

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. ML56 - 1200 Series offers narrow flood (NFL) beam forming reflector as an optional accessory. Wet location listed with reflector and baffle trims (directional eyeball trims are damp listed). Halo ML56 Series offers high performance LED downlighting in a flexible modular selection.

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

Optics

- Diffuse lens is standard on all 1200 Series LED light modules
 - Impact-resistant polycarbonate
 - Convex form for lamp-like appearance
 - High lumen transmission
- Optional beam forming optic replaces diffuse lens and provide narrow flood (NFL) 25° nominal distribution. Beam forming optic is field installed. Order separately (accessories).

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
- Use retrofit adapter band (ML7RAB) accessory when housing does not have receivers for torsion springs.

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

- 1200 Series = 1200 design lumens typical. Delivered lumens vary upon 5" or 6" trim, 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 with proximity phosphor coating to create one virtual white 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: **ML5612830**
56 = 5" / 6" aperture series
12 = 1200 lumen series
8 = >80 CRI
30 = 3000K nominal CCT

Electrical Power Connections

- LED connector is a non-screw base luminaire disconnect offering easy installation in Halo 5" H550 Series and 6" H750 and H2750 Series housings (per LED trim 5" or 6").
- LED Connector meets high-efficacy luminaire requirements as a non-screw base, and where required.
- 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 Halo LED housings 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

Eaton's 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

1200 Series with Beam Forming Reflector Option 80 CRI

- ML5612827**
- ML5612830**
- ML5612835**
- ML5612840**

5-Inch and 6-Inch 1200 Lumen LED Light Module for New Construction, Remodel and Retrofit

For use with 59x and 69x Series 5" and 6" Trims

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

HIGH EFFICACY LED WITH INTEGRAL DRIVER - DIMMABLE

Energy Data

ML56 1200/80 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%
Input Power: 17.5W
Input Current at 120V: 0.14A
Input Current at 277V: 0.07A
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)



ML5612827
5" or 6" LED 1200 Series



ML5612830
5" or 6" LED 1200 Series



ML5612835
5" or 6" LED 1200 Series



ML5612840
5" or 6" LED 1200 Series

Compliance

- cULus liste1598 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)
- IP56 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 (Non-IC)
- 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.

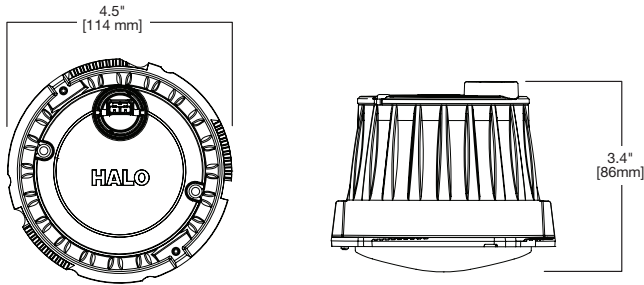


Refer to ENERGY STAR® Certified Products List.

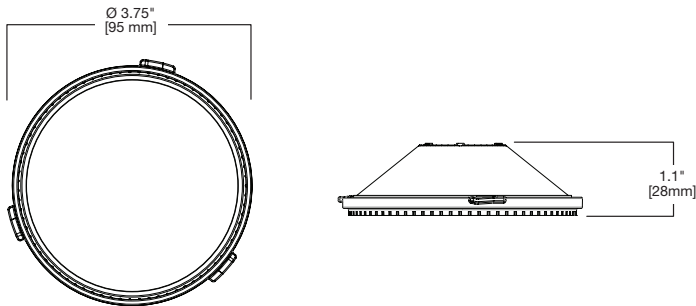
Can be used to comply with California Title 24 Non-Residential Lighting Controls requirements as a LED Luminaire

Dimensions

ML56 LED Module



Beam Forming Optic (Accessories)



Ordering Information

Sample Number: **ML5612830 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 1200 Series / 80 CRI

ML5612827= 5"/6" LED light module, 1200 lumen, 80CRI, 2700K

ML5612830= 5"/6" LED light module, 1200 lumen, 80CRI, 3000K

ML5612835= 5"/6" LED light module, 1200 lumen, 80CRI, 3500K

ML5612840= 5"/6" LED light module, 1200 lumen, 80CRI, 4000K

ML56 LED 5" and 6" Trims

590 Series - 5" LED Trims

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

594WB=5" LED directional trim, white 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

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

693TBZB=6" LED trim, tuscan bronze micro-step baffle & flange

693SNB=6" LED trim, satin nickel micro-step baffle & satin nickel flange

694WB=6" LED directional trim, white eyeball, baffle & flange – shallow and standard housings

694TBZB=6" LED directional trim, tuscan bronze eyeball, baffle & flange – shallow and standard housings

694SNB=6" LED directional trim, satin nickel 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 Beam Forming Optic / Media 1200 Series Accessories

BFR56NFL=Beam forming reflector kit, narrow flood, 25° nominal

BFR56MH=Media holder, accepts one 3.45" lens. Requires BFR56NFL & L345SF, order separately.

L345SF=3.45" diameter soft focus lens. Requires BFR56NFL and BFR56MH, order separately.

ML56 System Accessories

ML7RAB=Retrofit adapter band for housings without torsion spring receivers. The ML7RAB kit supplies parts to retrofit four housings; the kit includes:

4 – Retrofit adapter bands with screws and locking wire nuts

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

**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

ML5612827

PRODUCT SPECIFICATIONS	
Lumens (Light Output)	1376
Watts	17.5
Lumens Per Watt (Efficacy)	78.6
Color Accuracy (CRI)	81
Light Color (CCT) Correlated Color Temperature (CCT)	2700K
MODEL# ML5612827	

ML5612830

PRODUCT SPECIFICATIONS	
Lumens (Light Output)	1549
Watts	17.5
Lumens Per Watt (Efficacy)	88.5
Color Accuracy (CRI)	82
Light Color (CCT) Correlated Color Temperature (CCT)	3000K
MODEL# ML5612830	

ML5612835

PRODUCT SPECIFICATIONS	
Lumens (Light Output)	1570
Watts	17.5
Lumens Per Watt (Efficacy)	89.7
Color Accuracy (CRI)	83
Light Color (CCT) Correlated Color Temperature (CCT)	3500K
MODEL# ML5612835	

ML5612840

PRODUCT SPECIFICATIONS	
Lumens (Light Output)	1695
Watts	17.5
Lumens Per Watt (Efficacy)	96.9
Color Accuracy (CRI)	83
Light Color (CCT) Correlated Color Temperature (CCT)	4000K
MODEL# ML5612840	

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.

Halo and All-Pro UL Listed Compatibility

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

(Note shallow housings for use with 694X 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
		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 694X 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
		H7UICT	6" Insulated Ceiling, Universal New Construction Housing (use with 694X and 696X trims only)
		H7UICAT	6" Insulated Ceiling, Universal, Air-Tite, New Construction Housing (use with 694X and 696X trims only)
		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	H27ICAT	6" Shallow, Insulated Ceiling, Air-Tite New Construction (use with 694X trims only)
		H27RICAT	6" Shallow, Insulated Ceiling, Air-Tite Remodel Housing (use with 694X trims only)
		H27ICT	6" Shallow, Insulated Ceiling, New Construction Housing (use with 694X trims only)
		H27RICT	6" Shallow, Insulated Ceiling, Remodel Housing (use with 694X trims only)
		H27T	6" Shallow, Non-IC, New Construction Housing (use with 694X trims only)
		H27RT	6" Shallow, Non-IC, Remodel Housing (use with 694X trims only)
All-Pro	Shallow Housings	E12700AT	6" Shallow, Insulated Ceiling, Air-Tite New Construction (use with 694X trims only)
		E12700	6" Shallow, Insulated Ceiling, New Construction Housing (use with 694X trims only)
		E12700R	6" Shallow, Insulated Ceiling, Air-Tite Remodel Housing (use with 694X trims only)
		ET2700	6" Shallow, Non-IC, New Construction Housing (use with 694X trims only)
		ET2700R	6" Shallow, Non-IC, Remodel Housing (use with 694X 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: 592X, 593X, 594X, 595X, 596X (ML56 1200 Series not for use with 593TBZB, 593SNB, 594TBZB, 594SNB models.)

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

HALO - LED Housings with LED luminaire connector - high-efficacy compliant

Brand	Housing Type	Catalog Number	Description
Halo	Standard Housings	H550ICAT	5" LED, Insulated Ceiling, Air-Tite, New Construction Housing
		H550RICAT	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 594X trims only)

HOUSINGS - UL Classified for Retrofit Compatibility

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

Juno	IC22, IC22R, IC22W, IC22S, IC23, IC23W, TC2, TC2R, IC2
Capri	CR1, PR1, QL1
Elco	HL7ICA (EL7ICA)
Lithonia	LC6, L7X
Thomas	PS1
Commercial Electric	C7ICA, H3
Progress	P87-AT †
Lightolier	1104ICx †, 1104IC †

† Requires ML7RAB retrofit adapter band (ordered separately); for use in housings without torsion springs.

Juno®, Capri®, Lightolier®, Lithonia Lighting®, Thomas® Lighting, Elco Lighting®, Progress® Lighting and Commercial Electric™ and their product brand names, where identified above, are tradenames or trademarks of each respective company and Cooper makes no representations on these trademarks.

ML56 1200 Series Compliance Table

80 CRI LED Modules with ML56 Trims

	ML5612827	ML5612830	ML5612835	ML5612840
593BB	ES, T24NR, 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
592SC	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
695WW	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
692W	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
693WB	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
696WB	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
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

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 1200 Series Lumen Table

80 CRI LED Modules with ML56 trims		ML5612827		ML5612830		ML5612835		ML5612840	
	Trim Catalog #	Lumens	LPW	Lumens	LPW	Lumens	LPW	Lumens	LPW
0° Tilt Angle	593BB	900.9	51.5	1014.1	57.9	1027.9	58.7	1109.7	63.4
	693BB	1008.2	57.6	1134.9	64.9	1150.3	65.7	1241.9	71.0
	593TBZB	1017.8	58.2	1145.8	65.5	1161.3	66.4	1253.8	71.6
	693TBZB	1048.0	59.9	1179.7	67.4	1195.7	68.3	1290.9	73.8
	593SNB	1115.5	63.7	1255.8	71.8	1272.8	72.7	1374.1	78.5
	693SNB	1162.5	66.4	1308.7	74.8	1326.5	75.8	1432.1	81.8
	592H	1285.6	73.5	1447.2	82.7	1466.8	83.8	1583.6	90.5
	593WB	1310.9	74.9	1475.7	84.3	1495.7	85.5	1614.8	92.3
	592SC	1327.8	75.9	1494.7	85.4	1515.0	86.6	1635.6	93.5
	592W	1331.4	76.1	1498.8	85.6	1519.1	86.8	1640.0	93.7
	595WW	1336.2	76.4	1504.2	86.0	1524.6	87.1	1646.0	94.1
	695WW	1337.4	76.4	1505.6	86.0	1526.0	87.2	1647.5	94.1
	692H	1342.2	76.7	1511.0	86.3	1531.5	87.5	1653.4	94.5
	692W	1363.9	77.9	1535.4	87.7	1556.2	88.9	1680.1	96.0
	692SC	1368.8	78.2	1540.9	88.0	1561.7	89.2	1686.1	96.3
	693WB	1376.0	78.6	1549.0	88.5	1570.0	89.7	1695.0	96.9
	596WB	1380.8	78.9	1554.4	88.8	1575.5	90.0	1700.9	97.2
	694TBZB	1385.6	79.2	1559.9	89.1	1581.0	90.3	1706.9	97.5
	696WB	1411.0	80.6	1588.4	90.8	1609.9	92.0	1738.1	99.3
	594TBZB	1412.2	80.7	1589.7	90.8	1611.3	92.1	1739.6	99.4
	694SNB	1425.4	81.5	1604.7	91.7	1626.4	92.9	1755.9	100.3
	594SNB	1447.2	82.7	1629.1	93.1	1651.2	94.4	1782.6	101.9
	694WB	1468.9	83.9	1653.5	94.5	1676.0	95.8	1809.4	103.4
	594WB	1477.3	84.4	1663.0	95.0	1685.6	96.3	1819.8	104.0
30° Tilt Angle	594WB-30	1396.5	79.8	1572.1	89.8	1593.4	91.1	1720.3	98.3
	694WB-30	1374.8	78.6	1547.6	88.4	1568.6	89.6	1693.5	96.8

Photometry 5" Trims • 1200 Series • 80 CRI

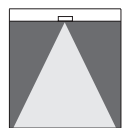
Multiplier Table

CCT Option	2700 K	3000 K	3500 K	4000 K
CCT Multiplier	0.888	1.000	1.014	1.094

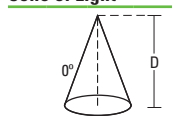
Table based upon testing with 3000°K color temperature, 80CRI.
Multipliers may be used to determine relative lumen values with other color temperatures.

ML5612830-592SC

Test Number	P129764
Light Module	1200 Series, 80CRI
Trim	5" Aperture, Specular Clear Trim
Lumens	1495 Lm
Efficacy	86.4 Lm/W
SC	0.98

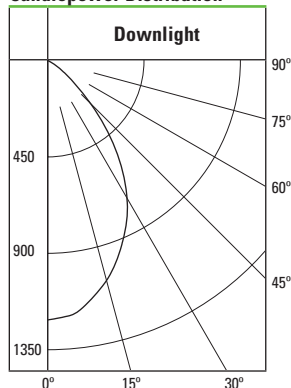


Cone of Light



D	FC	L	W
5.5'	40	5.2	5.2
7'	24.7	6.8	6.8
8'	18.9	7.8	7.8
9'	15	8.8	8.8
10'	12.1	9.8	9.8
12'	8.4	11.6	11.6

Candlepower Distribution

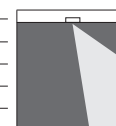


Zonal Lumen Summary

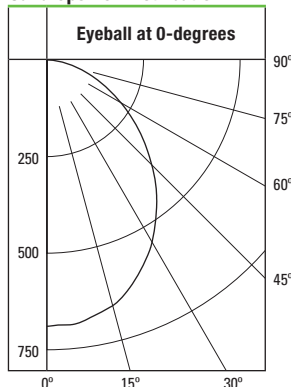
Zone	Lumens	%Fixture
0-30	805	53.9
0-40	1176	78.6
0-60	1477	98.8
0-90	1495	100
90-180	0	0
0-180	1495	100

ML5612830-594WB

Test Number	P129820
Light Module	1200 Series, 80CRI
Trim	5" Aperture, Directional Eyeball
Lumens	1663
Efficacy	96.1 Lm/W
SC	1.18



Candlepower Distribution



Zonal Lumen Summary

Zone	Lumens	%Fixture
0-30	521	31.3
0-40	829	49.9
0-60	1371	82.4
0-90	1663	100
90-180	0	0
0-180	1663	100

30° Horizontal Plane

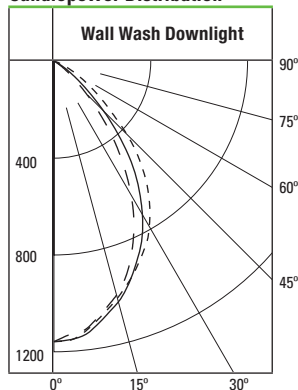
D	FC	L	W	CB
5.5'	19.8	6.3	6.4	3.2
7'	12.2	8.1	8.2	4
8'	9.4	9.3	9.4	4.6
9'	7.4	10.5	10.6	5.2
10'	6	11.6	11.8	5.8
12'	4.2	14	14.2	6.9

30° Vertical Plane

D	FC	L	W	CB
1'	368.1	1.1	1.2	1.7
2'	92	2.2	2.6	3.5
3'	40.9	3.5	3.8	5.2
4'	23	4.6	5.2	6.9
5'	14.7	5.7	6.4	8.7
6'	10.2	6.9	7.8	10.4

Photometry 5" Trims • 1200 Series • 80 CRI

Candlepower Distribution

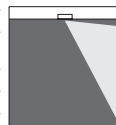


Legend

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

ML5612830-595WW

Test Number	P129844
Light Module	1200 Series, 80CRI
Trim	5" Aperture, Wall Wash with Specular Clear Trim and Specular Clear Kick Reflector
Lumens	1504
Efficacy	86.9 Lm/W
SC	0.98



Zonal Lumen Summary

Zone	Lumens	%Fixture
0-30	774	51.5
0-40	1139	75.7
0-60	1469	97.7
0-90	1504	100
90-180	0	0
0-180	1504	100

Single Unit Footcandles

2.5' From Wall (Distance From Fixture Along Wall)

DD	●	1'	2'	3'	4'	5'	6'
1'	5.1	3.4	1.4	0.4	0.1	0	0
2'	19.6	13.9	5.9	1.8	0.5	0.2	0.1
3'	23.9	19.2	10.2	4.1	1.5	0.5	0.2
4'	17.8	15.6	10.7	5.6	2.5	1.1	0.4
5'	12.1	11.1	8.6	5.6	3.2	1.5	0.7
6'	8.3	7.7	6.5	4.7	3.2	1.9	1
7'	5.8	5.5	4.8	3.8	2.8	1.9	1.1
8'	4.2	4	3.6	3	2.4	1.7	1.2
9'	3.1	3	2.7	2.3	2	1.5	1.1
10'	2.3	2.3	2.1	1.8	1.6	1.3	1

Multiple Unit Footcandles

2.5' From Wall (Distance From Fixture Along Wall)

DD	--3'--	--4'--
1'	5.6 4.5 5.6	5.3 2.7 5.3
2'	21.4 18.9 21.4	20.1 11.8 20.1
3'	28 29.4 28	25.4 20.5 25.4
4'	23.4 26.4 23.4	20.3 21.5 20.3
5'	17.7 19.8 17.7	15.3 17.2 15.3
6'	13 14.2 13	11.4 13 11.4
7'	9.5 10.2 9.5	8.6 9.6 8.6
8'	7.1 7.5 7.1	6.5 7.2 6.5
9'	5.4 5.7 5.4	5 5.5 5
10'	4.2 4.4 4.2	3.9 4.2 3.9

Photometry 5" Trims • 1200 Series • 80 CRI • NFL Lens

Multiplier Table

CCT Option	2700 K	3000 K	3500 K	4000 K
CCT Multiplier	0.888	1.000	1.014	1.094

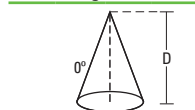
Table based upon testing with 3000°K color temperature, 80CRI.
Multipliers may be used to determine relative lumen values with other color temperatures.

ML5612830-BFR56NFL-592H

Test Number	P130378
Light Module	1200 Series, 80CRI, NFL optic
Trim	5" Aperture, Haze Trim
Lumens	1478
Efficacy	85.4 Lm/W
SC	0.41

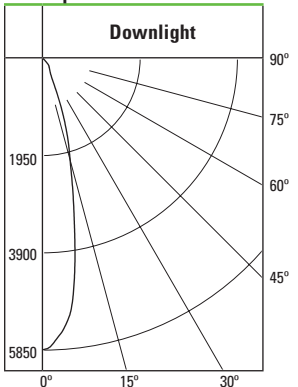


Cone of Light



D	FC	L	W
5.5'	193.1	2.2	2.2
7'	119.2	2.8	2.8
8'	91.3	3.2	3.2
9'	72.1	3.6	3.6
10'	58.4	4	4
12'	40.6	4.8	4.8

Candlepower Distribution

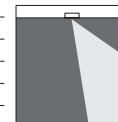


Zonal Lumen Summary

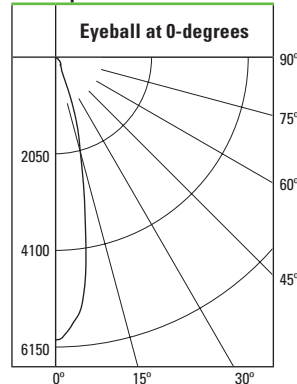
Zone	Lumens	%Fixture
0-30	1289	87.2
0-40	1428	96.6
0-60	1475	99.8
0-90	1478	100
90-180	0	0
0-180	1478	100

ML5612830-BFR56NFL-594WB

Test Number	P130442
Light Module	1200 Series, 80CRI, NFL optic
Trim	5" Aperture, Directional Eyeball
Lumens	1698
Efficacy	98.2 Lm/W
SC	0.4

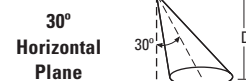


Candlepower Distribution

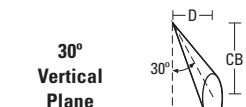


Zonal Lumen Summary

Zone	Lumens	%Fixture
0-30	1291	76.1
0-40	1428	84.1
0-60	1638	96.5
0-90	1698	100
90-180	0	0
0-180	1698	100



D	FC	L	W	CB
5.5'	135.8	2.8	2.4	3.2
7'	83.8	3.6	3	4
8'	64.2	4.1	3.6	4.6
9'	50.7	4.6	4	5.2
10'	41.1	5.1	4.4	5.8
12'	28.5	6.1	5.4	6.9



D	FC	L	W	CB
1'	1098	1	0.6	1.7
2'	274.5	2.1	1.2	3.5
3'	122	3.2	1.8	5.2
4'	68.6	4.3	2.6	6.9
5'	43.9	5.4	3.2	8.7
6'	30.5	6.5	3.8	10.4

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

Photometry 6" Trims • 1200 Series • 80 CRI

Multiplier Table

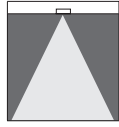
CCT Option	2700 K	3000 K	3500 K	4000 K
CCT Multiplier	0.8883	1.0000	1.0136	1.0943

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

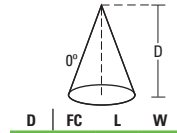
Multipliers may be used to determine relative lumen values with other color temperatures.

ML5612830-692SC

Test Number	P129860
Light Module	1200 Series, 80CRI
Trim	6" Aperture, Specular Clear Trim
Lumens	1541
Efficacy	89.1 Lm/W
SC	0.74

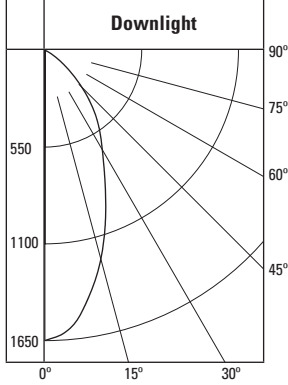


Cone of Light



D	FC	L	W
5.5'	54.5	4	4
7'	33.7	5	5
8'	25.8	5.8	5.8
9'	20.4	6.6	6.6
10'	16.5	7.2	7.2
12'	11.5	8.8	8.8

Candlepower Distribution

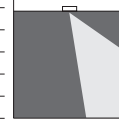


Zonal Lumen Summary

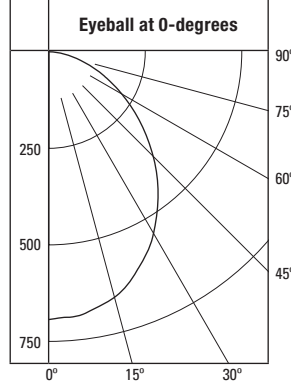
Zone	Lumens	%Fixture
0-30	860	55.8
0-40	1194	77.5
0-60	1521	98.7
0-90	1541	100
90-180	0	0
0-180	1541	100

ML5612830-694WB

Test Number	P129916
Light Module	1200 Series, 80CRI
Trim	6" Aperture, Directional Eyeball
Lumens	1654
Efficacy	95.6 Lm/W
SC	1.17



Candlepower Distribution



Zonal Lumen Summary

Zone	Lumens	%Fixture
0-30	521	31.5
0-40	828	50.1
0-60	1366	82.6
0-90	1654	100
90-180	0	0
0-180	1654	100

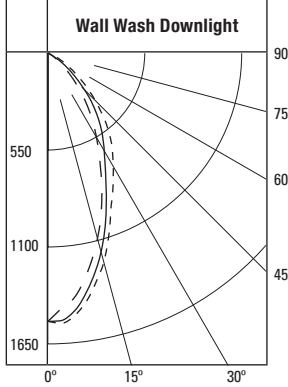
30° Horizontal Plane

D	FC	L	W	CB
5.5'	19.8	6.3	6.4	3.2
7'	12.2	8.1	8.2	4
8'	9.4	9.2	9.4	4.6
9'	7.4	10.5	10.6	5.2
10'	6	11.6	11.8	5.8
12'	4.2	13.9	14.2	6.9

30° Vertical Plane

D	FC	L	W	CB
1'	367.1	1.1	1.2	1.7
2'	91.8	2.2	2.6	3.5
3'	40.8	3.5	3.8	5.2
4'	22.9	4.7	5.2	6.9
5'	14.7	5.7	6.4	8.7
6'	10.2	6.9	7.8	10.4

Candlepower Distribution

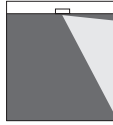


Legend

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

ML5612830-695WW

Test Number	P129940
Light Module	1200 Series, 80CRI
Trim	6" Aperture, Wall Wash with Specular Clear Trim and Specular Clear Kick Reflector
Lumens	1506
Efficacy	87 Lm/W
SC	0.76



Zonal Lumen Summary

Zone	Lumens	%Fixture
0-30	821	54.5
0-40	1147	76.2
0-60	1473	97.8
0-90	1506	100
90-180	0	0
0-180	1506	100

Single Unit Footcandles

2.5' From Wall (Distance From Fixture Along Wall)

DD	●	1'	2'	3'	4'	5'	6'
1'	4.2	2.5	0.9	0.3	0.1	0	0
2'	18.3	13.1	5.6	1.7	0.5	0.1	0
3'	21.6	17	9.5	4.1	1.5	0.5	0.2
4'	16.6	14.2	9.6	5.3	2.5	1.1	0.5
5'	11.9	10.6	7.8	5.1	3	1.5	0.8
6'	8.5	7.7	6	4.3	2.9	1.7	1
7'	6.4	5.8	4.7	3.5	2.5	1.7	1.1
8'	4.8	4.4	3.7	2.9	2.1	1.5	1.1
9'	3.7	3.5	2.9	2.3	1.8	1.3	1
10'	2.9	2.7	2.4	1.9	1.5	1.2	0.9

Multiple Unit Footcandles

2.5' From Wall (Distance From Fixture Along Wall)

DD	--3'--			--4'--		
1'	4.5	3.1	4.5	4.3	1.8	4.3
2'	20	17.7	20	18.8	11.2	18.8
3'	25.7	26.2	25.7	23.2	19	23.2
4'	21.9	23.8	21.9	19.1	19.1	19.1
5'	16.9	18.3	16.9	14.8	15.6	14.8
6'	12.8	13.8	12.8	11.4	12.1	11.4
7'	9.9	10.5	9.9	8.9	9.4	8.9
8'	7.7	8.1	7.7	7	7.3	7
9'	6	6.4	6	5.5	5.8	5.5
10'	4.8	5.1	4.8	4.4	4.7	4.4

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

Photometry 6" Trims • 1200 Series • 80 CRI • NFL Lens

Multiplier Table

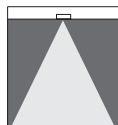
CCT Option	2700 K	3000 K	3500 K	4000 K
CCT Multiplier	0.888	1.000	1.014	1.094

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

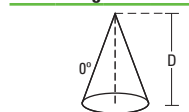
Multipliers may be used to determine relative lumen values with other color temperatures.

ML5612830-BFR56NFL-692H

Test Number	P130474
Light Module	1200 Series, 80CRI, NFL optic
Trim	6" Aperture, Haze Trim
Lumens	1543
Efficacy	89.2 Lm/W
SC	0.41

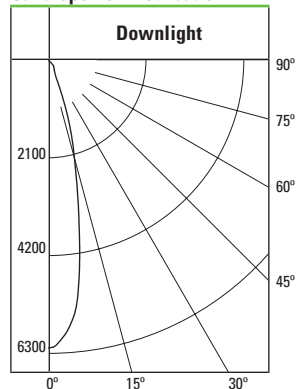


Cone of Light



D	FC	L	W
5.5'	204.4	2.2	2.2
7'	126.2	2.8	2.8
8'	96.6	3.2	3.2
9'	76.3	3.6	3.6
10'	61.8	4	4
12'	42.9	4.8	4.8

Candlepower Distribution

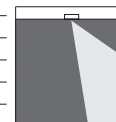


Zonal Lumen Summary

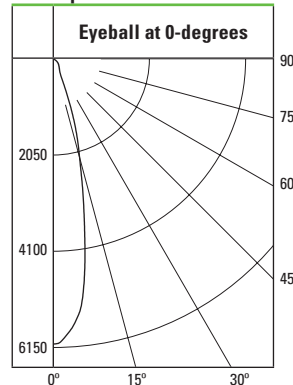
Zone	Lumens	%Fixture
0-30	1319	85.5
0-40	1457	94.4
0-60	1541	99.9
0-90	1543	100
90-180	0	0
0-180	1543	100

ML5612830-BFR56NFL-694WB

Test Number	P130538
Light Module	1200 Series, 80CRI, NFL optic
Trim	6" Aperture, Directional Eyeball
Lumens	1688
Efficacy	97.6 Lm/W
SC	0.41

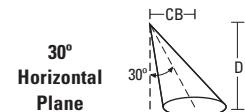


Candlepower Distribution

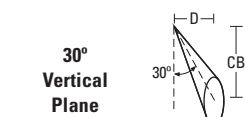


Zonal Lumen Summary

Zone	Lumens	%Fixture
0-30	1315	77.9
0-40	1456	86.2
0-60	1661	98.4
0-90	1688	100
90-180	0	0
0-180	1688	100



D	FC	L	W	CB
5.5'	138.1	2.8	2.4	3.2
7'	85.2	3.6	3.2	4
8'	65.3	4.1	3.6	4.6
9'	51.6	4.7	4	5.2
10'	41.8	5.2	4.6	5.8
12'	29	6.2	5.4	6.9



D	FC	L	W	CB
1'	1120.1	1	0.6	1.7
2'	280	2	1.2	3.5
3'	124.5	3.1	2	5.2
4'	70	4.2	2.6	6.9
5'	44.8	5.3	3.2	8.7
6'	31.1	6.3	4	10.4

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