

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: P543201

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

Issue Date: 6/22/2021

Test Information

Test Method: LM-79-08
Report Number: P543201
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2106-277-3)
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-RW
Description: TOPTIER LED PARKING GARAGE LUMINAIRE
3500K, 70 CRI LEDS AND RECTANGULAR DISTRIBUTION
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 18363 lumens
Efficiency: N/A
Efficacy: 103.2 lumens/watt
Luminous Opening: Circular (Dia: 1.12' x H: 0')
IES Classification: Type II - Short
BUG Rating: B4 - U0 - G4

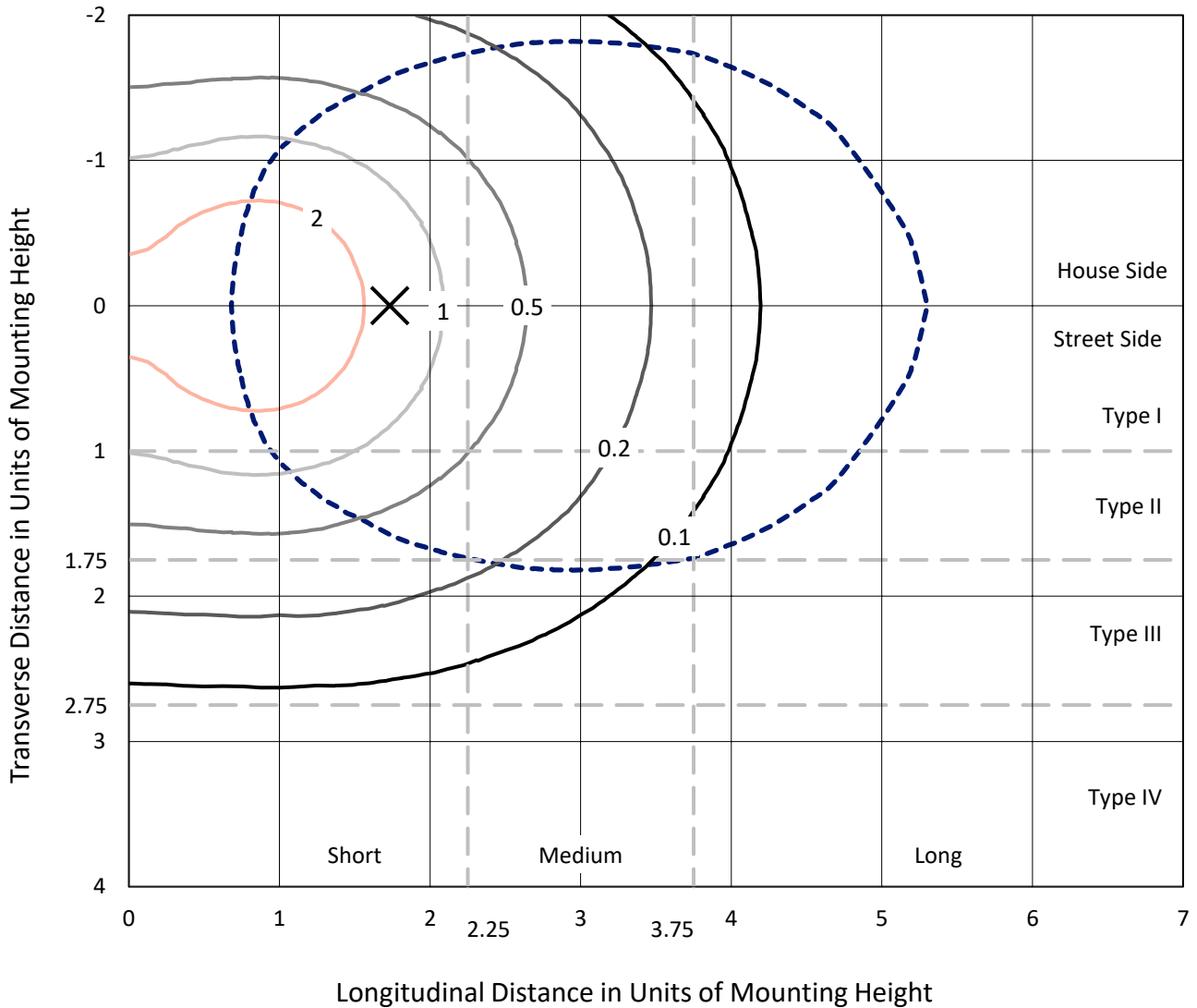
Input Watts (W): 178
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P543201
 CATALOG NUMBER: TT-D9-735-U-RW

Iso-Footcandle Lines of Horizontal Illumination

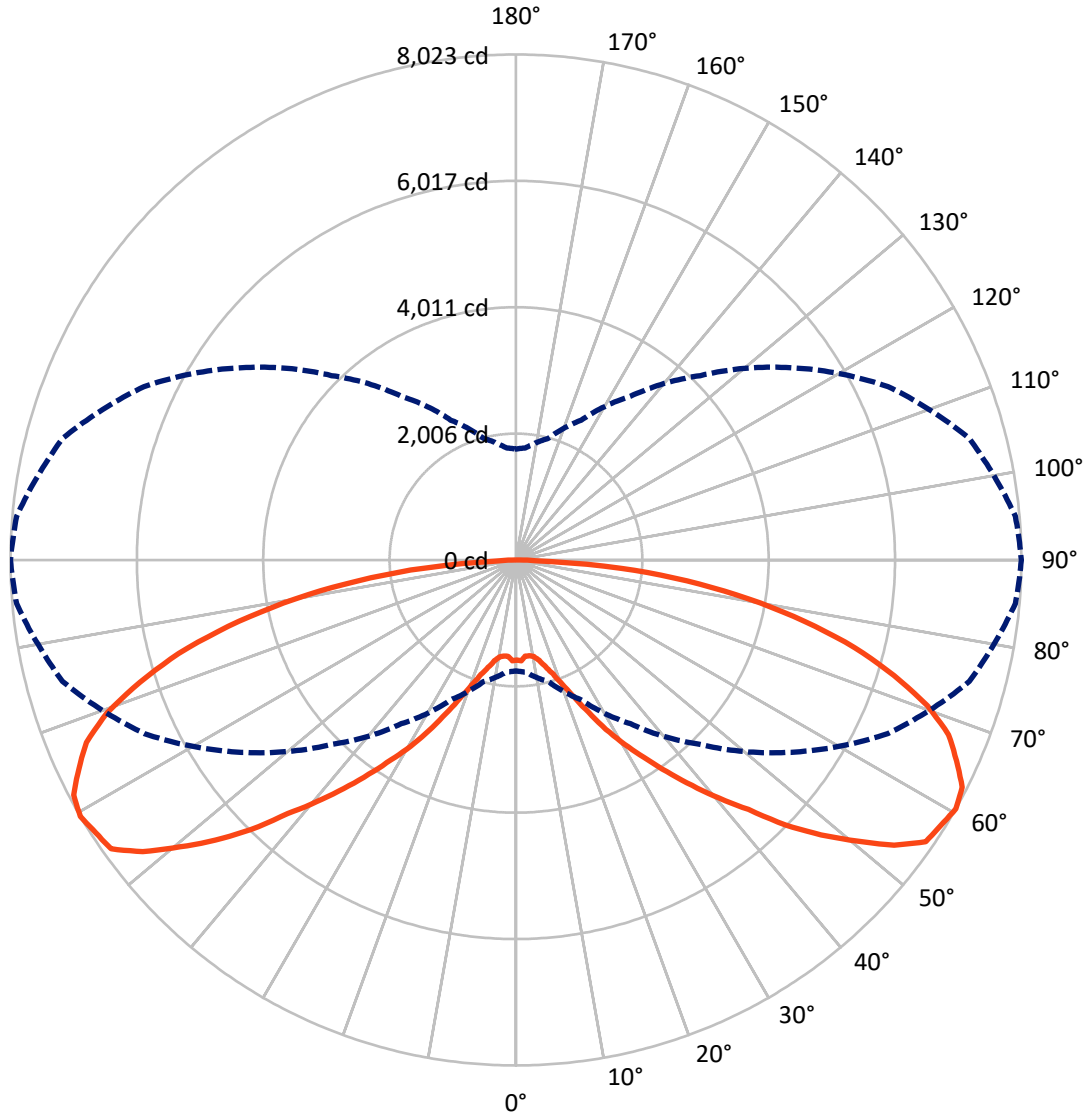
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 3.6 fc
 Type II - Short - N/A

REPORT NUMBER: P543201
CATALOG NUMBER: TT-D9-735-U-RW

Luminous Intensity Polar Plot



— Vertical Plane Through 90-Deg Lateral - - - Horizontal Cone Through 60-Deg Vertical

REPORT NUMBER: P543201
 CATALOG NUMBER: TT-D9-735-U-RW

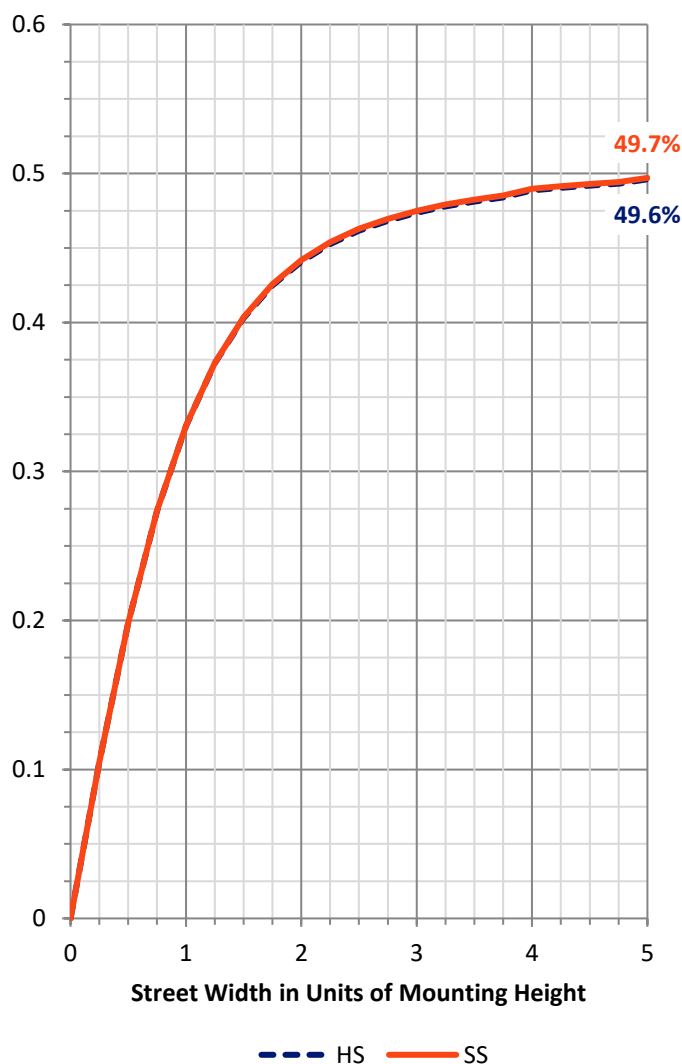
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	9181.5	0.0	9181.5
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	9181.5	0.0	9181.5
	% Fixture	50.0	0.0	50.0
Total	Lumens	18363.0	0.0	18363.0
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	147.8	0.8
10°-20°	466.6	2.5
20°-30°	972.8	5.3
30°-40°	1778.7	9.7
40°-50°	2891.1	15.7
50°-60°	4015.8	21.9
60°-70°	4186.4	22.8
70°-80°	3040.6	16.6
80°-90°	863.2	4.7
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°	18363.0	100.0
0°-180°	18363.0	100.0

Coefficient of Utilization

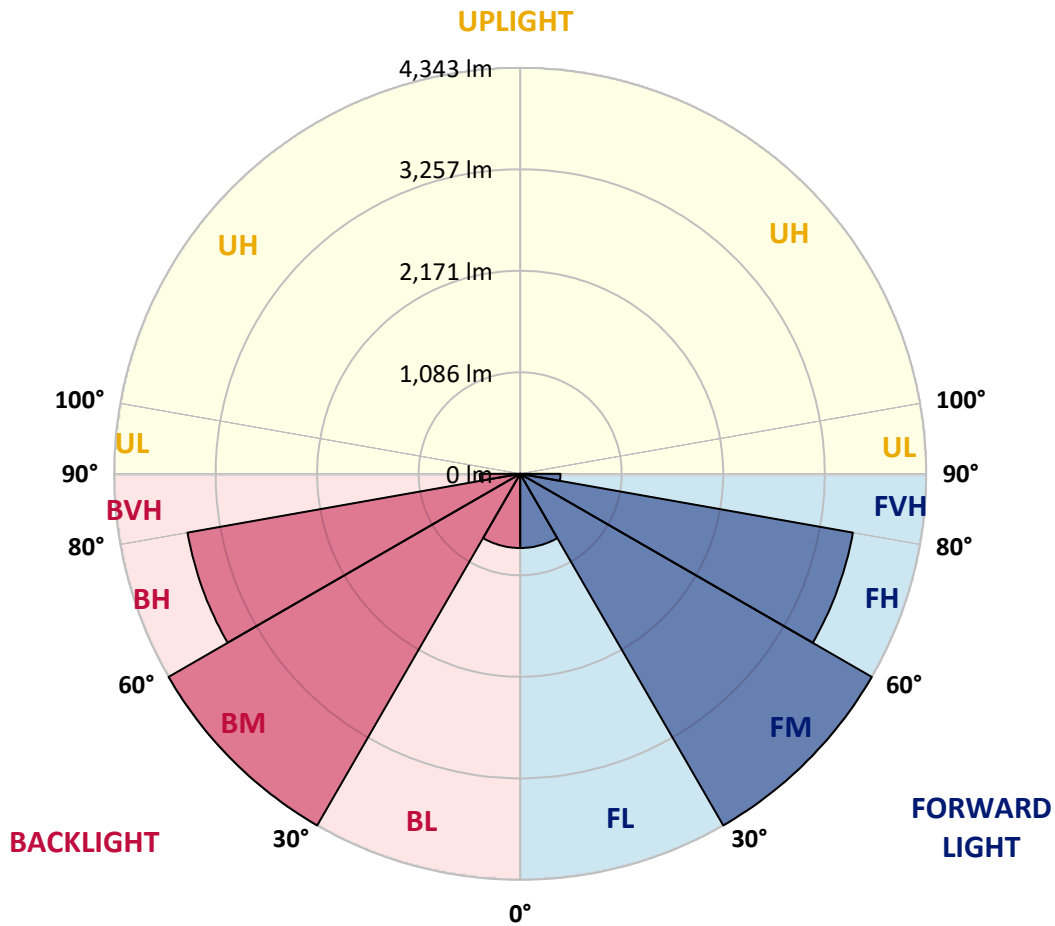


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 CATALOG NUMBER: TT-D9-735-U-RW

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	793.6	4.3			
FM (30°-60°)	4342.8	23.6			
FH (60°-80°)	3613.5	19.7			G2/5000
FVH (80°-90°)	431.6	2.4			G3/500
BL (0°-30°)	793.6	4.3	B2/1000		
BM (30°-60°)	4342.8	23.6	B3/5000		
BH (60°-80°)	3613.5	19.7	B4/5000		G4/5000
BVH (80°-90°)	431.6	2.4			G3/500
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

BUG Rating: B4-U0-G4
 Type II Short





REPORT NUMBER: P543201
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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	1587.9	1587.9	1587.9	1587.9	1587.9	1587.9	1587.9	1587.9	1587.9	1587.9	1587.9
2.5°	1589.0	1589.0	1589.0	1589.0	1591.3	1593.5	1597.9	1599.0	1601.2	1601.2	1601.2
5°	1571.3	1571.3	1567.9	1562.4	1556.8	1553.5	1551.3	1545.7	1540.2	1535.7	1534.6
7.5°	1546.8	1546.8	1541.3	1535.7	1530.2	1528.0	1528.0	1531.3	1533.5	1534.6	1534.6
10°	1528.0	1528.0	1524.6	1523.5	1526.8	1528.0	1532.4	1541.3	1551.3	1555.7	1556.8
12.5°	1513.5	1513.5	1518.0	1523.5	1539.1	1556.8	1580.1	1600.1	1624.6	1634.6	1633.4
15°	1502.4	1502.4	1513.5	1536.8	1570.2	1606.8	1653.4	1696.7	1732.3	1748.9	1758.9
17.5°	1495.8	1498.0	1518.0	1559.1	1615.7	1679.0	1744.5	1815.6	1874.4	1901.1	1900.0
20°	1491.3	1495.8	1528.0	1591.3	1674.5	1771.1	1876.6	1982.1	2056.5	2097.6	2104.3
22.5°	1505.7	1510.2	1552.4	1634.6	1751.2	1898.8	2049.9	2179.8	2300.8	2360.8	2365.2
25°	1520.2	1528.0	1585.7	1694.5	1845.5	2035.4	2236.4	2430.7	2575.1	2667.3	2675.0
27.5°	1546.8	1554.6	1620.1	1756.7	1958.8	2204.2	2472.9	2710.6	2904.9	3028.2	3042.6
30°	1573.5	1581.3	1661.2	1823.3	2073.2	2367.4	2695.0	2993.7	3233.6	3360.2	3396.8
32.5°	1600.1	1611.2	1705.6	1903.3	2202.0	2554.0	2944.9	3289.1	3573.4	3732.2	3738.8
35°	1635.7	1650.1	1758.9	1988.8	2325.3	2742.8	3183.6	3603.4	3917.6	4118.6	4126.4
37.5°	1667.9	1680.1	1812.2	2071.0	2464.1	2933.8	3446.8	3911.0	4319.6	4493.9	4540.6
40°	1705.6	1728.9	1865.5	2157.6	2588.4	3118.1	3710.0	4257.4	4683.8	4940.3	4972.5
42.5°	1750.0	1765.6	1919.9	2242.0	2723.9	3318.0	3989.8	4617.2	5119.1	5385.6	5413.4
45°	1798.9	1815.6	1989.9	2336.4	2874.9	3562.3	4317.4	5044.7	5638.8	5957.5	5999.7
47.5°	1838.9	1858.9	2037.6	2430.7	3014.8	3754.4	4621.6	5495.5	6129.6	6493.8	6521.6
50°	1854.4	1892.2	2082.1	2490.7	3113.7	3939.8	4897.0	5834.2	6577.1	6988.0	7013.5
52.5°	1882.2	1898.8	2112.0	2538.5	3228.0	4101.9	5178.0	6191.8	7010.2	7453.2	7518.8
55°	1870.0	1886.6	2094.3	2556.2	3253.6	4186.3	5312.3	6451.6	7298.9	7774.2	7894.1
57.5°	1821.1	1855.5	2063.2	2511.8	3245.8	4199.7	5380.1	6519.4	7425.5	7966.3	7950.7
60°	1760.0	1786.7	1999.9	2448.5	3172.5	4138.6	5322.3	6514.9	7449.9	7957.4	8022.9
62.5°	1674.5	1703.4	1911.1	2330.8	3091.5	4045.3	5280.1	6390.6	7384.4	7855.2	7949.6
65°	1564.6	1593.5	1793.4	2232.0	2882.7	3833.2	5020.3	6285.1	7201.2	7657.6	7685.3
67.5°	1438.0	1451.3	1649.0	2038.8	2728.3	3637.8	4800.4	5903.1	6779.2	7297.8	7407.7
70°	1284.8	1315.9	1482.4	1857.8	2462.9	3302.4	4408.4	5498.9	6410.5	6839.2	6930.2
72.5°	1113.8	1146.0	1295.9	1629.0	2182.0	2969.3	3973.1	5035.8	5835.3	6269.5	6277.3
75°	931.7	953.9	1084.9	1372.5	1846.7	2557.3	3451.2	4368.5	5103.6	5516.6	5557.7
77.5°	741.8	761.8	859.5	1103.8	1501.3	2106.5	2857.1	3703.3	4290.7	4631.6	4687.1
80°	537.5	555.2	632.9	816.2	1143.7	1625.7	2254.2	2891.6	3389.0	3684.4	3751.0
82.5°	346.5	349.8	407.5	536.3	751.8	1092.7	1579.0	2083.2	2448.5	2686.1	2737.2
85°	167.7	167.7	197.7	263.2	370.9	595.2	899.5	1255.9	1488.0	1650.1	1680.1
87.5°	42.2	43.3	45.5	46.6	54.4	65.5	103.3	209.9	318.7	350.9	306.5
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

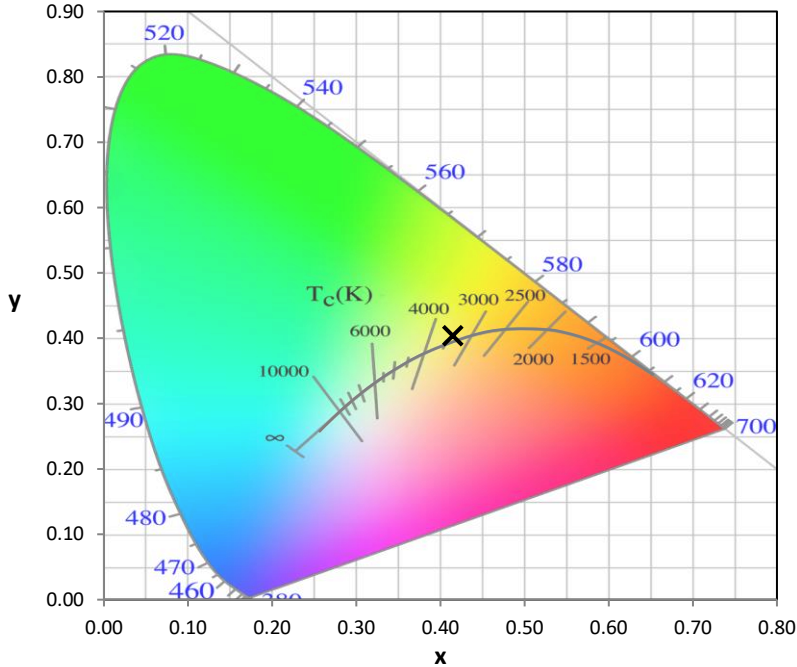
Stabilization Time: 38M
 Operation Time: 1H 38M
 Sphere Temperature (°C): 24.9

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 ($R_{f,i}$)

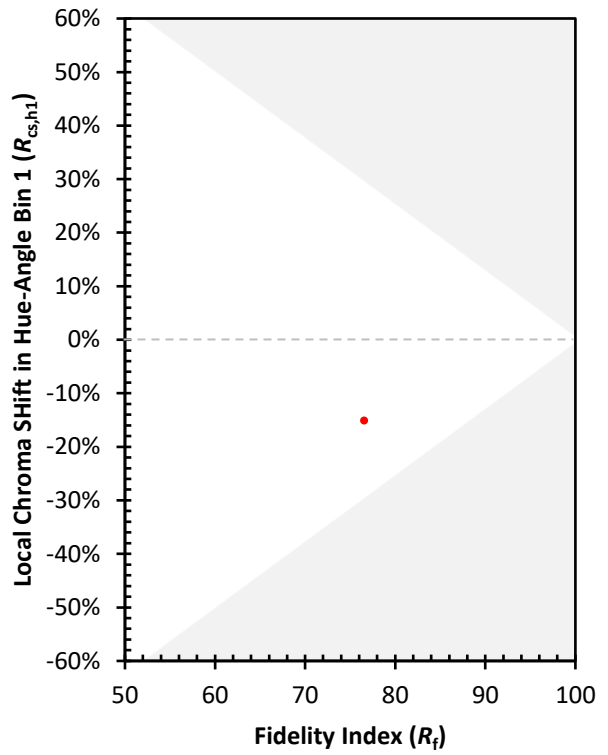
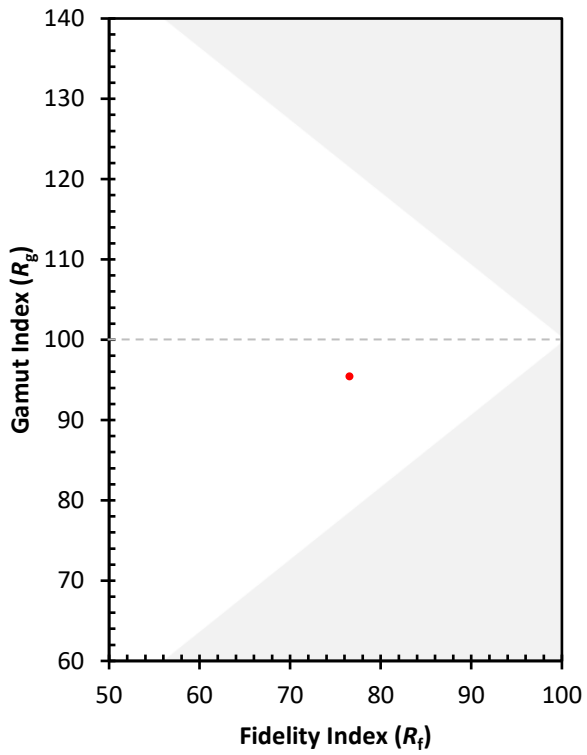
CES01 = 86	CES26 = 67	CES51 = 88	CES76 = 56
CES02 = 62	CES27 = 89	CES52 = 88	CES77 = 75
CES03 = 31	CES28 = 83	CES53 = 78	CES78 = 60
CES04 = 70	CES29 = 69	CES54 = 86	CES79 = 85
CES05 = 48	CES30 = 83	CES55 = 85	CES80 = 82
CES06 = 51	CES31 = 72	CES56 = 75	CES81 = 78
CES07 = 41	CES32 = 65	CES57 = 75	CES82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