

Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions
(formerly Eaton)

Brand: McGRAW-EDISON

Report Number: P543200

Luminaire Tested: **TT-D9-735-U-MQ**

Issue Date: 6/22/2021

Test Information

Test Method: LM-79-08
Report Number: P543200
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2012-100-9)
Test Lab: INNOVATION CENTER
Issue Date: 6/22/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: MCGRAW-EDISON
Catalog Number: TT-D9-735-U-MQ
Description: TOPTIER LED PARKING GARAGE LUMINAIRE
3500K, 70 CRI LEDS AND MEDIUM DISTRIBUTION
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 20839 lumens
Efficiency: N/A
Efficacy: 120.4 lumens/watt
Luminous Opening: Circular (Dia: 1.12' x H: 0')
IES Classification: Type V - Short
BUG Rating: B4 - U0 - G3

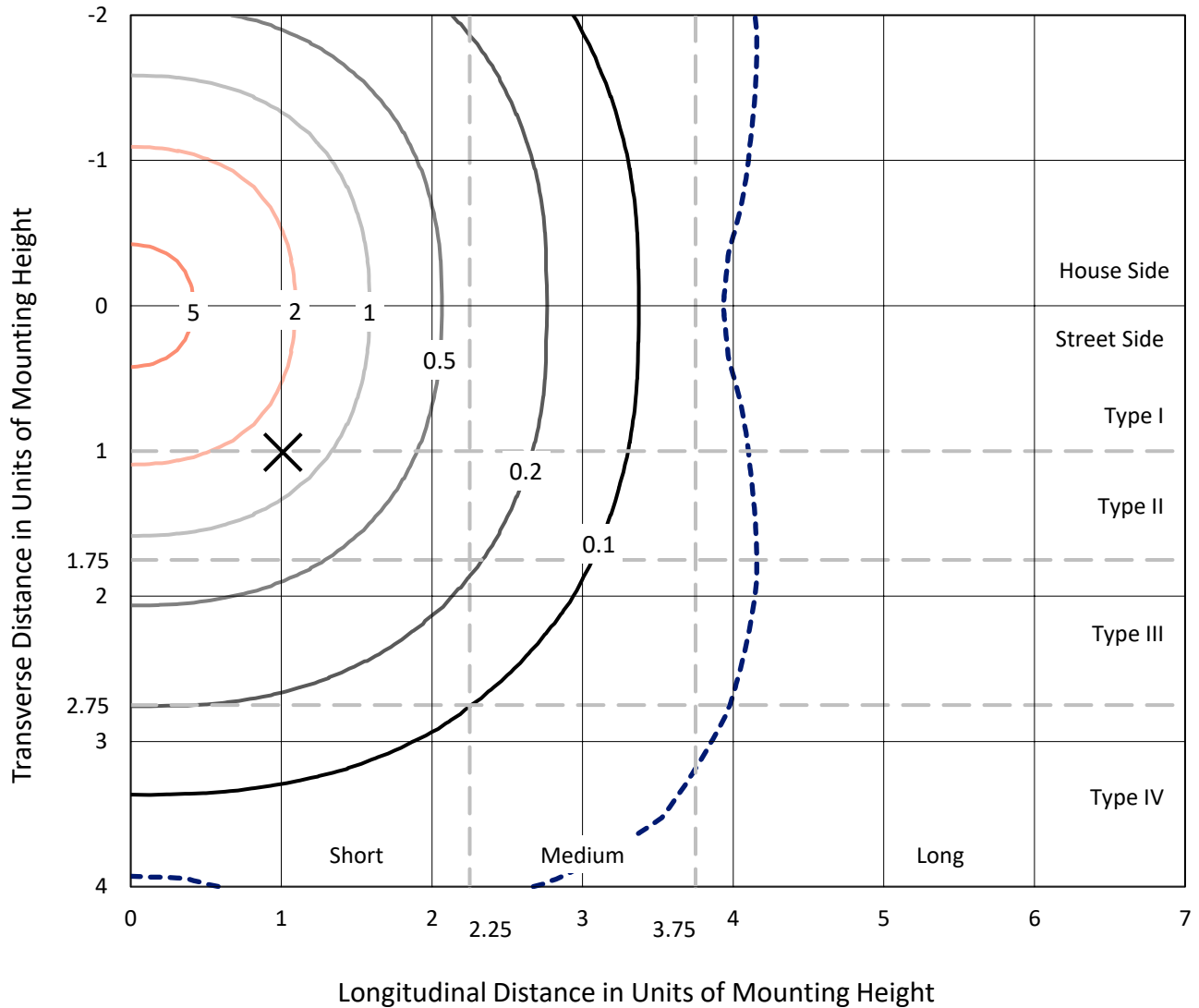
Input Watts (W): 173.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P543200
 CATALOG NUMBER: TT-D9-735-U-MQ

Iso-Footcandle Lines of Horizontal Illumination

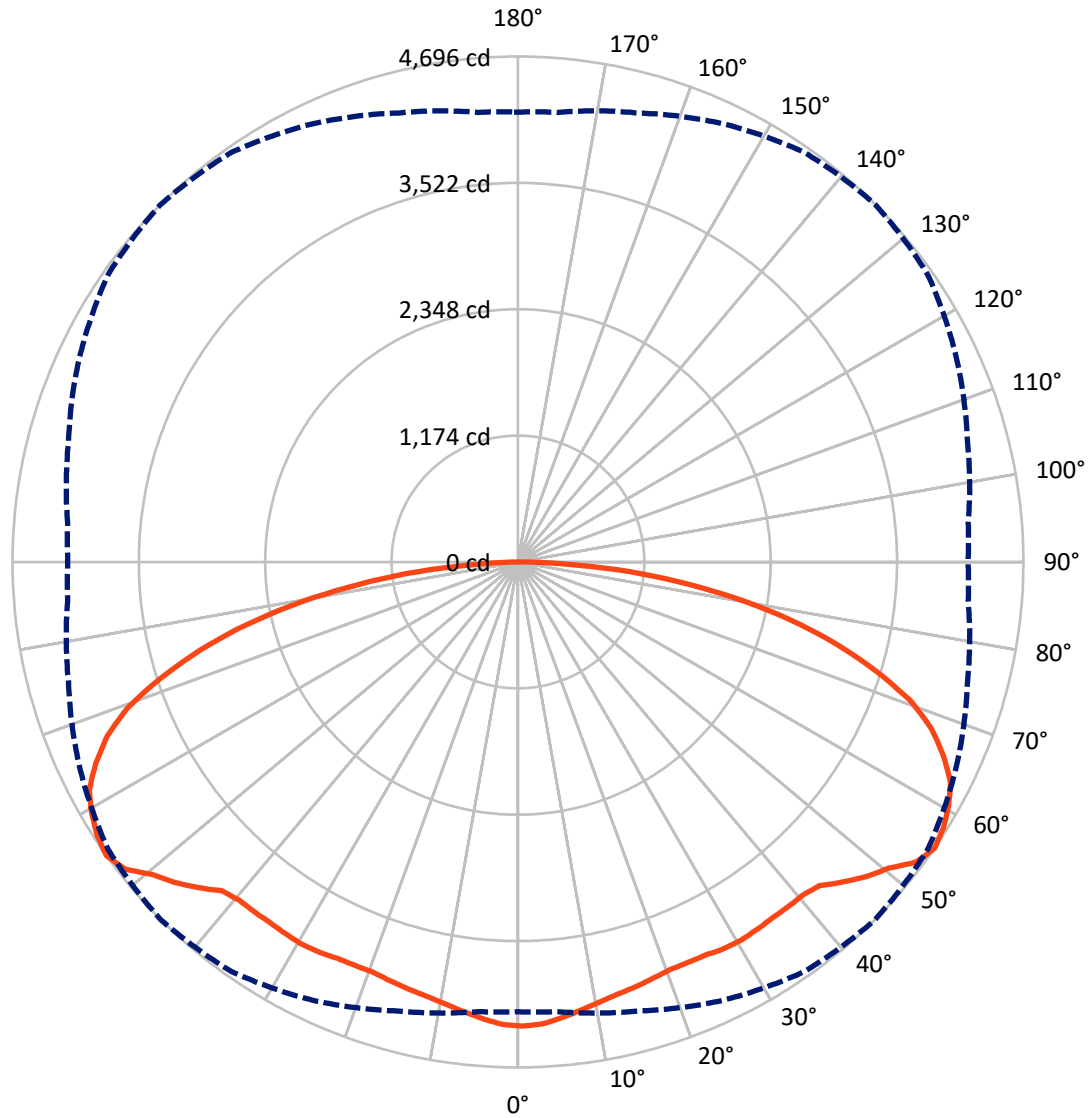
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 6.9 fc
 Type V - Short - N/A

REPORT NUMBER: P543200
CATALOG NUMBER: TT-D9-735-U-MQ

Luminous Intensity Polar Plot



— Vertical Plane Through 45-Deg Lateral - - - Horizontal Cone Through 55-Deg Vertical

REPORT NUMBER: P543200
 CATALOG NUMBER: TT-D9-735-U-MQ

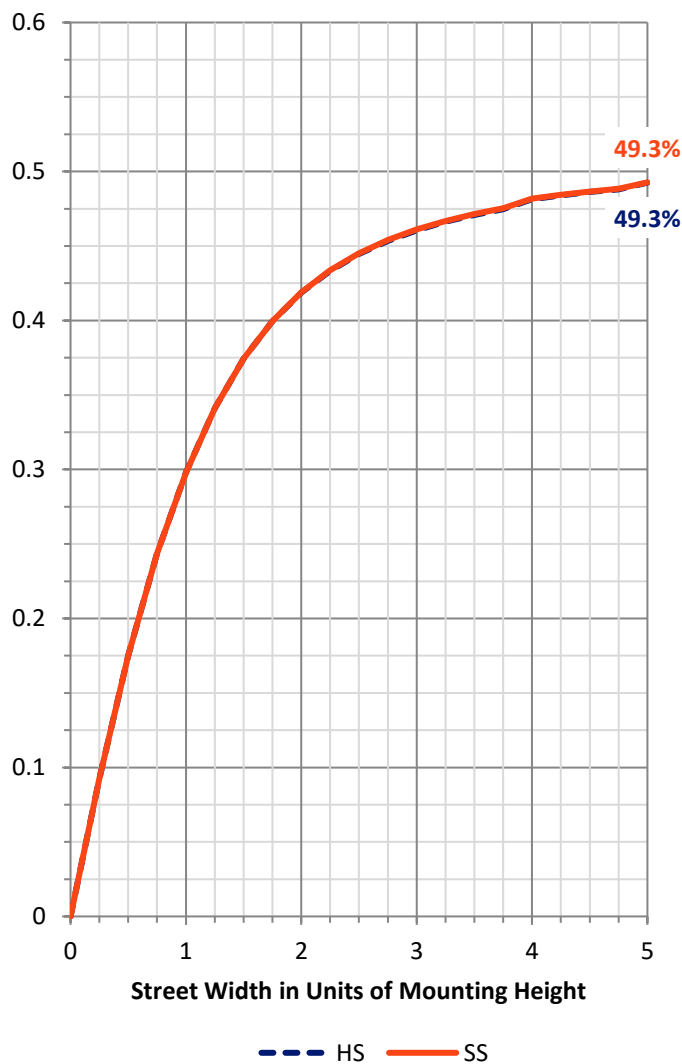
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	10419.5	0.0	10419.5
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	10419.5	0.0	10419.5
	% Fixture	50.0	0.0	50.0
Total	Lumens	20839.0	0.0	20839.0
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	402.6	1.9
10°-20°	1156.2	5.5
20°-30°	1863.1	8.9
30°-40°	2524.7	12.1
40°-50°	3200.5	15.4
50°-60°	3937.4	18.9
60°-70°	3965.9	19.0
70°-80°	2902.5	13.9
80°-90°	886.0	4.3
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-90°	20839.0	100.0
0°-180°	20839.0	100.0

Coefficient of Utilization



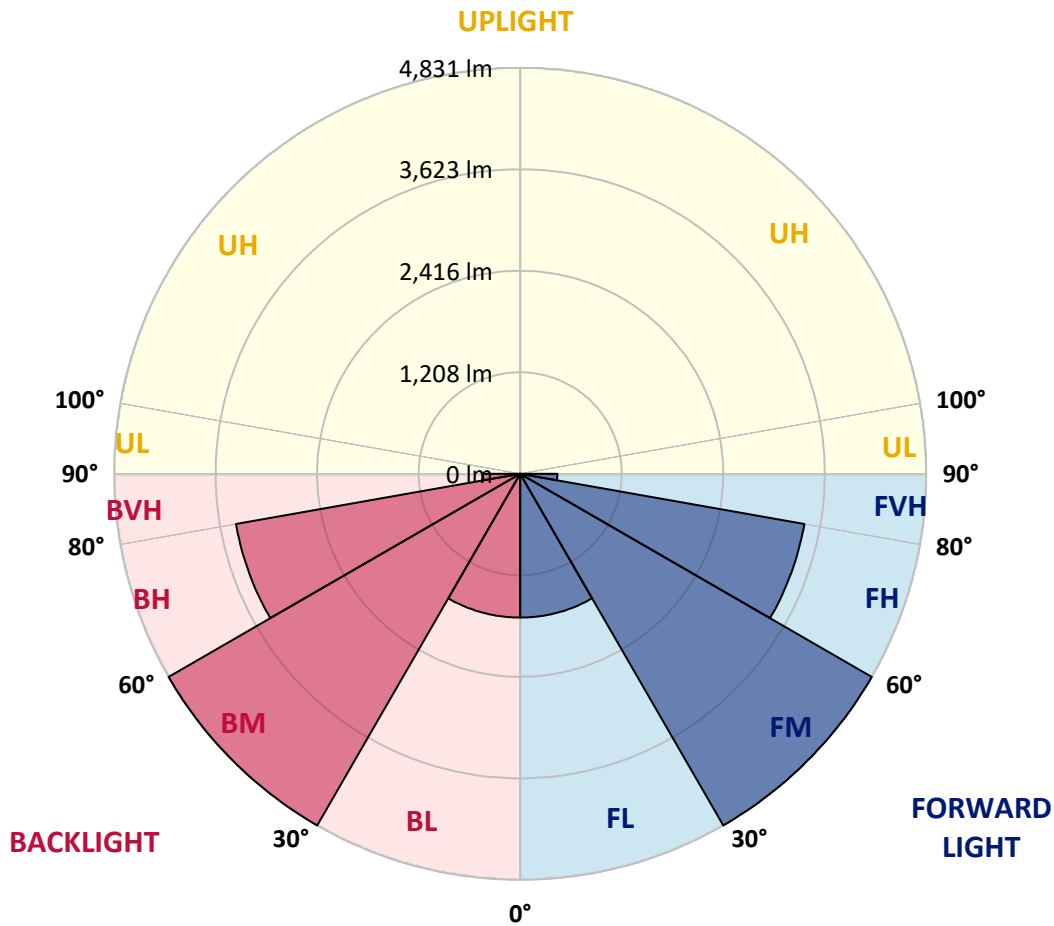
REPORT NUMBER: P543200
 CATALOG NUMBER: TT-D9-735-U-MQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	1710.9	8.2			
FM (30°-60°)	4831.3	23.2			
FH (60°-80°)	3434.2	16.5			G2/5000
FVH (80°-90°)	443.0	2.1			G3/500
BL (0°-30°)	1710.9	8.2	B3/2500		
BM (30°-60°)	4831.3	23.2	B3/5000		
BH (60°-80°)	3434.2	16.5	B4/5000		G2/5000
BVH (80°-90°)	443.0	2.1			G3/500
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

BUG Rating: B4-U0-G3

Type V Short





REPORT NUMBER: P543200

CATALOG NUMBER: TT-D9-735-U-MQ

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	4311.8	4311.8	4311.8	4311.8	4311.8	4311.8	4311.8	4311.8	4311.8	4311.8	4311.8
2.5°	4292.6	4295.3	4294.4	4296.2	4296.2	4298.1	4296.2	4298.1	4295.3	4296.2	4296.2
5°	4246.0	4249.7	4247.0	4251.5	4252.4	4253.3	4250.6	4250.6	4247.9	4247.9	4248.8
7.5°	4195.8	4197.7	4197.7	4202.2	4205.0	4205.0	4202.2	4198.6	4196.8	4194.0	4194.0
10°	4147.5	4150.2	4149.3	4153.9	4157.5	4158.4	4154.8	4148.4	4145.6	4143.8	4143.8
12.5°	4105.5	4108.2	4110.0	4115.5	4121.0	4121.0	4119.2	4111.9	4107.3	4104.6	4103.7
15°	4074.5	4077.2	4078.1	4086.3	4091.8	4094.5	4090.9	4083.6	4078.1	4074.5	4072.6
17.5°	4043.4	4045.2	4049.8	4057.1	4062.6	4066.2	4062.6	4055.3	4048.0	4041.6	4039.8
20°	4013.3	4014.2	4020.6	4030.6	4037.9	4041.6	4037.9	4027.0	4016.0	4010.6	4009.6
22.5°	3999.6	4001.4	4009.6	4024.3	4034.3	4041.6	4032.5	4018.8	4006.0	3996.9	3996.0
25°	3990.5	3991.4	4002.3	4022.4	4040.7	4046.2	4039.8	4020.6	4000.5	3988.7	3987.7
27.5°	3998.7	4002.3	4017.0	4037.0	4060.8	4069.9	4063.5	4036.1	4014.2	4000.5	3997.8
30°	3996.9	3999.6	4016.0	4038.9	4060.8	4079.0	4066.2	4037.0	4011.5	3997.8	3996.0
32.5°	3991.4	3995.0	4009.6	4028.8	4059.8	4072.6	4060.8	4027.0	4005.1	3995.0	3991.4
35°	3968.6	3975.0	3996.0	4024.3	4052.5	4065.3	4051.6	4023.3	3993.2	3976.8	3975.0
37.5°	3959.4	3964.0	3985.0	4017.9	4055.3	4069.0	4050.7	4017.0	3983.2	3964.9	3960.4
40°	3944.8	3952.1	3977.7	4016.0	4058.9	4071.7	4057.1	4017.9	3979.5	3949.4	3941.2
42.5°	3944.8	3951.2	3986.8	4039.8	4087.2	4110.0	4087.2	4042.5	3988.7	3946.7	3940.3
45°	4007.8	4016.0	4060.8	4139.3	4213.2	4240.6	4212.3	4143.8	4062.6	4014.2	4001.4
47.5°	4061.7	4073.5	4141.1	4240.6	4332.8	4363.8	4330.0	4242.4	4142.0	4073.5	4061.7
50°	4101.8	4115.5	4203.1	4329.1	4427.7	4469.7	4431.3	4331.8	4205.0	4117.4	4103.7
52.5°	4173.9	4194.9	4299.0	4441.4	4579.2	4632.1	4579.2	4445.9	4299.0	4197.7	4173.9
55°	4179.4	4193.1	4318.2	4494.3	4644.0	4696.0	4650.4	4495.2	4322.7	4199.5	4182.2
57.5°	4116.4	4132.0	4264.3	4466.9	4615.7	4661.3	4616.6	4469.7	4276.2	4141.1	4125.6
60°	4003.3	4018.8	4156.6	4367.4	4527.2	4596.5	4530.8	4372.0	4170.3	4029.7	4012.4
62.5°	3880.0	3909.2	4068.1	4278.0	4436.8	4509.8	4444.1	4281.6	4077.2	3920.2	3893.7
65°	3685.6	3698.4	3869.1	4096.4	4291.7	4344.6	4292.6	4102.7	3898.3	3709.4	3699.3
67.5°	3488.5	3512.2	3653.7	3907.4	4096.4	4146.6	4095.4	3906.5	3671.9	3519.5	3502.2
70°	3160.8	3188.2	3387.2	3605.3	3784.2	3871.8	3789.7	3608.0	3418.2	3199.1	3184.5
72.5°	2857.8	2886.1	3023.0	3268.5	3450.1	3487.6	3462.0	3273.1	3051.3	2906.2	2886.1
75°	2461.6	2471.7	2647.8	2856.0	3023.9	3064.1	3032.1	2853.2	2680.7	2494.5	2465.3
77.5°	2050.0	2070.1	2194.2	2372.2	2517.3	2589.4	2515.5	2382.2	2207.0	2071.0	2050.9
80°	1579.0	1600.9	1729.6	1891.2	2003.5	2061.0	2006.2	1886.6	1741.5	1602.8	1592.7
82.5°	1113.5	1114.5	1242.2	1348.1	1460.4	1493.2	1462.2	1370.0	1251.4	1124.5	1126.3
85°	630.7	637.1	724.7	821.5	886.3	930.1	895.4	826.9	733.8	645.3	637.1
87.5°	143.3	142.4	188.0	243.7	315.8	314.9	308.5	251.9	193.5	140.6	138.7
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

MCGRAW EDISON

Report Number: SP1-2411-284-1

Test Date: 11/15/2024

Luminaire Tested: TTN-D0-735-U-WQ

Data in this report applies to families of products including TT-xx-735 and TTN-xx-735

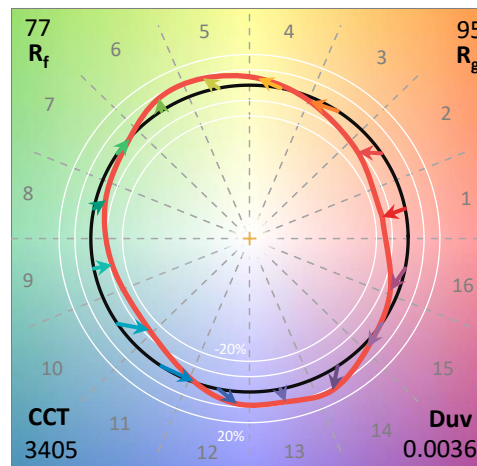
Test Information

Test Method: LM-79-2019
 Report Number: SP1-2411-284-1
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 11/15/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: MCGRAW EDISON
 Catalog Number: **TTN-D0-735-U-WQ**
 Description: TOPTIER NANO LED PARKING GARAGE LUMINAIRE. 3500K, 70 CRI LEDS AND WIDE DISTRIBUTION

Spectral Parameters

CCT (K): 3405
 CIE u': 0.2365
 CIE v': 0.5180
 Duv: 0.0036
 CIE x: 0.4148
 CIE y: 0.4038
 CIE z: 0.1814
 Peak Wavelength (nm): 596
 Dominant Wavelength (nm): 579
 Purity: 45.70672
 Rf: 76.6
 Rg: 95.4

CRI (Ra):	73.9		
R1:	71.3	R9:	-18.0
R2:	80.3	R10:	53.1
R3:	87.8	R11:	68.6
R4:	73.2	R12:	42.6
R5:	69.8	R13:	72.5
R6:	71.8	R14:	92.7
R7:	82.8	R15:	64.3
R8:	54.1		



Test Conditions

Stabilization Time: 38M
 Operation Time: 1H 38M
 Sphere Temperature (°C): 24.9

REPORT NUMBER: SP1-2411-284-1

Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/22/2024	10/22/2025
DC Power Source	IN0208	10/22/2024	10/22/2025
Sphere Thermometer	IN0085	10/22/2024	10/22/2025
Room Thermometer	IN0046	10/22/2024	10/22/2025

REPORT NUMBER: SP1-2411-284-1

CIE 1931 Chromaticity Diagram



CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3500K 4-step quadrangle

REPORT NUMBER: SP1-2411-284-1

Photopic Flux vs. Wavelength



Photopic Lumens: NR

λ (nm)	Power W [^] /nm	Lumens (ϕ /nm)	λ (nm)	Power W [^] /nm	Lumens (ϕ /nm)	λ (nm)	Power W [^] /nm	Lumens (ϕ /nm)	λ (nm)	Power W [^] /nm	Lumens (ϕ /nm)	λ (nm)	Power W [^] /nm	Lumens (ϕ /nm)
360	0	NR	490	119	NR	620	846	NR	750	28	NR	880	1	NR
365	0	NR	495	160	NR	625	793	NR	755	25	NR	885	0	NR
370	0	NR	500	225	NR	630	739	NR	760	22	NR	890	0	NR
375	0	NR	505	308	NR	635	681	NR	765	19	NR	895	0	NR
380	0	NR	510	392	NR	640	623	NR	770	16	NR	900	0	NR
385	0	NR	515	474	NR	645	563	NR	775	14	NR	905	0	NR
390	0	NR	520	545	NR	650	506	NR	780	12	NR	910	0	NR
395	1	NR	525	603	NR	655	451	NR	785	10	NR	915	0	NR
400	3	NR	530	649	NR	660	399	NR	790	9	NR	920	0	NR
405	5	NR	535	687	NR	665	352	NR	795	8	NR	925	0	NR
410	11	NR	540	721	NR	670	307	NR	800	6	NR	930	0	NR
415	21	NR	545	751	NR	675	268	NR	805	6	NR	935	0	NR
420	43	NR	550	779	NR	680	234	NR	810	5	NR	940	0	NR
425	88	NR	555	811	NR	685	203	NR	815	4	NR	945	0	NR
430	163	NR	560	843	NR	690	176	NR	820	4	NR	950	0	NR
435	288	NR	565	873	NR	695	152	NR	825	3	NR	955	0	NR
440	416	NR	570	907	NR	700	131	NR	830	3	NR	960	0	NR
445	566	NR	575	938	NR	705	112	NR	835	3	NR	965	0	NR
450	810	NR	580	965	NR	710	96	NR	840	2	NR	970	0	NR
455	669	NR	585	986	NR	715	81	NR	845	2	NR	975	0	NR
460	338	NR	590	997	NR	720	69	NR	850	2	NR	980	0	NR
465	246	NR	595	997	NR	725	58	NR	855	1	NR	985	0	NR
470	182	NR	600	991	NR	730	49	NR	860	1	NR	990	0	NR
475	115	NR	605	968	NR	735	42	NR	865	1	NR	995	0	NR
480	97	NR	610	939	NR	740	37	NR	870	1	NR	1000	0	NR
485	103	NR	615	896	NR	745	32	NR	875	1	NR			

REPORT NUMBER: SP1-2411-284-1

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.33

λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	119	NR	620	846	NR	750	28	NR	880	1	NR
365	0	NR	495	160	NR	625	793	NR	755	25	NR	885	0	NR
370	0	NR	500	225	NR	630	739	NR	760	22	NR	890	0	NR
375	0	NR	505	308	NR	635	681	NR	765	19	NR	895	0	NR
380	0	NR	510	392	NR	640	623	NR	770	16	NR	900	0	NR
385	0	NR	515	474	NR	645	563	NR	775	14	NR	905	0	NR
390	0	NR	520	545	NR	650	506	NR	780	12	NR	910	0	NR
395	1	NR	525	603	NR	655	451	NR	785	10	NR	915	0	NR
400	3	NR	530	649	NR	660	399	NR	790	9	NR	920	0	NR
405	5	NR	535	687	NR	665	352	NR	795	8	NR	925	0	NR
410	11	NR	540	721	NR	670	307	NR	800	6	NR	930	0	NR
415	21	NR	545	751	NR	675	268	NR	805	6	NR	935	0	NR
420	43	NR	550	779	NR	680	234	NR	810	5	NR	940	0	NR
425	88	NR	555	811	NR	685	203	NR	815	4	NR	945	0	NR
430	163	NR	560	843	NR	690	176	NR	820	4	NR	950	0	NR
435	288	NR	565	873	NR	695	152	NR	825	3	NR	955	0	NR
440	416	NR	570	907	NR	700	131	NR	830	3	NR	960	0	NR
445	566	NR	575	938	NR	705	112	NR	835	3	NR	965	0	NR
450	810	NR	580	965	NR	710	96	NR	840	2	NR	970	0	NR
455	669	NR	585	986	NR	715	81	NR	845	2	NR	975	0	NR
460	338	NR	590	997	NR	720	69	NR	850	2	NR	980	0	NR
465	246	NR	595	997	NR	725	58	NR	855	1	NR	985	0	NR
470	182	NR	600	991	NR	730	49	NR	860	1	NR	990	0	NR
475	115	NR	605	968	NR	735	42	NR	865	1	NR	995	0	NR
480	97	NR	610	939	NR	740	37	NR	870	1	NR	1000	0	NR
485	103	NR	615	896	NR	745	32	NR	875	1	NR			

REPORT NUMBER: SP1-2411-284-1

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.47

λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	119	NR	620	846	NR	750	28	NR	880	1	NR
365	0	NR	495	160	NR	625	793	NR	755	25	NR	885	0	NR
370	0	NR	500	225	NR	630	739	NR	760	22	NR	890	0	NR
375	0	NR	505	308	NR	635	681	NR	765	19	NR	895	0	NR
380	0	NR	510	392	NR	640	623	NR	770	16	NR	900	0	NR
385	0	NR	515	474	NR	645	563	NR	775	14	NR	905	0	NR
390	0	NR	520	545	NR	650	506	NR	780	12	NR	910	0	NR
395	1	NR	525	603	NR	655	451	NR	785	10	NR	915	0	NR
400	3	NR	530	649	NR	660	399	NR	790	9	NR	920	0	NR
405	5	NR	535	687	NR	665	352	NR	795	8	NR	925	0	NR
410	11	NR	540	721	NR	670	307	NR	800	6	NR	930	0	NR
415	21	NR	545	751	NR	675	268	NR	805	6	NR	935	0	NR
420	43	NR	550	779	NR	680	234	NR	810	5	NR	940	0	NR
425	88	NR	555	811	NR	685	203	NR	815	4	NR	945	0	NR
430	163	NR	560	843	NR	690	176	NR	820	4	NR	950	0	NR
435	288	NR	565	873	NR	695	152	NR	825	3	NR	955	0	NR
440	416	NR	570	907	NR	700	131	NR	830	3	NR	960	0	NR
445	566	NR	575	938	NR	705	112	NR	835	3	NR	965	0	NR
450	810	NR	580	965	NR	710	96	NR	840	2	NR	970	0	NR
455	669	NR	585	986	NR	715	81	NR	845	2	NR	975	0	NR
460	338	NR	590	997	NR	720	69	NR	850	2	NR	980	0	NR
465	246	NR	595	997	NR	725	58	NR	855	1	NR	985	0	NR
470	182	NR	600	991	NR	730	49	NR	860	1	NR	990	0	NR
475	115	NR	605	968	NR	735	42	NR	865	1	NR	995	0	NR
480	97	NR	610	939	NR	740	37	NR	870	1	NR	1000	0	NR
485	103	NR	615	896	NR	745	32	NR	875	1	NR			

Summary

$R_f = 76.6$
 $R_g = 95.4$
 $CIE R_a = 73.9$
 $R_g = -18.0$

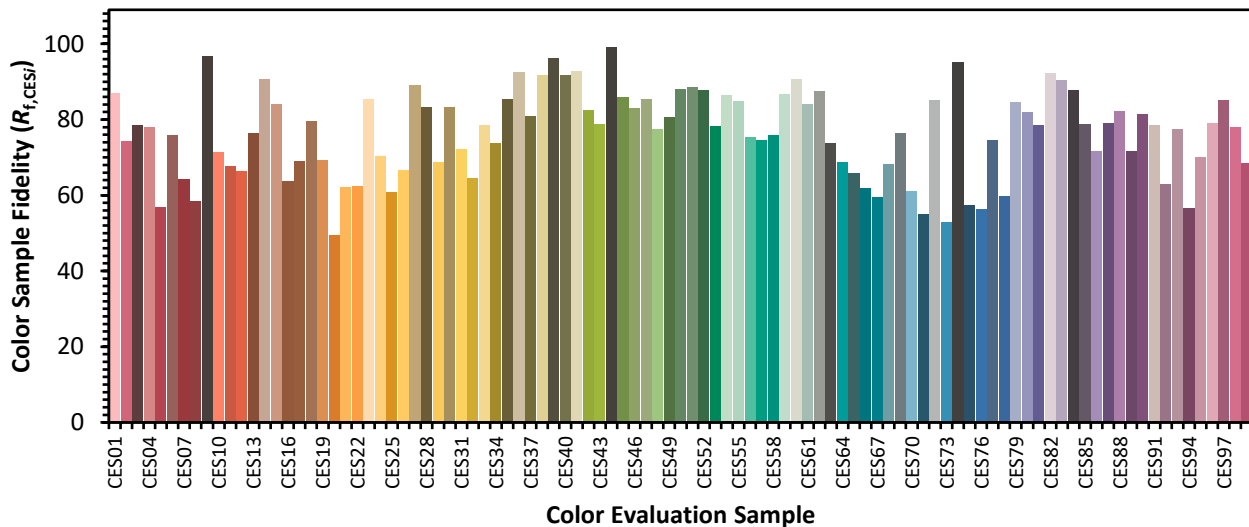


Color Vector Graphics



Individual Sample Fidelity Index ($R_{f,i}$)

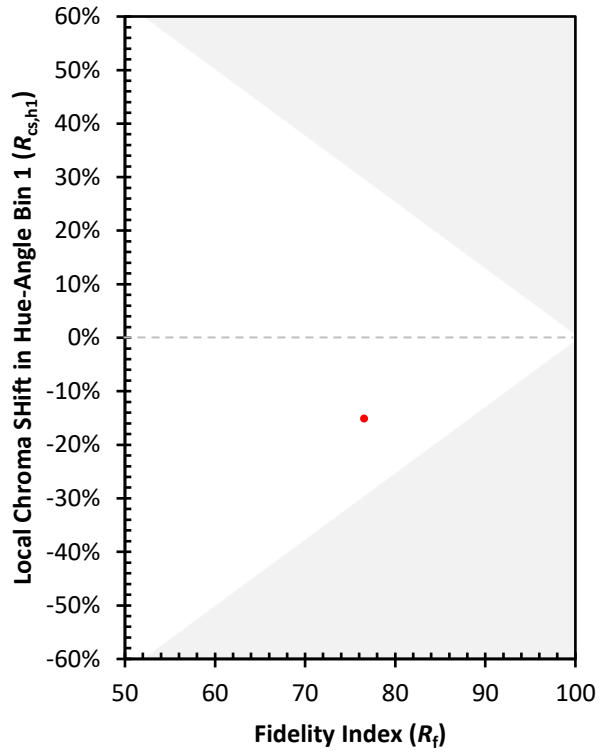
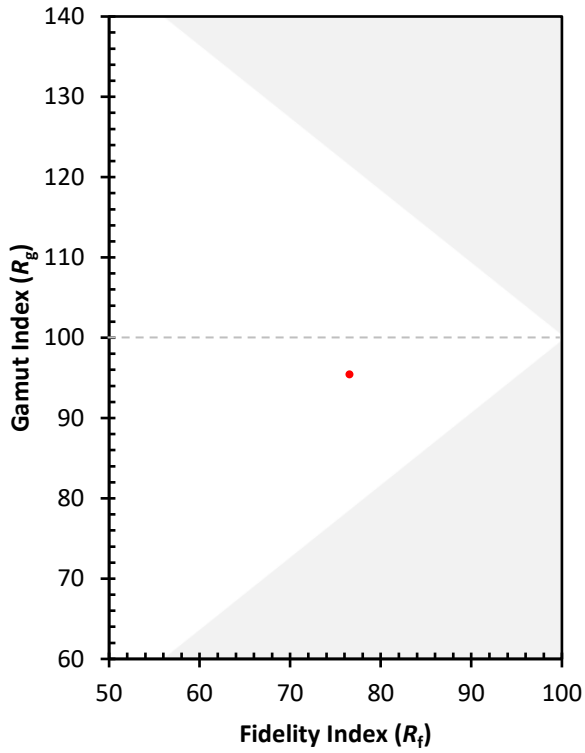
CES01 = 86	CES26 = 67	CES51 = 88	CES76 = 56
CES02 = 62	CES27 = 89	CES52 = 88	CES77 = 75
CES03 = 31	CES28 = 83	CES53 = 78	CES78 = 60
CES04 = 70	CES29 = 69	CES54 = 86	CES79 = 85
CES05 = 48	CES30 = 83	CES55 = 85	CES80 = 82
CES06 = 51	CES31 = 72	CES56 = 75	CES81 = 78
CES07 = 41	CES32 = 65	CES57 = 75	CES82 = 92
CES08 = 40	CES33 = 78	CES58 = 76	CES83 = 90
CES09 = 29	CES34 = 74	CES59 = 87	CES84 = 88
CES10 = 75	CES35 = 86	CES60 = 91	CES85 = 79
CES11 = 58	CES36 = 93	CES61 = 84	CES86 = 72
CES12 = 64	CES37 = 81	CES62 = 88	CES87 = 79
CES13 = 43	CES38 = 92	CES63 = 74	CES88 = 82
CES14 = 74	CES39 = 96	CES64 = 69	CES89 = 72
CES15 = 71	CES40 = 92	CES65 = 66	CES90 = 82
CES16 = 47	CES41 = 93	CES66 = 62	CES91 = 79
CES17 = 50	CES42 = 83	CES67 = 60	CES92 = 63
CES18 = 56	CES43 = 79	CES68 = 68	CES93 = 77
CES19 = 72	CES44 = 99	CES69 = 76	CES94 = 56
CES20 = 65	CES45 = 86	CES70 = 61	CES95 = 70
CES21 = 86	CES46 = 83	CES71 = 55	CES96 = 79
CES22 = 79	CES47 = 85	CES72 = 85	CES97 = 85
CES23 = 92	CES48 = 78	CES73 = 53	CES98 = 78
CES24 = 91	CES49 = 81	CES74 = 95	CES99 = 68
CES25 = 72	CES50 = 88	CES75 = 57	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)