

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: P834039

Luminaire Tested: **TTN-D3-830-U-DL-UPL3**

Issue Date: 5/15/2024

Test Information

Test Method: LM-79-08
Report Number: P834039
REPORT IS FROM IESNA LM-79-08 TEST DATA - UPLIGHT (G3-2308-121-4) AND
Test Lab: INNOVATION CENTER
Issue Date: 5/15/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: MCGRAW-EDISON
Catalog Number: TTN-D3-830-U-DL-UPL3
Description: TOPTIER NANO LED PARKING GARAGE LUMINAIRE WITH UPLIGHT
3000K, 80 CRI LEDS AND DRIVE LANE DISTRIBUTION
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6718.7 lumens
Efficiency: N/A
Efficacy: 101.5 lumens/watt
Luminous Opening: Vertical Cylinder (Dia: 0.71' x H: 0.1')
IES Classification: Type IV - Short
BUG Rating: B1 - U4 - G2

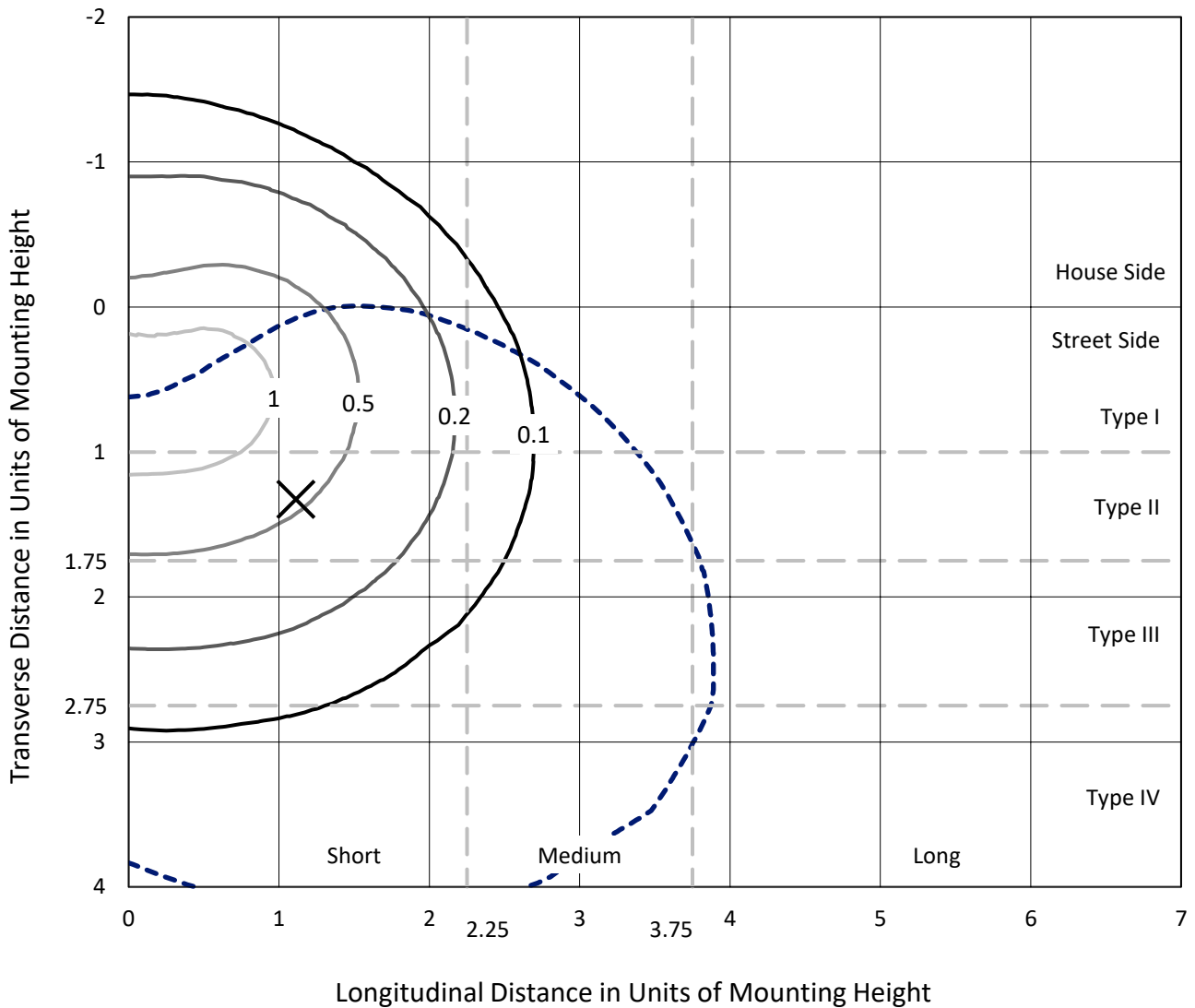
Input Watts (W): 66.2
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



REPORT NUMBER: P834039
 CATALOG NUMBER: TTN-D3-830-U-DL-UPL3

Iso-Footcandle Lines of Horizontal Illumination

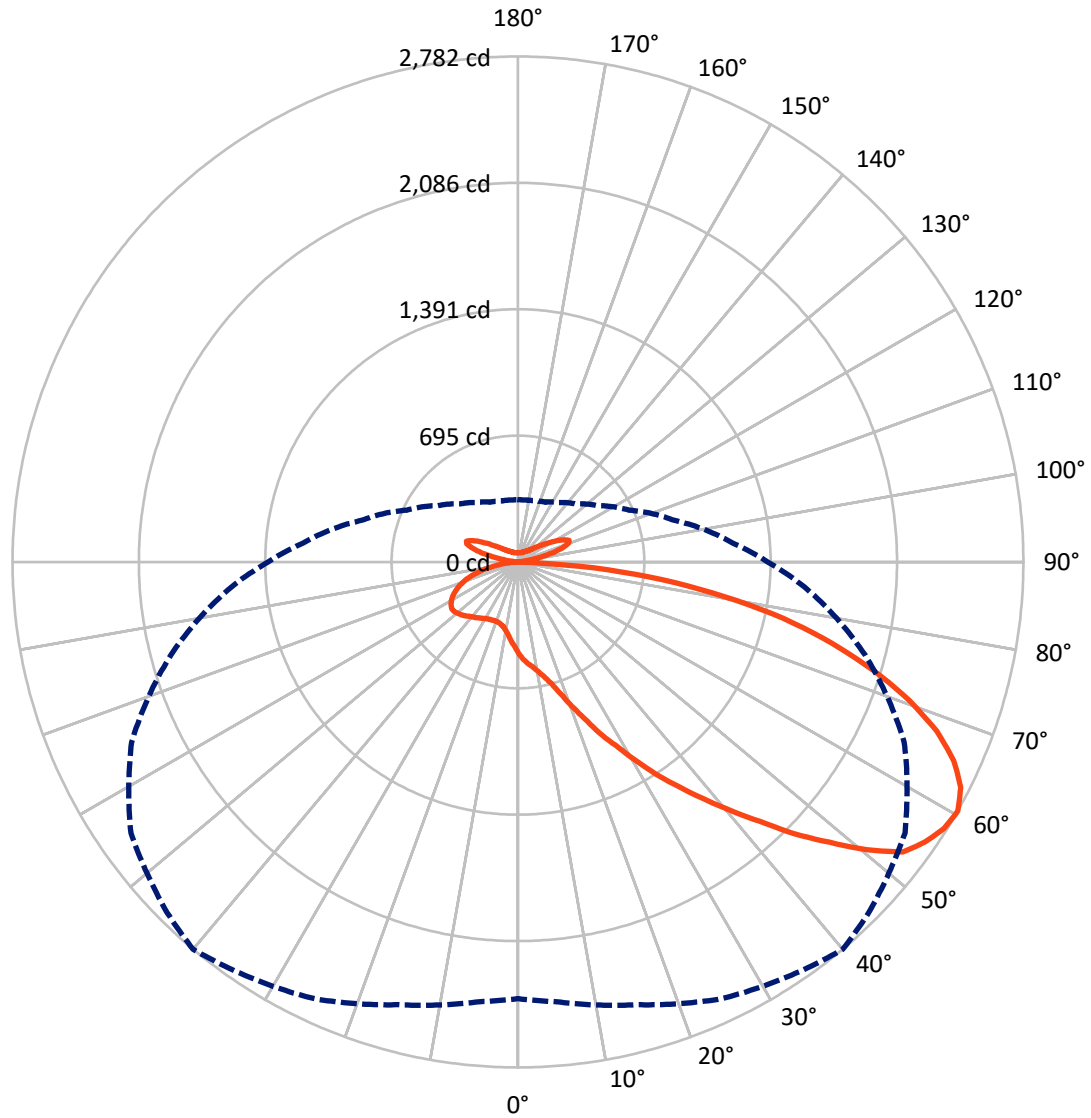
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 1.4 fc
 Type IV - Short - N/A

REPORT NUMBER: P834039
CATALOG NUMBER: TTN-D3-830-U-DL-UPL3

Luminous Intensity Polar Plot



— Vertical Plane Through 40-Deg Lateral - - - Horizontal Cone Through 60-Deg Vertical

REPORT NUMBER: P834039
 CATALOG NUMBER: TTN-D3-830-U-DL-UPL3

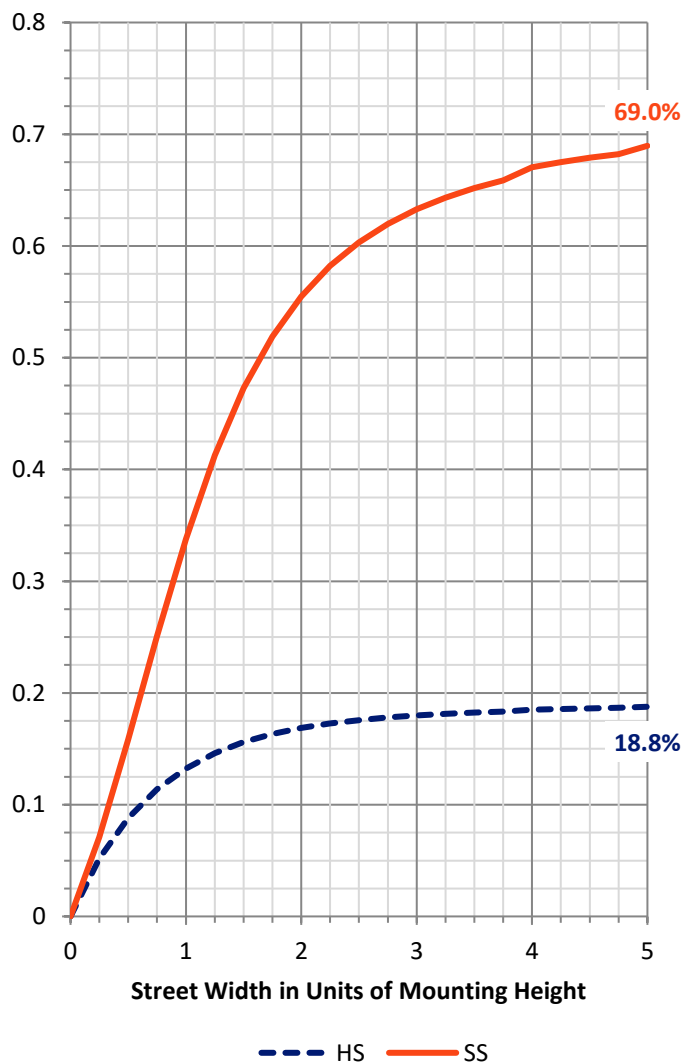
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	1273.3	370.3	1643.7
	% Fixture	19.0	5.5	24.5
Street Side	Lumens	4704.7	370.3	5075.0
	% Fixture	70.0	5.5	75.5
Total	Lumens	5978.0	740.7	6718.7
	% Fixture	89.0	11.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	47.5	0.7
10°-20°	151.5	2.3
20°-30°	320.1	4.8
30°-40°	585.0	8.7
40°-50°	950.5	14.1
50°-60°	1321.2	19.7
60°-70°	1369.6	20.4
70°-80°	981.4	14.6
80°-90°	251.2	3.7
90°-100°	16.5	0.2
100°-110°	168.0	2.5
110°-120°	245.6	3.7
120°-130°	142.5	2.1
130°-140°	75.5	1.1
140°-150°	44.9	0.7
150°-160°	27.6	0.4
160°-170°	15.1	0.2
170°-180°	4.9	0.1
0°-90°	5978.0	89.0
0°-180°	6718.7	100.0

Coefficient of Utilization

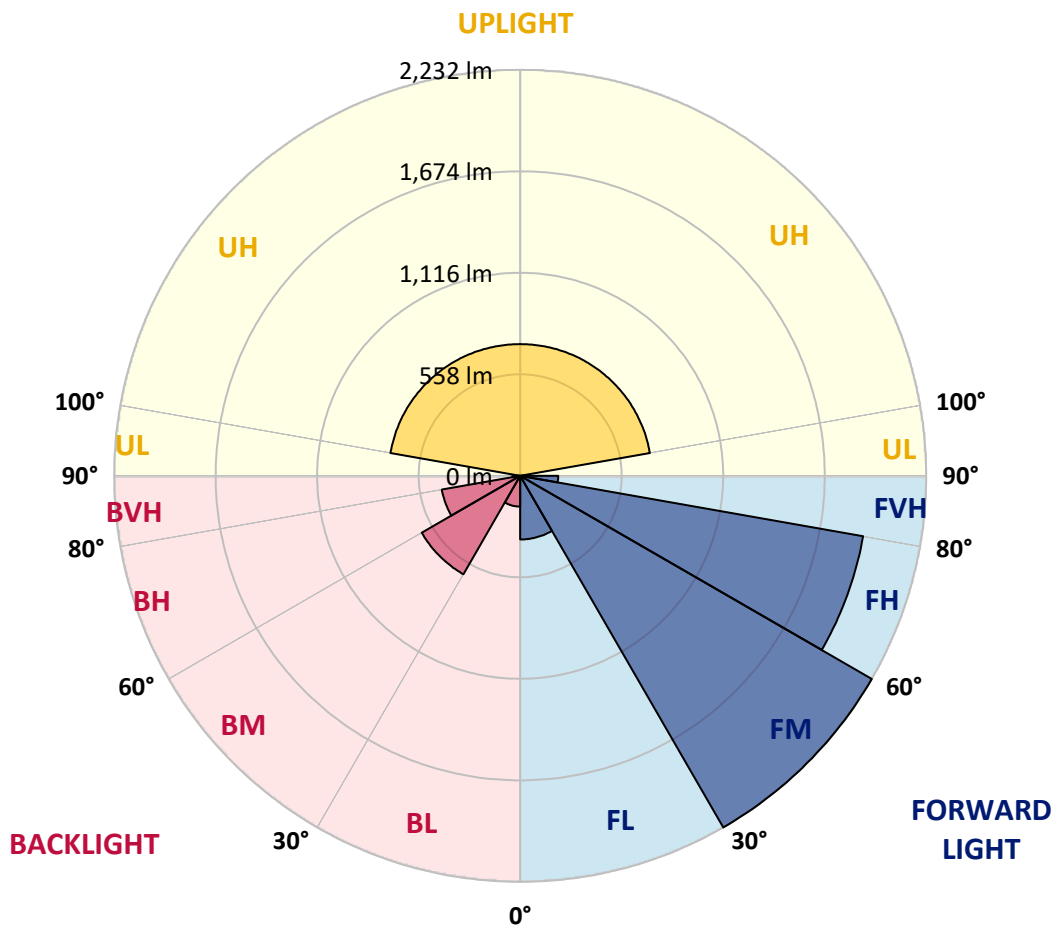


REPORT NUMBER: P834039
 CATALOG NUMBER: TTN-D3-830-U-DL-UPL3

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	349.8	5.2			
FM (30°-60°)	2231.8	33.2			
FH (60°-80°)	1914.2	28.5			G2/5000
FVH (80°-90°)	209.0	3.1			G2/225
BL (0°-30°)	169.3	2.5	B1/500		
BM (30°-60°)	624.9	9.3	B1/1000		
BH (60°-80°)	436.9	6.5	B1/500		G1/500
BVH (80°-90°)	42.3	0.6			G1/100
UL (90°-100°)	16.5	0.2		U2/50	
UH (100°-180°)	724.2	10.8		U4/1000	

BUG Rating: B1-U4-G2
 Type IV Short





REPORT NUMBER: P834039
 CATALOG NUMBER: TTN-D3-830-U-DL-UPL3

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	40°	45°	55°	65°	75°	85°
0°	503.4	503.4	503.4	503.4	503.4	503.4	503.4	503.4	503.4	503.4	503.4
2.5°	539.7	539.7	539.7	539.7	534.5	534.5	529.3	524.2	519.0	513.8	503.4
5°	586.4	586.4	581.2	576.1	565.7	560.5	555.3	544.9	534.5	524.2	508.6
7.5°	607.2	607.2	607.2	602.0	586.4	581.2	570.9	555.3	539.7	524.2	503.4
10°	643.5	643.5	638.3	633.1	617.6	612.4	602.0	581.2	555.3	529.3	503.4
12.5°	690.2	685.0	679.8	674.7	659.1	648.7	633.1	612.4	581.2	550.1	519.0
15°	747.3	736.9	736.9	726.5	711.0	695.4	685.0	653.9	622.8	581.2	539.7
17.5°	809.6	804.4	799.2	788.8	773.3	762.9	747.3	711.0	669.5	617.6	570.9
20°	887.4	877.0	882.2	866.7	851.1	845.9	820.0	778.4	726.5	669.5	612.4
22.5°	980.8	970.5	970.5	954.9	944.5	934.1	908.2	861.5	794.0	731.7	659.1
25°	1084.6	1074.3	1074.3	1063.9	1053.5	1043.1	1012.0	960.1	882.2	804.4	721.4
27.5°	1198.8	1188.4	1188.4	1183.2	1157.3	1141.7	1115.8	1058.7	980.8	882.2	783.6
30°	1318.2	1307.8	1318.2	1307.8	1292.2	1261.1	1229.9	1167.7	1079.4	970.5	851.1
32.5°	1411.6	1411.6	1416.8	1427.2	1416.8	1390.8	1354.5	1302.6	1183.2	1048.3	913.4
35°	1520.6	1520.6	1530.9	1546.5	1541.3	1515.4	1479.0	1422.0	1297.4	1136.5	980.8
37.5°	1639.9	1639.9	1650.3	1676.3	1665.9	1650.3	1624.4	1551.7	1411.6	1224.8	1053.5
40°	1769.7	1764.5	1774.9	1811.2	1816.4	1795.6	1764.5	1691.8	1530.9	1338.9	1131.3
42.5°	1899.4	1894.2	1915.0	1951.3	1956.5	1951.3	1920.2	1837.1	1655.5	1453.1	1209.2
45°	2029.1	2029.1	2060.3	2117.4	2143.3	2132.9	2107.0	2003.2	1811.2	1572.5	1313.0
47.5°	2164.1	2164.1	2205.6	2278.3	2309.4	2304.2	2293.8	2169.3	1961.7	1697.0	1401.2
50°	2267.9	2267.9	2335.3	2418.4	2470.3	2491.0	2439.1	2325.0	2091.4	1806.0	1473.9
52.5°	2371.7	2371.7	2439.1	2568.9	2620.8	2651.9	2584.4	2465.1	2236.7	1904.6	1541.3
55°	2423.6	2433.9	2527.4	2651.9	2734.9	2719.4	2745.3	2584.4	2330.1	1977.3	1582.8
57.5°	2428.8	2444.3	2548.1	2677.9	2771.3	2766.1	2771.3	2626.0	2366.5	1992.8	1588.0
60°	2402.8	2428.8	2522.2	2651.9	2740.1	2781.6	2729.8	2600.0	2345.7	1977.3	1582.8
62.5°	2340.5	2392.4	2491.0	2589.6	2719.4	2734.9	2693.4	2584.4	2288.6	1961.7	1556.9
65°	2200.4	2257.5	2397.6	2511.8	2615.6	2636.3	2589.6	2496.2	2231.5	1889.0	1473.9
67.5°	2060.3	2096.6	2216.0	2392.4	2465.1	2485.8	2470.3	2361.3	2132.9	1743.7	1375.3
70°	1899.4	1946.1	2039.5	2221.2	2293.8	2288.6	2335.3	2210.8	1982.4	1619.2	1271.5
72.5°	1681.4	1748.9	1842.3	1992.8	2081.0	2049.9	2122.6	2018.8	1785.2	1463.5	1131.3
75°	1427.2	1484.2	1603.6	1723.0	1821.6	1785.2	1842.3	1769.7	1556.9	1276.7	970.5
77.5°	1141.7	1209.2	1318.2	1427.2	1494.6	1494.6	1520.6	1458.3	1292.2	1048.3	794.0
80°	845.9	908.2	1006.8	1084.6	1146.9	1152.1	1178.0	1146.9	996.4	814.8	607.2
82.5°	560.5	591.6	679.8	742.1	804.4	799.2	840.7	820.0	695.4	560.5	404.8
85°	238.7	259.5	332.1	384.0	441.1	420.4	477.4	472.3	373.7	269.9	181.6
87.5°	10.4	15.6	15.6	10.4	15.6	5.2	15.6	20.8	15.6	10.4	10.4
90°	6.3	6.3	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	6.3
92.5°	6.3	6.3	6.3	8.9	10.1	9.5	8.9	10.1	7.6	7.6	6.3
95°	7.6	7.6	8.9	11.4	13.9	14.6	15.2	15.2	8.9	8.9	7.6
97.5°	10.1	11.4	11.4	13.9	22.8	32.3	41.8	25.3	12.7	12.7	11.4
100°	16.5	17.7	17.7	31.7	67.2	78.6	90.0	64.6	32.9	24.1	17.7
102.5°	53.2	55.8	68.4	102.6	152.1	145.1	138.1	116.6	110.2	76.0	60.8
105°	135.6	134.3	144.5	171.1	212.9	211.0	209.1	192.6	174.9	150.8	139.4
107.5°	178.7	178.7	187.5	210.4	242.0	262.3	282.6	286.4	226.8	198.9	186.3
110°	201.5	201.5	209.1	228.1	269.9	298.4	326.9	324.4	280.0	245.8	229.4



REPORT NUMBER: P834039
 CATALOG NUMBER: TTN-D3-830-U-DL-UPL3

CANDELA DISTRIBUTION (continued):

	0°	5°	15°	25°	35°	40°	45°	55°	65°	75°	85°
112.5°	206.5	207.8	218.0	247.1	292.7	305.4	318.1	306.7	288.9	273.7	261.0
115°	214.2	214.2	225.6	253.4	278.8	283.8	288.9	276.2	262.3	252.2	247.1
117.5°	211.6	215.4	218.0	233.2	249.6	253.4	257.2	250.9	231.9	224.3	221.8
120°	196.4	196.4	198.9	206.5	215.4	217.3	219.2	216.7	204.0	197.7	196.4
122.5°	174.9	176.1	174.9	178.7	185.0	186.9	188.8	186.3	176.1	173.6	173.6
125°	153.3	153.3	152.1	154.6	158.4	157.8	157.1	158.4	153.3	152.1	152.1
127.5°	138.1	136.9	134.3	135.6	136.9	136.9	136.9	138.1	133.1	134.3	135.6
130°	122.9	122.9	120.4	120.4	120.4	119.1	117.8	120.4	117.8	119.1	120.4
132.5°	109.0	109.0	105.2	103.9	103.9	103.9	103.9	105.2	103.9	106.4	109.0
135°	97.6	97.6	93.8	95.0	95.0	94.4	93.8	95.0	93.8	96.3	97.6
137.5°	88.7	88.7	86.2	86.2	86.2	85.6	84.9	86.2	86.2	87.4	90.0
140°	81.1	81.1	79.8	79.8	78.6	79.2	79.8	79.8	79.8	81.1	82.4
142.5°	77.3	76.0	74.8	73.5	74.8	74.8	74.8	74.8	73.5	74.8	77.3
145°	71.0	71.0	69.7	69.7	69.7	70.4	71.0	69.7	69.7	71.0	71.0
147.5°	67.2	67.2	65.9	67.2	67.2	67.2	67.2	67.2	65.9	67.2	67.2
150°	65.9	64.6	63.4	64.6	64.6	64.0	63.4	63.4	63.4	63.4	64.6
152.5°	62.1	62.1	60.8	62.1	60.8	60.8	60.8	60.8	60.8	60.8	62.1
155°	59.6	59.6	58.3	59.6	59.6	59.6	59.6	59.6	59.6	59.6	59.6
157.5°	57.0	58.3	57.0	57.0	57.0	57.0	57.0	57.0	57.0	57.0	58.3
160°	55.8	55.8	55.8	55.8	54.5	54.5	54.5	54.5	55.8	55.8	55.8
162.5°	54.5	54.5	54.5	54.5	53.2	53.2	53.2	53.2	53.2	54.5	54.5
165°	54.5	53.2	53.2	53.2	52.0	52.0	52.0	52.0	52.0	53.2	54.5
167.5°	52.0	52.0	52.0	52.0	52.0	51.4	50.7	50.7	52.0	52.0	52.0
170°	52.0	52.0	50.7	50.7	50.7	50.7	50.7	50.7	50.7	50.7	50.7
172.5°	52.0	52.0	52.0	52.0	50.7	50.7	50.7	50.7	50.7	50.7	52.0
175°	52.0	52.0	52.0	52.0	50.7	50.7	50.7	50.7	52.0	52.0	52.0
177.5°	52.0	52.0	52.0	52.0	50.7	51.4	52.0	52.0	52.0	52.0	52.0
180°	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0



REPORT NUMBER: P834039
 CATALOG NUMBER: TTN-D3-830-U-DL-UPL3

CANDELA DISTRIBUTION (continued):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	503.4	503.4	503.4	503.4	503.4	503.4	503.4	503.4	503.4	503.4	503.4
2.5°	503.4	498.2	487.8	482.6	477.4	467.1	467.1	461.9	461.9	461.9	456.7
5°	503.4	493.0	482.6	467.1	456.7	446.3	435.9	425.6	420.4	420.4	415.2
7.5°	493.0	482.6	467.1	451.5	435.9	415.2	404.8	384.0	378.8	373.7	373.7
10°	493.0	482.6	456.7	435.9	415.2	394.4	378.8	358.1	342.5	337.3	337.3
12.5°	498.2	482.6	456.7	430.7	404.8	378.8	358.1	337.3	321.8	311.4	311.4
15°	519.0	498.2	467.1	430.7	399.6	368.5	347.7	321.8	306.2	295.8	295.8
17.5°	544.9	524.2	477.4	435.9	399.6	363.3	337.3	311.4	295.8	285.4	280.2
20°	581.2	550.1	498.2	441.1	399.6	363.3	332.1	306.2	285.4	275.1	275.1
22.5°	622.8	586.4	519.0	451.5	404.8	363.3	332.1	301.0	280.2	269.9	269.9
25°	674.7	627.9	550.1	472.3	415.2	368.5	332.1	301.0	280.2	269.9	269.9
27.5°	731.7	679.8	581.2	493.0	425.6	373.7	332.1	301.0	280.2	269.9	269.9
30°	783.6	726.5	612.4	513.8	441.1	378.8	337.3	306.2	285.4	275.1	269.9
32.5°	840.7	768.1	643.5	534.5	451.5	389.2	342.5	311.4	285.4	275.1	275.1
35°	897.8	820.0	674.7	560.5	467.1	399.6	347.7	316.6	290.6	280.2	280.2
37.5°	960.1	877.0	711.0	581.2	482.6	410.0	358.1	321.8	295.8	285.4	285.4
40°	1032.7	934.1	747.3	607.2	498.2	420.4	363.3	332.1	306.2	295.8	295.8
42.5°	1100.2	986.0	783.6	627.9	513.8	430.7	373.7	337.3	316.6	306.2	306.2
45°	1167.7	1048.3	820.0	653.9	529.3	446.3	384.0	352.9	326.9	316.6	316.6
47.5°	1245.5	1105.4	861.5	674.7	544.9	456.7	394.4	363.3	337.3	332.1	326.9
50°	1307.8	1146.9	887.4	695.4	555.3	467.1	404.8	368.5	347.7	337.3	337.3
52.5°	1364.9	1188.4	908.2	705.8	560.5	472.3	415.2	378.8	358.1	347.7	347.7
55°	1396.0	1204.0	923.8	705.8	565.7	477.4	415.2	378.8	358.1	352.9	347.7
57.5°	1396.0	1204.0	913.4	695.4	555.3	467.1	410.0	373.7	358.1	347.7	347.7
60°	1375.3	1188.4	887.4	674.7	539.7	451.5	399.6	363.3	347.7	342.5	342.5
62.5°	1344.1	1162.5	866.7	648.7	519.0	430.7	384.0	347.7	337.3	337.3	332.1
65°	1261.1	1084.6	820.0	612.4	487.8	404.8	363.3	332.1	321.8	316.6	311.4
67.5°	1172.9	1012.0	747.3	570.9	446.3	378.8	337.3	311.4	295.8	295.8	290.6
70°	1084.6	934.1	679.8	513.8	399.6	347.7	306.2	280.2	269.9	269.9	269.9
72.5°	965.3	835.5	602.0	451.5	352.9	306.2	275.1	249.1	243.9	243.9	238.7
75°	825.2	711.0	508.6	384.0	295.8	259.5	233.5	207.6	207.6	207.6	207.6
77.5°	674.7	576.1	404.8	306.2	233.5	207.6	192.0	171.3	171.3	171.3	171.3
80°	508.6	425.6	295.8	223.2	171.3	150.5	140.1	129.7	134.9	134.9	129.7
82.5°	332.1	280.2	186.8	140.1	109.0	98.6	98.6	88.2	93.4	93.4	93.4
85°	145.3	124.6	77.8	62.3	51.9	51.9	51.9	46.7	51.9	51.9	51.9
87.5°	10.4	10.4	10.4	10.4	10.4	10.4	10.4	0.0	5.2	10.4	5.2
90°	6.3	6.3	7.6	7.6	7.6	7.6	7.6	7.6	7.6	6.3	6.3
92.5°	6.3	6.3	7.6	7.6	10.1	8.9	10.1	8.9	6.3	6.3	6.3
95°	7.6	7.6	8.9	8.9	15.2	15.2	13.9	11.4	8.9	7.6	7.6
97.5°	10.1	11.4	12.7	12.7	25.3	41.8	22.8	13.9	11.4	11.4	10.1
100°	17.7	17.7	24.1	32.9	64.6	90.0	67.2	31.7	17.7	17.7	16.5
102.5°	58.3	60.8	76.0	110.2	116.6	138.1	152.1	102.6	68.4	55.8	53.2
105°	139.4	139.4	150.8	174.9	192.6	209.1	212.9	171.1	144.5	134.3	135.6
107.5°	185.0	186.3	198.9	226.8	286.4	282.6	242.0	210.4	187.5	178.7	178.7
110°	226.8	229.4	245.8	280.0	324.4	326.9	269.9	228.1	209.1	201.5	201.5



REPORT NUMBER: P834039
 CATALOG NUMBER: TTN-D3-830-U-DL-UPL3

CANDELA DISTRIBUTION (continued):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
112.5°	258.5	261.0	273.7	288.9	306.7	318.1	292.7	247.1	218.0	207.8	206.5
115°	249.6	247.1	252.2	262.3	276.2	288.9	278.8	253.4	225.6	214.2	214.2
117.5°	218.0	221.8	224.3	231.9	250.9	257.2	249.6	233.2	218.0	215.4	211.6
120°	193.9	196.4	197.7	204.0	216.7	219.2	215.4	206.5	198.9	196.4	196.4
122.5°	171.1	173.6	173.6	176.1	186.3	188.8	185.0	178.7	174.9	176.1	174.9
125°	150.8	152.1	152.1	153.3	158.4	157.1	158.4	154.6	152.1	153.3	153.3
127.5°	134.3	135.6	134.3	133.1	138.1	136.9	136.9	135.6	134.3	136.9	138.1
130°	121.6	120.4	119.1	117.8	120.4	117.8	120.4	120.4	120.4	122.9	122.9
132.5°	109.0	109.0	106.4	103.9	105.2	103.9	103.9	103.9	105.2	109.0	109.0
135°	97.6	97.6	96.3	93.8	95.0	93.8	95.0	95.0	93.8	97.6	97.6
137.5°	91.2	90.0	87.4	86.2	86.2	84.9	86.2	86.2	86.2	88.7	88.7
140°	82.4	82.4	81.1	79.8	79.8	79.8	78.6	79.8	79.8	81.1	81.1
142.5°	77.3	77.3	74.8	73.5	74.8	74.8	74.8	73.5	74.8	76.0	77.3
145°	72.2	71.0	71.0	69.7	69.7	71.0	69.7	69.7	69.7	71.0	71.0
147.5°	68.4	67.2	67.2	65.9	67.2	67.2	67.2	67.2	65.9	67.2	67.2
150°	64.6	64.6	63.4	63.4	63.4	63.4	64.6	64.6	63.4	64.6	65.9
152.5°	63.4	62.1	60.8	60.8	60.8	60.8	60.8	62.1	60.8	62.1	62.1
155°	59.6	59.6	59.6	59.6	59.6	59.6	59.6	59.6	58.3	59.6	59.6
157.5°	58.3	58.3	57.0	57.0	57.0	57.0	57.0	57.0	57.0	58.3	57.0
160°	57.0	55.8	55.8	55.8	54.5	54.5	54.5	55.8	55.8	55.8	55.8
162.5°	55.8	54.5	54.5	53.2	53.2	53.2	53.2	54.5	54.5	54.5	54.5
165°	53.2	54.5	53.2	52.0	52.0	52.0	52.0	53.2	53.2	53.2	54.5
167.5°	53.2	52.0	52.0	52.0	50.7	50.7	52.0	52.0	52.0	52.0	52.0
170°	52.0	50.7	50.7	50.7	50.7	50.7	50.7	50.7	50.7	52.0	52.0
172.5°	52.0	52.0	50.7	50.7	50.7	50.7	50.7	52.0	52.0	52.0	52.0
175°	50.7	52.0	52.0	52.0	50.7	50.7	50.7	52.0	52.0	52.0	52.0
177.5°	52.0	52.0	52.0	52.0	52.0	52.0	50.7	52.0	52.0	52.0	52.0
180°	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0

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: SP1-2411-284-4

Test Date: 11/22/2024

Luminaire Tested: TTN-D0-830-U-WQ

Data in this report applies to TT and TTN families of products

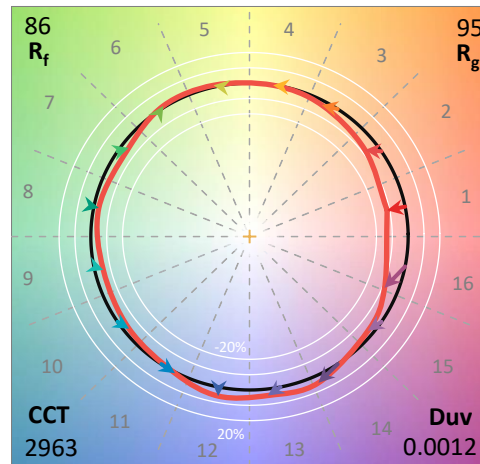
Test Information

Test Method: LM-79-2019
 Report Number: SP1-2411-284-4
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 11/22/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: MCGRAW EDISON
 Catalog Number: **TTN-D0-830-U-WQ**
 Description: TOPTIER NANO LED PARKING GARAGE LUMINAIRE. 3000K, 80 CRI LEDS AND WIDE DISTRIBUTION

Spectral Parameters

CCT (K): 2963
 CIE u': 0.2515
 CIE v': 0.5238
 Duv: 0.0012
 CIE x: 0.4414
 CIE y: 0.4086
 CIE z: 0.1501
 Peak Wavelength (nm): 603
 Dominant Wavelength (nm): 582
 Purity: 55.12798
 Rf: 86.1
 Rg: 94.9

CRI (Ra):	82.9		
R1:	81.4	R9:	3.9
R2:	91.9	R10:	82.5
R3:	95.2	R11:	82.3
R4:	81.6	R12:	76.5
R5:	82.3	R13:	83.9
R6:	91.4	R14:	97.8
R7:	82.0	R15:	72.6
R8:	57.2		



Test Conditions

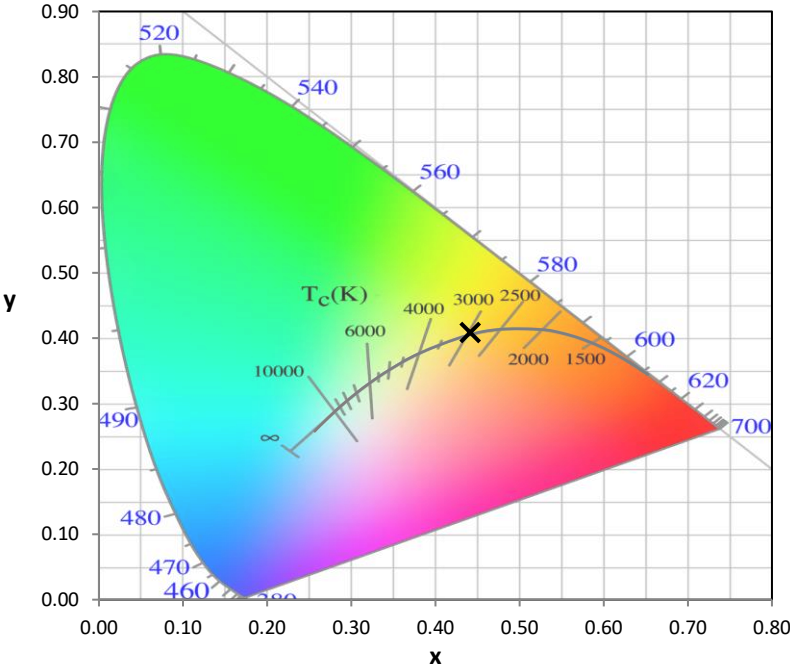
Stabilization Time: 37M
 Operation Time: 1H 37M
 Sphere Temperature (°C): 25.0

REPORT NUMBER: SP1-2411-284-4

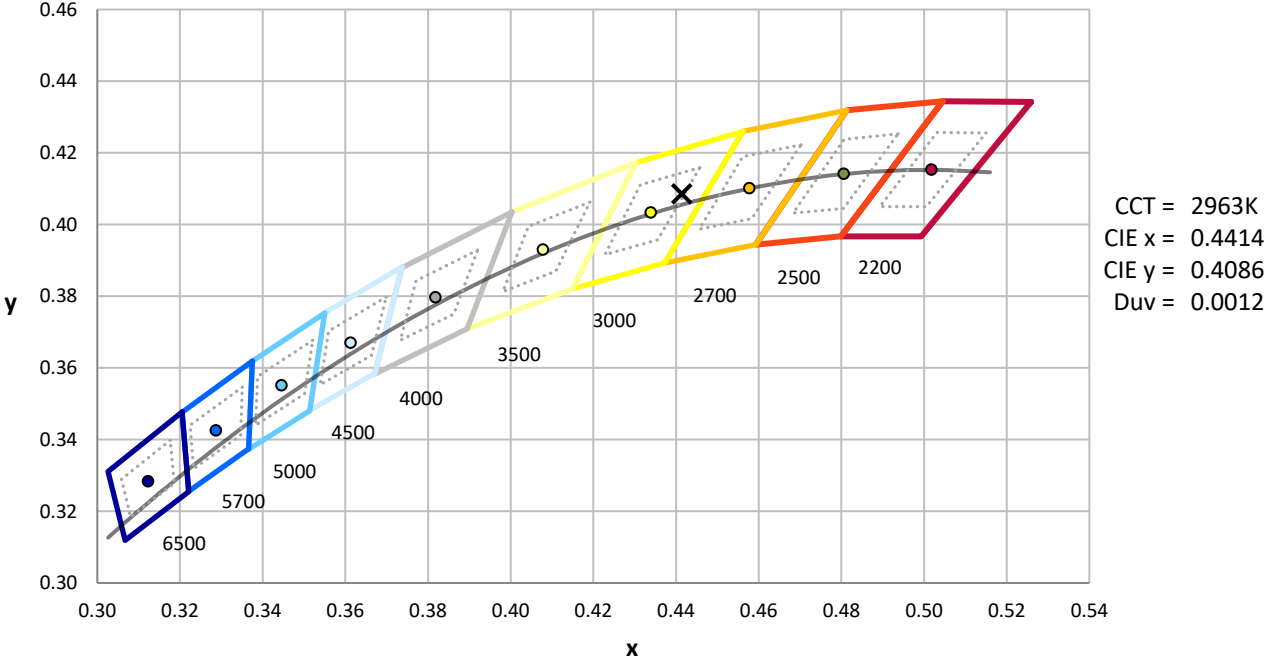
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/22/2024	10/22/2025
DC Power Source	IN0208	10/22/2024	10/22/2025
Sphere Thermometer	IN0085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

REPORT NUMBER: SP1-2411-284-4

CIE 1931 Chromaticity Diagram



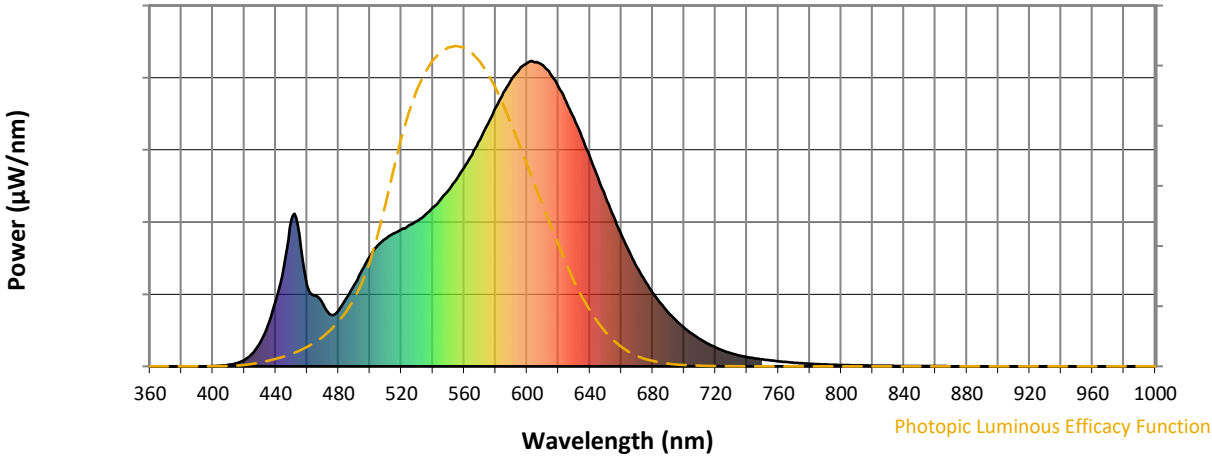
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2411-284-4

Photopic Flux vs. Wavelength

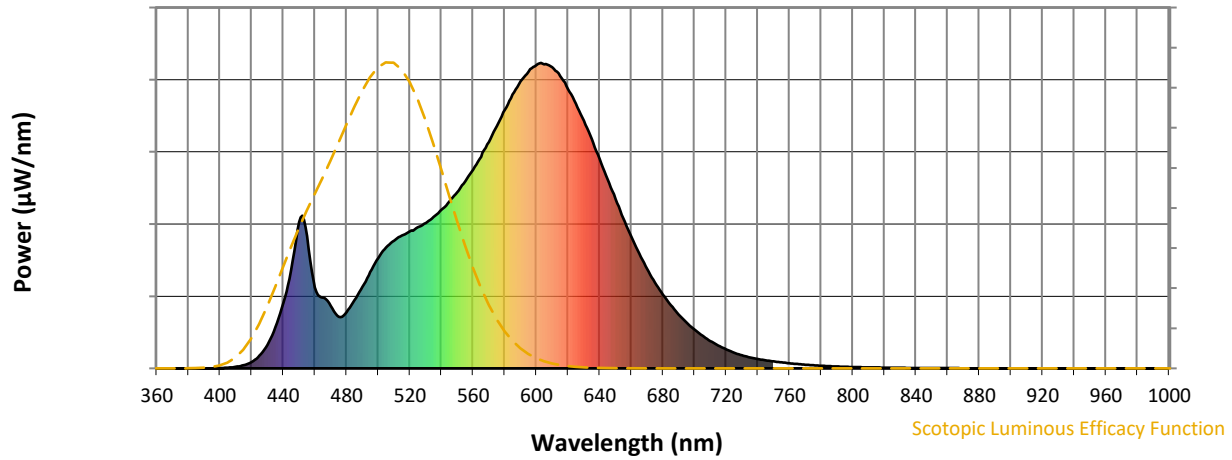


Photopic Lumens: NR

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	267	NR	620	915	NR	750	23	NR	880	0	NR
365	0	NR	495	315	NR	625	866	NR	755	20	NR	885	0	NR
370	0	NR	500	360	NR	630	811	NR	760	17	NR	890	0	NR
375	0	NR	505	396	NR	635	750	NR	765	14	NR	895	0	NR
380	0	NR	510	418	NR	640	686	NR	770	12	NR	900	0	NR
385	0	NR	515	435	NR	645	619	NR	775	10	NR	905	0	NR
390	0	NR	520	448	NR	650	554	NR	780	9	NR	910	0	NR
395	0	NR	525	462	NR	655	491	NR	785	7	NR	915	0	NR
400	1	NR	530	476	NR	660	431	NR	790	6	NR	920	0	NR
405	2	NR	535	495	NR	665	376	NR	795	5	NR	925	0	NR
410	5	NR	540	520	NR	670	325	NR	800	4	NR	930	0	NR
415	10	NR	545	547	NR	675	280	NR	805	4	NR	935	0	NR
420	21	NR	550	576	NR	680	241	NR	810	3	NR	940	0	NR
425	42	NR	555	612	NR	685	207	NR	815	3	NR	945	0	NR
430	77	NR	560	651	NR	690	176	NR	820	2	NR	950	0	NR
435	135	NR	565	693	NR	695	149	NR	825	2	NR	955	0	NR
440	215	NR	570	741	NR	700	127	NR	830	2	NR	960	0	NR
445	321	NR	575	793	NR	705	107	NR	835	2	NR	965	0	NR
450	479	NR	580	847	NR	710	89	NR	840	1	NR	970	0	NR
455	432	NR	585	897	NR	715	75	NR	845	1	NR	975	0	NR
460	265	NR	590	940	NR	720	62	NR	850	1	NR	980	0	NR
465	231	NR	595	971	NR	725	51	NR	855	1	NR	985	0	NR
470	204	NR	600	993	NR	730	43	NR	860	1	NR	990	0	NR
475	168	NR	605	996	NR	735	36	NR	865	1	NR	995	0	NR
480	183	NR	610	986	NR	740	31	NR	870	1	NR	1000	0	NR
485	223	NR	615	957	NR	745	26	NR	875	0	NR			

REPORT NUMBER: SP1-2411-284-4

Scotopic Flux vs. Wavelength



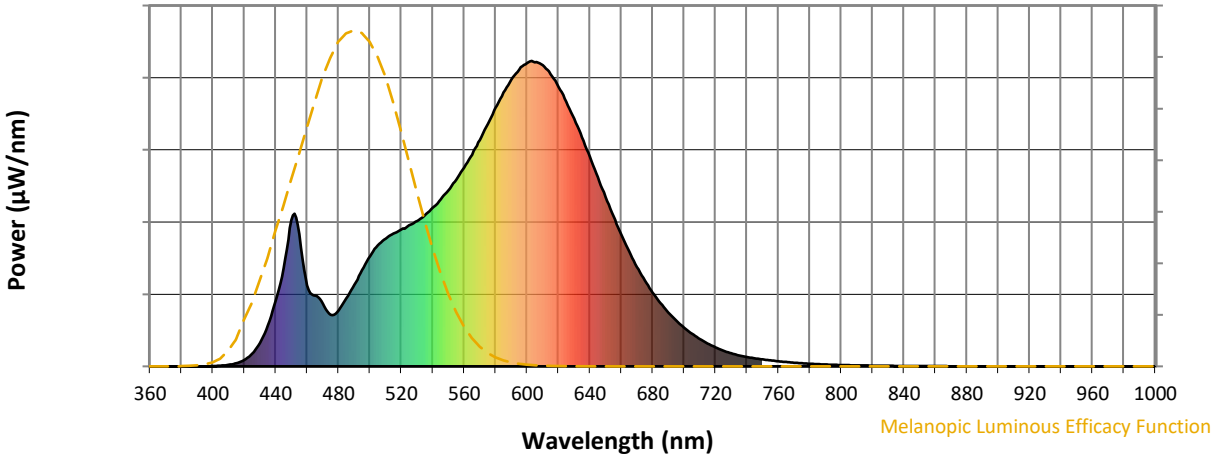
Scotopic Lumens: NR

S/P: 1.34

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	267	NR	620	915	NR	750	23	NR	880	0	NR
365	0	NR	495	315	NR	625	866	NR	755	20	NR	885	0	NR
370	0	NR	500	360	NR	630	811	NR	760	17	NR	890	0	NR
375	0	NR	505	396	NR	635	750	NR	765	14	NR	895	0	NR
380	0	NR	510	418	NR	640	686	NR	770	12	NR	900	0	NR
385	0	NR	515	435	NR	645	619	NR	775	10	NR	905	0	NR
390	0	NR	520	448	NR	650	554	NR	780	9	NR	910	0	NR
395	0	NR	525	462	NR	655	491	NR	785	7	NR	915	0	NR
400	1	NR	530	476	NR	660	431	NR	790	6	NR	920	0	NR
405	2	NR	535	495	NR	665	376	NR	795	5	NR	925	0	NR
410	5	NR	540	520	NR	670	325	NR	800	4	NR	930	0	NR
415	10	NR	545	547	NR	675	280	NR	805	4	NR	935	0	NR
420	21	NR	550	576	NR	680	241	NR	810	3	NR	940	0	NR
425	42	NR	555	612	NR	685	207	NR	815	3	NR	945	0	NR
430	77	NR	560	651	NR	690	176	NR	820	2	NR	950	0	NR
435	135	NR	565	693	NR	695	149	NR	825	2	NR	955	0	NR
440	215	NR	570	741	NR	700	127	NR	830	2	NR	960	0	NR
445	321	NR	575	793	NR	705	107	NR	835	2	NR	965	0	NR
450	479	NR	580	847	NR	710	89	NR	840	1	NR	970	0	NR
455	432	NR	585	897	NR	715	75	NR	845	1	NR	975	0	NR
460	265	NR	590	940	NR	720	62	NR	850	1	NR	980	0	NR
465	231	NR	595	971	NR	725	51	NR	855	1	NR	985	0	NR
470	204	NR	600	993	NR	730	43	NR	860	1	NR	990	0	NR
475	168	NR	605	996	NR	735	36	NR	865	1	NR	995	0	NR
480	183	NR	610	986	NR	740	31	NR	870	1	NR	1000	0	NR
485	223	NR	615	957	NR	745	26	NR	875	0	NR			

REPORT NUMBER: SP1-2411-284-4

Melanopic Flux vs. Wavelength



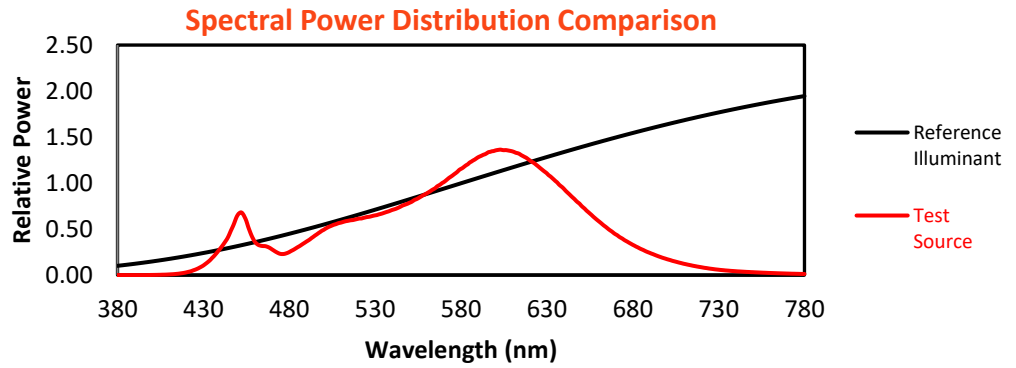
Melanopic Lumens: NR

M/P: 2.58

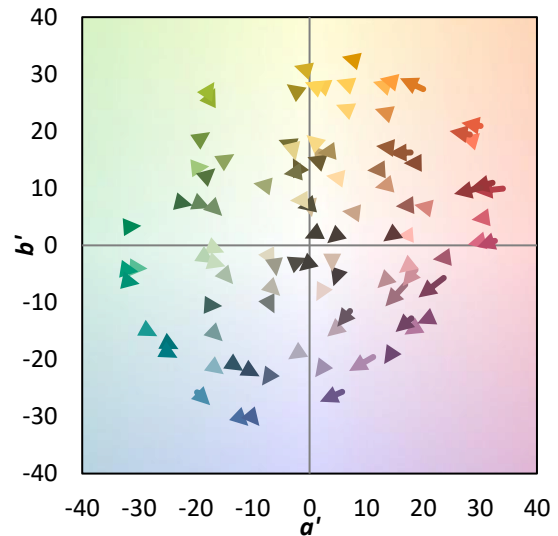
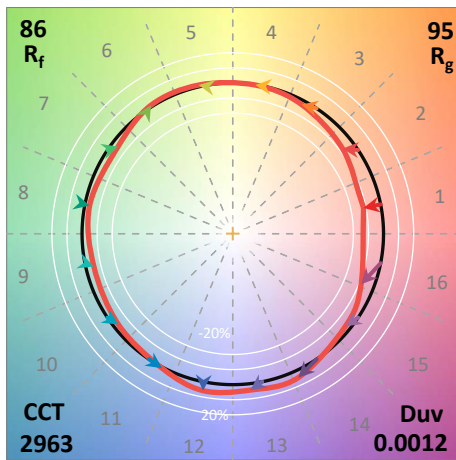
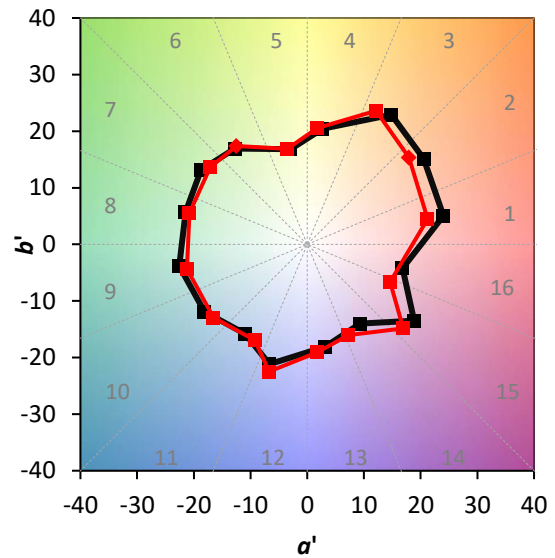
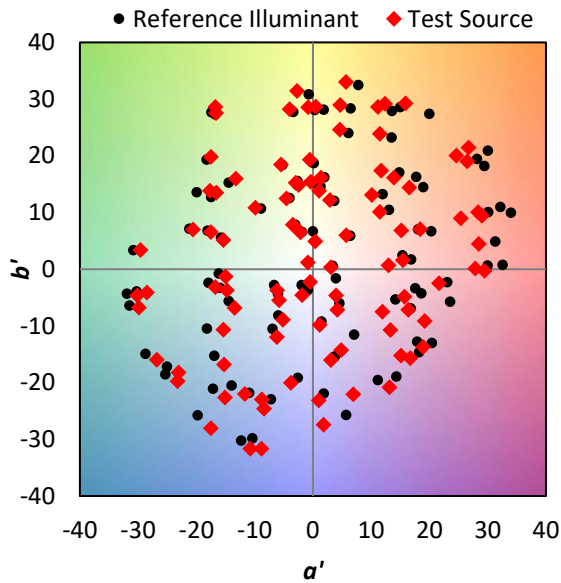
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	267	NR	620	915	NR	750	23	NR	880	0	NR
365	0	NR	495	315	NR	625	866	NR	755	20	NR	885	0	NR
370	0	NR	500	360	NR	630	811	NR	760	17	NR	890	0	NR
375	0	NR	505	396	NR	635	750	NR	765	14	NR	895	0	NR
380	0	NR	510	418	NR	640	686	NR	770	12	NR	900	0	NR
385	0	NR	515	435	NR	645	619	NR	775	10	NR	905	0	NR
390	0	NR	520	448	NR	650	554	NR	780	9	NR	910	0	NR
395	0	NR	525	462	NR	655	491	NR	785	7	NR	915	0	NR
400	1	NR	530	476	NR	660	431	NR	790	6	NR	920	0	NR
405	2	NR	535	495	NR	665	376	NR	795	5	NR	925	0	NR
410	5	NR	540	520	NR	670	325	NR	800	4	NR	930	0	NR
415	10	NR	545	547	NR	675	280	NR	805	4	NR	935	0	NR
420	21	NR	550	576	NR	680	241	NR	810	3	NR	940	0	NR
425	42	NR	555	612	NR	685	207	NR	815	3	NR	945	0	NR
430	77	NR	560	651	NR	690	176	NR	820	2	NR	950	0	NR
435	135	NR	565	693	NR	695	149	NR	825	2	NR	955	0	NR
440	215	NR	570	741	NR	700	127	NR	830	2	NR	960	0	NR
445	321	NR	575	793	NR	705	107	NR	835	2	NR	965	0	NR
450	479	NR	580	847	NR	710	89	NR	840	1	NR	970	0	NR
455	432	NR	585	897	NR	715	75	NR	845	1	NR	975	0	NR
460	265	NR	590	940	NR	720	62	NR	850	1	NR	980	0	NR
465	231	NR	595	971	NR	725	51	NR	855	1	NR	985	0	NR
470	204	NR	600	993	NR	730	43	NR	860	1	NR	990	0	NR
475	168	NR	605	996	NR	735	36	NR	865	1	NR	995	0	NR
480	183	NR	610	986	NR	740	31	NR	870	1	NR	1000	0	NR
485	223	NR	615	957	NR	745	26	NR	875	0	NR			

Summary

$R_f = 86.1$
 $R_g = 94.9$
 CIE $R_a = 82.9$
 $R_9 = 3.9$

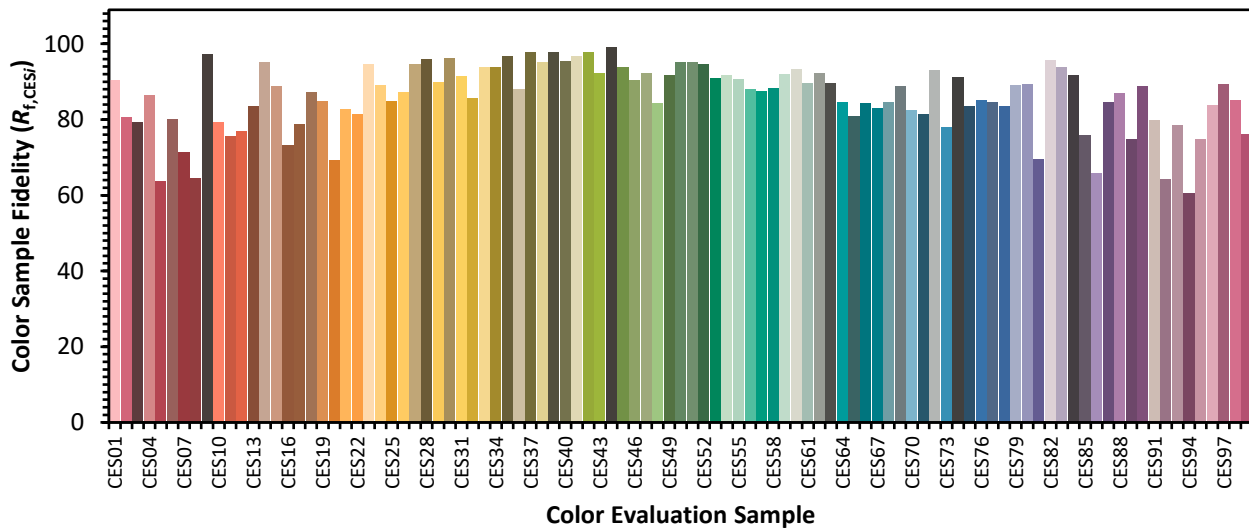


Color Vector Graphics

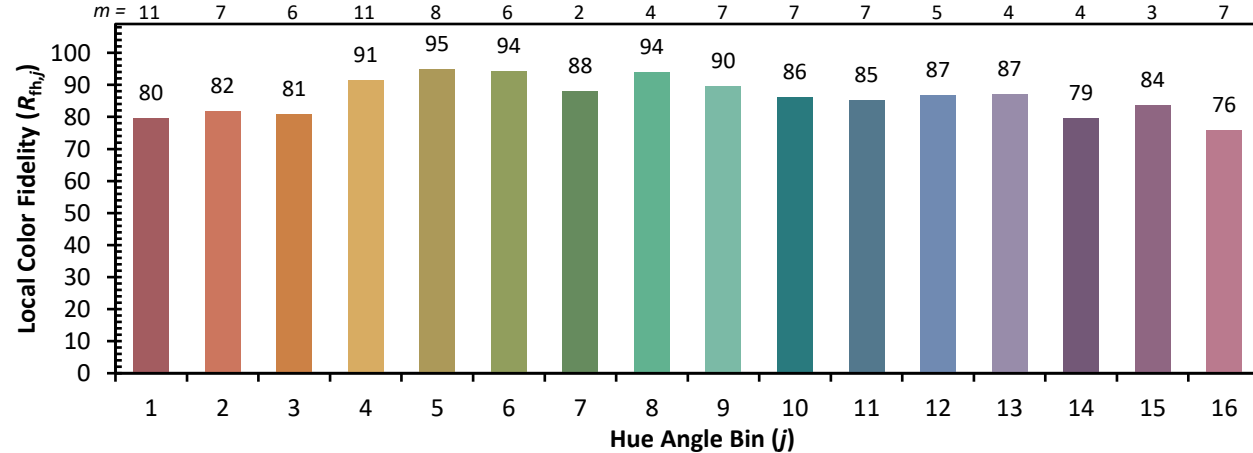
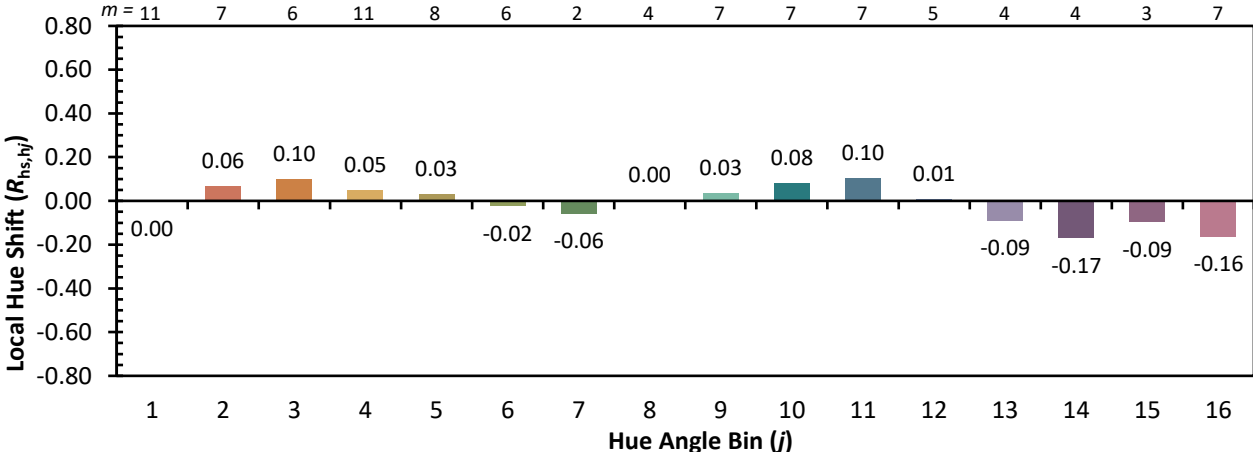
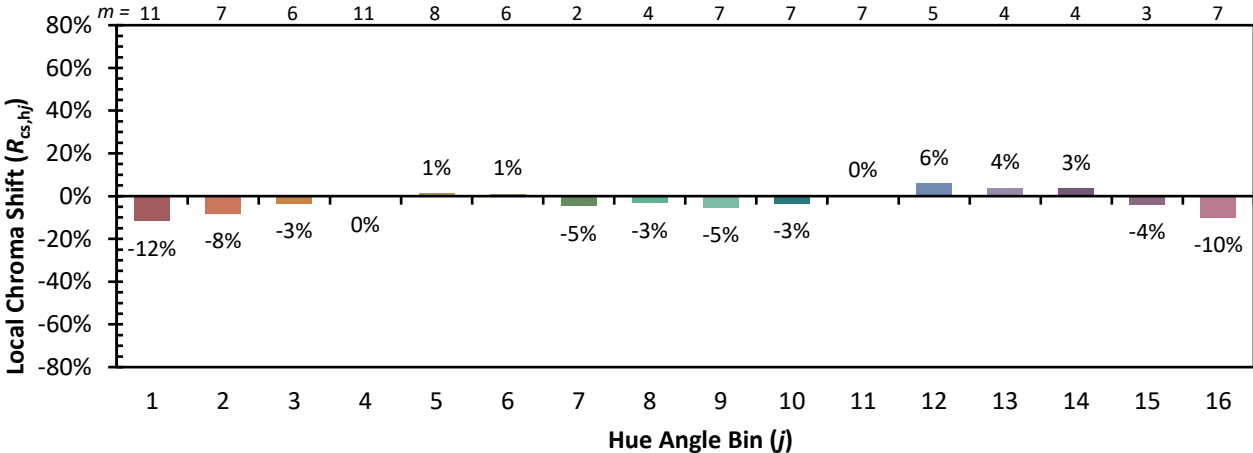


Individual Sample Fidelity Index ($R_{f,i}$)

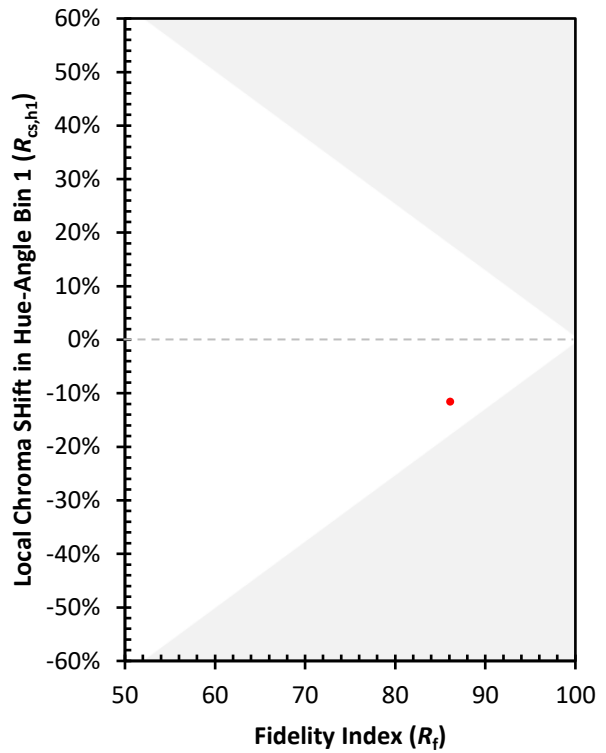
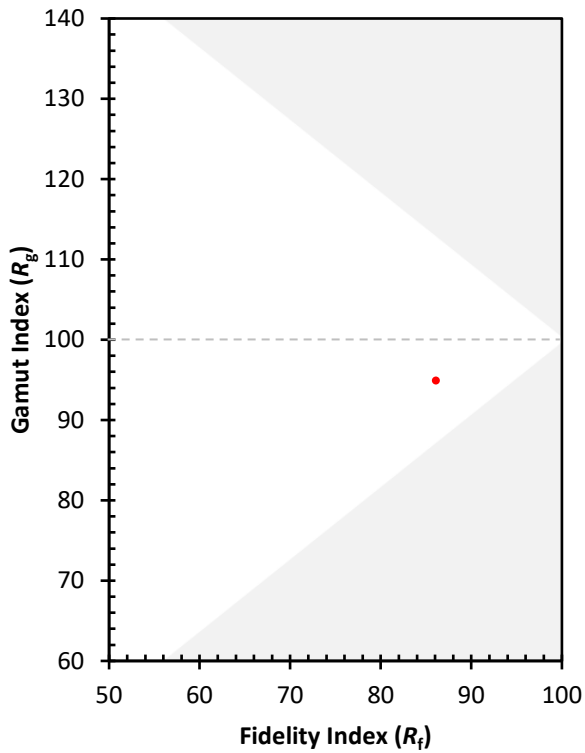
CES01 = 86	CES26 = 87	CES51 = 95	CES76 = 85
CES02 = 63	CES27 = 95	CES52 = 95	CES77 = 85
CES03 = 31	CES28 = 96	CES53 = 91	CES78 = 83
CES04 = 70	CES29 = 90	CES54 = 92	CES79 = 89
CES05 = 50	CES30 = 96	CES55 = 91	CES80 = 89
CES06 = 51	CES31 = 92	CES56 = 88	CES81 = 70
CES07 = 42	CES32 = 86	CES57 = 87	CES82 = 96
CES08 = 41	CES33 = 94	CES58 = 88	CES83 = 94
CES09 = 29	CES34 = 94	CES59 = 92	CES84 = 92
CES10 = 76	CES35 = 97	CES60 = 93	CES85 = 76
CES11 = 59	CES36 = 88	CES61 = 90	CES86 = 66
CES12 = 65	CES37 = 98	CES62 = 92	CES87 = 85
CES13 = 44	CES38 = 95	CES63 = 90	CES88 = 87
CES14 = 74	CES39 = 98	CES64 = 85	CES89 = 75
CES15 = 72	CES40 = 96	CES65 = 81	CES90 = 89
CES16 = 48	CES41 = 97	CES66 = 84	CES91 = 80
CES17 = 50	CES42 = 98	CES67 = 83	CES92 = 64
CES18 = 57	CES43 = 92	CES68 = 85	CES93 = 79
CES19 = 72	CES44 = 99	CES69 = 89	CES94 = 61
CES20 = 67	CES45 = 94	CES70 = 83	CES95 = 75
CES21 = 87	CES46 = 91	CES71 = 81	CES96 = 84
CES22 = 79	CES47 = 92	CES72 = 93	CES97 = 89
CES23 = 92	CES48 = 84	CES73 = 78	CES98 = 85
CES24 = 91	CES49 = 92	CES74 = 91	CES99 = 76
CES25 = 72	CES50 = 95	CES75 = 84	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)