

UR28

ARCHITECTURAL AREA/SITE

FEATURES

- 28" size in post top, pole and wall mount
- High performance optics up to 35,000 delivered lumens
- Elegant form factor
- Diffusion lens for low glare comfort
- SiteSync™ wireless control options
- UL/cUL listed for wet locations, IP66 and 4G/1.5G vibration rated



3000K and warmer CCTs only

See Certification Specifications

CONTROL TECHNOLOGY



SPECIFICATIONS

CONSTRUCTION

- Low copper aluminum alloy die-casting is designed as one-piece with internal cooling fins.
- Solid, cast aluminum wall creates a thermal barrier between the optical and electrical compartments.
- Molded silicone gasket throughout insures the sealing between the two compartments and provides ingress protection.
- Housing is designed with integral LED heat sink utilized for thermal transfer and for securing the location of each LED module..
- All external fasteners are stainless steel.
- One-piece low copper aluminum alloy die-cast lens frame is secured to housing with 6 screws.

OPTICS

- LEDs mount to a metal printed circuit board assembly (MCPCB).
- Optical lenses are clear injection molded PMMA acrylic.
- Optional Backlight Control on each LED module to completely control unwanted backlight.
- Optional fixture finish optical surfaces will not exceed BUG ratings of the standard white finish and will be greater than or equal to the delivered lumens of the optional matte black optical surface finish.

LENS

- Standard lens (CLR) IK08
- Clear Polycarbonate Lens (CP) IK10

INSTALLATION

- Fixtures must be grounded in accordance with national, state and/or local electrical codes. Failure to do so may result in serious personal injury.

ELECTRICAL

- Universal voltage, 120 through 277V with a ±10% tolerance. Driver is Underwriters Laboratories listed.
- High voltage configurations, 347/480. Driver has a 0-10V dimming interface for multi-level illumination options. Driver is Underwriters Laboratories listed.
- "Thermal Shield", secondary side, thermistor provides protection for the sustainable life of LED module and electronic components
- Drivers shall have greater than a 0.9 power factor, less than 20% harmonic distortion, and be suitable for operation in -40°C to 40°C ambient environments.
- Luminaire shall be capable of operating at 100% brightness in a 40°C environment. Both driver and optical array have integral thermal protection that will dim the luminaire upon detection of temperatures in excess of 85°C.
- Surge protection: 10,000k in parallel, 20,000k in series
- Wiring: No. 18AWM rated 105°C, wet rating.

KEY DATA	
Lumen Range	18771 - 37140
Wattage Range	155 - 315
Efficacy Range (LPW)	103 -140
Reported Life (Hours)	L70/>60,000
Weight	56 lbs - 25.4 Kg
EPA	1.159

¹ Clear Polycarbonate Lens (CP) IK10, Standard lens (CLR) IK08, Consult factory for details

Ouro™



Ouro Post Top

RELATED PRODUCTS

[Ouro Large Arm Mount](#)

[Ouro Small Post Top](#)

[Ouro Small Arm Mount](#)

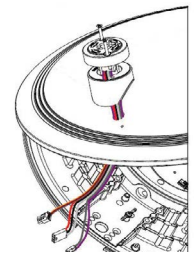
CONTROLS

7PR

- Fully gasketed and wired 7-pin receptacle option. Easy access location above the electrical compartment. 7-pin construction allows for a user-defined interface and provides a controlled definition of operational performance. ANSI twist-lock control module by-others.

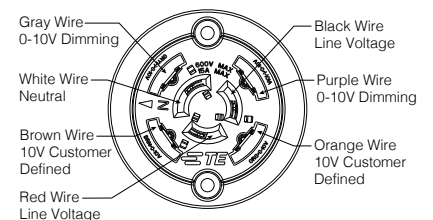
Standard customer operation modes:

- Traditional on/off photoelectric control.
- 5-pin wireless photoelectric control for added dimming feature.
- 7-pin wireless photoelectric control for for dimming and additional I/O connections for customer use.



7-Pin receptacle placement

[\(Specifications continued on page 3\)](#)



[\(Specifications continued on page 3\)](#)

UR28

ARCHITECTURAL AREA/SITE

ORDERING GUIDE

Example: UR28-96L-155-3K8-3-L-UNV-ASQ-BLT-7PR-BC-SWTAB

CATALOG #

HOUSING

UR28		LED Engine		CCT/CRI		Distribution		Rotation		Voltage	
UR28	Ouro	No Lens or Clear Lens		AM ¹¹	Amber, 595nm	No Lens or Clear Lens		(Blank)	Blank for no rotation	UNV	120-277V
		96L-155	20,000 lm	27K8	2700K, 80 CRI	FR	Type I/Front Row	L ¹	Optic rotation left	347	347V
		96L-170	22,500 lm	3K7	3000K, 70 CRI	2	Type II	R ¹	Optic rotation right	480	480V
		96L-185	24,000 lm	3K8	3000K, 80 CRI	3	Type III	DALI 120-277V [†]			
		96L-220	27,000 lm	3K9	3000K, 90 CRI	4	Type IV	[†] Consult factory			
		96L-255	30,000 lm	35K8	3500K, 80 CRI	4W	Type IV Wide				
		96L-315	35,000 lm	4K7	4000K, 70 CRI	5QM	Type V Square Medium				
		HDL - High Diffusion Lens		4K8	4000K, 80 CRI	5QN	Type V Square Narrow				
		114L-160	18,000 lm	4K8	4000K, 80 CRI	5R	Type V Rectangular				
		114L-180	20,000 lm	5K7	5000K, 70 CRI	5W	Type V Wide (Round)				
		114L-265	25,000 lm	Consult factory for other CCTs and CRIs		HDL - High Diffusion Lens					
						3	Type III/Asymmetric				
						5W	Type V/Symmetric				

Mounting		Fixture Finish		Control Options		Options		Control Accessories	
FM44	Flush mt 3.6" to 4.0" OD pole, 4" fixture base	BLS	Black Gloss Smooth	7PR-TL	7 pin PCR with twist lock photocontrol	BC ⁶	Back-light Control	SW7PR ^{2,3}	SiteSync™ with 7 pin PCR
FM45	Flush mt 3.6" to 5.0" OD pole, 5" fixture base	BLT	Black Matte Textured	7PR-SC	7 pin PCR with shorting cap	SF	Single Fuse	SWUSB	SiteSync™ Software on USB
PT24	4" Post Top mount for 2 3/8" OD x 4" Long Tenon	DBS	Dark Bronze Gloss Smooth	7PR	7 pin PCR, wireless control enabled	DF	Double Fuse	SWTAB ¹⁰	SiteSync™ Windows™ Tablet
PT34	4" Post Top mount for 2 7/8" OD x 4" Long Tenon	DBT	Dark Bronze Matte Textured	AD-01 ²	AstroDIM: 50% output at midnight	CLR ^{5,6,13}	Clear Lens	SWBRG	SiteSync™ Wireless Bridge Node
PT25	5" Post Top mount for 2 3/8" OD x 4" Long Tenon	GTT	Graphite Matte Textured	AD-02 ²	AstroDIM: 50% output midnight to 4 AM	TPL	Tamper proof latch	WIR-RME-L	wiSCAPE™ External Fixture Module
PT35	5" Post Top mount for 2 7/8" OD x 4" Long Tenon	GTS	Graphite Matte Textured	AD-03 ²	AstroDIM: 50% output 10PM	CP ¹²	Clear Polycarbonate Lens	SCH-R	Occ. Sensor for Round Pole (up to 30' MH)
		LGS	Light Grey Gloss Smooth	AD-04 ²	AstroDIM: 50% output 10PM to 4AM			SCH-S	Occ. Sensor for Square Pole (up to 30' MH)
		LGT	Light Grey Matte Textured	NXWE	NX Wireless Enabled			NXOFM-1R1D-UNV	NX 7-pin Module
		PSS	Platinum Silver Gloss Smooth	SWP ^{2,3,4}	SiteSync Pre commission				
		VGT	Verde Green Matte Textured	SWPM-40F ^{2,3,4,5}	SiteSync with Sensor 9' to 40' MH				
		WHS	White Gloss Smooth	WSP-40F-1 ^{2,5}	Dimming Occ. Sensor for up to 40' MH, 120/277/347V				
		WHT	White Matte Textured	WSP-40F-2 ^{2,5}	Dimming Occ. Sensor for up to 40' MH, 208/240V				
		Color Option		WSP-40F-3 ^{2,5}	Dimming Occ. Sensor for up to 40' MH, 480V				
		CC ⁷	Custom Color	NXSPW14F ^{2,5}	NX Wireless, PIR Sensor, 14'				
				NXSPW30F ^{2,5}	NX Wireless, PIR Occupancy Sensor, Dimming Daylight Harvesting, 30'				
				NXSP14F ^{2,5}	NX, PIR Occupancy Sensor, Dimming Daylight Harvesting, 14'				
				NXSP30F ^{2,5}	NX, PIR Occupancy Sensor, Dimming Daylight Harvesting, 30'				

1 Not available with 5QM, 5QN, and 5W distributions.
 2 Not available with other sensor or wireless control options.
 3 Specify group and zone at time of order. See www.hubbellighting.com/sitesync for more details. Order at least one SiteSync interface accessory SWUSB or SWTAB. Each option contains SiteSync™ License, GUI, and Bridge Node.
 4 Not available with 347V and 480V.
 5 96L only.
 6 Not available with HDL option.
 7 Consult factory for custom color, marine and corrosive finish options.

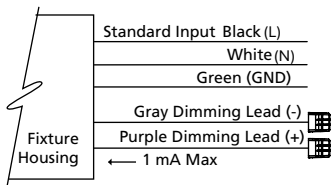
8 Turtle Friendly.
 9 Please see Delivered Lumens chart on Page 5 for lumen
 10 Microsoft, Encarta, MSN, and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
 11 Not available with 96L-255 and the 96L-315 configuration of the LED Engine
 12 IK10 rated. Consult factory for details
 13 IK08 rated. Consult factory for details

SPECIFICATIONS (CONTINUED)

CONTROLS (CONTINUED)

DIMMING:

- Dimming range from 100% to 10% through the use of the standard 0-10V interface on the programmable driver.
- Modular wiring harness in the service area provides user access to the dimming circuitry.
- Dimming circuitry compatible with 0-10V, user-defined control devices.
- Optional factory programmed dimming profile.



WIRELESS CONTROLS

WISCAPE™

- Hubbell Control Solution’s wiSCAPE™ wireless control modules allow an individual fixture to managed, monitored and measured. The modules communicate securely over a robust certified meshed radio signal. The wiSCAPE modules provide on/off/dim control, external device input, alerts and metering.

WIR-RME-L

- wiSCAPE External Module, 120-480V, 1000ft range (LOS), Internal Photocell, 1 Digital Input, Compatible with the A-25-7H option

SITESYNC™1

- SiteSync™ wireless control system for reduction in energy and maintenance cost while optimizing light quality 24/7. See ordering information or visit www.hubbellighting.com/products/sitesync for more details.

NX DISTRIBUTED INTELIIGENCE™

- Hubbell Control Solutions’ NX Distributed Intelligence™ lighting control platform utilizes a Distributed Network Architecture (DNA) that connects intelligent devices including luminaires, controllers, panels, occupancy sensors, photocells, wall switches and dimmers, creating a system with an unmatched level of reliability, scalability and simplicity

POLE MOUNTED

ROUND POLE-MOUNTED OCCUPANCY

Sensor up to 30’. Select voltage and finish color.

SCH-R

- Round Pole-Mounted Occupancy Sensor: up to 30’ - an outdoor occupancy sensor with 0-10V interface dimming control that mounts directly to the pole. Wide 360° pattern. Module colors are available in Black, Gray, and White. Module is cut for round pole mounting. Pole diameter is needed upon order. Poles to be drilled in the field will be provided with installation instructions.

- Ordering Example: SCH-R4/277²/BL³

SQUARE POLE-MOUNTED OCCUPANCY

Sensor up to 30’. Select voltage and finish color.

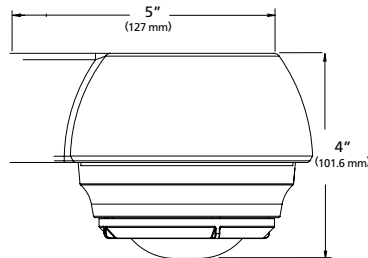
SCH-S

- Square Pole-Mounted Occupancy Sensor: up to 30’ - an outdoor occupancy sensor with 0-10V interface dimming control that mounts directly to the pole. Wide 360° pattern. Module colors are available in Black, Gray, and White. Module is cut for round pole mounting. Pole diameter is needed upon order. Poles to be drilled in the field will be provided with installation instructions.

- Ordering Example: SCH-S/277²/BL³

ASTRODIM

- AstroDIM provides multi-stage night-time power reduction based on an internal timer referenced to the power on/off time. There is no need for an external control infrastructure. The unit automatically performs a dimming profile based on the predefined scheduled reference to the midpoint, which is calculated based on the power on/off times.



OPTIONAL FUSING:

SF for 120, 277, and 347 Line volts

CAUTION:

- Fixtures must be grounded in accordance with national, state and/or local electrical codes. Failure to do so may result in serious personal injury.

CERTIFICATIONS AND LISTINGS

- Listed to UL1598 and CSA C22.2#250.0-24 for wet locations and 40°C ambient temperatures
- ANSI C136.31-2010 Vibration tested and compliant 1.5G and 4G reference page 4
- IEC 66262 Mechanical Impact Code IK08, IK10
- IDA approved, 3000K and warmer CCTs only.
- IP66 rated
- RoHS compliant
- This product qualifies as a “designated country construction material” per FAR 52.225-11 Buy American-Construction Materials under Trade Agreements effective 6/06/2020. [See Buy American Solutions](#)

WARRANTY

- 5 year warranty
- See HLI Standard Warranty for additional information

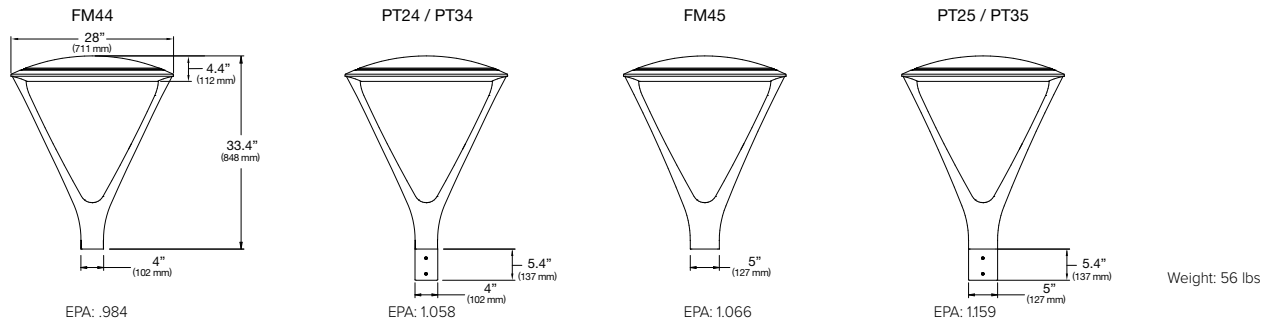
*PRECOMMISSIONED SITESYNC ORDERING INFORMATION: When ordering a fixture with the SiteSync lighting control option, additional information will be required to complete the order. The SiteSync Commissioning Form or alternate schedule information must be completed. This form includes Project location, Group information, and Operating schedules. For more detailed information please visit www.HubbellLighting.com/products/sitesync or contact Hubbell Lighting tech support at (800) 345-4928

Examples: PA7R/FT/NU3/12L-020-3K7/42A/BLS/SWP/UNV/LR

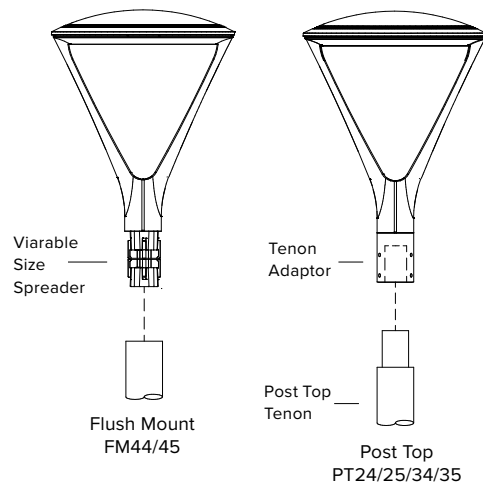
UR28

ARCHITECTURAL AREA/SITE

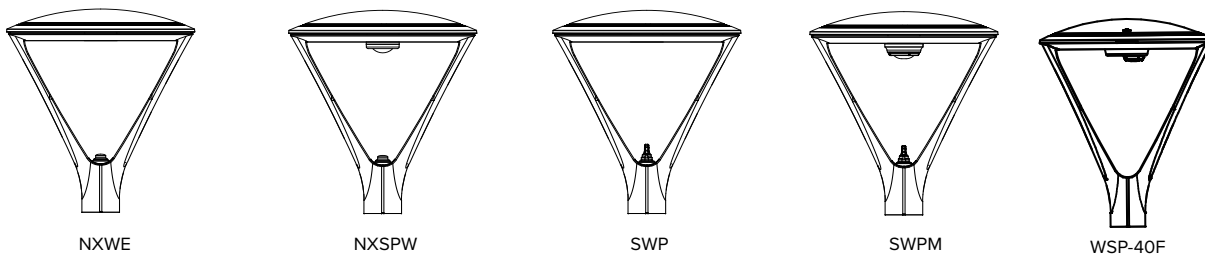
DIMENSIONS



MOUNTING INSTALLATION



SENSOR PLACEMENT



MOUNTING VIBRATION RATINGS

UR 20 Arm		UR28 Arm		UR 20 Post Top		UR 28 Post Top	
Ordering Code	Rating	Ordering Code	Rating	Ordering Code	Rating	Ordering Code	Rating
ASQ	4G	ASQ	4G	FM33	4G	FM44	1.5G
A34	4G	A34	4G	FM44	1.5G	FM45	1.5G
A46	4G	A46	4G	PT23	4G	PT24	1.5G
MAF	4G	MAF	4G	PT24	4G	PT34	1.5G
				PT34	1.5G	PT25	1.5G
						PT35	1.5G

For the 4 G test, ANSI C136.31-2010 Vibration is tested to comply with Vibration Test Level 1 Normal Applications, Vibration Test Level 2 Bridge/Overpass Applications, and Vibration Test Level 3

For the 1.5G test, ANSI C136.31-2010 Vibration is tested to comply with Vibration Level 1 Bridge/Overpass Applications

UR28

ARCHITECTURAL AREA/SITE

DELIVERED LUMENS

LEDs #	Lumens Package	Drive Current	Nominal Watts	Lens Options	Distribution	3000K 70CRI				4000K 70CRI				5000K 70CRI							
						Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w	
							B	U	G			B	U	G			B	U	G		
96L	20,000	500mA	155	No lens	FR	20122	2	0	2	130	20629	2	0	2	133	20864	2	0	2	135	
					FR-BC	12259	1	0	1	79	12567	1	0	1	81	12710	1	0	1	84	
					2	18771	3	0	3	121	19243	3	0	3	124	19382	3	0	3	125	
					2-BC	11542	1	0	2	74	11005	1	0	2	71	11131	1	0	2	72	
					3	19043	3	0	4	123	19522	3	0	4	126	19745	3	0	4	127	
					3-BC	11591	1	0	2	75	11882	1	0	2	77	12018	1	0	2	78	
					4	19518	2	0	4	126	20008	2	0	4	129	20237	2	0	4	131	
					4-BC	13771	1	0	3	89	14117	1	0	3	91	14279	1	0	3	93	
					4W	19688	2	0	4	127	20183	2	0	4	130	20414	2	0	4	132	
					4W-BC	12182	0	0	3	79	12488	0	0	3	81	12631	0	0	3	81	
					5QM	19919	4	0	2	129	20421	4	0	2	132	20655	4	0	2	133	
					5QN	20247	4	0	1	131	20758	4	0	2	134	20995	4	0	2	135	
					5R	19981	4	0	4	129	20485	4	0	4	132	20718	4	0	4	134	
					5W	20496	5	0	3	132	21011	5	0	3	136	21252	5	0	3	137	
					Clear lens	FR	19116	2	0	2	123	19597	2	0	2	126	19821	2	0	2	128
						FR-BC	11646	1	0	1	75	11939	1	0	1	77	12075	1	0	1	78
						2	17832	3	0	3	115	18281	3	0	3	118	18490	3	0	3	119
						2-BC	10199	1	0	2	67	10455	1	0	2	68	10575	1	0	2	68
				3		18091	3	0	4	117	18546	3	0	4	120	18757	3	0	4	121	
				3-BC		10873	1	0	3	70	11147	1	0	3	72	11274	1	0	3	73	
				4		18542	1	0	4	120	19008	2	0	4	123	19226	2	0	4	124	
				4-BC		13082	1	0	3	85	13412	1	0	3	87	13565	1	0	3	88	
				4W		18703	2	0	4	121	19174	2	0	4	124	19393	2	0	4	125	
				4W-BC		11573	0	0	3	75	11864	0	0	3	77	12000	0	0	3	77	
5QM	18924	4	0	2		122	19399	4	0	2	125	19622	4	0	2	127					
5QN	19235	4	0	1		124	19719	4	0	1	127	19944	4	0	1	129					
5R	18982	4	0	4	122	19460	4	0	4	126	19683	4	0	4	127						
5W	19471	5	0	3	126	19961	5	0	3	129	20718	5	0	3	134						
114L		430mA	160	HDL lens	3	16826	3	0	3	105	17249	3	0	3	108	17447	3	0	3	109	
					5W	18128	4	0	3	113	17539	4	0	3	110	17739	4	0	3	111	

Scaling factors 27K8 = 0.859, 35K8 = 0.906 of 5K7 lumen packages

UR28

ARCHITECTURAL AREA/SITE

DELIVERED LUMENS (CONTINUED)

LEDs #	Lumens Package	Drive Current	Nominal Watts	Lens Options	Distribution	3000K 70CRI				4000K 70CRI				5000K 70CRI							
						Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w	
							B	U	G			B	U	G			B	U	G		
96L	22,500	550mA	170	No lens	FR	22554	2	0	2	133	23121	2	0	2	136	23386	2	0	2	138	
					FR-BC	13740	1	0	1	76	14085	1	0	1	83	14246	1	0	1	84	
					2	21039	3	0	3	124	21568	3	0	3	127	21815	3	0	3	128	
					2-BC	12032	1	0	2	71	12335	1	0	2	73	12476	1	0	2	73	
					3	21344	3	0	4	126	21881	3	0	4	129	22130	3	0	4	130	
					3-BC	12991	1	0	2	76	13318	1	0	2	78	13470	1	0	2	79	
					4	21876	2	0	4	129	22427	2	0	4	132	22683	2	0	4	133	
					4-BC	15823	1	0	3	93	15823	1	0	3	93	16004	1	0	3	94	
					4W	22068	2	0	4	130	22623	2	0	4	133	22881	2	0	4	135	
					4W-BC	13655	0	0	3	73	13998	0	0	3	75	14158	0	0	3	76	
					5QM	22327	4	0	2	131	22889	4	0	2	135	23150	4	0	2	136	
					5QN	22694	4	0	2	133	23265	4	0	2	137	23532	4	0	2	138	
					5R	22396	4	0	4	132	22960	4	0	4	135	23221	5	0	5	137	
					5W	22973	5	0	3	135	23551	5	0	3	139	23821	5	0	3	140	
					Clear lens	FR	20995	2	0	2	124	21523	2	0	2	127	21769	2	0	2	128
						FR-BC	13463	1	0	1	79	13802	1	0	1	81	13959	1	0	1	82
						2	19585	3	0	3	115	20078	3	0	3	118	20308	3	0	3	119
						2-BC	11791	1	0	2	69	12087	1	0	2	71	12225	1	0	2	72
						3	19869	3	0	4	117	20369	3	0	4	120	20601	3	0	4	121
						3-BC	11942	1	0	2	70	12242	1	0	2	72	12382	1	0	2	73
						4	20364	2	0	4	120	20876	2	0	4	123	21116	2	0	4	124
						4-BC	15124	1	0	3	89	15505	1	0	3	91	15682	1	0	3	92
						4W	20543	2	0	4	121	21060	2	0	4	124	21300	2	0	4	125
						4W-BC	13380	0	0	3	79	13716	0	0	3	81	13873	0	0	3	82
5QM	20783	4	0	2		122	21307	4	0	2	125	21550	4	0	2	127					
5QN	21126	4	0	2		124	21657	4	0	2	127	21905	4	0	2	129					
5R	20848	4	0	4		123	21373	4	0	4	126	21617	4	0	4	127					
5W	21386	5	0	3		126	21923	5	0	3	129	22174	5	0	3	130					
114L	475mA	180	HDL lens	3	18198	3	0	3	101	18656	3	0	3	104	18869	3	0	3	105		
				5W	18502	4	0	3	103	18968	4	0	3	105	19374	4	0	3	108		

Scaling factors 27K8 = 0.859, 35K8 = 0.906 of 5K7 lumen packages

UR28

ARCHITECTURAL AREA/SITE

DELIVERED LUMENS (CONTINUED)

LEDs #	Lumens Package	Drive Current	Nominal Watts	Lens Options	Distribution	3000K 70CRI				4000K 70CRI				5000K 70CRI							
						Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w	
							B	U	G			B	U	G			B	U	G		
96L	24,000	600mA	185	No lens	FR	23922	2	0	2	129	24524	2	0	2	133	24804	2	0	2	134	
					FR-BC	14573	1	0	1	79	14939	1	0	1	81	15110	1	0	1	82	
					2	22315	3	0	3	121	22877	3	0	3	124	23138	3	0	3	125	
					2-BC	12762	1	0	2	69	13083	1	0	2	71	13233	1	0	2	72	
					3	22639	3	0	4	122	23208	3	0	4	125	23473	3	0	4	127	
					3-BC	13780	1	0	3	74	14127	1	0	3	76	14288	1	0	3	77	
					4	23203	2	0	4	125	23788	2	0	4	129	24059	2	0	4	130	
					4-BC	16371	1	0	3	88	16783	1	0	4	91	16975	1	0	3	92	
					4W	23407	2	0	4	127	23996	2	0	4	130	24270	2	0	4	131	
					4W-BC	14483	0	0	3	78	14848	1	0	3	80	15017	1	0	3	81	
					5QM	23682	4	0	2	128	24277	4	0	2	131	24554	4	0	2	133	
					5QN	24071	5	0	2	130	24677	5	0	2	133	24958	5	0	2	135	
					5R	23755	5	0	5	128	24352	5	0	5	132	24630	5	0	5	133	
					5W	24367	5	0	3	132	24979	5	0	3	135	25266	5	0	3	137	
					Clear lens	FR	22281	2	0	2	120	23103	2	0	2	125	23367	2	0	3	126
						FR-BC	14451	1	0	1	78	14815	1	0	1	80	14984	1	0	1	81
						2	20785	3	0	3	112	21551	3	0	3	116	21798	3	0	3	118
						2-BC	12656	1	0	2	68	12974	1	0	2	70	13122	1	0	2	71
						3	21086	3	0	4	114	21863	3	0	4	118	22113	3	0	4	120
						3-BC	12673	1	0	2	69	13141	1	0	2	71	13291	1	0	2	72
						4	21612	2	0	4	117	22409	2	0	4	121	22665	2	0	4	123
						4-BC	16234	1	0	3	88	16644	1	0	4	90	16834	1	0	4	91
						4W	22050	2	0	4	119	22605	2	0	4	122	22863	2	0	4	124
						4W-BC	14361	0	0	3	78	14723	0	0	3	80	14891	1	0	3	80
5QM	22057	4	0	2		119	22870	4	0	2	124	23132	4	0	2	125					
5QN	22421	4	0	2		121	23247	4	0	2	126	23513	4	0	2	127					
5R	22126	4	0	4	120	22941	4	0	4	124	23204	5	0	5	125						
5W	22696	5	0	3	123	23532	5	0	3	127	23801	5	0	3	129						

Scaling factors 27K8 = 0.859, 35K8 = 0.906 of 5K7 lumen packages

UR28

ARCHITECTURAL AREA/SITE

DELIVERED LUMENS (CONTINUED)

LEDs #	Lumens Package	Drive Current	Nominal Watts	Lens Options	Distribution	3000K 70CRI				4000K 70CRI				5000K 70CRI							
						Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w	
							B	U	G			B	U	G			B	U	G		
96L	27,000	700mA	220	No lens	FR	27857	2	0	3	127	28558	2	0	3	130	28885	2	0	3	131	
					FR-BC	16970	1	0	2	77	17397	1	0	2	79	17596	1	0	2	80	
					2	25987	3	0	3	118	26640	3	0	4	121	26944	3	0	4	122	
					2-BC	14862	1	0	2	68	15235	1	0	2	69	15410	1	0	2	70	
					3	26363	3	0	5	120	27026	3	0	5	123	27335	3	0	5	124	
					3-BC	16046	1	0	3	73	16450	1	0	3	75	16638	1	0	3	76	
					4	27020	2	0	4	123	28286	2	0	5	129	28017	2	0	5	127	
					4-BC	19064	1	0	4	87	19544	1	0	4	89	19767	1	0	4	90	
					4W	27256	3	0	5	124	27942	3	0	5	127	28261	3	0	5	128	
					4W-BC	16866	1	0	4	77	17290	1	0	4	79	17487	1	0	4	79	
					5QM	27577	5	0	3	125	26650	5	0	3	121	28594	5	0	3	130	
					5QN	28031	5	0	2	127	27710	5	0	2	126	29065	5	0	2	132	
					5R	27662	5	0	5	126	26670	5	0	5	121	28683	5	0	5	130	
					5W	28375	5	0	4	129	26687	5	0	4	121	29421	5	0	4	134	
					Clear lens	FR	26300	2	0	2	120	26962	2	0	2	123	27270	2	0	3	124
						FR-BC	16865	1	0	2	77	17290	1	0	2	79	17487	1	0	2	79
						2	24534	3	0	3	112	25152	3	0	3	114	25439	3	0	3	116
						2-BC	14770	1	0	2	67	15142	1	0	2	69	15315	1	0	2	70
						3	24890	3	0	4	113	25515	3	0	5	116	25807	3	0	5	117
						3-BC	14780	1	0	2	67	15162	1	0	2	69	15335	1	0	2	70
						4	25510	2	0	4	116	26152	2	0	4	119	26452	2	0	4	120
						4-BC	18946	1	0	4	86	19423	1	0	4	88	19645	1	0	4	89
						4W	25734	3	0	5	117	26381	3	0	5	120	26682	3	0	5	121
						4W-BC	16761	1	0	4	76	17183	1	0	4	78	17379	1	0	4	79
5QM	26036	4	0	2		118	26691	5	0	3	121	26996	5	0	3	123					
5QN	26465	5	0	2		120	27131	5	0	2	123	27441	5	0	2	125					
5R	26116	5	0	5	119	26774	5	0	5	122	27079	5	0	5	123						
5W	26790	5	0	4	122	27463	5	0	4	125	27778	5	0	4	126						

Scaling factors 27K8 = 0.859, 35K8 = 0.906 of 5K7 lumen packages

UR28

ARCHITECTURAL AREA/SITE

DELIVERED LUMENS (CONTINUED)

LEDs #	Lumens Package	Drive Current	Nominal Watts	Lens Options	Distribution	3000K 70CRI				4000K 70CRI				5000K 70CRI							
						Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w	
							B	U	G			B	U	G			B	U	G		
96L	30,000	800mA	255	No lens	FR	30578	2	0	3	120	31347	3	0	3	123	31706	3	0	3	124	
					FR-BC	18628	1	0	1	73	19096	1	0	1	75	19314	1	0	1	76	
					2	28524	3	0	4	112	29242	3	0	4	115	29576	3	0	4	116	
					2-BC	16313	1	0	2	64	16724	1	0	2	66	16915	1	0	2	66	
					3	28937	3	0	5	113	29665	3	0	5	116	30004	3	0	5	118	
					3-BC	16835	1	0	3	66	17258	1	0	3	68	17456	1	0	3	68	
					4	29660	2	0	5	116	30405	2	0	5	119	30753	2	0	5	121	
					4-BC	20927	1	0	4	82	21453	1	0	4	84	21698	1	0	4	85	
					4W	29919	3	0	5	117	30671	3	0	5	120	31022	3	0	5	122	
					4W-BC	21519	1	0	4	84	22060	1	0	4	87	22312	1	0	4	87	
					5QM	30270	5	0	3	119	31032	5	0	3	122	31385	5	0	3	123	
					5QN	30769	5	0	2	121	31542	5	0	2	124	31903	5	0	5	125	
					30364	31119	5	0	5	122	31128	5	0	5	122	31483	5	0	5	123	
					5W	31146	5	0	4	122	31929	5	0	4	125	32295	5	0	4	127	
					Clear lens	FR	29226	2	0	3	115	29962	2	0	3	117	30304	2	0	3	119
						FR-BC	17804	1	0	2	70	18252	1	0	1	72	18460	1	0	2	72
						2	27263	3	0	4	107	27950	3	0	4	110	28268	3	0	4	111
						2-BC	15592	1	0	2	61	15985	1	0	2	63	16167	1	0	2	211
						3	27658	3	0	5	108	28354	3	0	5	111	28678	3	0	5	112
						3-BC	16623	1	0	3	65	17042	1	0	3	67	17236	1	0	3	68
						4	28348	2	0	5	111	29062	2	0	5	114	29394	2	0	5	115
						4-BC	20002	1	0	4	78	20505	1	0	4	80	20739	1	0	4	81
						4W	28596	3	0	5	112	29316	3	0	5	115	29651	3	0	5	116
						4W-BC	17694	1	0	4	69	18139	1	0	4	71	18346	1	0	4	72
5QM	28932	5	0	3		113	29659	5	0	3	116	29999	5	0	3	118					
5QN	29408	5	0	2		115	30148	5	0	2	118	30493	5	0	2	120					
5R	29022	5	0	5		114	29752	5	0	5	117	30091	5	0	5	118					
5W	29769	5	0	4		117	30518	5	0	4	120	30867	5	0	4	121					
114L	690mA	265	HDL lens	3	25569	3	0	3	96	26213	3	0	3	99	26512	3	0	3	100		
				5W	25998	4	0	3	98	26860	4	0	3	101	27168	4	0	3	103		

Scaling factors 27K8 = 0.859, 35K8 = 0.906 of 5K7 lumen packages

UR28

ARCHITECTURAL AREA/SITE

DELIVERED LUMENS (CONTINUED)

LEDs #	Lumens Package	Drive Current	Nominal Watts	Lens Options	Distribution	3000K 70CRI				4000K 70CRI				5000K 70CRI							
						Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w	
							B	U	G			B	U	G			B	U	G		
96L	35,000	1000mA	315	No lens	FR	35165	3	0	3	112	36050	3	0	3	114	36463	3	0	3	116	
					FR-BC	21423	1	0	2	68	21961	1	0	2	70	22213	1	0	2	71	
					2	32804	3	0	4	104	33629	3	0	4	107	34013	3	0	4	108	
					2-BC	18761	1	0	2	60	19233	1	0	2	61	19452	1	0	2	62	
					3	33278	3	0	5	106	34116	3	0	5	108	34506	3	0	5	110	
					3-BC	20256	1	0	4	64	20765	1	0	4	66	21003	1	0	4	67	
					4	34109	2	0	5	108	34967	2	0	5	111	35367	2	0	5	112	
					4-BC	24066	1	0	4	76	24672	1	0	4	78	24953	1	0	4	79	
					4W	34408	3	0	5	109	35273	3	0	5	112	35676	3	0	5	113	
					4W-BC	21289	1	0	4	68	21825	1	0	4	69	22074	1	0	4	70	
					5QM	34811	5	0	3	111	35687	5	0	3	113	36095	5	0	3	115	
					5QN	35385	5	0	2	112	36275	5	0	2	115	36690	5	0	3	116	
					5R	34920	5	0	5	111	35798	5	0	5	114	36362	5	0	5	115	
					5W	35819	5	0	4	114	36720	5	0	4	117	37140	5	0	4	118	
					Clear lens	FR	34828	3	0	3	111	35704	3	0	3	113	36112	3	0	3	115
						FR-BC	22334	1	0	2	71	22895	1	0	2	73	23157	1	0	2	74
						2	32489	3	0	4	103	33306	3	0	4	106	33687	3	0	4	107
						2-BC	19559	1	0	2	62	20051	1	0	2	64	20280	1	0	2	64
						3	32960	3	0	5	105	33788	3	0	5	107	34175	3	0	5	108
						3-BC	19810	1	0	3	63	20308	1	0	3	64	20540	1	0	3	65
						4	33782	2	0	5	107	34632	2	0	5	110	35028	2	0	5	111
						4-BC	25090	1	0	4	80	25720	1	0	4	82	26014	1	0	4	84
						4W	34077	3	0	5	108	34934	3	0	5	111	35333	3	0	5	112
						4W-BC	22195	1	0	4	70	22753	1	0	4	72	23013	1	0	4	73
5QM	34477	5	0	3		109	35345	5	0	3	112	35748	5	0	3	113					
5QN	35045	5	0	2		111	35927	5	0	2	114	36337	5	0	3	115					
5R	34584	5	0	5	110	35454	5	0	5	113	35859	5	0	5	114						
5W	35475	5	0	4	113	36368	5	0	4	115	36784	5	0	4	117						

Scaling factors 27K8 = 0.859, 35K8 = 0.906 of 5K7 lumen packages

UR28

ARCHITECTURAL AREA/SITE

PHOTOMETRY

UR28-96L-315-4K7-FR-PT

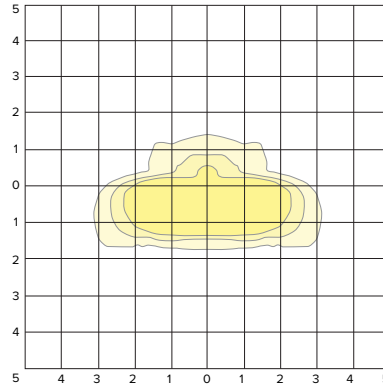
LUMINAIRE DATA

Description	4000K, 70CRI
Delivered Lumens	36050
Watts	315
Efficacy	114.4
IES Type	II
BUG Rating	B3-U0-G3
Mounting Height	30 ft
Grid Scale	30 ft

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	31235	86.6%
Downward House Side	4815	13.4%
Downward Total	36050	100%
Upward Street Side	0	0%
Upward House Side	0	0%
Upward Total	0	0%
Total Flux	36050	100%

ISOFOOT CANDLE PLOT



UR28-96L-315-4K7-2-PT

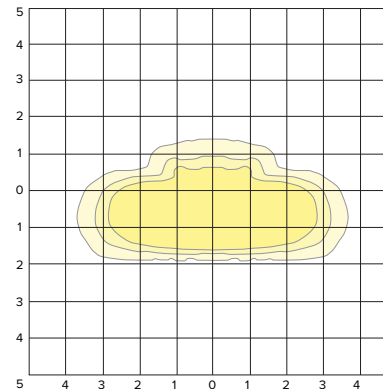
LUMINAIRE DATA

Description	4000K, 70CRI
Delivered Lumens	33629
Watts	315
Efficacy	106.8
IES Type	II
BUG Rating	B3-U0-G4
Mounting Height	30 ft
Grid Scale	30 ft

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	27264	81.1%
Downward House Side	6365	18.9%
Downward Total	33629	100%
Upward Street Side	0	0%
Upward House Side	0	0%
Upward Total	0	0%
Total Flux	33629	100%

ISOFOOT CANDLE PLOT



UR28-96L-315-4K7-3-PT

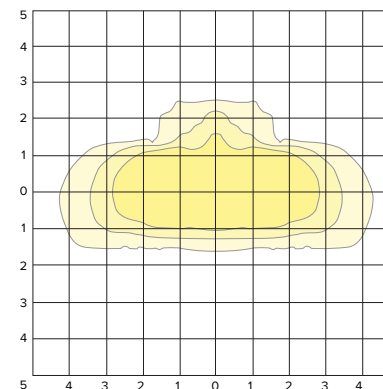
LUMINAIRE DATA

Description	4000K, 70CRI
Delivered Lumens	34116
Watts	315
Efficacy	108.3
IES Type	III
BUG Rating	B3-U0-G5
Mounting Height	30 ft
Grid Scale	30 ft

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	28734	84.2%
Downward House Side	5382	15.8%
Downward Total	34116	100%
Upward Street Side	0	0%
Upward House Side	0	0%
Upward Total	0	0%
Total Flux	34116	100%

ISOFOOT CANDLE PLOT



UR28

ARCHITECTURAL AREA/SITE

PHOTOMETRY

UR28-96L-315-4k7-4-PT

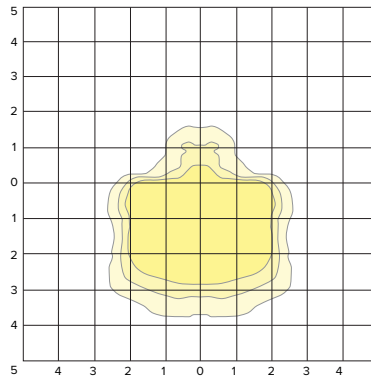
LUMINAIRE DATA

Description	4000K, 70CRI
Delivered Lumens	34967
Watts	315
Efficacy	111.0
IES Type	IV
BUG Rating	B2-U0-G5
Mounting Height	30 ft
Grid Scale	30 ft

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	31207	89.2%
Downward House Side	3760	10.8%
Downward Total	34967	100%
Upward Street Side	0	0%
Upward House Side	0	0%
Upward Total	0	0%
Total Flux	34967	100%

ISOFOOT CANDLE PLOT



UR28-96L-315-4K7-4W-PT

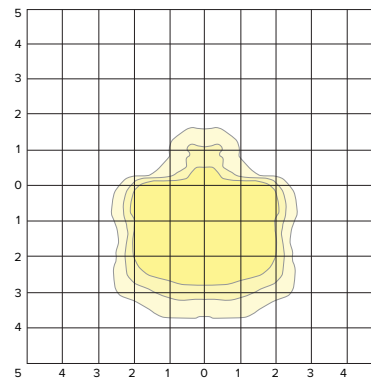
LUMINAIRE DATA

Description	4000K, 70CRI
Delivered Lumens	35273
Watts	315
Efficacy	112.0
IES Type	IV
BUG Rating	B3-U0-G5
Mounting Height	30 ft
Grid Scale	30 ft

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	31663	89.8%
Downward House Side	3610	10.2%
Downward Total	35273	100%
Upward Street Side	0	0%
Upward House Side	0	0%
Upward Total	0	0%
Total Flux	35273	100%

ISOFOOT CANDLE PLOT



UR28-96L-315-4K7-5QM-PT

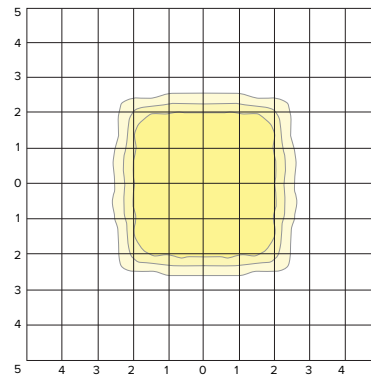
LUMINAIRE DATA

Description	4000K, 70CRI
Delivered Lumens	35687
Watts	315
Efficacy	113.3
IES Type	VS
BUG Rating	B5-U0-G3
Mounting Height	30 ft
Grid Scale	30 ft

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	17844	50.0%
Downward House Side	17844	50.0%
Downward Total	35687	100%
Upward Street Side	0	0%
Upward House Side	0	0%
Upward Total	0	0%
Total Flux	35687	100%

ISOFOOT CANDLE PLOT



UR28

ARCHITECTURAL AREA/SITE

PHOTOMETRY

UR28-96L-315-4K7-5QN-PT

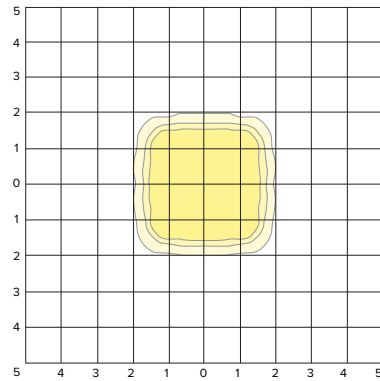
LUMINAIRE DATA

Description	4000K, 70CRI
Delivered Lumens	36275
Watts	315
Efficacy	115.2
IES Type	VS
BUG Rating	B5-U0-G2
Mounting Height	30 ft
Grid Scale	30 ft

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	18138	50.0%
Downward House Side	18138	50.0%
Downward Total	36275	100%
Upward Street Side	0	0%
Upward House Side	0	0%
Upward Total	0	0%
Total Flux	36275	100%

ISOFOOT CANDLE PLOT



UR28-96L-315-4K7-5R-PT

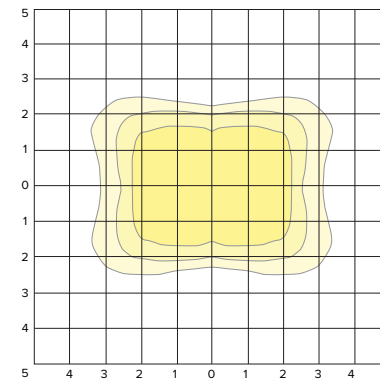
LUMINAIRE DATA

Description	4000K, 70CRI
Delivered Lumens	35798
Watts	315
Efficacy	113.6
IES Type	III
BUG Rating	B5-U0-G5
Mounting Height	30 ft
Grid Scale	30 ft

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	17899	50.0%
Downward House Side	17899	50.0%
Downward Total	35798	100%
Upward Street Side	0	0%
Upward House Side	0	0%
Upward Total	0	0%
Total Flux	35798	100%

ISOFOOT CANDLE PLOT



UR28-96L-315-4K7-5W-PT

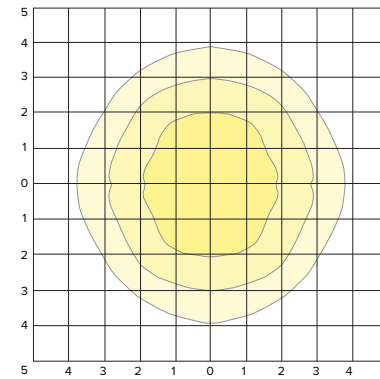
LUMINAIRE DATA

Description	4000K, 70CRI
Delivered Lumens	36720
Watts	315
Efficacy	116.6
IES Type	VS
BUG Rating	B5-U0-G4
Mounting Height	30 ft
Grid Scale	30 ft

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	18360	50.0%
Downward House Side	18360	50.0%
Downward Total	36720	100%
Upward Street Side	0	0%
Upward House Side	0	0%
Upward Total	0	0%
Total Flux	36720	100%

ISOFOOT CANDLE PLOT

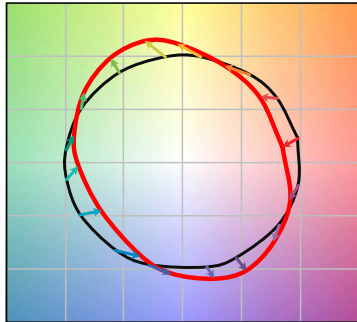


UR28

ARCHITECTURAL AREA/SITE

TM-30 DATA

COLOR VECTOR GRAPHIC

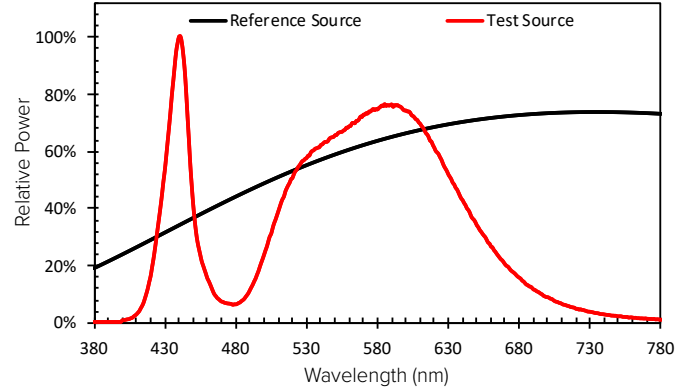


— Reference Illuminant — Test Source

TEST SOURCE

R _f	68
R _a	99
CCT(K)	3947
D _{uv}	0.0004
x	0.3831
y	0.3793
CIE R _a	72

SPECTRAL POWER DISTRIBUTION COMPARISON



ELECTRICAL DATA

Drive Current	LED Count	System Watts	Line Voltage		Amps AC						Min. Power Factor	Max THD (%)	Dimming				
					Dimming Range		Source current out of 0-10V		Absolute voltage range on 0-10V (+)								
			VAC	Hz	120	208	240	277	347	480			Min	Max	Min	Max	
500 mA	96	155	120-480	50/60	1.29	0.75	0.65	0.56	0.45	0.32	>0.9	20	10% to 100%	0mA	1mA	0V	10V
430mA	114	160			1.33	0.77	0.67	0.58	0.46	0.33							
550 mA	96	170			1.42	0.82	0.71	0.61	0.49	0.35							
475mA	114	180			1.50	0.87	0.75	0.65	0.52	0.38							
600 mA	96	185			1.54	0.89	0.77	0.67	0.53	0.39							
700 mA	96	220			1.83	1.06	0.92	0.79	0.63	0.46							
800 mA	96	255			2.13	1.23	1.06	0.92	0.73	0.53							
690mA	114	265			2.21	1.27	1.10	0.96	0.76	0.55							
1000 mA	96	315			2.63	1.51	1.31	1.14	0.91	0.66							

TM-21 Lifetime Calculation - Projected Lumen Maintenance (25°C / 77°C)						
Ambient Temp.	0	25,000	36,000	50,000	100,000	Reported L70
25°C / 77°F	100%	97%	95%	93%	87%	60khrs

CRI Lumen Multiplier				
CCT	Amber	70 CRI	80 CRI	90 CRI
Amber	0.1727s	—	—	—
2700K	—	—	0.859	—
3000K	—	1	0.9119	0.7033
3500K	—	—	0.906	—
4000K	—	1	0.8941	0.734
5000K	—	1	0.879	0.7712