

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: P400663

Luminaire Tested: **TT-D5-735-U-WQ**

Issue Date: 5/19/2020

Test Information

Test Method: LM-79-08
Report Number: P400663
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1908-473-14)
Test Lab: INNOVATION CENTER
Issue Date: 5/19/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: MCGRAW-EDISON
Catalog Number: TT-D5-735-U-WQ
Description: TOPTIER LED PARKING GARAGE LUMINAIRE
3500K, 70 CRI LEDS AND WIDE DISTRIBUTION
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9005 lumens
Efficiency: N/A
Efficacy: 120.5 lumens/watt
Luminous Opening: Circular (Dia: 1.12' x H: 0')
IES Classification: Type V - Short - Semi-Cutoff
BUG Rating: B3 - U0 - G3

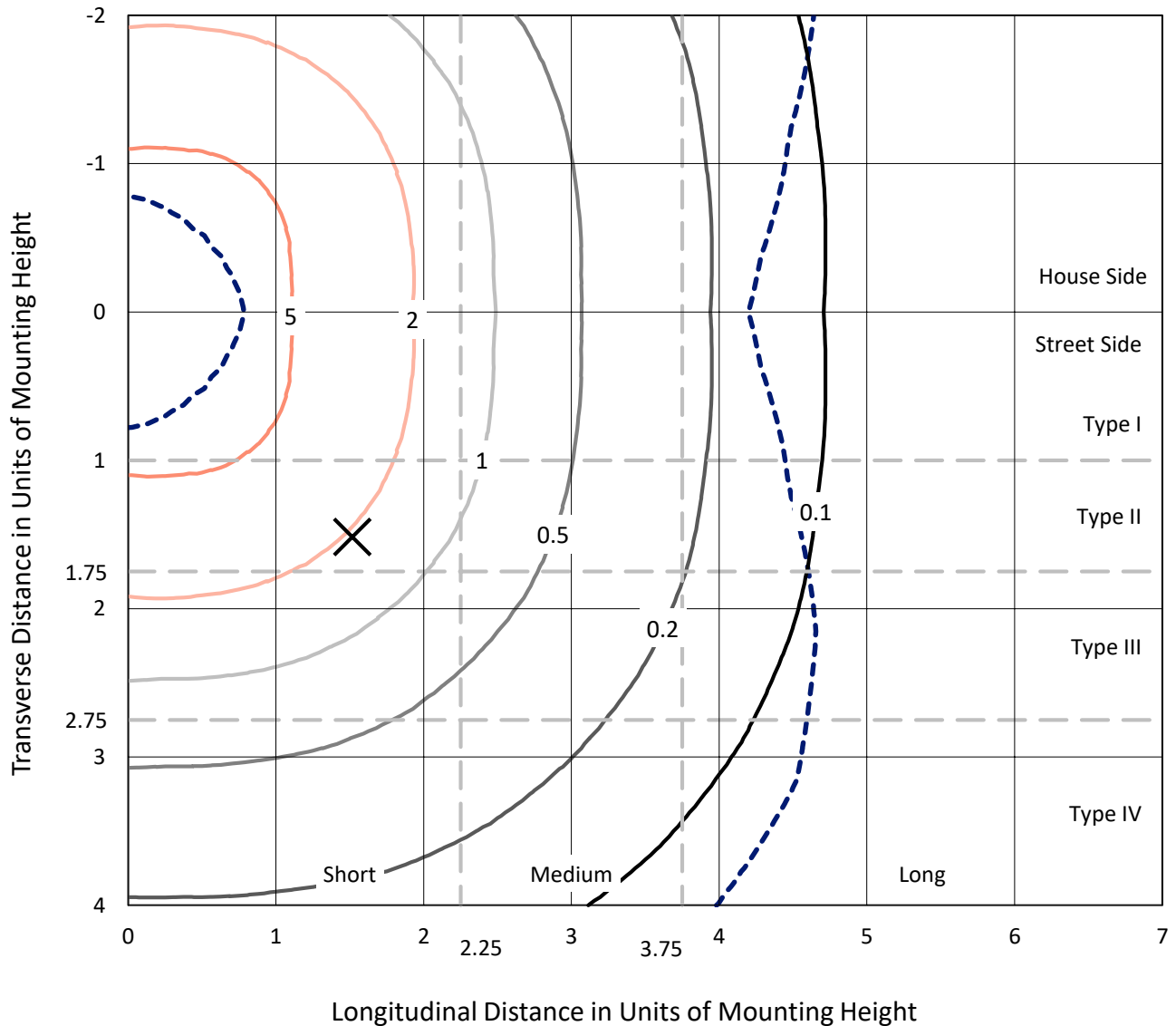
Input Watts (W): 74.7
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



REPORT NUMBER: P400663
 CATALOG NUMBER: TT-D5-735-U-WQ

Iso-Footcandle Lines of Horizontal Illumination

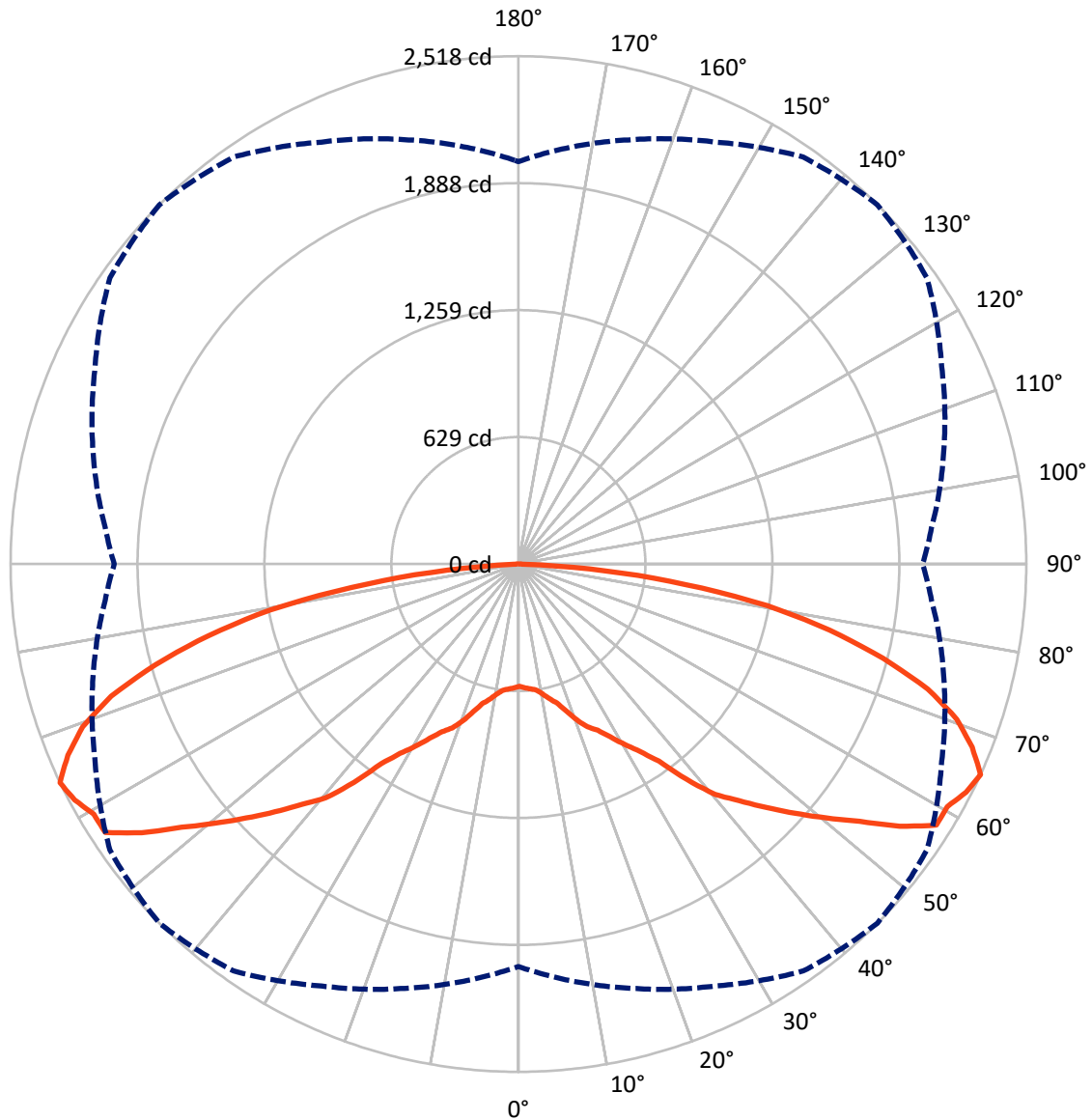
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 6.9 fc
 Type V - Short - Semi-Cutoff

REPORT NUMBER: P400663
CATALOG NUMBER: TT-D5-735-U-WQ

Luminous Intensity Polar Plot



— Vertical Plane Through 45-Deg Lateral - - - Horizontal Cone Through 65-Deg Vertical

REPORT NUMBER: P400663

CATALOG NUMBER: TT-D5-735-U-WQ

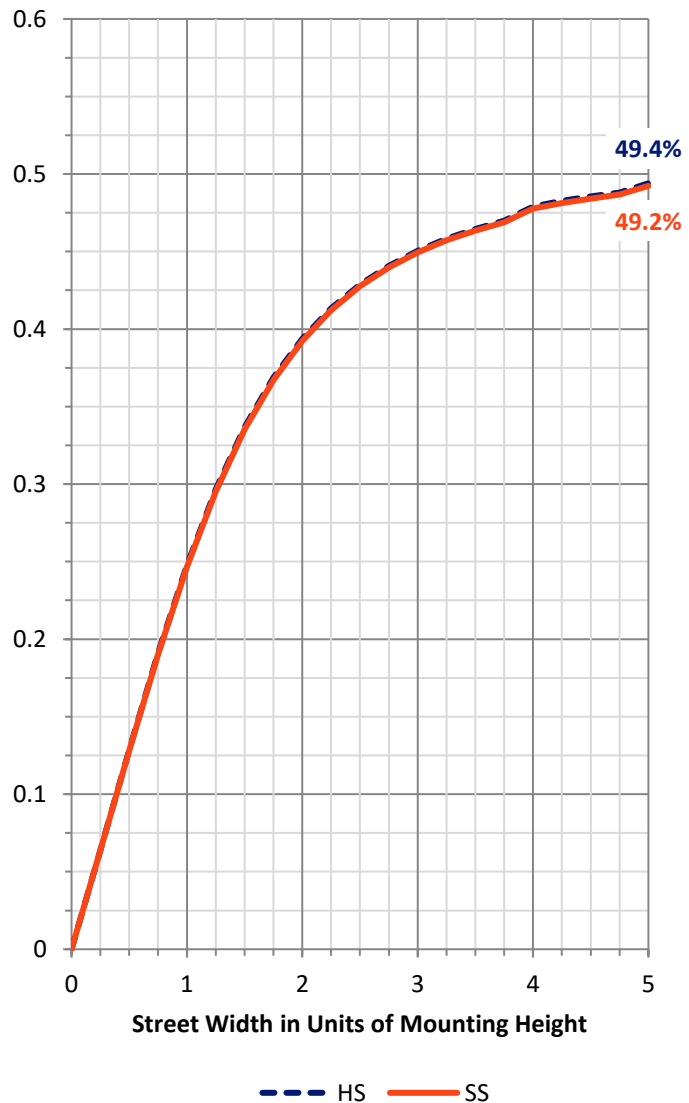
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	4502.5	0.0	4502.5
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	4502.5	0.0	4502.5
	% Fixture	50.0	0.0	50.0
Total	Lumens	9005.0	0.0	9005.0
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	60.4	0.7
10°-20°	207.9	2.3
20°-30°	426.8	4.7
30°-40°	758.3	8.4
40°-50°	1278.2	14.2
50°-60°	1885.6	20.9
60°-70°	2213.0	24.6
70°-80°	1724.1	19.1
80°-90°	450.7	5.0
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°	9005.0	100.0
0°-180°	9005.0	100.0



REPORT NUMBER: P400663

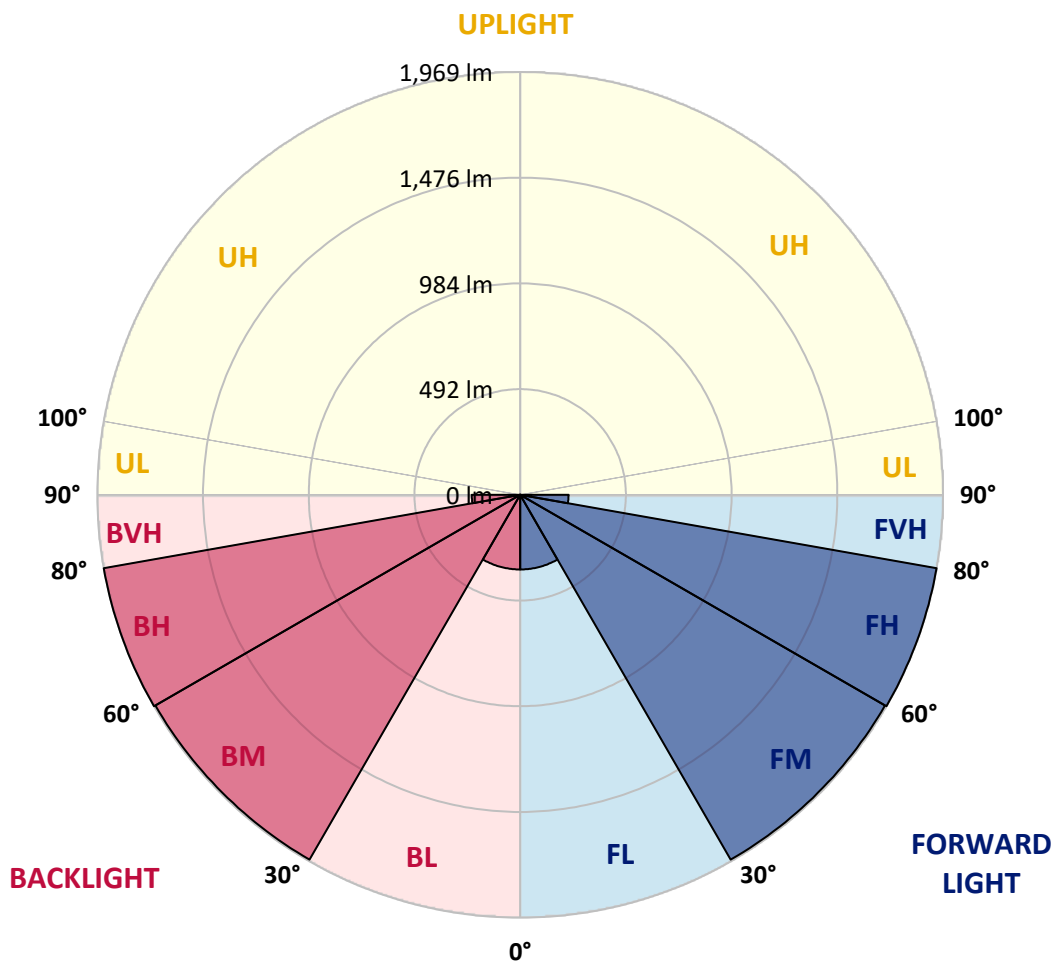
CATALOG NUMBER: TT-D5-735-U-WQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	347.6	3.9			
FM	(30°-60°)	1961.1	21.8			
FH	(60°-80°)	1968.5	21.9			G2/5000
FVH	(80°-90°)	225.4	2.5			G3/500
BL	(0°-30°)	347.6	3.9	B1/500		
BM	(30°-60°)	1961.1	21.8	B2/2500		
BH	(60°-80°)	1968.5	21.9	B3/2500		G2/5000
BVH	(80°-90°)	225.4	2.5			G3/500
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B3-U0-G3

Type V Short





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CATALOG NUMBER: TT-D5-735-U-WQ

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	606.1	606.1	606.1	606.1	606.1	606.1	606.1	606.1	606.1	606.1	606.1
2.5°	616.0	616.0	616.0	614.6	614.6	614.6	614.6	616.0	616.0	616.0	616.0
5°	630.1	630.1	627.3	624.5	621.6	621.6	623.1	624.5	625.9	628.7	628.7
7.5°	638.6	638.6	637.2	634.4	630.1	630.1	631.6	634.4	635.8	635.8	634.4
10°	650.0	651.4	655.6	657.0	654.2	654.2	655.6	657.0	654.2	650.0	650.0
12.5°	676.9	678.3	683.9	688.2	688.2	685.4	686.8	689.6	682.5	675.5	676.9
15°	715.1	715.1	716.5	720.8	717.9	715.1	717.9	719.3	715.1	713.7	716.5
17.5°	766.1	766.1	757.6	764.7	766.1	764.7	767.5	760.4	756.2	761.8	764.7
20°	821.3	815.6	811.4	817.1	828.4	824.1	829.8	814.2	810.0	812.8	814.2
22.5°	856.7	861.0	863.8	866.6	882.2	876.5	882.2	865.2	862.4	856.7	852.5
25°	899.2	903.4	920.4	911.9	921.8	913.3	920.4	910.5	916.2	899.2	899.2
27.5°	947.3	955.8	965.7	961.5	974.2	970.0	974.2	960.1	961.5	954.4	951.6
30°	1012.5	1012.5	1009.6	1018.1	1040.8	1038.0	1039.4	1021.0	1008.2	1009.6	1015.3
32.5°	1077.6	1069.1	1073.4	1098.8	1113.0	1107.3	1110.2	1101.7	1073.4	1067.7	1071.9
35°	1138.5	1151.2	1161.2	1182.4	1202.2	1199.4	1198.0	1183.8	1165.4	1142.7	1135.7
37.5°	1233.4	1247.5	1274.4	1312.7	1348.1	1355.1	1336.7	1318.3	1275.9	1243.3	1226.3
40°	1358.0	1359.4	1390.5	1464.2	1496.8	1502.4	1492.5	1461.4	1396.2	1359.4	1358.0
42.5°	1467.0	1457.1	1508.1	1570.4	1600.1	1603.0	1595.9	1570.4	1508.1	1455.7	1465.6
45°	1552.0	1552.0	1612.9	1662.4	1710.6	1721.9	1709.2	1655.3	1614.3	1553.4	1549.1
47.5°	1629.9	1651.1	1702.1	1763.0	1830.9	1846.5	1830.9	1767.2	1697.8	1652.5	1628.4
50°	1723.3	1748.8	1785.6	1880.5	1957.0	1978.2	1955.5	1886.2	1785.6	1747.4	1733.2
52.5°	1832.4	1853.6	1911.7	2030.6	2087.2	2118.4	2100.0	2033.4	1914.5	1856.4	1845.1
55°	1962.6	1942.8	2033.4	2148.1	2252.9	2294.0	2257.2	2151.0	2047.6	1942.8	1962.6
57.5°	2029.2	2006.5	2134.0	2243.0	2388.9	2442.7	2397.4	2251.5	2134.0	2013.6	2027.8
60°	2034.8	2044.8	2141.1	2319.5	2420.0	2442.7	2428.5	2332.2	2145.3	2053.3	2026.4
62.5°	2017.9	2078.7	2160.9	2345.0	2435.6	2490.8	2442.7	2347.8	2169.4	2088.7	2019.3
65°	1995.2	2056.1	2177.9	2308.1	2462.5	2517.7	2472.4	2315.2	2183.5	2056.1	2003.7
67.5°	1955.5	1934.3	2084.4	2258.6	2393.1	2425.7	2397.4	2261.4	2083.0	1931.5	1959.8
70°	1829.5	1811.1	1940.0	2131.1	2260.0	2305.3	2271.3	2134.0	1942.8	1815.4	1832.4
72.5°	1642.6	1648.3	1772.9	1955.5	2094.3	2122.6	2104.2	1954.1	1780.0	1655.3	1632.7
75°	1424.5	1438.7	1557.6	1723.3	1849.3	1866.3	1847.9	1730.4	1556.2	1447.2	1417.5
77.5°	1171.1	1192.3	1288.6	1454.3	1537.8	1576.1	1546.3	1458.5	1295.7	1198.0	1168.2
80°	907.7	914.8	982.7	1115.8	1226.3	1251.8	1223.5	1120.1	991.2	917.6	896.4
82.5°	594.7	606.1	667.0	768.9	841.1	834.0	841.1	760.4	674.0	603.2	567.8
85°	264.8	287.5	328.5	376.7	423.4	436.1	423.4	382.3	328.5	281.8	276.1
87.5°	18.4	21.2	25.5	26.9	29.7	22.7	22.7	22.7	19.8	22.7	18.4
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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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

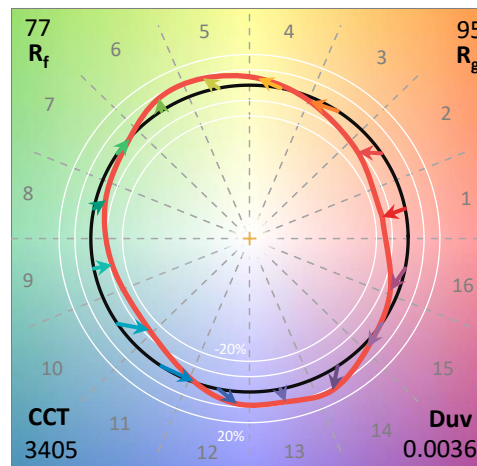
Test Information

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

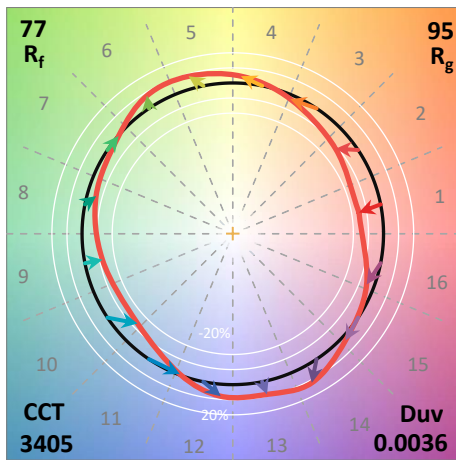
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	119	NR	620	846	NR	750	28	NR	880	1	NR
365	0	NR	495	160	NR	625	793	NR	755	25	NR	885	0	NR
370	0	NR	500	225	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

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

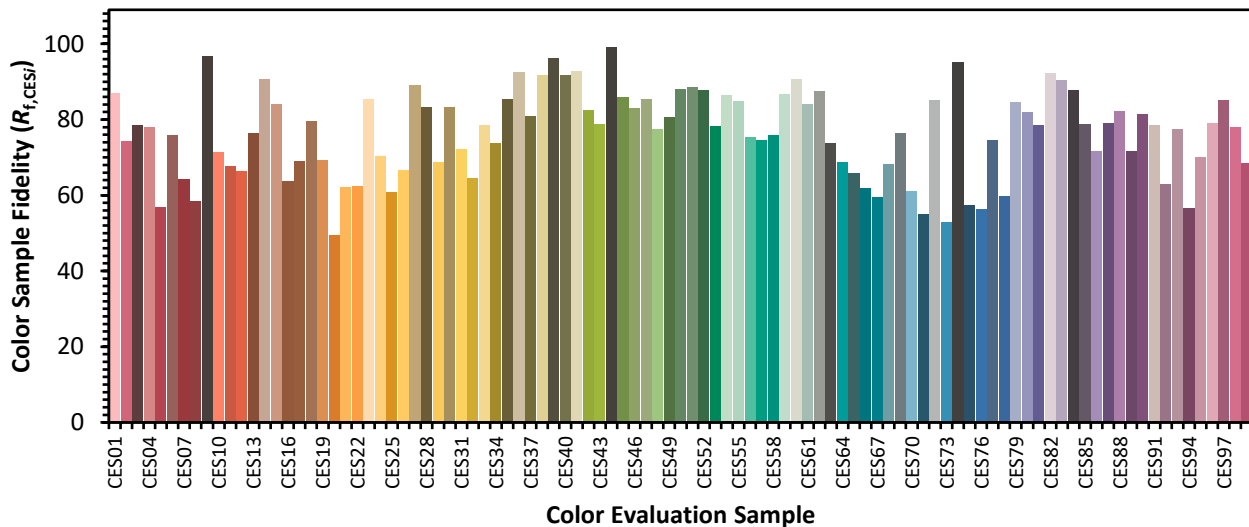


Color Vector Graphics



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

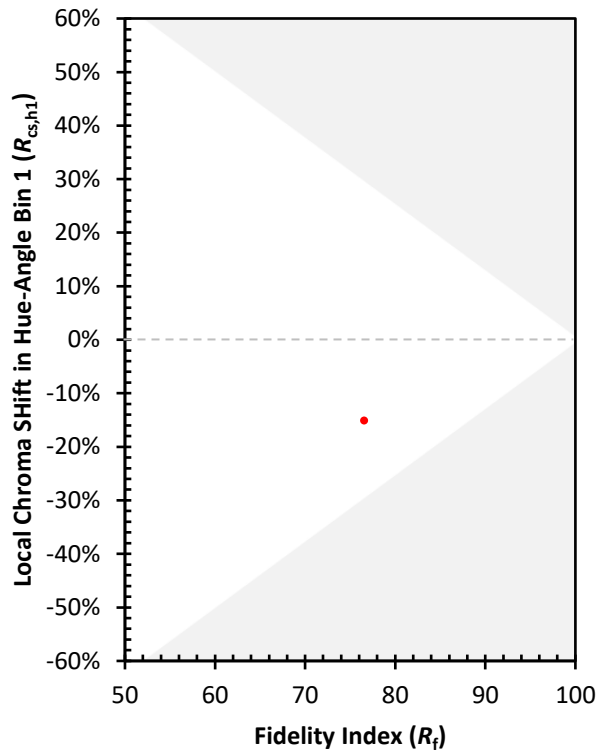
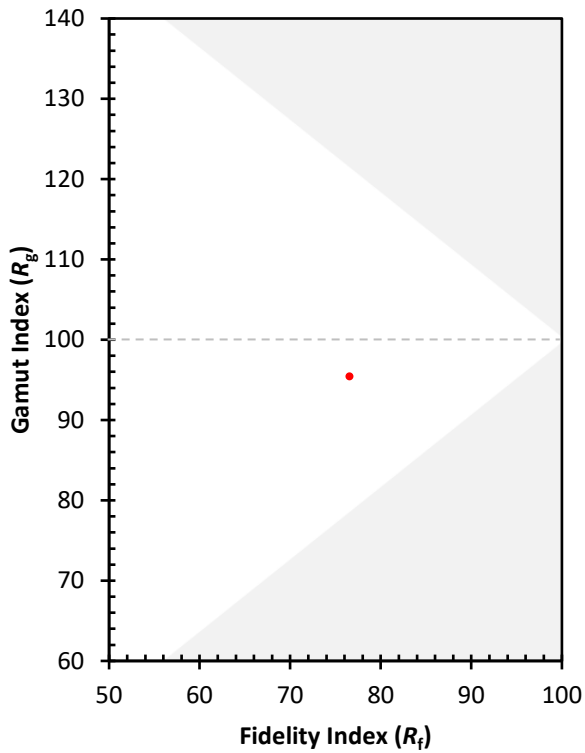
CES01 = 86	CES26 = 67	CES51 = 88	CES76 = 56
CES02 = 62	CES27 = 89	CES52 = 88	CES77 = 75
CES03 = 31	CES28 = 83	CES53 = 78	CES78 = 60
CES04 = 70	CES29 = 69	CES54 = 86	CES79 = 85
CES05 = 48	CES30 = 83	CES55 = 85	CES80 = 82
CES06 = 51	CES31 = 72	CES56 = 75	CES81 = 78
CES07 = 41	CES32 = 65	CES57 = 75	CES82 = 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)