

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: P823444

Luminaire Tested: **TTN-D3-735-U-RW**

Issue Date: 4/16/2024

Test Information

Test Method: LM-79-08
Report Number: P823444
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2312-254-10)
Test Lab: INNOVATION CENTER
Issue Date: 4/16/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: MCGRAW-EDISON
Catalog Number: TTN-D3-735-U-RW
Description: TOPTIER NANO LED PARKING GARAGE LUMINAIRE
3500K, 70 CRI LEDS AND RECTANGULAR DISTRIBUTION
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6505 lumens
Efficiency: N/A
Efficacy: 109.9 lumens/watt
Luminous Opening: Circular (Dia: 0.71' x H: 0')
IES Classification: Type II - Short
BUG Rating: B3 - U0 - G3

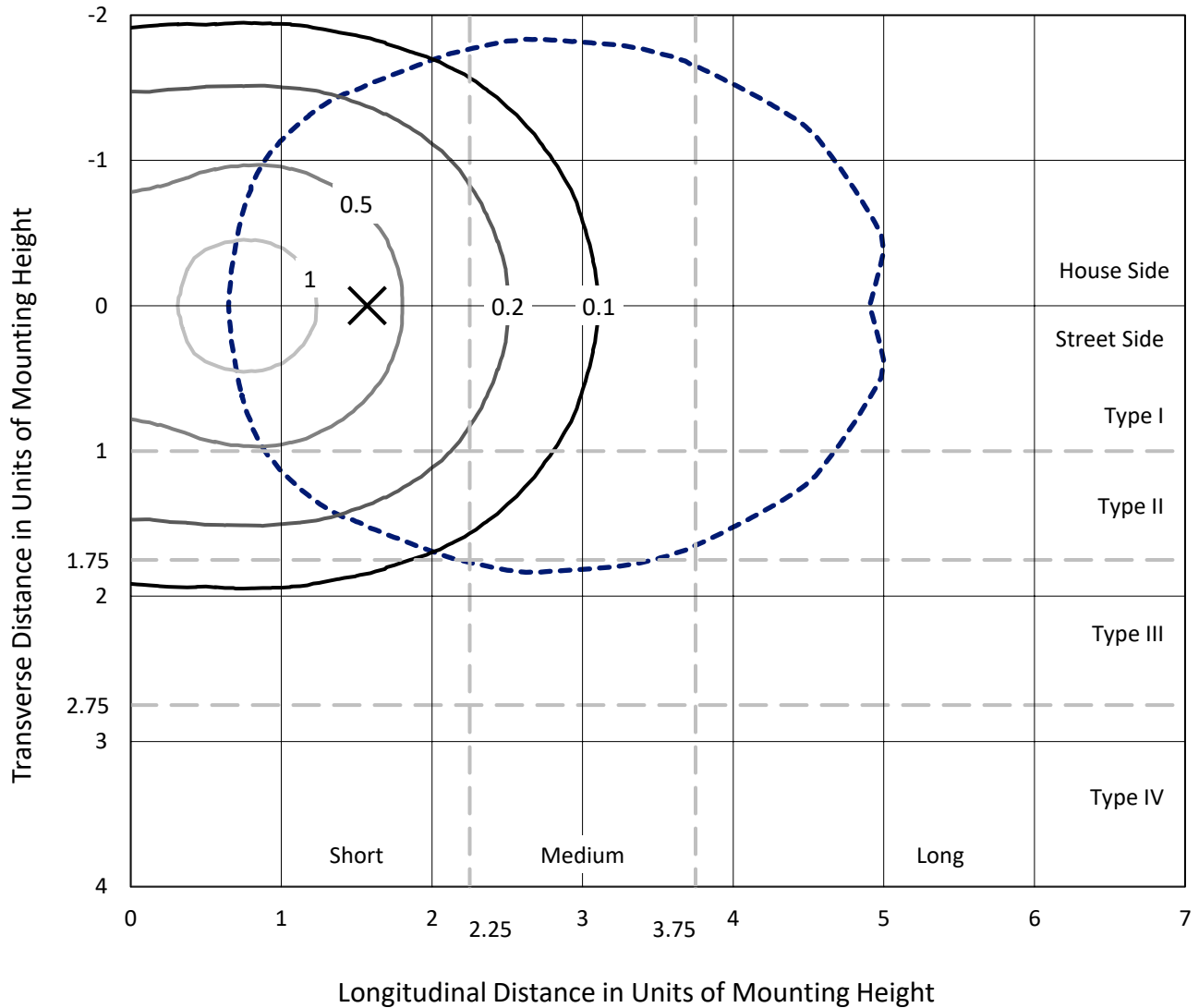
Input Watts (W): 59.2
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



REPORT NUMBER: P823444
 CATALOG NUMBER: TTN-D3-735-U-RW

Iso-Footcandle Lines of Horizontal Illumination

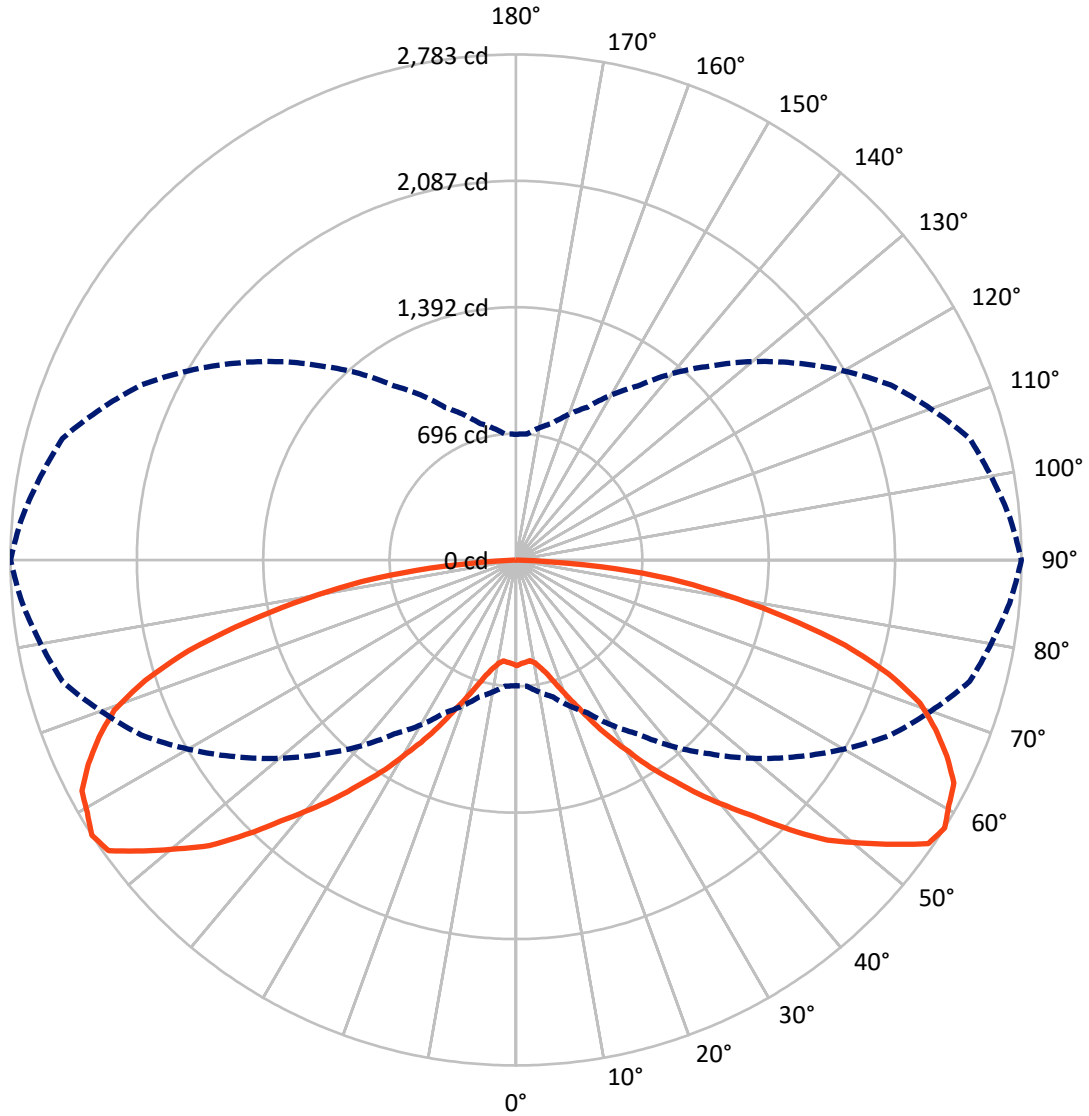
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 1.3 fc
 Type II - Short - N/A

REPORT NUMBER: P823444
CATALOG NUMBER: TTN-D3-735-U-RW

Luminous Intensity Polar Plot



— Vertical Plane Through 90-Deg Lateral - - - Horizontal Cone Through 57.5-Deg Vertical

REPORT NUMBER: P823444

CATALOG NUMBER: TTN-D3-735-U-RW

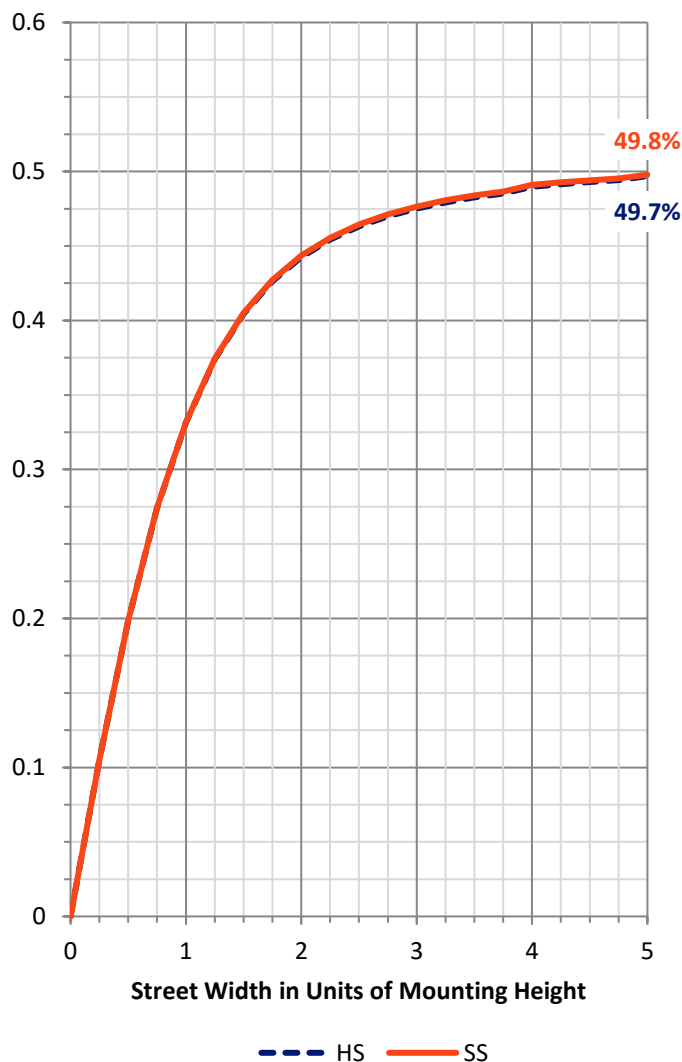
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	3252.5	0.0	3252.5
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	3252.5	0.0	3252.5
	% Fixture	50.0	0.0	50.0
Total	Lumens	6505.0	0.0	6505.0
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	54.6	0.8
10°-20°	174.4	2.7
20°-30°	364.0	5.6
30°-40°	652.7	10.0
40°-50°	1043.0	16.0
50°-60°	1427.9	22.0
60°-70°	1472.9	22.6
70°-80°	1047.4	16.1
80°-90°	268.1	4.1
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°	6505.0	100.0
0°-180°	6505.0	100.0

Coefficient of Utilization



REPORT NUMBER: P823444

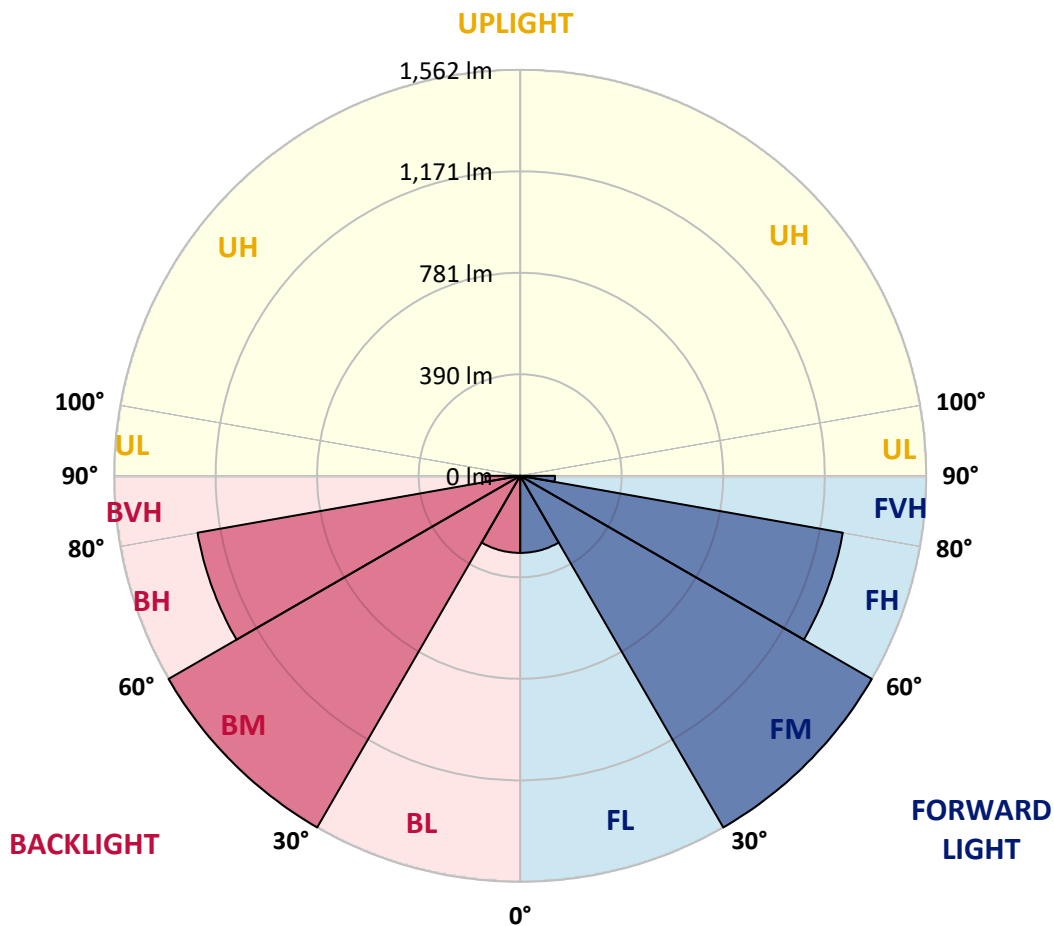
CATALOG NUMBER: TTN-D3-735-U-RW

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	296.5	4.6			
FM (30°-60°)	1561.8	24.0			
FH (60°-80°)	1260.1	19.4			G1/1800
FVH (80°-90°)	134.1	2.1			G2/225
BL (0°-30°)	296.5	4.6	B1/500		
BM (30°-60°)	1561.8	24.0	B2/2500		
BH (60°-80°)	1260.1	19.4	B3/2500		G3/2500
BVH (80°-90°)	134.1	2.1			G2/225
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

BUG Rating: B3-U0-G3

Type II Short





REPORT NUMBER: P823444

CATALOG NUMBER: TTN-D3-735-U-RW

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	581.9	581.9	581.9	581.9	581.9	581.9	581.9	581.9	581.9	581.9	581.9
2.5°	581.9	581.9	576.4	576.4	576.4	570.9	570.9	570.9	570.9	565.4	570.9
5°	581.9	581.9	581.9	581.9	576.4	570.9	570.9	570.9	565.4	565.4	565.4
7.5°	576.4	576.4	576.4	576.4	570.9	565.4	565.4	565.4	559.9	559.9	559.9
10°	570.9	576.4	570.9	570.9	565.4	565.4	570.9	570.9	576.4	576.4	576.4
12.5°	565.4	565.4	565.4	570.9	570.9	576.4	587.4	598.4	603.9	609.3	609.3
15°	565.4	565.4	570.9	576.4	587.4	598.4	614.8	631.3	642.3	653.3	653.3
17.5°	565.4	565.4	570.9	587.4	603.9	625.8	653.3	675.2	697.2	713.6	719.1
20°	565.4	565.4	576.4	598.4	631.3	664.2	702.7	735.6	768.5	796.0	796.0
22.5°	570.9	576.4	587.4	614.8	664.2	713.6	763.1	812.5	850.9	883.8	883.8
25°	581.9	581.9	598.4	642.3	702.7	768.5	839.9	900.3	949.7	993.6	993.6
27.5°	587.4	592.9	614.8	669.7	746.6	828.9	927.7	999.1	1065.0	1103.4	1108.9
30°	598.4	603.9	636.8	691.7	785.0	889.3	1004.6	1103.4	1174.8	1213.2	1224.2
32.5°	603.9	609.3	653.3	719.1	823.4	944.2	1076.0	1202.2	1301.0	1345.0	1361.4
35°	620.3	625.8	669.7	746.6	867.4	1004.6	1158.3	1306.5	1421.8	1476.7	1487.7
37.5°	636.8	642.3	686.2	774.0	911.3	1070.5	1246.1	1416.3	1548.1	1613.9	1635.9
40°	647.8	653.3	702.7	807.0	960.7	1141.8	1345.0	1531.6	1679.8	1762.2	1778.6
42.5°	664.2	669.7	724.6	834.4	1004.6	1213.2	1449.3	1657.9	1817.1	1910.4	1932.3
45°	680.7	686.2	746.6	867.4	1054.0	1290.1	1553.6	1806.1	1987.2	2097.0	2119.0
47.5°	697.2	702.7	768.5	900.3	1103.4	1366.9	1663.3	1937.8	2157.4	2261.7	2305.6
50°	702.7	713.6	779.5	922.3	1136.3	1432.8	1756.7	2069.6	2300.1	2437.4	2448.4
52.5°	708.2	719.1	790.5	938.7	1163.8	1482.2	1833.5	2179.4	2448.4	2613.1	2602.1
55°	713.6	713.6	790.5	938.7	1174.8	1515.1	1888.4	2250.7	2547.2	2678.9	2755.8
57.5°	691.7	697.2	779.5	927.7	1169.3	1509.6	1888.4	2278.2	2585.6	2728.3	2783.2
60°	664.2	675.2	752.1	900.3	1147.3	1493.2	1877.4	2267.2	2602.1	2755.8	2739.3
62.5°	625.8	647.8	713.6	861.9	1114.4	1454.7	1861.0	2239.8	2563.6	2722.8	2706.4
65°	581.9	603.9	664.2	823.4	1043.0	1361.4	1773.1	2184.9	2459.3	2640.5	2607.6
67.5°	538.0	554.4	614.8	757.6	960.7	1262.6	1657.9	2064.1	2311.1	2508.7	2492.3
70°	488.6	494.1	554.4	680.7	878.3	1163.8	1548.1	1893.9	2179.4	2327.6	2360.5
72.5°	428.2	428.2	488.6	598.4	779.5	1032.0	1399.8	1701.8	1970.8	2097.0	2146.4
75°	351.3	356.8	406.2	505.0	653.3	883.8	1191.2	1498.7	1723.7	1855.5	1872.0
77.5°	274.5	280.0	318.4	400.7	527.0	713.6	982.6	1224.2	1438.3	1553.6	1520.6
80°	197.6	203.1	230.6	290.9	389.8	532.5	757.6	971.7	1125.4	1218.7	1174.8
82.5°	120.8	126.3	142.7	181.2	247.0	345.8	516.0	675.2	796.0	872.8	856.4
85°	60.4	60.4	71.4	82.3	104.3	153.7	247.0	340.4	433.7	488.6	472.1
87.5°	11.0	16.5	16.5	16.5	16.5	11.0	16.5	16.5	16.5	27.4	11.0
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 TT and TTN families of products

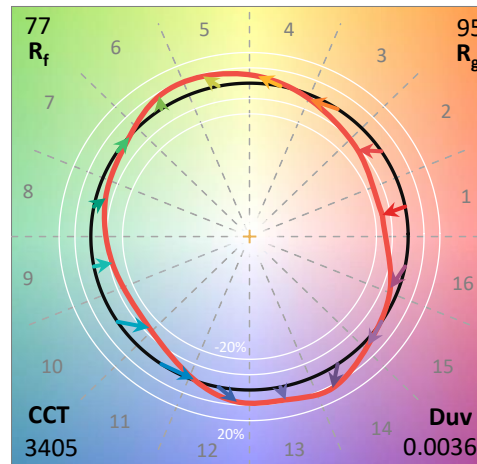
Test Information

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

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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

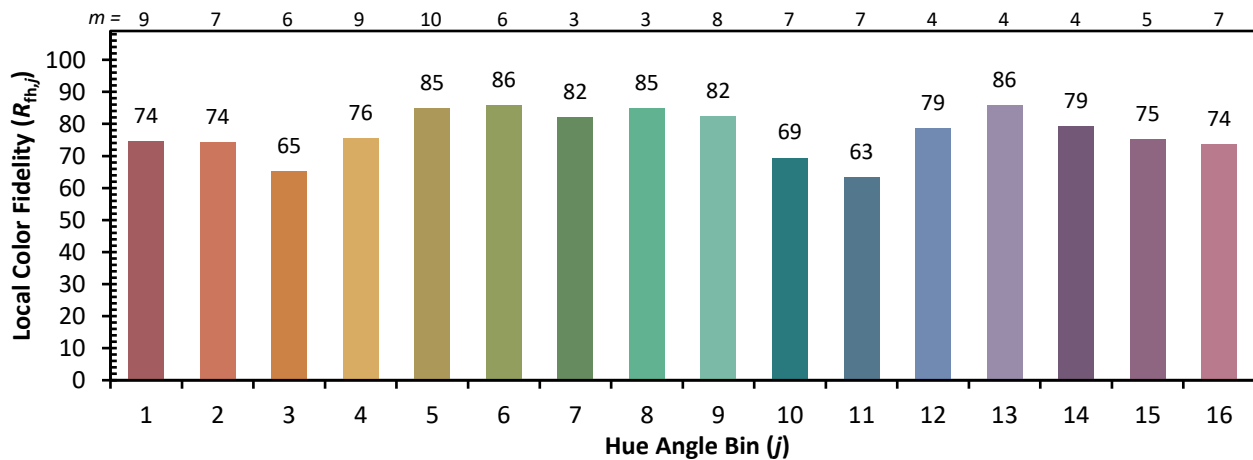


Individual Sample Fidelity Index ($R_{f,i}$)

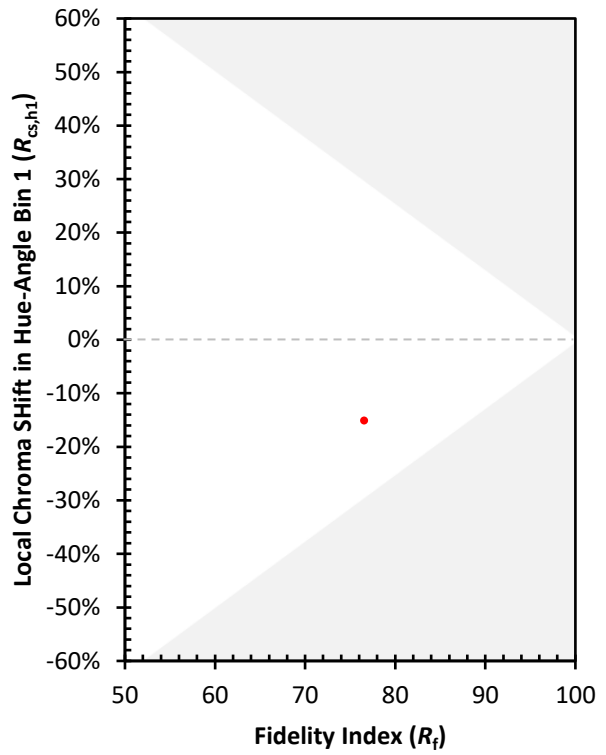
CES01 = 86	CES26 = 67	CES51 = 88	CES76 = 56
CES02 = 62	CES27 = 89	CES52 = 88	CES77 = 75
CES03 = 31	CES28 = 83	CES53 = 78	CES78 = 60
CES04 = 70	CES29 = 69	CES54 = 86	CES79 = 85
CES05 = 48	CES30 = 83	CES55 = 85	CES80 = 82
CES06 = 51	CES31 = 72	CES56 = 75	CES81 = 78
CES07 = 41	CES32 = 65	CES57 = 75	CES82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