors sold separately for addition to the wall wash trim when a double or corner wall wash is needed, or for replacement of original kick reflector included with the trim.

Lighting Facts

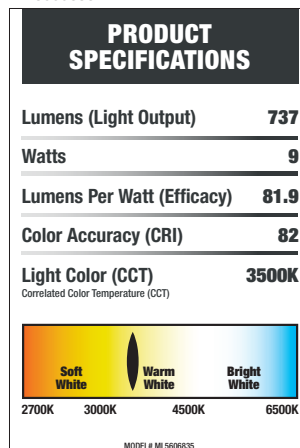
ML5606827



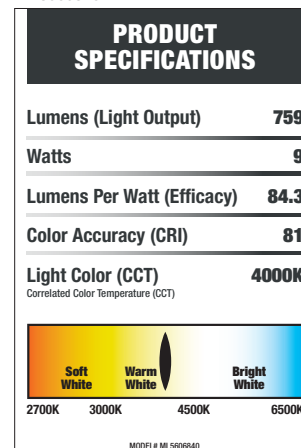
ML5606830



ML5606835



ML5606840



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 in³ in addition to those noted below.

Housing 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 |
| 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 | H71CAT | 6" Insulated Ceiling, Air-Tite New Construction Housing |
| | | H71RICAT | 6" Insulated Ceiling, Air-Tite Remodel Housing |
| | | H71CT | 6" Insulated Ceiling, New Construction Housing |
| | | H71RICT | 6" Insulated Ceiling, Remodel Housing |
| | | H71CATNB | 6" Insulated Ceiling, Air-Tite New Construction Housing, No Socket Bracket |
| | | H71CTNB | 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 |
| 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 | H271CAT | 6" Shallow, Insulated Ceiling, Air-Tite New Construction (use with 691X, 694X, 696X trims only) |
| | | H271RICAT | 6" Shallow, Insulated Ceiling, Air-Tite Remodel Housing (use with 691X, 694X, 696X trims only) |
| | | H271CT | 6" Shallow, Insulated Ceiling, New Construction Housing (use with 691X, 694X, 696X trims only) |
| | | H271RICT | 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 |

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

| Brand | Housing Type | Catalog Number | Description |
|-------|--------------|----------------|-------------|
|-------|--------------|----------------|-------------|

Housing Compatibility Continued

5" Trims: 591X, 592X, 593X, 594X, 595X, 596X

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

| 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 | E1500AT | 5" Insulated Ceiling, Air-Tite New Construction Housing |
| | | E1500RAT | 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 | Catalog Number |
|---------------------|-------------------|--|
| 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 Housings | P87-AT † * |
| | Shallow Housings | 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 600 Series Compliance Table

80 CRI LED Modules with ML56 Trims

| | ML5606827 | ML5606830 | ML5606835 | ML5606840 |
|----------|-----------------------|-----------------------|-----------------------|-----------------------|
| 593BB | T24NR, WSEC, IECC | T24NR, WSEC, IECC | T24NR, WSEC, IECC | T24NR, WSEC, IECC |
| 693BB | T24NR, WSEC, IECC | T24NR, WSEC, IECC | T24NR, WSEC, IECC | T24NR, WSEC, IECC |
| 593TBZB | T24NR, WSEC, IECC | T24NR, WSEC, IECC | T24NR, WSEC, IECC | T24NR, WSEC, IECC |
| 693TBZB | T24NR, WSEC, IECC | T24NR, WSEC, IECC | T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC |
| 593SNB | T24NR, WSEC, IECC | T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC |
| 693SNB | T24NR, WSEC, IECC | 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 |
| 592W | 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 |
| 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 |
| 595WW | 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 |
| 692W | 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 |
| 694TBZB | 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 |
| 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 |
| 594SNB | 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
- T24 = Can be used to comply with California Title 24 Non-Residential Lighting Controls requirements as a LED Luminaire
- IECC = International Energy Conservation Code "High Efficacy"
- WSEC = Washington State Energy Code - "High Efficacy" Luminaire

ML56 600 Series Lumen Table

80 CRI LED Modules with ML56 trims

| | Trim Catalog # | ML5606827 | | ML5606830 | | ML5606835 | | ML5606840 | |
|----------------|----------------|-----------|-------|-----------|-------|-----------|-------|-----------|------|
| | | Lumens | LPW | Lumens | LPW | Lumens | LPW | Lumens | LPW |
| 0° Tilt Angle | 593BB | 427.3 | 47.5 | 440.5 | 48.9 | 486.0 | 54.0 | 500.5 | 55.6 |
| | 693BB | 473.0 | 52.6 | 487.6 | 54.2 | 537.9 | 59.8 | 554.0 | 61.6 |
| | 593TBZB | 479.5 | 53.3 | 494.3 | 54.9 | 545.3 | 60.6 | 561.6 | 62.4 |
| | 693TBZB | 496.9 | 55.2 | 512.2 | 56.9 | 565.1 | 62.8 | 582.0 | 64.7 |
| | 593SNB | 531.7 | 59.1 | 548.1 | 60.9 | 604.7 | 67.2 | 622.7 | 69.2 |
| | 693SNB | 549.1 | 61.0 | 566.0 | 62.9 | 624.5 | 69.4 | 643.1 | 71.5 |
| | 592H | 599.1 | 66.6 | 617.6 | 68.6 | 681.4 | 75.7 | 701.7 | 78.0 |
| | 592W | 617.6 | 68.6 | 636.6 | 70.7 | 702.4 | 78.0 | 723.3 | 80.4 |
| | 593WB | 628.4 | 69.8 | 647.8 | 72.0 | 714.7 | 79.4 | 736.1 | 81.8 |
| | 592SC | 632.8 | 70.3 | 652.3 | 72.5 | 719.7 | 80.0 | 741.2 | 82.4 |
| | 692H | 635.0 | 70.6 | 654.6 | 72.7 | 722.2 | 80.2 | 743.7 | 82.6 |
| | 595WW | 637.1 | 70.8 | 656.8 | 73.0 | 724.6 | 80.5 | 746.3 | 82.9 |
| | 695WW | 638.2 | 70.9 | 657.9 | 73.1 | 725.9 | 80.7 | 747.5 | 83.1 |
| | 693WB | 648.0 | 72.0 | 668.0 | 74.2 | 737.0 | 81.9 | 759.0 | 84.3 |
| | 692SC | 648.0 | 72.0 | 668.0 | 74.2 | 737.0 | 81.9 | 759.0 | 84.3 |
| | 692W | 650.2 | 72.2 | 670.2 | 74.5 | 739.5 | 82.2 | 761.5 | 84.6 |
| | 596WB | 662.1 | 73.6 | 682.6 | 75.8 | 753.1 | 83.7 | 775.6 | 86.2 |
| | 694TBZB | 667.6 | 74.2 | 688.2 | 76.5 | 759.3 | 84.4 | 781.9 | 86.9 |
| | 594TBZB | 668.7 | 74.3 | 689.3 | 76.6 | 760.5 | 84.5 | 783.2 | 87.0 |
| | 696WB | 673.0 | 74.8 | 693.8 | 77.1 | 765.4 | 85.0 | 788.3 | 87.6 |
| 694SNB | 681.7 | 75.7 | 702.7 | 78.1 | 775.3 | 86.1 | 798.5 | 88.7 | |
| 594SNB | 683.9 | 76.0 | 705.0 | 78.3 | 777.8 | 86.4 | 801.0 | 89.0 | |
| 694WB | 704.5 | 78.3 | 726.3 | 80.7 | 801.3 | 89.0 | 825.2 | 91.7 | |
| 594WB | 706.7 | 78.5 | 728.5 | 80.9 | 803.8 | 89.3 | 827.8 | 92.0 | |
| 30° Tilt Angle | 594WB-30 | 685.0 | 76.1 | 706.1 | 78.5 | 779.0 | 86.6 | 802.3 | 89.1 |
| | 694WB-30 | 654.5 | 72.7 | 674.7 | 75.0 | 744.4 | 82.7 | 766.6 | 85.2 |

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

Photometry 5" Trims • 600 Series • 80 CRI

Multiplier Table

| CCT Option | 2700 K | 3000 K | 3500 K | 4000 K |
|----------------|--------|--------|--------|--------|
| CCT Multiplier | 0.970 | 1.000 | 1.103 | 1.136 |

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

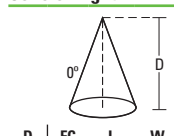
Multipliers may be used to determine relative lumen values with other color temperatures.

ML5606830-592SC

| | |
|--------------|----------------------------------|
| Test Number | P130228 |
| Light Module | 600 Series, 80CRI |
| Trim | 5" Aperture, Specular Clear Trim |
| Lumens | 652.0 |
| Efficacy | 72.5 Lm/W |
| SC | 1.06 |

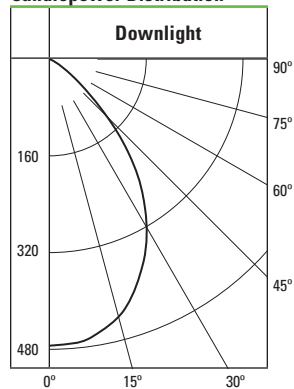


Cone of Light



| D | FC | L | W |
|-----|------|------|------|
| 5.5 | 15.7 | 5.8 | 5.8 |
| 7 | 9.7 | 7.2 | 7.2 |
| 8 | 7.4 | 8.4 | 8.4 |
| 9 | 5.9 | 9.4 | 9.4 |
| 10 | 4.7 | 10.4 | 10.4 |
| 12 | 3.3 | 12.6 | 12.6 |

Candlepower Distribution

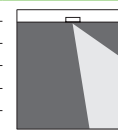


Zonal Lumen Summary

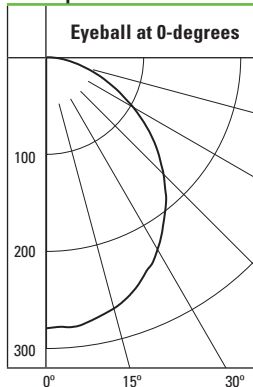
| Zone | Lumens | %Fixture |
|--------|--------|----------|
| 0-30 | 337 | 51.7 |
| 0-40 | 502 | 77 |
| 0-60 | 644 | 98.7 |
| 0-90 | 652 | 100 |
| 90-180 | 0 | 0 |
| 0-180 | 652 | 100 |

ML5606830-594WB

| | |
|--------------|----------------------------------|
| Test Number | P130276 |
| Light Module | 600 Series, 80CRI |
| Trim | 5" Aperture, Directional Eyeball |
| Lumens | 729 |
| Efficacy | 80.9 Lm/W |
| SC | 1.22 |



Candlepower Distribution

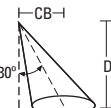


Zonal Lumen Summary

| Zone | Lumens | %Fixture |
|--------|--------|----------|
| 0-30 | 214 | 29.4 |
| 0-40 | 346 | 47.5 |
| 0-60 | 590 | 81 |
| 0-90 | 729 | 100 |
| 90-180 | 0 | 0 |
| 0-180 | 729 | 100 |

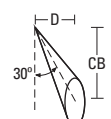
30° Horizontal Plane

| D | FC | L | W | CB |
|-----|-----|------|------|-----|
| 5.5 | 8.1 | 6.6 | 6.6 | 3.2 |
| 7 | 5 | 8.3 | 8.4 | 4 |
| 8 | 3.8 | 9.6 | 9.8 | 4.6 |
| 9 | 3 | 10.7 | 11 | 5.2 |
| 10 | 2.5 | 12 | 12.2 | 5.8 |
| 12 | 1.7 | 14.3 | 14.6 | 6.9 |

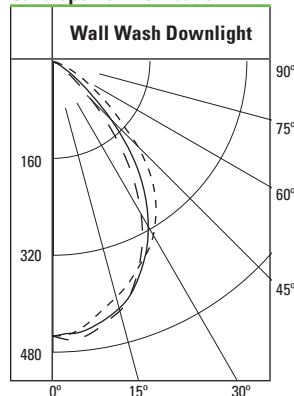


30° Vertical Plane

| D | FC | L | W | CB |
|----|-------|-----|-----|------|
| 1' | 159.1 | 1.1 | 1.2 | 1.7 |
| 2' | 39.8 | 2.2 | 2.6 | 3.5 |
| 3' | 17.7 | 3.3 | 3.8 | 5.2 |
| 4' | 9.9 | 4.5 | 5.2 | 6.9 |
| 5' | 6.4 | 5.6 | 6.6 | 8.7 |
| 6' | 4.4 | 6.7 | 7.8 | 10.4 |

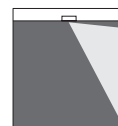


Candlepower Distribution



ML5606830-595WW

| | |
|--------------|---|
| Test Number | P130300 |
| Light Module | 600 Series, 80CRI |
| Trim | 5" Aperture, Wall Wash with Specular Clear Trim and Specular Clear Kick Reflector |
| Lumens | 657 |
| Efficacy | 73 Lm/W |
| SC | 1.1 |



Zonal Lumen Summary

| Zone | Lumens | %Fixture |
|--------|--------|----------|
| 0-30 | 322 | 49 |
| 0-40 | 485 | 73.8 |
| 0-60 | 639 | 97.4 |
| 0-90 | 657 | 100 |
| 90-180 | 0 | 0 |
| 0-180 | 657 | 100 |

Single Unit Footcandles

2.5' From Wall (Distance From Fixture Along Wall)

| DD | ● | 1' | 2' | 3' | 4' | 5' | 6' |
|-----|------|-----|-----|-----|-----|-----|-----|
| 1' | 2.8 | 1.8 | 0.7 | 0.2 | 0.1 | 0 | 0 |
| 2' | 9.4 | 6.8 | 3 | 1 | 0.3 | 0.1 | 0 |
| 3' | 10.8 | 8.9 | 4.8 | 2 | 0.7 | 0.2 | 0.1 |
| 4' | 7.6 | 6.8 | 4.9 | 2.7 | 1.2 | 0.5 | 0.2 |
| 5' | 5 | 4.6 | 3.7 | 2.5 | 1.5 | 0.7 | 0.3 |
| 6' | 3.4 | 3.2 | 2.7 | 2.1 | 1.4 | 0.9 | 0.5 |
| 7' | 2.3 | 2.2 | 2 | 1.6 | 1.2 | 0.8 | 0.5 |
| 8' | 1.7 | 1.6 | 1.5 | 1.2 | 1 | 0.8 | 0.5 |
| 9' | 1.2 | 1.2 | 1.1 | 1 | 0.8 | 0.6 | 0.5 |
| 10' | 0.9 | 0.9 | 0.9 | 0.8 | 0.7 | 0.5 | 0.4 |

Multiple Unit Footcandles

2.5' From Wall (Distance From Fixture Along Wall)

| DD | --3'-- | | --4'-- | |
|-----|--------|------|--------|------|
| 1' | 3 | 2.3 | 3 | 2.8 |
| 2' | 10.3 | 9.5 | 10.3 | 9.6 |
| 3' | 12.7 | 14 | 12.7 | 11.5 |
| 4' | 10.3 | 11.9 | 10.3 | 8.7 |
| 5' | 7.6 | 8.6 | 7.6 | 6.5 |
| 6' | 5.4 | 6 | 5.4 | 4.8 |
| 7' | 3.9 | 4.3 | 3.9 | 3.5 |
| 8' | 2.9 | 3.1 | 2.9 | 2.7 |
| 9' | 2.2 | 2.4 | 2.2 | 2 |
| 10' | 1.7 | 1.8 | 1.7 | 1.6 |

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.

Photometry 6" Trims • 600 Series • 80 CRI

Multiplier Table

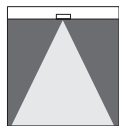
| | | | | |
|----------------|--------|--------|--------|--------|
| CCT Option | 2700 K | 3000 K | 3500 K | 4000 K |
| CCT Multiplier | 0.97 | 1.00 | 1.10 | 1.14 |

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

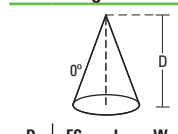
Multipliers may be used to determine relative lumen values with other color temperatures.

ML5606830-692SC

| | |
|--------------|----------------------------------|
| Test Number | P130316 |
| Light Module | 600 Series, 80CRI |
| Trim | 6" Aperture, Specular Clear Trim |
| Lumens | 668 |
| Efficacy | 74.2 Lm/W |
| SC | 0.66 |

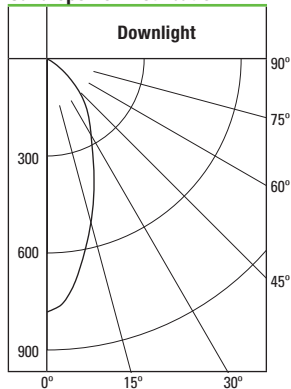


Cone of Light



| D | FC | L | W |
|-----|------|-----|-----|
| 5.5 | 25.9 | 3.6 | 3.6 |
| 7 | 16 | 4.6 | 4.6 |
| 8 | 12.2 | 5.2 | 5.2 |
| 9 | 9.7 | 5.8 | 5.8 |
| 10 | 7.8 | 6.6 | 6.6 |
| 12 | 5.4 | 7.8 | 7.8 |

Candlepower Distribution

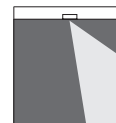


Zonal Lumen Summary

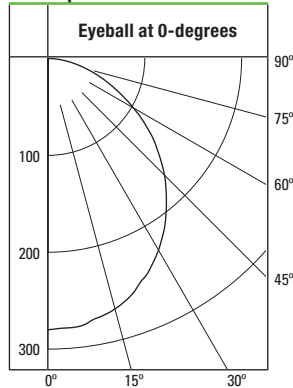
| Zone | Lumens | %Fixture |
|--------|--------|----------|
| 0-30 | 368 | 55.1 |
| 0-40 | 509 | 76.3 |
| 0-60 | 659 | 98.7 |
| 0-90 | 668 | 100 |
| 90-180 | 0 | 0 |
| 0-180 | 668 | 100 |

ML5606830-694WB

| | |
|--------------|----------------------------------|
| Test Number | P130372 |
| Light Module | 600 Series, 80CRI |
| Trim | 6" Aperture, Directional Eyeball |
| Lumens | 726 |
| Efficacy | 80.7 Lm/W |
| SC | 1.21 |



Candlepower Distribution



Zonal Lumen Summary

| Zone | Lumens | %Fixture |
|--------|--------|----------|
| 0-30 | 214 | 29.5 |
| 0-40 | 346 | 47.6 |
| 0-60 | 589 | 81.1 |
| 0-90 | 726 | 100 |
| 90-180 | 0 | 0 |
| 0-180 | 726 | 100 |

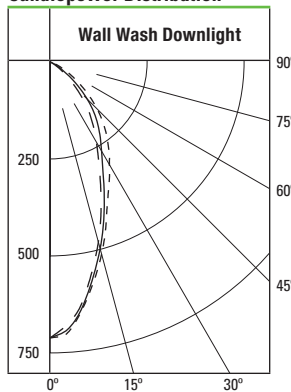
30° Horizontal Plane

| D | FC | L | W | CB |
|-----|-----|------|------|-----|
| 5.5 | 8.1 | 6.5 | 6.6 | 3.2 |
| 7 | 5 | 8.3 | 8.6 | 4 |
| 8 | 3.8 | 9.6 | 9.8 | 4.6 |
| 9 | 3 | 10.7 | 11 | 5.2 |
| 10 | 2.5 | 11.9 | 12.2 | 5.8 |
| 12 | 1.7 | 14.3 | 14.6 | 6.9 |

30° Vertical Plane

| D | FC | L | W | CB |
|----|-------|-----|-----|------|
| 1' | 158.1 | 1.1 | 1.2 | 1.7 |
| 2' | 39.5 | 2.2 | 2.6 | 3.5 |
| 3' | 17.6 | 3.3 | 3.8 | 5.2 |
| 4' | 9.9 | 4.5 | 5.2 | 6.9 |
| 5' | 6.3 | 5.6 | 6.6 | 8.7 |
| 6' | 4.4 | 6.7 | 7.8 | 10.4 |

Candlepower Distribution



Legend

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

ML5606830-695WW

| | |
|--------------|---|
| Test Number | P130396 |
| Light Module | 600 Series, 80CRI |
| Trim | 6" Aperture, Wall Wash with Specular Clear Trim and Specular Clear Kick Reflector |
| Lumens | 658 |
| Efficacy | 73.1 Lm/W |
| SC | 0.69 |



Zonal Lumen Summary

| Zone | Lumens | %Fixture |
|--------|--------|----------|
| 0-30 | 352 | 53.5 |
| 0-40 | 492 | 74.8 |
| 0-60 | 643 | 97.7 |
| 0-90 | 658 | 100 |
| 90-180 | 0 | 0 |
| 0-180 | 658 | 100 |

Single Unit Footcandles

2.5' From Wall (Distance From Fixture Along Wall)

| DD | 1' | 2' | 3' | 4' | 5' | 6' |
|-----|-----|-----|-----|-----|-----|-----|
| 1' | 1.9 | 1.2 | 0.4 | 0.1 | 0 | 0 |
| 2' | 8.6 | 6.2 | 2.7 | 0.8 | 0.2 | 0 |
| 3' | 9.2 | 7.5 | 4.4 | 1.9 | 0.7 | 0.2 |
| 4' | 6.9 | 5.9 | 4.1 | 2.4 | 1.2 | 0.5 |
| 5' | 4.9 | 4.4 | 3.3 | 2.2 | 1.3 | 0.7 |
| 6' | 3.5 | 3.2 | 2.5 | 1.8 | 1.2 | 0.8 |
| 7' | 2.6 | 2.4 | 1.9 | 1.5 | 1 | 0.7 |
| 8' | 2 | 1.8 | 1.5 | 1.2 | 0.9 | 0.6 |
| 9' | 1.5 | 1.4 | 1.2 | 1 | 0.7 | 0.6 |
| 10' | 1.2 | 1.1 | 1 | 0.8 | 0.6 | 0.5 |

Multiple Unit Footcandles

2.5' From Wall (Distance From Fixture Along Wall)

| DD | --3'-- | | --4'-- | |
|-----|--------|------|--------|-----|
| 1' | 2 | 1.5 | 2 | 1.9 |
| 2' | 9.5 | 8.5 | 9.5 | 8.9 |
| 3' | 11.1 | 11.9 | 11.1 | 9.9 |
| 4' | 9.3 | 10.1 | 9.3 | 8 |
| 5' | 7.1 | 7.7 | 7.1 | 6.2 |
| 6' | 5.3 | 5.8 | 5.3 | 4.7 |
| 7' | 4.1 | 4.4 | 4.1 | 3.7 |
| 8' | 3.2 | 3.4 | 3.2 | 2.9 |
| 9' | 2.5 | 2.7 | 2.5 | 2.3 |
| 10' | 2 | 2.1 | 2 | 1.8 |

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

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 | | |
| Comments | | Date |
| 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 eye-balls 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" = 59xx series and 6" = 69xx series trims). Refer to Housing – Trim Section in this document.

LED

- 600 Series = 600 design lumens typical.
- Delivered lumens vary depending upon CRI, 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: **ML5606830**
56 = 5" / 6" aperture series
06 = 600 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 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 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

600 Series / 80 CRI

- ML5606827**
- ML5606830**
- ML5606835**
- ML5606840**

**5-Inch and 6-Inch
600 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 600/80 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: 10W |
| Input Power: 9.0W |
| 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) |



ML5606827
5" or 6" LED 600 Series



ML5606830
5" or 6" LED 600 Series



ML5606835
5" or 6" LED 600 Series



ML5606840
5" or 6" LED 600 Series

Compliance

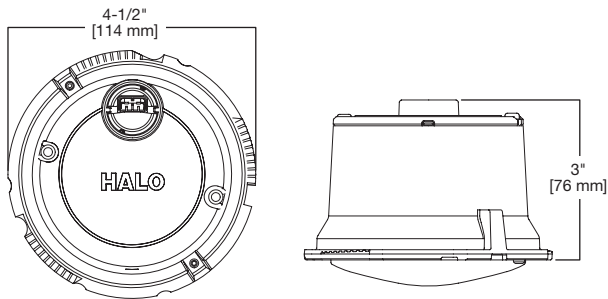
- cULus listed 1598 Luminaire (Halo and All-Pro housings)
- UL Classified when used in retrofit (refer to housing section)
- cULus listed for damp locations
- cULus Wet location listed with baffle and reflector trims only
- Airtight certified per ASTM E283 (not exceeding 2.0 CFM under 57 Pascals pressure 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 Européene" 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: **ML5606830 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 600 Series / 80 CRI

ML5606827= 5"/6" LED light module, 600 lumen, 80CRI, 2700K
ML5606830= 5"/6" LED light module, 600 lumen, 80CRI, 3000K
ML5606835= 5"/6" LED light module, 600 lumen, 80CRI, 3500K
ML5606840= 5"/6" LED light module, 600 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

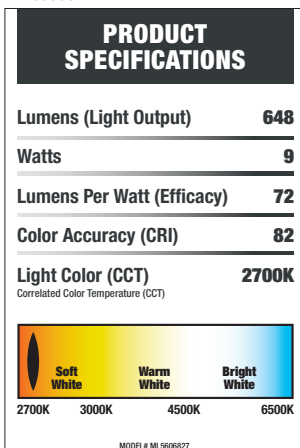
*ML56CLIP is compatible with 6" baffle and reflector trims only (691, 692, 693, 695, 696 series).

For eyeball trim (694 series) use ML7RAB retrofit adapter band.

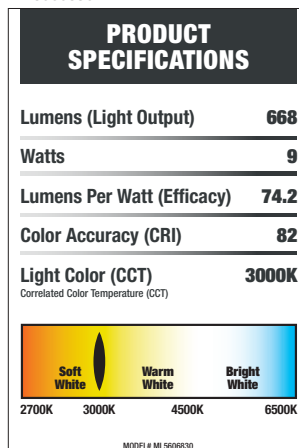
**Wall wash trims 595WW and 695WW feature an exclusive repositionable kick reflector for fine-tuning adjustment of the wall wash effect. The WW595SC and WW695SC are repositionable kick reflectors sold separately for addition to the wall wash trim when a double or corner wall wash is needed, or for replacement of original kick reflector included with the trim.

Lighting Facts

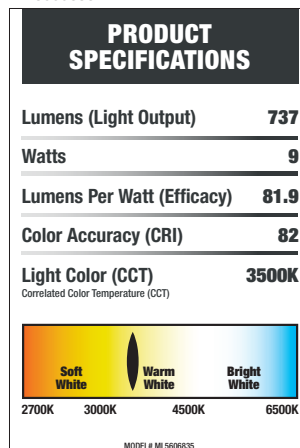
ML5606827



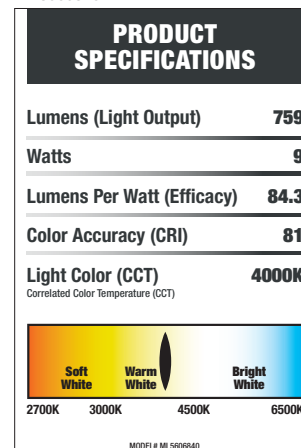
ML5606830



ML5606835



ML5606840



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 in³ in addition to those noted below.

Housing 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 |
| 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 | H71CAT | 6" Insulated Ceiling, Air-Tite New Construction Housing | | |
| | | H71RICAT | 6" Insulated Ceiling, Air-Tite Remodel Housing | | |
| | | H71CT | 6" Insulated Ceiling, New Construction Housing | | |
| | | H71RICT | 6" Insulated Ceiling, Remodel Housing | | |
| | | H71CATNB | 6" Insulated Ceiling, Air-Tite New Construction Housing, No Socket Bracket | | |
| | | H71CTNB | 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 | | | H271CAT | 6" Shallow, Insulated Ceiling, Air-Tite New Construction (use with 691X, 694X, 696X trims only) |
| | | | | H271RICAT | 6" Shallow, Insulated Ceiling, Air-Tite Remodel Housing (use with 691X, 694X, 696X trims only) |
| | | | | H271CT | 6" Shallow, Insulated Ceiling, New Construction Housing (use with 691X, 694X, 696X trims only) |
| | | H271RICT | 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 |

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

| Brand | Housing Type | Catalog Number | Description |
|-------|--------------|----------------|-------------|
|-------|--------------|----------------|-------------|

Housing Compatibility Continued

5" Trims: 591X, 592X, 593X, 594X, 595X, 596X

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

| 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 | E1500AT | 5" Insulated Ceiling, Air-Tite New Construction Housing |
| | | E1500RAT | 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 | Catalog Number |
|---------------------|-------------------|--|
| 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 Housings | P87-AT † * |
| | Shallow Housings | 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 600 Series Compliance Table

80 CRI LED Modules with ML56 Trims

| | ML5606827 | ML5606830 | ML5606835 | ML5606840 |
|----------|-----------------------|-----------------------|-----------------------|-----------------------|
| 593BB | T24NR, WSEC, IECC | T24NR, WSEC, IECC | T24NR, WSEC, IECC | T24NR, WSEC, IECC |
| 693BB | T24NR, WSEC, IECC | T24NR, WSEC, IECC | T24NR, WSEC, IECC | T24NR, WSEC, IECC |
| 593TBZB | T24NR, WSEC, IECC | T24NR, WSEC, IECC | T24NR, WSEC, IECC | T24NR, WSEC, IECC |
| 693TBZB | T24NR, WSEC, IECC | T24NR, WSEC, IECC | T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC |
| 593SNB | T24NR, WSEC, IECC | T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC | ES, T24NR, WSEC, IECC |
| 693SNB | T24NR, WSEC, IECC | 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 |
| 592W | 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 |
| 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 |
| 595WW | 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 |
| 692W | 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 |
| 694TBZB | 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 |
| 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 |
| 594SNB | 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
- T24 = Can be used to comply with California Title 24 Non-Residential Lighting Controls requirements as a LED Luminaire
- IECC = International Energy Conservation Code "High Efficacy"
- WSEC = Washington State Energy Code - "High Efficacy" Luminaire

ML56 600 Series Lumen Table

80 CRI LED Modules with ML56 trims

| | Trim Catalog # | ML5606827 | | ML5606830 | | ML5606835 | | ML5606840 | |
|----------------|----------------|-----------|-------|-----------|-------|-----------|-------|-----------|------|
| | | Lumens | LPW | Lumens | LPW | Lumens | LPW | Lumens | LPW |
| 0° Tilt Angle | 593BB | 427.3 | 47.5 | 440.5 | 48.9 | 486.0 | 54.0 | 500.5 | 55.6 |
| | 693BB | 473.0 | 52.6 | 487.6 | 54.2 | 537.9 | 59.8 | 554.0 | 61.6 |
| | 593TBZB | 479.5 | 53.3 | 494.3 | 54.9 | 545.3 | 60.6 | 561.6 | 62.4 |
| | 693TBZB | 496.9 | 55.2 | 512.2 | 56.9 | 565.1 | 62.8 | 582.0 | 64.7 |
| | 593SNB | 531.7 | 59.1 | 548.1 | 60.9 | 604.7 | 67.2 | 622.7 | 69.2 |
| | 693SNB | 549.1 | 61.0 | 566.0 | 62.9 | 624.5 | 69.4 | 643.1 | 71.5 |
| | 592H | 599.1 | 66.6 | 617.6 | 68.6 | 681.4 | 75.7 | 701.7 | 78.0 |
| | 592W | 617.6 | 68.6 | 636.6 | 70.7 | 702.4 | 78.0 | 723.3 | 80.4 |
| | 593WB | 628.4 | 69.8 | 647.8 | 72.0 | 714.7 | 79.4 | 736.1 | 81.8 |
| | 592SC | 632.8 | 70.3 | 652.3 | 72.5 | 719.7 | 80.0 | 741.2 | 82.4 |
| | 692H | 635.0 | 70.6 | 654.6 | 72.7 | 722.2 | 80.2 | 743.7 | 82.6 |
| | 595WW | 637.1 | 70.8 | 656.8 | 73.0 | 724.6 | 80.5 | 746.3 | 82.9 |
| | 695WW | 638.2 | 70.9 | 657.9 | 73.1 | 725.9 | 80.7 | 747.5 | 83.1 |
| | 693WB | 648.0 | 72.0 | 668.0 | 74.2 | 737.0 | 81.9 | 759.0 | 84.3 |
| | 692SC | 648.0 | 72.0 | 668.0 | 74.2 | 737.0 | 81.9 | 759.0 | 84.3 |
| | 692W | 650.2 | 72.2 | 670.2 | 74.5 | 739.5 | 82.2 | 761.5 | 84.6 |
| | 596WB | 662.1 | 73.6 | 682.6 | 75.8 | 753.1 | 83.7 | 775.6 | 86.2 |
| | 694TBZB | 667.6 | 74.2 | 688.2 | 76.5 | 759.3 | 84.4 | 781.9 | 86.9 |
| | 594TBZB | 668.7 | 74.3 | 689.3 | 76.6 | 760.5 | 84.5 | 783.2 | 87.0 |
| | 696WB | 673.0 | 74.8 | 693.8 | 77.1 | 765.4 | 85.0 | 788.3 | 87.6 |
| 694SNB | 681.7 | 75.7 | 702.7 | 78.1 | 775.3 | 86.1 | 798.5 | 88.7 | |
| 594SNB | 683.9 | 76.0 | 705.0 | 78.3 | 777.8 | 86.4 | 801.0 | 89.0 | |
| 694WB | 704.5 | 78.3 | 726.3 | 80.7 | 801.3 | 89.0 | 825.2 | 91.7 | |
| 594WB | 706.7 | 78.5 | 728.5 | 80.9 | 803.8 | 89.3 | 827.8 | 92.0 | |
| 30° Tilt Angle | 594WB-30 | 685.0 | 76.1 | 706.1 | 78.5 | 779.0 | 86.6 | 802.3 | 89.1 |
| | 694WB-30 | 654.5 | 72.7 | 674.7 | 75.0 | 744.4 | 82.7 | 766.6 | 85.2 |

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

Photometry 5" Trims • 600 Series • 80 CRI

Multiplier Table

| CCT Option | 2700 K | 3000 K | 3500 K | 4000 K |
|----------------|--------|--------|--------|--------|
| CCT Multiplier | 0.970 | 1.000 | 1.103 | 1.136 |

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

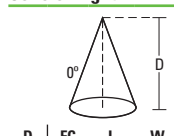
Multipliers may be used to determine relative lumen values with other color temperatures.

ML5606830-592SC

| | |
|--------------|----------------------------------|
| Test Number | P130228 |
| Light Module | 600 Series, 80CRI |
| Trim | 5" Aperture, Specular Clear Trim |
| Lumens | 652.0 |
| Efficacy | 72.5 Lm/W |
| SC | 1.06 |

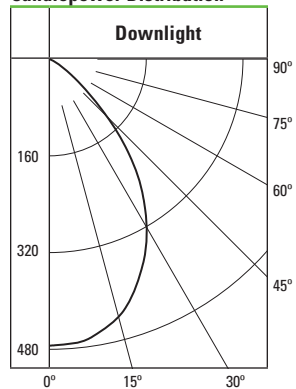


Cone of Light



| D | FC | L | W |
|-----|------|------|------|
| 5.5 | 15.7 | 5.8 | 5.8 |
| 7 | 9.7 | 7.2 | 7.2 |
| 8 | 7.4 | 8.4 | 8.4 |
| 9 | 5.9 | 9.4 | 9.4 |
| 10 | 4.7 | 10.4 | 10.4 |
| 12 | 3.3 | 12.6 | 12.6 |

Candlepower Distribution

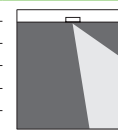


Zonal Lumen Summary

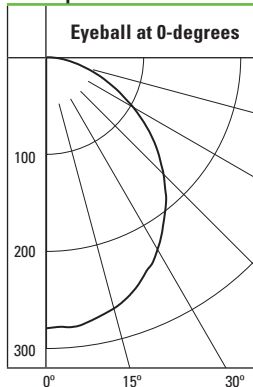
| Zone | Lumens | %Fixture |
|--------|--------|----------|
| 0-30 | 337 | 51.7 |
| 0-40 | 502 | 77 |
| 0-60 | 644 | 98.7 |
| 0-90 | 652 | 100 |
| 90-180 | 0 | 0 |
| 0-180 | 652 | 100 |

ML5606830-594WB

| | |
|--------------|----------------------------------|
| Test Number | P130276 |
| Light Module | 600 Series, 80CRI |
| Trim | 5" Aperture, Directional Eyeball |
| Lumens | 729 |
| Efficacy | 80.9 Lm/W |
| SC | 1.22 |



Candlepower Distribution

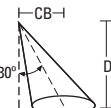


Zonal Lumen Summary

| Zone | Lumens | %Fixture |
|--------|--------|----------|
| 0-30 | 214 | 29.4 |
| 0-40 | 346 | 47.5 |
| 0-60 | 590 | 81 |
| 0-90 | 729 | 100 |
| 90-180 | 0 | 0 |
| 0-180 | 729 | 100 |

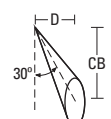
30° Horizontal Plane

| D | FC | L | W | CB |
|-----|-----|------|------|-----|
| 5.5 | 8.1 | 6.6 | 6.6 | 3.2 |
| 7 | 5 | 8.3 | 8.4 | 4 |
| 8 | 3.8 | 9.6 | 9.8 | 4.6 |
| 9 | 3 | 10.7 | 11 | 5.2 |
| 10 | 2.5 | 12 | 12.2 | 5.8 |
| 12 | 1.7 | 14.3 | 14.6 | 6.9 |

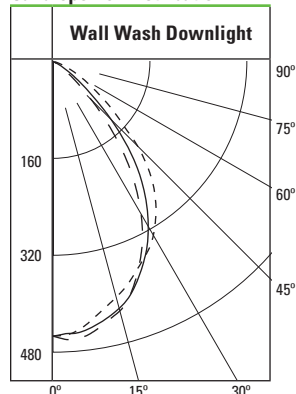


30° Vertical Plane

| D | FC | L | W | CB |
|----|-------|-----|-----|------|
| 1' | 159.1 | 1.1 | 1.2 | 1.7 |
| 2' | 39.8 | 2.2 | 2.6 | 3.5 |
| 3' | 17.7 | 3.3 | 3.8 | 5.2 |
| 4' | 9.9 | 4.5 | 5.2 | 6.9 |
| 5' | 6.4 | 5.6 | 6.6 | 8.7 |
| 6' | 4.4 | 6.7 | 7.8 | 10.4 |

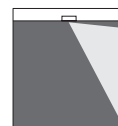


Candlepower Distribution



ML5606830-595WW

| | |
|--------------|---|
| Test Number | P130300 |
| Light Module | 600 Series, 80CRI |
| Trim | 5" Aperture, Wall Wash with Specular Clear Trim and Specular Clear Kick Reflector |
| Lumens | 657 |
| Efficacy | 73 Lm/W |
| SC | 1.1 |



Zonal Lumen Summary

| Zone | Lumens | %Fixture |
|--------|--------|----------|
| 0-30 | 322 | 49 |
| 0-40 | 485 | 73.8 |
| 0-60 | 639 | 97.4 |
| 0-90 | 657 | 100 |
| 90-180 | 0 | 0 |
| 0-180 | 657 | 100 |

Single Unit Footcandles

2.5' From Wall (Distance From Fixture Along Wall)

| DD | ● | 1' | 2' | 3' | 4' | 5' | 6' |
|-----|------|-----|-----|-----|-----|-----|-----|
| 1' | 2.8 | 1.8 | 0.7 | 0.2 | 0.1 | 0 | 0 |
| 2' | 9.4 | 6.8 | 3 | 1 | 0.3 | 0.1 | 0 |
| 3' | 10.8 | 8.9 | 4.8 | 2 | 0.7 | 0.2 | 0.1 |
| 4' | 7.6 | 6.8 | 4.9 | 2.7 | 1.2 | 0.5 | 0.2 |
| 5' | 5 | 4.6 | 3.7 | 2.5 | 1.5 | 0.7 | 0.3 |
| 6' | 3.4 | 3.2 | 2.7 | 2.1 | 1.4 | 0.9 | 0.5 |
| 7' | 2.3 | 2.2 | 2 | 1.6 | 1.2 | 0.8 | 0.5 |
| 8' | 1.7 | 1.6 | 1.5 | 1.2 | 1 | 0.8 | 0.5 |
| 9' | 1.2 | 1.2 | 1.1 | 1 | 0.8 | 0.6 | 0.5 |
| 10' | 0.9 | 0.9 | 0.9 | 0.8 | 0.7 | 0.5 | 0.4 |

Multiple Unit Footcandles

2.5' From Wall (Distance From Fixture Along Wall)

| DD | --3'-- | | --4'-- | |
|-----|--------|------|--------|------|
| 1' | 3 | 2.3 | 3 | 2.8 |
| 2' | 10.3 | 9.5 | 10.3 | 9.6 |
| 3' | 12.7 | 14 | 12.7 | 11.5 |
| 4' | 10.3 | 11.9 | 10.3 | 8.7 |
| 5' | 7.6 | 8.6 | 7.6 | 6.5 |
| 6' | 5.4 | 6 | 5.4 | 4.8 |
| 7' | 3.9 | 4.3 | 3.9 | 3.5 |
| 8' | 2.9 | 3.1 | 2.9 | 2.7 |
| 9' | 2.2 | 2.4 | 2.2 | 2 |
| 10' | 1.7 | 1.8 | 1.7 | 1.6 |

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.

Photometry 6" Trims • 600 Series • 80 CRI

Multiplier Table

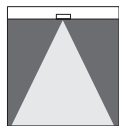
| | | | | |
|----------------|--------|--------|--------|--------|
| CCT Option | 2700 K | 3000 K | 3500 K | 4000 K |
| CCT Multiplier | 0.97 | 1.00 | 1.10 | 1.14 |

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

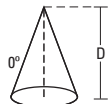
Multipliers may be used to determine relative lumen values with other color temperatures.

ML5606830-692SC

| | |
|--------------|----------------------------------|
| Test Number | P130316 |
| Light Module | 600 Series, 80CRI |
| Trim | 6" Aperture, Specular Clear Trim |
| Lumens | 668 |
| Efficacy | 74.2 Lm/W |
| SC | 0.66 |

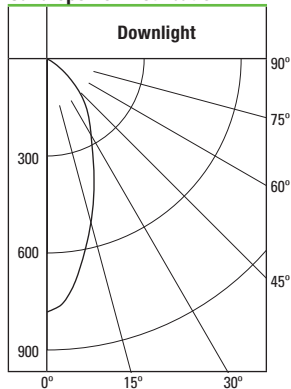


Cone of Light



| D | FC | L | W |
|-----|------|-----|-----|
| 5.5 | 25.9 | 3.6 | 3.6 |
| 7 | 16 | 4.6 | 4.6 |
| 8 | 12.2 | 5.2 | 5.2 |
| 9 | 9.7 | 5.8 | 5.8 |
| 10 | 7.8 | 6.6 | 6.6 |
| 12 | 5.4 | 7.8 | 7.8 |

Candlepower Distribution

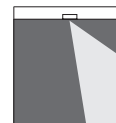


Zonal Lumen Summary

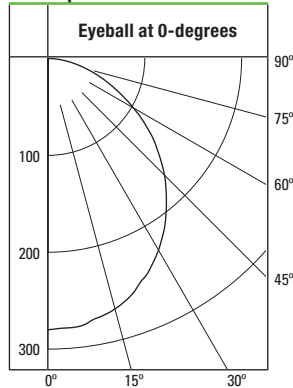
| Zone | Lumens | %Fixture |
|--------|--------|----------|
| 0-30 | 368 | 55.1 |
| 0-40 | 509 | 76.3 |
| 0-60 | 659 | 98.7 |
| 0-90 | 668 | 100 |
| 90-180 | 0 | 0 |
| 0-180 | 668 | 100 |

ML5606830-694WB

| | |
|--------------|----------------------------------|
| Test Number | P130372 |
| Light Module | 600 Series, 80CRI |
| Trim | 6" Aperture, Directional Eyeball |
| Lumens | 726 |
| Efficacy | 80.7 Lm/W |
| SC | 1.21 |



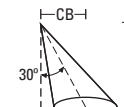
Candlepower Distribution



Zonal Lumen Summary

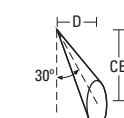
| Zone | Lumens | %Fixture |
|--------|--------|----------|
| 0-30 | 214 | 29.5 |
| 0-40 | 346 | 47.6 |
| 0-60 | 589 | 81.1 |
| 0-90 | 726 | 100 |
| 90-180 | 0 | 0 |
| 0-180 | 726 | 100 |

30° Horizontal Plane



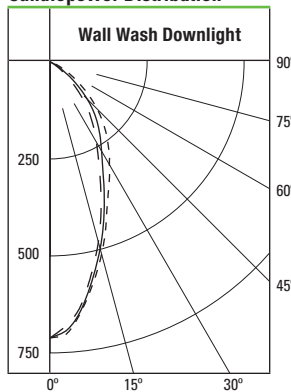
| D | FC | L | W | CB |
|-----|-----|------|------|-----|
| 5.5 | 8.1 | 6.5 | 6.6 | 3.2 |
| 7 | 5 | 8.3 | 8.6 | 4 |
| 8 | 3.8 | 9.6 | 9.8 | 4.6 |
| 9 | 3 | 10.7 | 11 | 5.2 |
| 10 | 2.5 | 11.9 | 12.2 | 5.8 |
| 12 | 1.7 | 14.3 | 14.6 | 6.9 |

30° Vertical Plane



| D | FC | L | W | CB |
|----|-------|-----|-----|------|
| 1' | 158.1 | 1.1 | 1.2 | 1.7 |
| 2' | 39.5 | 2.2 | 2.6 | 3.5 |
| 3' | 17.6 | 3.3 | 3.8 | 5.2 |
| 4' | 9.9 | 4.5 | 5.2 | 6.9 |
| 5' | 6.3 | 5.6 | 6.6 | 8.7 |
| 6' | 4.4 | 6.7 | 7.8 | 10.4 |

Candlepower Distribution

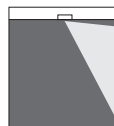


Legend

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

ML5606830-695WW

| | |
|--------------|---|
| Test Number | P130396 |
| Light Module | 600 Series, 80CRI |
| Trim | 6" Aperture, Wall Wash with Specular Clear Trim and Specular Clear Kick Reflector |
| Lumens | 658 |
| Efficacy | 73.1 Lm/W |
| SC | 0.69 |



Zonal Lumen Summary

| Zone | Lumens | %Fixture |
|--------|--------|----------|
| 0-30 | 352 | 53.5 |
| 0-40 | 492 | 74.8 |
| 0-60 | 643 | 97.7 |
| 0-90 | 658 | 100 |
| 90-180 | 0 | 0 |
| 0-180 | 658 | 100 |

Single Unit Footcandles

2.5' From Wall (Distance From Fixture Along Wall)

| DD | 1' | 2' | 3' | 4' | 5' | 6' |
|-----|-----|-----|-----|-----|-----|-----|
| 1' | 1.9 | 1.2 | 0.4 | 0.1 | 0 | 0 |
| 2' | 8.6 | 6.2 | 2.7 | 0.8 | 0.2 | 0 |
| 3' | 9.2 | 7.5 | 4.4 | 1.9 | 0.7 | 0.2 |
| 4' | 6.9 | 5.9 | 4.1 | 2.4 | 1.2 | 0.5 |
| 5' | 4.9 | 4.4 | 3.3 | 2.2 | 1.3 | 0.7 |
| 6' | 3.5 | 3.2 | 2.5 | 1.8 | 1.2 | 0.8 |
| 7' | 2.6 | 2.4 | 1.9 | 1.5 | 1 | 0.7 |
| 8' | 2 | 1.8 | 1.5 | 1.2 | 0.9 | 0.6 |
| 9' | 1.5 | 1.4 | 1.2 | 1 | 0.7 | 0.6 |
| 10' | 1.2 | 1.1 | 1 | 0.8 | 0.6 | 0.5 |

Multiple Unit Footcandles

2.5' From Wall (Distance From Fixture Along Wall)

| DD | --3'-- | | --4'-- | |
|-----|--------|------|--------|-----|
| 1' | 2 | 1.5 | 2 | 1.9 |
| 2' | 9.5 | 8.5 | 9.5 | 8.9 |
| 3' | 11.1 | 11.9 | 11.1 | 9.9 |
| 4' | 9.3 | 10.1 | 9.3 | 8 |
| 5' | 7.1 | 7.7 | 7.1 | 6.2 |
| 6' | 5.3 | 5.8 | 5.3 | 4.7 |
| 7' | 4.1 | 4.4 | 4.1 | 3.7 |
| 8' | 3.2 | 3.4 | 3.2 | 2.9 |
| 9' | 2.5 | 2.7 | 2.5 | 2.3 |
| 10' | 2 | 2.1 | 2 | 1.8 |

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