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

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

LED
- 900 Series = 900 design lumens typical.
- Delivered lumens vary depending upon 5" or 6", color temperature, and trim finish.

- Color Temperature options: 2700K, 3000K, 3500K, 4000K
- CRI: 90
- 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 to 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.
- High color performance with 90CRI minimum, and R9 greater than 50.
- 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: **ML5609930**
  56 = 5" / 6" aperture series
  09 = 900 lumen series
  9 = >90 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 meets high-efficacy luminaire requirement for 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 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

900 Series / 90 CRI

ML5609927
ML5609930
ML5609935
ML5609940

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

For use with 59x and 69x Series Trims

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

HIGH EFFICACY LED WITH INTEGRAL DRIVER - DIMMABLE

Energy Data

ML56 900/90 Series

(Values at non-dimming line voltage)	
Minimum Starting Temp: -30°C (-22°F)	
EMI/RFI: FCC Title 47 CFR, Part 15, (Consumer)	
Sound Rating: Class A	
Input Voltage: UNV 120V-277V	
Power Factor: >0.95 @ 120V and >0.9 @277V	
Input Frequency: 50/60Hz	
THD: <20%	
Max. Rated Wattage: 14W	
Input Power: 13.4W	
Input Current at 120V: 0.15A	
Input Current at 277V: 0.08A	
Driver Compliance: UL8750, Class II rated	
Maximum IC (Insulated Ceiling) Ambient Continuous Operating Temperature: 25°C (77°F)	
Maximum Non-IC Ambient Continuous Operating Temperature: 40°C (104°F)	

90 CRI | **2700K** nominal (2700K 3000K 3500K 4000K)
ML5609927
5" or 6" LED 900 Series

90 CRI | **3000K** nominal (2700K 3000K 3500K 4000K)
ML5609930
5" or 6" LED 900 Series

90 CRI | **3500K** nominal (2700K 3000K 3500K 4000K)
ML5609935
5" or 6" LED 900 Series

90 CRI | **4000K** nominal (2700K 3000K 3500K 4000K)
ML5609940
5" or 6" LED 900 Series

Compliance

- cULus listed 1598 Luminaire (Halo and All-Pro housings)
- UL Classified when used in retrofit (refer to housing section)
- cULus listed for damp locations
- cULus Wet location listed with baffle and reflector trims only
- Airtight certified per ASTM E283 (not exceeding 2.0 CFM under 57 Pascals pressure difference)
- IP66 ingress protection rated with baffle and reflector trims only

- RoHS compliant
- May be used in IC (insulated ceiling) housings in direct contact with insulation* and combustible material
- Can be used for California Title 24 compliance / Title 20 certified
- 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.

ENERGY STAR	Can be used for **IECC** International Energy Conservation Code High Efficacy Compliance	**T24** Can be used to comply with California Title 24 High Efficacy requirements / **T20** Certified to California Title 20 Appliance Database	Can be used for **WSEC** Washington State Energy Code High Efficacy Compliance	**RoHS** Compliant / airtite™

Refer to ENERGY STAR® Certified Products List.
Can be used to comply with California Title 24 High Efficacy requirements.
Certified to California Title 20 Appliance Efficiency Database.

CE   UL   c UL

Dimensions

4-1/2" [114 mm]

HALO

3" [76 mm]

Cooper Lighting
by **E:T:N**
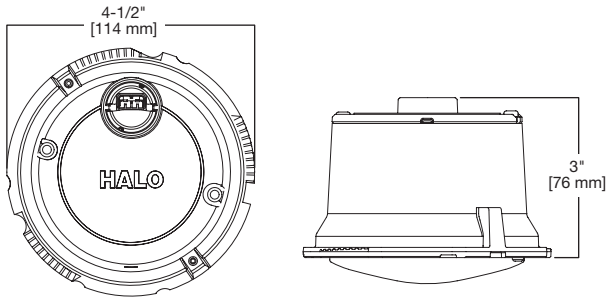
Ordering Information

Sample Number: **ML5609930 593WB**
Order LED Module and trim separately.
A complete system also includes a compatible housing (new construction, remodel, or existing retrofit). Housing aperture size in the ML56 System is determined by the ML56 trim dimensions.
ML56 trims are available in 5" and 6" aperture (5" = 59xx series and 6" = 69xx series trims). Refer to Housing Section in this document.

ML56 LED Light Modules
900 Series / 90 CRI

ML5609927= 5"/6" LED light module, 900 lumen, 90CRI, 2700K
ML5609930= 5"/6" LED light module, 900 lumen, 90CRI, 3000K
ML5609935= 5"/6" LED light module, 900 lumen, 90CRI, 3500K
ML5609940= 5"/6" LED light module, 900 lumen, 90CRI, 4000K

ML56 LED 5" and 6" Trims

<u>**590 Series - 5" LED Trims**</u>
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

<u>**690 Series - 6" LED Trims**</u>
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 adpater 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

ML5609927

PRODUCT SPECIFICATIONS	
Lumens (Light Output)	739
Watts	13.4
Lumens Per Watt (Efficacy)	55.1
Color Accuracy (CRI)	92
Light Color (CCT) Correlated Color Temperature (CCT)	2700K

Soft White   Warm White   Bright White
2700K   3000K   4500K   6500K
MODEL# ML5609927

ML5609930

PRODUCT SPECIFICATIONS	
Lumens (Light Output)	842
Watts	13.4
Lumens Per Watt (Efficacy)	62.8
Color Accuracy (CRI)	93
Light Color (CCT) Correlated Color Temperature (CCT)	3000K

Soft White   Warm White   Bright White
2700K   3000K   4500K   6500K
MODEL# ML5609930

ML5609935

PRODUCT SPECIFICATIONS	
Lumens (Light Output)	872
Watts	13.4
Lumens Per Watt (Efficacy)	65.1
Color Accuracy (CRI)	94
Light Color (CCT) Correlated Color Temperature (CCT)	3500K

Soft White   Warm White   Bright White
2700K   3000K   4500K   6500K
MODEL# ML5609935

ML5609940

PRODUCT SPECIFICATIONS	
Lumens (Light Output)	922
Watts	13.4
Lumens Per Watt (Efficacy)	68.8
Color Accuracy (CRI)	93
Light Color (CCT) Correlated Color Temperature (CCT)	4000K

Soft White   Warm White   Bright White
2700K   3000K   4500K   6500K
MODEL# ML5609940

Cooper Lighting
by **EATON**

Housing – Trim Compatibility

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 ML56 TRIMS in this document. (Note "X" in the trim model number denotes finish code.)

Housing – Compatibility

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

Halo and All-Pro UL Listed Compatibility

6" Trims: 691X, 692X, 693X, 694X, 695X, 696X
(Note shallow housings for use with 691X, 694X, 696X trims only)

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

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

HALO and All-Pro - Incandescent E26 Screwbase Housings

Brand	Housing Type	Catalog Number	Description
Halo	Standard Housings	H7ICAT	6" Insulated Ceiling, Air-Tite New Construction Housing
		H7RICAT	6" Insulated Ceiling, Air-Tite Remodel Housing
		H7ICT	6" Insulated Ceiling, New Construction Housing
		H7RICT	6" Insulated Ceiling, Remodel Housing
		H7ICATNB	6" Insulated Ceiling, Air-Tite New Construction Housing, No Socket Bracket
		H7ICTNB	6" Insulated Ceiling, New Construction Housing, No Socket Bracket
		H7T	6" Non-IC, New Construction Housing
		H7RT	6" Non-IC, Remodel Housing
		H7TNB	6" Non-IC, New Construction Housing, No Socket Bracket
		H7TCP	6" Non-IC, Chicago Plenum, New Construction/Remodel Housing
		H7UICT	6" Insulated Ceiling, Universal New Construction Housing
		H7UICAT	6" Insulated Ceiling, Universal, Air-Tite, New Construction Housing
All-Pro	Standard Housings	EI700AT	6" Insulated Ceiling, Air-Tite New Construction Housing
		EI700RAT	6" Insulated Ceiling, Air-Tite Remodel Housing
		EI700	6" Insulated Ceiling, New Construction Housing
		EI700R	6" Insulated Ceiling, Remodel Housing
		EI700ATNB	6" Insulated Ceiling, Air-Tite New Construction Housing, No Socket Bracket
		EI700NB	6" Insulated Ceiling, New Construction Housing, No Socket Bracket
		EI700U	6" Insulated Ceiling, Universal New Construction Housing
		EI700UAT	6" Insulated Ceiling, Universal, Air-Tite, New Construction Housing
		ET700	6" Non-IC, New Construction Housing
		ET700R	6" Non-IC, Remodel Housing
Halo	Shallow Housings	H27ICAT	6" Shallow, Insulated Ceiling, Air-Tite New Construction (use with 691X, 694X, 696X trims only)
		H27RICAT	6" Shallow, Insulated Ceiling, Air-Tite Remodel Housing (use with 691X, 694X, 696X trims only)
		H27ICT	6" Shallow, Insulated Ceiling, New Construction Housing (use with 691X, 694X, 696X trims only)
		H27RICT	6" Shallow, Insulated Ceiling, Remodel Housing (use with 691X, 694X, 696X trims only)
		H27T	6" Shallow, Non-IC, New Construction Housing (use with 691X, 694X, 696X trims only)
		H27RT	6" Shallow, Non-IC, Remodel Housing (use with 691X, 694X, 696X trims only)
All-Pro	Shallow Housings	EI2700AT	6" Shallow, Insulated Ceiling, Air-Tite New Construction (use with 691X, 694X, 696X trims only)
		EI2700	6" Shallow, Insulated Ceiling, New Construction Housing (use with 691X, 694X, 696X trims only)
		EI2700R	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

Cooper Lighting
by **E:T:N**

Housing Compatibility - Continued

5" Trims: 591X, 592X, 593X, 594X, 595X, 596X
(Note shallow housings for use with 591X, 594X, 596X trims only)

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

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

Housings - UL Classified for Retrofit Compatibility

6" Trims: 691X, 692X, 693X, 694X, 695X, 696X
(Note shallow housings for use with 691X, 694X, 696X trims only)

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

† Requires replacement of torsion springs with Friction Clips. Order Friction Clip Kit separately: ML56CLIP
* ML56CLIP is compatible with only baffle and reflector trims

5" Trims: 591X, 596X

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

ML56 900 Series Compliance Table

90 CRI LED Modules with ML56 Trims

	ML5609927	ML5609930	ML5609935	ML5609940
593BB	WSEC, IECC	WSEC, IECC	WSEC, IECC	T24,WSEC, IECC
693BB	WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC
593TBZB	WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC
693TBZB	WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC
593SNB	WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC
693SNB	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC
592H	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC
593WB	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC
592W	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC
595WW	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC
592SC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC
692H	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC
695WW	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC
693WB	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC
692SC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC
596WB	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC
692W	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC
594TBZB	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC
694TBZB	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC
594SNB	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC
696WB	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC
694SNB	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC
694WB	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC
594WB	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC
594WB-30	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC
694WB-30	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC	ES,T24,WSEC, IECC

Code Descriptions:

ES = ENERGY STAR® Certified Luminaire

T24 = Can be used to comply with California Title 24 High Efficacy requirements. Certified to California Title 20 Appliance Efficiency Database.

IECC = International Energy Conservation Code "High Efficacy"

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

ML56 900 Series Lumen Table

90 CRI LED Modules with ML56 trims	Trim Catalog #	ML5609927 Lumens	LPW	ML5609930 Lumens	LPW	ML5609935 Lumens	LPW	ML5609940 Lumens	LPW
0° Tilt Angle	593BB	477.0	35.6	543.5	40.6	562.8	42.0	595.1	44.4
	693BB	535.0	39.9	609.6	45.5	631.3	47.1	667.5	49.8
	593TBZB	543.0	40.5	618.7	46.2	640.7	47.8	677.5	50.6
	693TBZB	565.0	42.2	643.7	48.0	666.7	49.8	704.9	52.6
	593SNB	599.0	44.7	682.5	50.9	706.8	52.7	747.3	55.8
	693SNB	625.0	46.6	712.1	53.1	737.5	55.0	779.8	58.2
	592H	670.0	50.0	763.4	57.0	790.6	59.0	835.9	62.4
	593WB	702.0	52.4	799.8	59.7	828.3	61.8	875.8	65.4
	592W	708.0	52.8	806.7	60.2	835.4	62.3	883.3	65.9
	595WW	725.0	54.1	826.0	61.6	855.5	63.8	904.5	67.5
	592SC	726.0	54.2	827.2	61.7	856.7	63.9	905.8	67.6
	692H	729.0	54.4	830.6	62.0	860.2	64.2	909.5	67.9
	695WW	730.0	54.5	831.7	62.1	861.4	64.3	910.8	68.0
	693WB	739.0	55.1	842.0	62.8	872.0	65.1	922.0	68.8
	692SC	749.0	55.9	853.4	63.7	883.8	66.0	934.5	69.7
	596WB	749.0	55.9	853.4	63.7	883.8	66.0	934.5	69.7
	692W	750.0	56.0	854.5	63.8	885.0	66.0	935.7	69.8
	594TBZB	755.0	56.3	860.2	64.2	890.9	66.5	942.0	70.3
	694TBZB	759.0	56.6	864.8	64.5	895.6	66.8	947.0	70.7
	594SNB	759.0	56.6	864.8	64.5	895.6	66.8	947.0	70.7
	696WB	772.0	57.6	879.6	65.6	910.9	68.0	963.2	71.9
	694SNB	773.0	57.7	880.7	65.7	912.1	68.1	964.4	72.0
	694WB	805.0	60.1	917.2	68.4	949.9	70.9	1004.3	75.0
	594WB	806.0	60.1	918.3	68.5	951.1	71.0	1005.6	75.0
30° Tilt Angle	594WB-30	781.0	58.3	889.9	66.4	921.6	68.8	974.4	72.7
	694WB-30	759.0	56.6	864.8	64.5	895.6	66.8	947.0	70.7

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

Cooper Lighting by **E·T·N**

Photometry 5" Trims • 900 Series • 90 CRI

Multiplier Table

| CCT Option	2700 K	3000 K	3500 K	4000 K
CCT Multiplier	0.88	1.00	1.04	1.10

Table based upon testing with 3000°K color temperature, 90CRI.
Multipliers may be used to determine relative lumen values with other color temperatures.

ML5609930-592SC

Test Number	P130008
Light Module	900 Series, 90CRI
Trim	5" Aperture, Specular Clear Trim
Lumens	827
Efficacy	61.7 Lm/W
SC	1.06

Candlepower Distribution

Downlight

Cone of Light
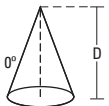
D	FC	L	W
5.5	19.9	5.8	5.8
7	12.3	7.2	7.2
8	9.4	8.4	8.4
9	7.4	9.4	9.4
10	6	10.4	10.4
12	4.2	12.6	12.6
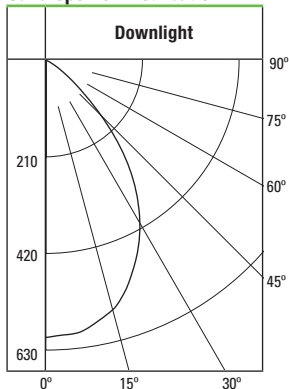
Zonal Lumen Summary

Zone	Lumens	%Fixture
0-30	428	51.8
0-40	639	77.2
0-60	817	98.8
0-90	827	100
90-180	0	0
0-180	827	100

ML5609930-594WB

Test Number	P130064
Light Module	900 Series, 90CRI
Trim	5" Aperture, Directional Eyeball
Lumens	918
Efficacy	68.5 Lm/W
SC	1.22
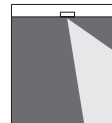
Candlepower Distribution

Eyeball at 0-degrees
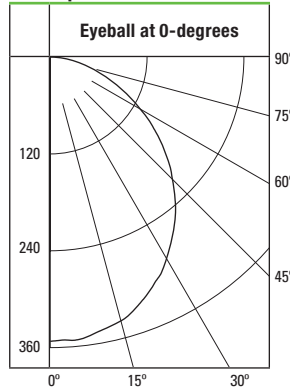
Zonal Lumen Summary

Zone	Lumens	%Fixture
0-30	271	29.5
0-40	437	47.6
0-60	744	81
0-90	918	100
90-180	0	0
0-180	918	100

30° Horizontal Plane
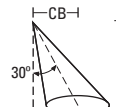
D	FC	L	W	CB
5.5	10.3	6.6	6.6	3.2
7	6.3	8.3	8.6	4
8	4.8	9.6	9.8	4.6
9	3.8	10.7	11	5.2
10	3.1	11.9	12.2	5.8
12	2.2	14.3	14.6	6.9
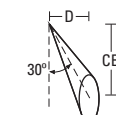
30° Vertical Plane

D	FC	L	W	CB
1'	200.5	1.1	1.2	1.7
2'	50.1	2.2	2.6	3.5
3'	22.3	3.3	3.8	5.2
4'	12.5	4.5	5.2	6.9
5'	8	5.6	6.6	8.7
6'	5.6	6.7	7.8	10.4

Candlepower Distribution

Wall Wash Downlight

Legend

0-deg:	– – – –	Wall
90-deg:	——	Side
180-deg:	— — —	Room
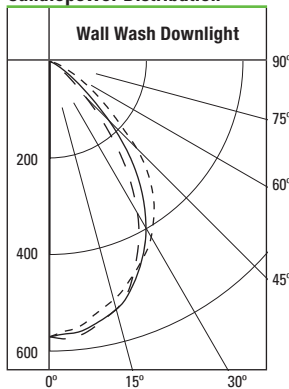
ML5609930-595WW

Test Number	P130088
Light Module	900 Series, 90CRI
Trim	5" Aperture, Wall Wash with Specular Clear Trim and Specular Clear Kick Reflector
Lumens	826
Efficacy	61.6 Lm/W
SC	1.06

Single Unit Footcandles

2.5' From Wall (Distance From Fixture Along Wall)

DD	●	1'	2'	3'	4'	5'	6'
1'	3.4	2.2	0.8	0.2	0.1	0	0
2'	11.8	8.6	3.7	1.1	0.3	0.1	0
3'	13.7	11.4	6.1	2.4	0.9	0.3	0.1
4'	9.6	8.7	6.2	3.3	1.5	0.6	0.3
5'	6.4	6	4.7	3.2	1.9	0.9	0.4
6'	4.3	4.1	3.5	2.6	1.8	1.1	0.6
7'	3	2.9	2.5	2	1.5	1.1	0.7
8'	2.1	2.1	1.9	1.6	1.3	1	0.7
9'	1.6	1.5	1.4	1.2	1	0.8	0.6
10'	1.2	1.2	1.1	1	0.8	0.7	0.6

Multiple Unit Footcandles

2.5' From Wall (Distance From Fixture Along Wall)

DD	--3'--			--4'--		
1'	3.6	2.8	3.6	3.4	1.6	3.4
2'	12.8	11.6	12.8	12.1	7.3	12.1
3'	16.1	17.5	16.1	14.6	12.3	14.6
4'	12.9	14.8	12.9	11.1	12.3	11.1
5'	9.5	10.6	9.5	8.2	9.5	8.2
6'	6.9	7.5	6.9	6.1	6.9	6.1
7'	5	5.3	5	4.5	5.1	4.5
8'	3.7	3.9	3.7	3.4	3.8	3.4
9'	2.8	2.9	2.8	2.6	2.8	2.6
10'	2.1	2.2	2.1	2	2.2	2

Zonal Lumen Summary

Zone	Lumens	%Fixture
0-30	406	49.1
0-40	611	73.9
0-60	804	97.4
0-90	826	100
90-180	0	0
0-180	826	100

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

Cooper Lighting
by **E:T:N**

Photometry 6" Trims • 900 Series • 90 CRI

Multiplier Table

CCT Option	2700 K	3000 K	3500 K	4000 K
CCT Multiplier	0.88	1.00	1.04	1.10

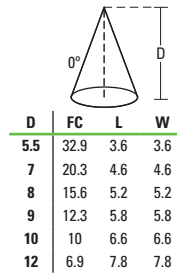Table based upon testing with 3000°K color temperature, 90CRI.

Multipliers may be used to determine relative lumen values with other color temperatures.
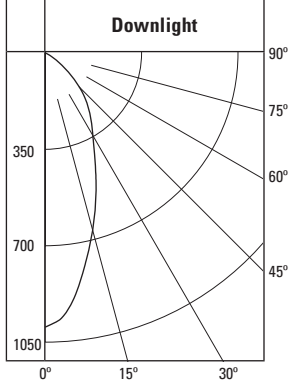
ML5609930-692SC

Test Number	P130104
Light Module	900 Series, 90CRI
Trim	6" Aperture, Specular Clear Trim
Lumens	853
Efficacy	63.7 Lm/W
SC	0.66

Cone of Light

D	FC	L	W
5.5	32.9	3.6	3.6
7	20.3	4.6	4.6
8	15.6	5.2	5.2
9	12.3	5.8	5.8
10	10	6.6	6.6
12	6.9	7.8	7.8

Candlepower Distribution

Downlight
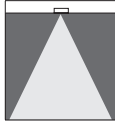
Zonal Lumen Summary

Zone	Lumens	%Fixture
0-30	469	54.9
0-40	649	76.1
0-60	842	98.7
0-90	853	100
90-180	0	0
0-180	853	100

ML5609930-694WB

Test Number	P130160
Light Module	900 Series, 90CRI
Trim	6" Aperture, Directional Eyeball
Lumens	917
Efficacy	68.4 Lm/W
SC	1.21
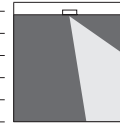
Candlepower Distribution

Eyeball at 0-degrees

Zonal Lumen Summary

Zone	Lumens	%Fixture
0-30	271	29.5
0-40	437	47.6
0-60	744	81.1
0-90	917	100
90-180	0	0
0-180	917	100
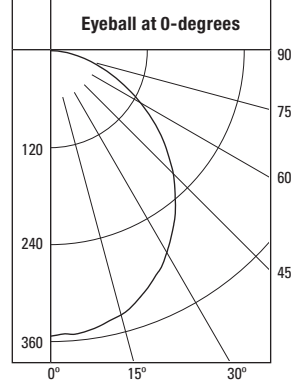
30° Horizontal Plane

D	FC	L	W	CB
5.5	10.3	6.6	6.6	3.2
7	6.3	8.3	8.6	4
8	4.8	9.6	9.8	4.6
9	3.8	10.7	11	5.2
10	3.1	12	12.2	5.8
12	2.2	14.3	14.6	6.9

30° Vertical Plane

D	FC	L	W	CB
1'	200.5	1.1	1.2	1.7
2'	50.1	2.2	2.6	3.5
3'	22.3	3.3	3.8	5.2
4'	12.5	4.5	5.2	6.9
5'	8	5.6	6.6	8.7
6'	5.6	6.7	7.8	10.4

Candlepower Distribution

Wall Wash Downlight

Legend

0-deg:	– – – –	Wall
90-deg:	——————	Side
180-deg:	— — —	Room
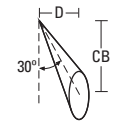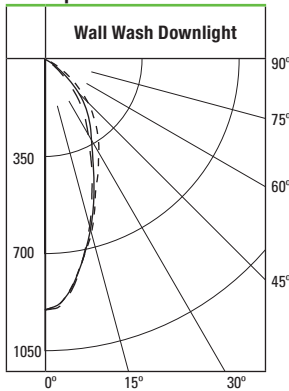
ML5609930-695WW

Test Number	P130184
Light Module	900 Series, 90CRI
Trim	6" Aperture, Wall Wash with Specular Clear Trim and Specular Clear Kick Reflector
Lumens	832
Efficacy	62.1 Lm/W
SC	0.69
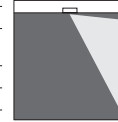
Zonal Lumen Summary

Zone	Lumens	%Fixture
0-30	445	53.5
0-40	622	74.8
0-60	813	97.7
0-90	832	100
90-180	0	0
0-180	832	100

Single Unit Footcandles

2.5' From Wall (Distance From Fixture Along Wall)

DD	●	1'	2'	3'	4'	5'	6'
1'	2.5	1.4	0.5	0.2	0	0	0
2'	10.9	7.7	3.4	1.1	0.3	0.1	0
3'	11.6	9.5	5.5	2.5	0.9	0.3	0.1
4'	8.7	7.5	5.2	3	1.5	0.6	0.3
5'	6.2	5.5	4.1	2.8	1.7	0.9	0.4
6'	4.4	4	3.2	2.3	1.5	1	0.6
7'	3.3	3	2.5	1.9	1.3	0.9	0.6
8'	2.5	2.3	1.9	1.5	1.1	0.8	0.6
9'	2	1.8	1.5	1.2	0.9	0.7	0.5
10'	1.5	1.4	1.3	1	0.8	0.6	0.5

Multiple Unit Footcandles

2.5' From Wall (Distance From Fixture Along Wall)

DD	--3'--			--4'--		
1'	2.6	1.9	2.6	2.5	1	2.5
2'	11.9	10.8	11.9	11.1	6.7	11.1
3'	14.1	15.1	14.1	12.5	11	12.5
4'	11.8	12.9	11.8	10.2	10.4	10.2
5'	8.9	9.8	8.9	7.8	8.3	7.8
6'	6.7	7.4	6.7	5.9	6.4	5.9
7'	5.1	5.6	5.1	4.6	5	4.6
8'	4	4.3	4	3.6	3.9	3.6
9'	3.2	3.4	3.2	2.9	3.1	2.9
10'	2.5	2.7	2.5	2.3	2.5	2.3

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