

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: P833556

Luminaire Tested: **TTN-D2-740-U-DL-CG-UPL3**

Issue Date: 5/15/2024

Test Information

Test Method: LM-79-08
Report Number: P833556
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-D2-740-U-DL-CG-UPL3
Description: TOPTIER NANO LED PARKING GARAGE LUMINAIRE WITH UPLIGHT
4000K, 70 CRI LEDS AND DRIVE LANE DISTRIBUTION WITH CLEAR GLASS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5780.6 lumens
Efficiency: N/A
Efficacy: 116.8 lumens/watt
Luminous Opening: Vertical Cylinder (Dia: 0.71' x H: 0.1')
IES Classification: Type IV - Short
BUG Rating: B1 - U4 - G1

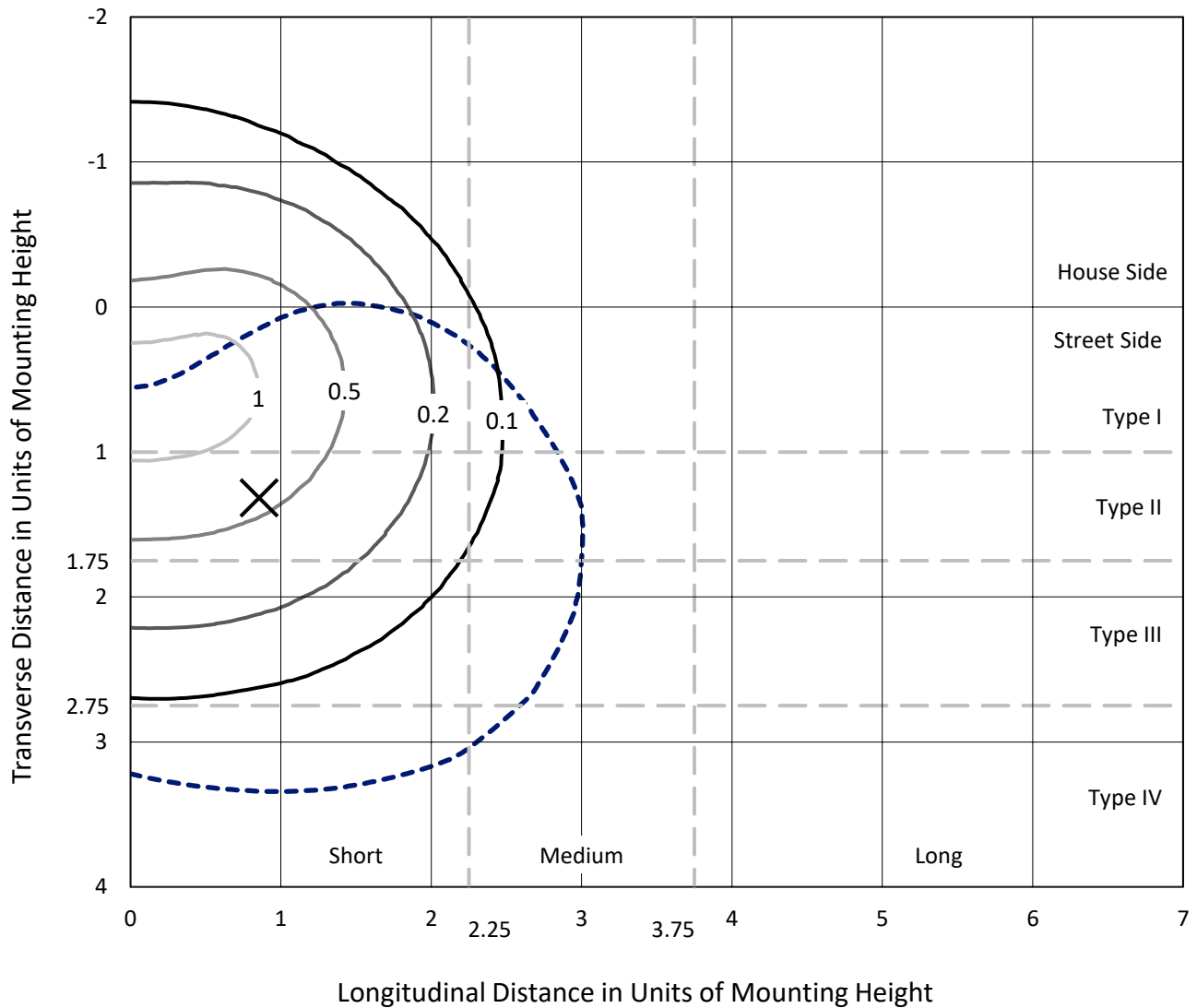
Input Watts (W): 49.5
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Iso-Footcandle Lines of Horizontal Illumination

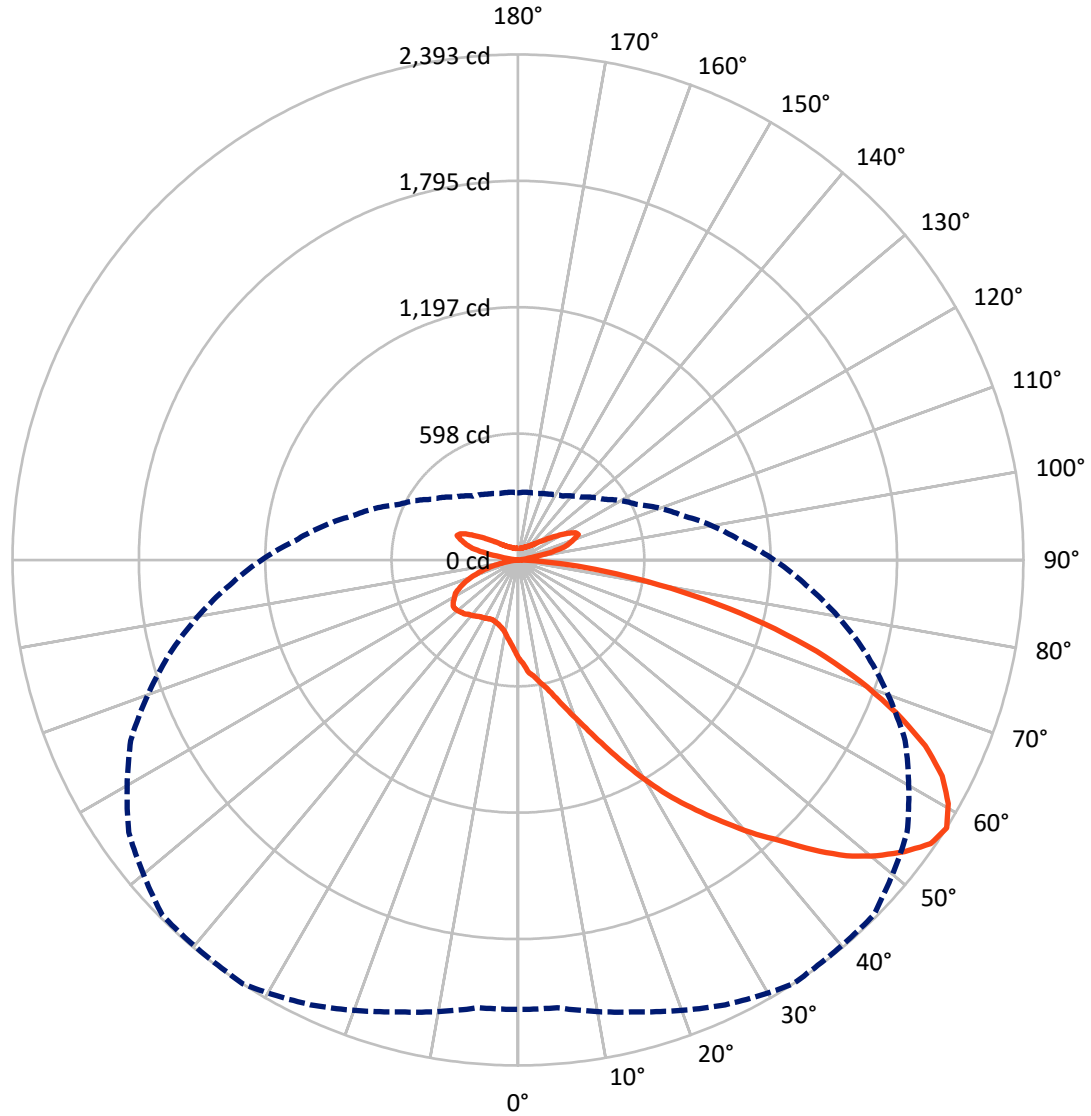
✕ Max cd
 - - - 1/2 Max cd



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

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Luminous Intensity Polar Plot



— Vertical Plane Through 33-Deg Lateral - - - Horizontal Cone Through 57.5-Deg Vertical

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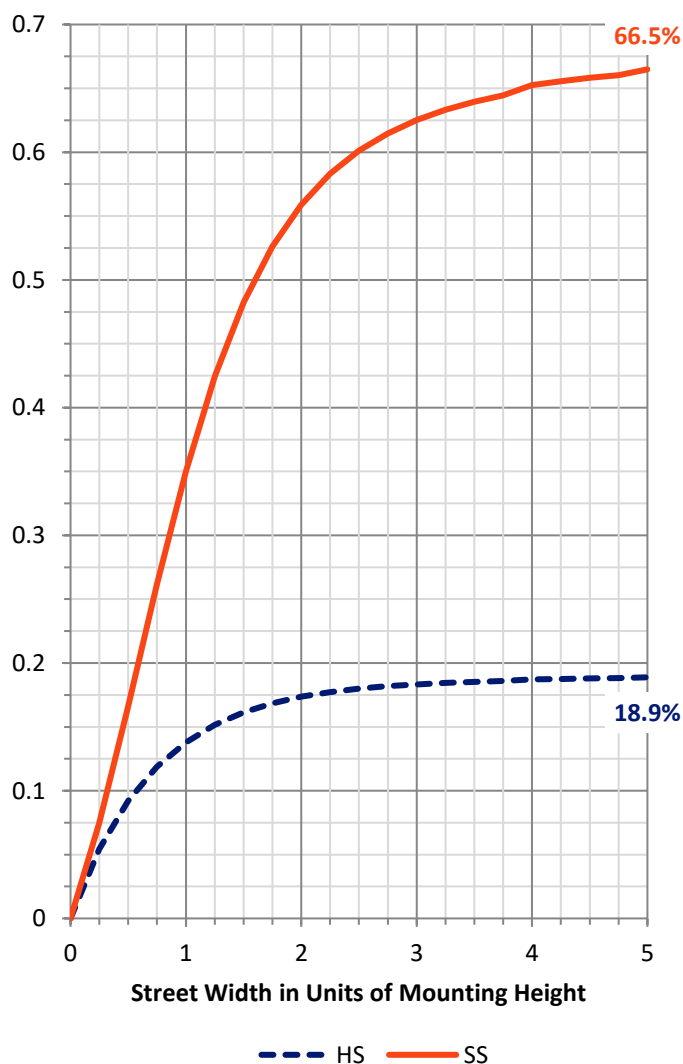
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	1096.8	405.8	1502.6
	% Fixture	19.0	7.0	26.0
Street Side	Lumens	3872.3	405.8	4278.1
	% Fixture	67.0	7.0	74.0
Total	Lumens	4969.1	811.5	5780.6
	% Fixture	86.0	14.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	44.6	0.8
10°-20°	144.5	2.5
20°-30°	304.6	5.3
30°-40°	553.2	9.6
40°-50°	874.2	15.1
50°-60°	1161.0	20.1
60°-70°	1117.4	19.3
70°-80°	655.9	11.3
80°-90°	113.7	2.0
90°-100°	18.1	0.3
100°-110°	184.1	3.2
110°-120°	269.1	4.7
120°-130°	156.2	2.7
130°-140°	82.7	1.4
140°-150°	49.1	0.9
150°-160°	30.3	0.5
160°-170°	16.5	0.3
170°-180°	5.4	0.1
0°-90°	4969.1	86.0
0°-180°	5780.6	100.0

Coefficient of Utilization

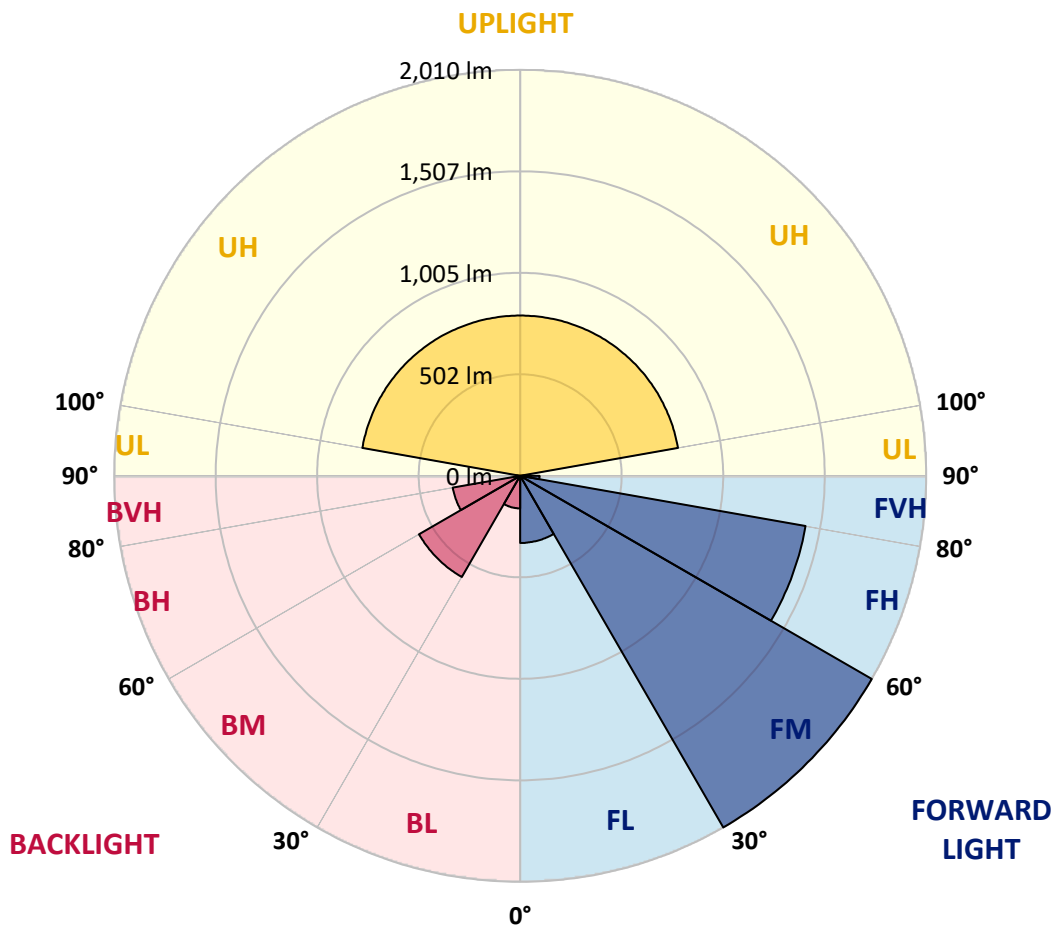


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	332.4	5.7			
FM (30°-60°)	2009.9	34.8			
FH (60°-80°)	1434.4	24.8			G1/1800
FVH (80°-90°)	95.7	1.7			G1/100
BL (0°-30°)	161.3	2.8	B1/500		
BM (30°-60°)	578.5	10.0	B1/1000		
BH (60°-80°)	339.0	5.9	B1/500		G1/500
BVH (80°-90°)	18.0	0.3			G1/100
UL (90°-100°)	18.1	0.3		U2/50	
UH (100°-180°)	793.4	13.7		U4/1000	

BUG Rating: B1-U4-G1
 Type IV Short





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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	33°	35°	45°	55°	65°	75°	85°
0°	465.6	465.6	465.6	465.6	465.6	465.6	465.6	465.6	465.6	465.6	465.6
2.5°	496.1	500.4	496.1	496.1	491.7	491.7	487.4	483.0	478.7	474.3	465.6
5°	552.7	552.7	548.3	539.6	535.2	530.9	522.2	509.1	500.4	487.4	474.3
7.5°	578.8	578.8	574.4	565.7	557.0	552.7	539.6	522.2	509.1	491.7	474.3
10°	613.6	617.9	609.2	600.5	591.8	587.5	570.1	548.3	526.5	504.8	478.7
12.5°	652.7	657.1	652.7	639.7	626.6	622.3	604.9	578.8	552.7	522.2	491.7
15°	705.0	713.7	700.6	691.9	678.9	674.5	652.7	622.3	591.8	552.7	513.5
17.5°	765.9	770.2	761.5	748.5	739.8	735.4	713.7	678.9	635.3	591.8	544.0
20°	835.5	839.9	835.5	818.1	809.4	805.0	783.3	744.1	691.9	644.0	583.1
22.5°	918.2	926.9	913.8	900.8	892.1	892.1	866.0	822.5	761.5	700.6	631.0
25°	1013.9	1027.0	1009.6	1000.9	992.2	987.8	966.1	913.8	844.2	770.2	683.2
27.5°	1131.4	1140.1	1127.1	1122.7	1105.3	1105.3	1070.5	1009.6	935.6	848.6	748.5
30°	1235.9	1244.6	1235.9	1235.9	1222.8	1218.4	1183.6	1122.7	1031.3	926.9	805.0
32.5°	1335.9	1344.6	1340.3	1344.6	1340.3	1335.9	1292.4	1227.2	1135.8	1000.9	861.6
35°	1436.0	1449.1	1444.7	1457.8	1453.4	1449.1	1414.3	1335.9	1227.2	1092.3	922.5
37.5°	1540.5	1553.5	1553.5	1566.6	1570.9	1570.9	1531.8	1449.1	1327.2	1174.9	992.2
40°	1653.6	1666.7	1666.7	1688.4	1697.1	1697.1	1653.6	1570.9	1436.0	1266.3	1066.1
42.5°	1762.4	1775.5	1779.8	1801.6	1814.6	1819.0	1784.2	1688.4	1531.8	1357.7	1135.8
45°	1866.8	1879.9	1892.9	1936.5	1958.2	1953.9	1927.8	1827.7	1653.6	1453.4	1209.7
47.5°	1966.9	1984.3	2006.1	2062.7	2093.1	2088.8	2071.4	1958.2	1766.8	1544.8	1275.0
50°	2045.3	2058.3	2101.8	2162.7	2201.9	2206.3	2180.2	2071.4	1862.5	1614.4	1322.9
52.5°	2106.2	2123.6	2175.8	2262.8	2293.3	2306.4	2275.9	2167.1	1958.2	1675.4	1362.1
55°	2149.7	2149.7	2228.0	2328.1	2371.6	2380.3	2380.3	2245.4	2014.8	1714.5	1383.8
57.5°	2127.9	2127.9	2215.0	2323.8	2393.4	2389.0	2380.3	2249.8	2023.5	1705.8	1370.8
60°	2067.0	2080.1	2162.7	2271.5	2341.2	2336.8	2310.7	2193.2	1980.0	1671.0	1344.6
62.5°	1984.3	2006.1	2093.1	2175.8	2254.1	2267.2	2232.4	2127.9	1906.0	1618.8	1296.8
65°	1827.7	1858.1	1966.9	2058.3	2119.2	2145.3	2101.8	2006.1	1805.9	1518.7	1196.7
67.5°	1653.6	1675.4	1766.8	1897.3	1932.1	1958.2	1936.5	1836.4	1666.7	1357.7	1083.6
70°	1453.4	1488.2	1549.2	1679.7	1718.9	1745.0	1745.0	1644.9	1483.9	1192.3	948.7
72.5°	1218.4	1257.6	1331.6	1427.3	1479.5	1497.0	1492.6	1409.9	1266.3	1009.6	800.7
75°	961.7	992.2	1079.2	1148.8	1205.4	1218.4	1214.1	1144.5	1013.9	813.8	635.3
77.5°	709.3	739.8	805.0	857.3	909.5	900.8	900.8	848.6	765.9	604.9	483.0
80°	465.6	491.7	548.3	565.7	622.3	617.9	617.9	578.8	522.2	404.7	322.0
82.5°	256.7	278.5	317.7	335.1	369.9	361.2	365.5	339.4	304.6	226.3	182.8
85°	91.4	108.8	130.5	143.6	161.0	161.0	161.0	139.3	130.5	87.0	74.0
87.5°	4.4	8.7	17.4	17.4	26.1	26.1	26.1	17.4	17.4	4.4	4.4
90°	6.9	6.9	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	6.9
92.5°	6.9	6.9	6.9	9.7	10.8	11.1	9.7	11.1	8.3	8.3	6.9
95°	8.3	8.3	9.7	12.5	14.7	15.3	16.7	16.7	9.7	9.7	8.3
97.5°	11.1	12.5	12.5	15.3	23.1	25.0	45.8	27.8	13.9	13.9	12.5
100°	18.0	19.4	19.4	34.7	65.8	73.6	98.6	70.8	36.1	26.4	19.4
102.5°	58.3	61.1	75.0	112.5	155.8	166.6	151.3	127.7	120.8	83.3	66.6
105°	148.6	147.2	158.3	187.4	224.1	233.3	229.1	211.0	191.6	165.2	152.7
107.5°	195.8	195.8	205.5	230.5	258.3	265.2	309.6	313.8	248.5	218.0	204.1
110°	220.8	220.8	229.1	249.9	286.5	295.7	358.2	355.4	306.8	269.4	251.3



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CANDELA DISTRIBUTION (continued):

	0°	5°	15°	25°	33°	35°	45°	55°	65°	75°	85°
112.5°	226.3	227.7	238.8	270.7	310.7	320.7	348.5	336.0	316.6	299.9	286.0
115°	234.6	234.6	247.1	277.7	299.9	305.5	316.6	302.7	287.4	276.3	270.7
117.5°	231.9	236.0	238.8	255.5	269.9	273.5	281.8	274.9	254.1	245.8	243.0
120°	215.2	215.2	218.0	226.3	234.1	236.0	240.2	237.4	223.5	216.6	215.2
122.5°	191.6	193.0	191.6	195.8	201.3	202.7	206.9	204.1	193.0	190.2	190.2
125°	168.0	168.0	166.6	169.4	172.8	173.6	172.2	173.6	168.0	166.6	166.6
127.5°	151.3	149.9	147.2	148.6	149.6	149.9	149.9	151.3	145.8	147.2	148.6
130°	134.7	134.7	131.9	131.9	131.9	131.9	129.1	131.9	129.1	130.5	131.9
132.5°	119.4	119.4	115.2	113.9	113.9	113.9	113.9	115.2	113.9	116.6	119.4
135°	106.9	106.9	102.7	104.1	104.1	104.1	102.7	104.1	102.7	105.5	106.9
137.5°	97.2	97.2	94.4	94.4	94.4	94.4	93.0	94.4	94.4	95.8	98.6
140°	88.9	88.9	87.5	87.5	86.4	86.1	87.5	87.5	87.5	88.9	90.2
142.5°	84.7	83.3	81.9	80.5	81.6	81.9	81.9	81.9	80.5	81.9	84.7
145°	77.8	77.8	76.4	76.4	76.4	76.4	77.8	76.4	76.4	77.8	77.8
147.5°	73.6	73.6	72.2	73.6	73.6	73.6	73.6	73.6	72.2	73.6	73.6
150°	72.2	70.8	69.4	70.8	70.8	70.8	69.4	69.4	69.4	69.4	70.8
152.5°	68.0	68.0	66.6	68.0	66.9	66.6	66.6	66.6	66.6	66.6	68.0
155°	65.3	65.3	63.9	65.3	65.3	65.3	65.3	65.3	65.3	65.3	65.3
157.5°	62.5	63.9	62.5	62.5	62.5	62.5	62.5	62.5	62.5	62.5	63.9
160°	61.1	61.1	61.1	61.1	60.0	59.7	59.7	59.7	61.1	61.1	61.1
162.5°	59.7	59.7	59.7	59.7	58.6	58.3	58.3	58.3	58.3	59.7	59.7
165°	59.7	58.3	58.3	58.3	57.2	56.9	56.9	56.9	56.9	58.3	59.7
167.5°	56.9	56.9	56.9	56.9	56.9	56.9	55.5	55.5	56.9	56.9	56.9
170°	56.9	56.9	55.5	55.5	55.5	55.5	55.5	55.5	55.5	55.5	55.5
172.5°	56.9	56.9	56.9	56.9	55.8	55.5	55.5	55.5	55.5	55.5	56.9
175°	56.9	56.9	56.9	56.9	55.8	55.5	55.5	55.5	56.9	56.9	56.9
177.5°	56.9	56.9	56.9	56.9	55.8	55.5	56.9	56.9	56.9	56.9	56.9
180°	56.9	56.9	56.9	56.9	56.9	56.9	56.9	56.9	56.9	56.9	56.9



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CANDELA DISTRIBUTION (continued):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	465.6	465.6	465.6	465.6	465.6	465.6	465.6	465.6	465.6	465.6	465.6
2.5°	461.3	456.9	452.6	443.9	439.5	435.2	430.8	426.5	426.5	426.5	426.5
5°	465.6	461.3	448.2	435.2	422.1	409.1	400.3	396.0	391.6	387.3	387.3
7.5°	465.6	456.9	439.5	422.1	409.1	391.6	378.6	365.5	356.8	352.5	352.5
10°	470.0	456.9	435.2	417.8	396.0	374.2	356.8	339.4	330.7	322.0	322.0
12.5°	478.7	465.6	435.2	413.4	387.3	361.2	339.4	322.0	309.0	300.3	300.3
15°	496.1	478.7	443.9	413.4	382.9	352.5	330.7	309.0	295.9	287.2	287.2
17.5°	522.2	500.4	456.9	413.4	378.6	348.1	322.0	300.3	282.9	274.2	274.2
20°	552.7	526.5	474.3	422.1	378.6	343.8	317.7	291.6	274.2	265.4	265.4
22.5°	596.2	557.0	496.1	435.2	387.3	348.1	313.3	287.2	269.8	261.1	261.1
25°	644.0	600.5	522.2	452.6	396.0	348.1	313.3	287.2	269.8	261.1	256.7
27.5°	696.3	648.4	552.7	470.0	404.7	356.8	317.7	287.2	269.8	261.1	261.1
30°	744.1	687.6	583.1	491.7	417.8	361.2	322.0	291.6	269.8	261.1	261.1
32.5°	796.3	731.1	613.6	513.5	430.8	369.9	326.4	295.9	274.2	265.4	261.1
35°	848.6	774.6	644.0	530.9	443.9	378.6	330.7	300.3	278.5	269.8	269.8
37.5°	905.1	822.5	674.5	552.7	456.9	387.3	339.4	304.6	282.9	274.2	274.2
40°	966.1	870.3	705.0	570.1	470.0	396.0	348.1	313.3	291.6	282.9	282.9
42.5°	1027.0	922.5	739.8	591.8	483.0	404.7	352.5	322.0	300.3	291.6	291.6
45°	1087.9	966.1	770.2	613.6	496.1	417.8	365.5	330.7	309.0	300.3	300.3
47.5°	1144.5	1013.9	796.3	626.6	509.1	426.5	369.9	339.4	317.7	313.3	309.0
50°	1183.6	1044.4	813.8	639.7	513.5	430.8	378.6	343.8	326.4	317.7	317.7
52.5°	1214.1	1074.8	826.8	648.4	517.8	435.2	382.9	352.5	335.1	326.4	322.0
55°	1231.5	1079.2	826.8	639.7	513.5	435.2	382.9	352.5	335.1	326.4	326.4
57.5°	1214.1	1057.4	809.4	622.3	500.4	422.1	369.9	343.8	326.4	322.0	317.7
60°	1179.3	1022.6	774.6	596.2	478.7	400.3	352.5	330.7	317.7	313.3	309.0
62.5°	1131.4	979.1	739.8	561.4	448.2	374.2	339.4	313.3	304.6	300.3	295.9
65°	1035.7	896.4	683.2	517.8	409.1	343.8	309.0	291.6	282.9	274.2	269.8
67.5°	931.2	805.0	604.9	465.6	361.2	309.0	278.5	261.1	248.0	248.0	243.7
70°	818.1	709.3	522.2	396.0	313.3	269.8	239.3	226.3	217.6	217.6	213.2
72.5°	683.2	596.2	435.2	322.0	256.7	221.9	200.2	187.1	182.8	182.8	178.4
75°	548.3	470.0	343.8	252.4	200.2	174.1	156.7	148.0	143.6	143.6	139.3
77.5°	404.7	343.8	248.0	182.8	143.6	126.2	113.1	108.8	104.4	104.4	100.1
80°	269.8	226.3	161.0	117.5	87.0	78.3	69.6	69.6	65.3	69.6	65.3
82.5°	148.0	121.8	87.0	60.9	43.5	39.2	34.8	34.8	39.2	39.2	34.8
85°	56.6	43.5	30.5	17.4	13.1	13.1	13.1	13.1	13.1	13.1	8.7
87.5°	4.4	4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	6.9	6.9	8.3	8.3	8.3	8.3	8.3	8.3	8.3	6.9	6.9
92.5°	6.9	6.9	8.3	8.3	11.1	9.7	11.1	9.7	6.9	6.9	6.9
95°	8.3	8.3	9.7	9.7	16.7	16.7	15.3	12.5	9.7	8.3	8.3
97.5°	11.1	12.5	13.9	13.9	27.8	45.8	25.0	15.3	12.5	12.5	11.1
100°	19.4	19.4	26.4	36.1	70.8	98.6	73.6	34.7	19.4	19.4	18.0
102.5°	63.9	66.6	83.3	120.8	127.7	151.3	166.6	112.5	75.0	61.1	58.3
105°	152.7	152.7	165.2	191.6	211.0	229.1	233.3	187.4	158.3	147.2	148.6
107.5°	202.7	204.1	218.0	248.5	313.8	309.6	265.2	230.5	205.5	195.8	195.8
110°	248.5	251.3	269.4	306.8	355.4	358.2	295.7	249.9	229.1	220.8	220.8



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 CATALOG NUMBER: TTN-D2-740-U-DL-CG-UPL3

CANDELA DISTRIBUTION (continued):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
112.5°	283.2	286.0	299.9	316.6	336.0	348.5	320.7	270.7	238.8	227.7	226.3
115°	273.5	270.7	276.3	287.4	302.7	316.6	305.5	277.7	247.1	234.6	234.6
117.5°	238.8	243.0	245.8	254.1	274.9	281.8	273.5	255.5	238.8	236.0	231.9
120°	212.4	215.2	216.6	223.5	237.4	240.2	236.0	226.3	218.0	215.2	215.2
122.5°	187.4	190.2	190.2	193.0	204.1	206.9	202.7	195.8	191.6	193.0	191.6
125°	165.2	166.6	166.6	168.0	173.6	172.2	173.6	169.4	166.6	168.0	168.0
127.5°	147.2	148.6	147.2	145.8	151.3	149.9	149.9	148.6	147.2	149.9	151.3
130°	133.3	131.9	130.5	129.1	131.9	129.1	131.9	131.9	131.9	134.7	134.7
132.5°	119.4	119.4	116.6	113.9	115.2	113.9	113.9	113.9	115.2	119.4	119.4
135°	106.9	106.9	105.5	102.7	104.1	102.7	104.1	104.1	102.7	106.9	106.9
137.5°	100.0	98.6	95.8	94.4	94.4	93.0	94.4	94.4	94.4	97.2	97.2
140°	90.2	90.2	88.9	87.5	87.5	87.5	86.1	87.5	87.5	88.9	88.9
142.5°	84.7	84.7	81.9	80.5	81.9	81.9	81.9	80.5	81.9	83.3	84.7
145°	79.1	77.8	77.8	76.4	76.4	77.8	76.4	76.4	76.4	77.8	77.8
147.5°	75.0	73.6	73.6	72.2	73.6	73.6	73.6	73.6	72.2	73.6	73.6
150°	70.8	70.8	69.4	69.4	69.4	69.4	70.8	70.8	69.4	70.8	72.2
152.5°	69.4	68.0	66.6	66.6	66.6	66.6	66.6	68.0	66.6	68.0	68.0
155°	65.3	65.3	65.3	65.3	65.3	65.3	65.3	65.3	63.9	65.3	65.3
157.5°	63.9	63.9	62.5	62.5	62.5	62.5	62.5	62.5	62.5	63.9	62.5
160°	62.5	61.1	61.1	61.1	59.7	59.7	59.7	61.1	61.1	61.1	61.1
162.5°	61.1	59.7	59.7	58.3	58.3	58.3	58.3	59.7	59.7	59.7	59.7
165°	58.3	59.7	58.3	56.9	56.9	56.9	56.9	58.3	58.3	58.3	59.7
167.5°	58.3	56.9	56.9	56.9	55.5	55.5	56.9	56.9	56.9	56.9	56.9
170°	56.9	55.5	55.5	55.5	55.5	55.5	55.5	55.5	55.5	56.9	56.9
172.5°	56.9	56.9	55.5	55.5	55.5	55.5	55.5	56.9	56.9	56.9	56.9
175°	55.5	56.9	56.9	56.9	55.5	55.5	55.5	56.9	56.9	56.9	56.9
177.5°	56.9	56.9	56.9	56.9	56.9	56.9	55.5	56.9	56.9	56.9	56.9
180°	56.9	56.9	56.9	56.9	56.9	56.9	56.9	56.9	56.9	56.9	56.9

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: SP1-2411-284-2

Test Date: 11/20/2024

Luminaire Tested: TTN-D0-740-U-WQ

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

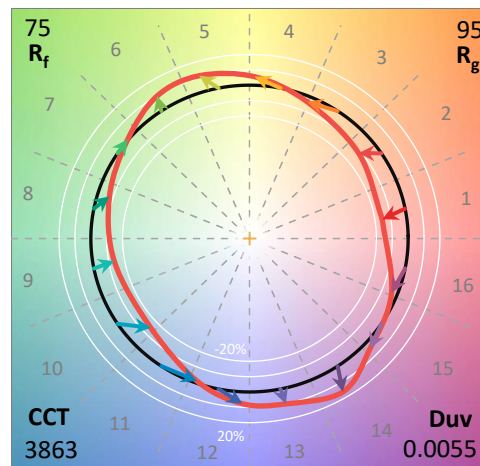
Test Information

Test Method: LM-79-2019
 Report Number: SP1-2411-284-2
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 11/20/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: MCGRAW EDISON
 Catalog Number: **TTN-D0-740-U-WQ**
 Description: TOPTIER NANO LED PARKING GARAGE LUMINAIRE. 4000K, 70 CRI LEDS AND WIDE DISTRIBUTION

Spectral Parameters

CCT (K): 3863
 CIE u': 0.2247
 CIE v': 0.5111
 Duv: 0.0055
 CIE x: 0.3911
 CIE y: 0.3954
 CIE z: 0.2136
 Peak Wavelength (nm): 448
 Dominant Wavelength (nm): 577
 Purity: 36.03443
 Rf: 74.7
 Rg: 95.4

CRI (Ra):	71.9		
R1:	69.4	R9:	-23.5
R2:	76.9	R10:	45.4
R3:	83.3	R11:	68.7
R4:	72.7	R12:	38.7
R5:	68.4	R13:	70.0
R6:	67.5	R14:	90.3
R7:	82.0	R15:	62.1
R8:	55.3		



Test Conditions

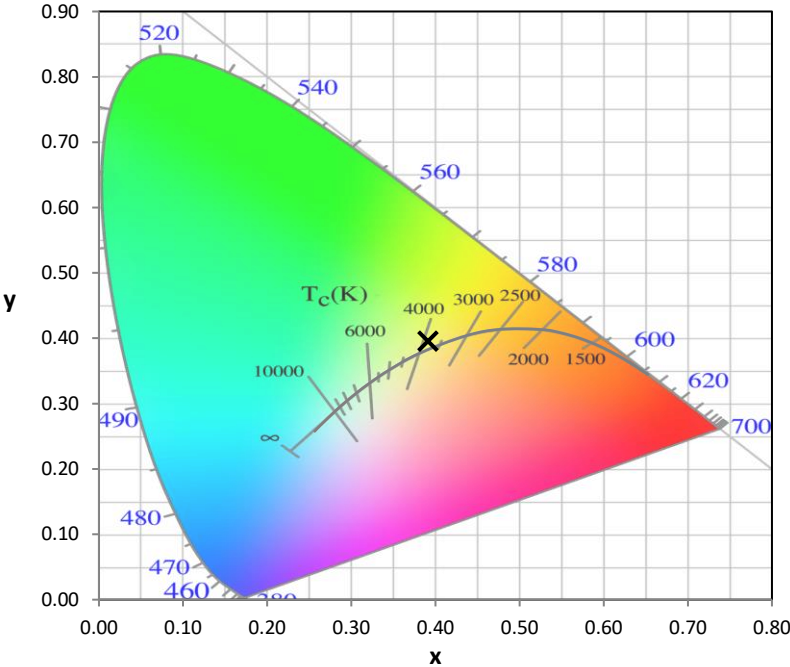
Stabilization Time: 37M
 Operation Time: 1H 37M
 Sphere Temperature (°C): 25.0

REPORT NUMBER: SP1-2411-284-2

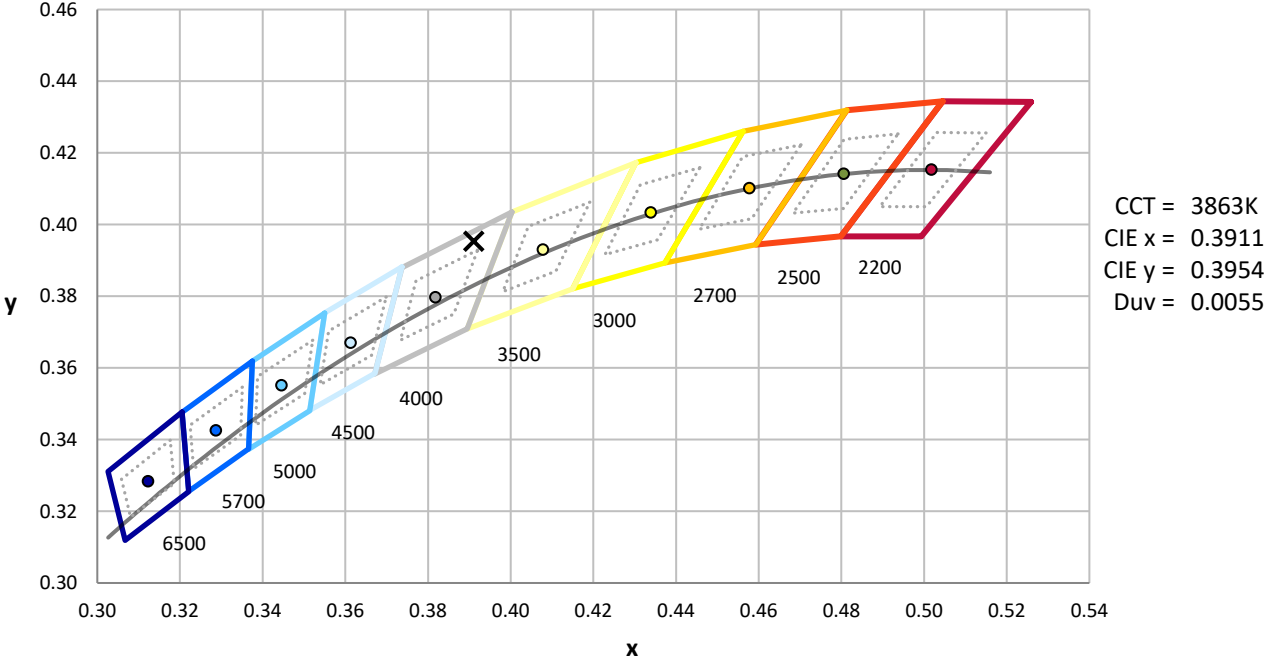
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/22/2024	10/22/2025
DC Power Source	IN0208	10/22/2024	10/22/2025
Sphere Thermometer	IN0085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

REPORT NUMBER: SP1-2411-284-2

CIE 1931 Chromaticity Diagram



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

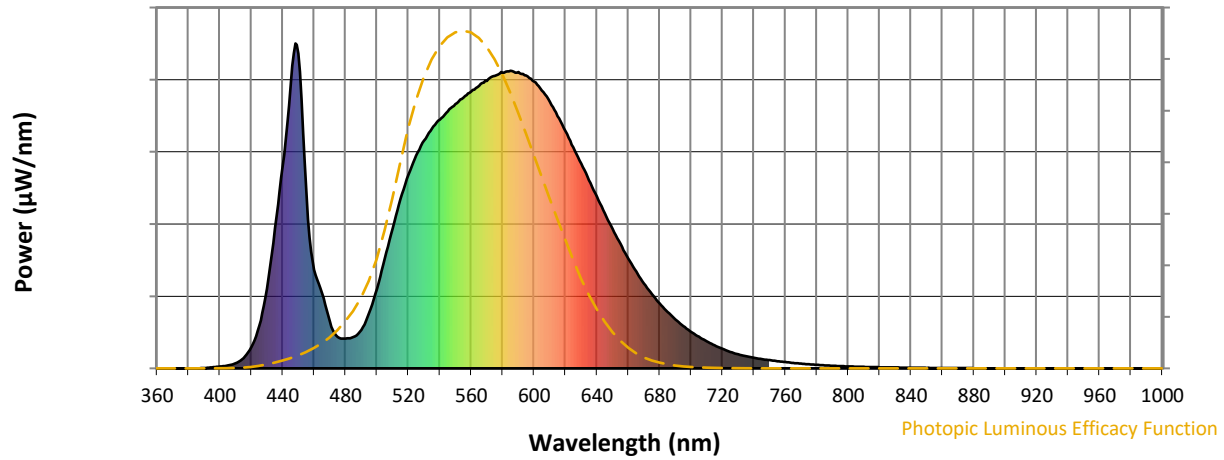


CCT = 3863K
 CIE x = 0.3911
 CIE y = 0.3954
 Duv = 0.0055

Point lies inside the ANSI 4000K 7-step quadrangle

REPORT NUMBER: SP1-2411-284-2

Photopic Flux vs. Wavelength

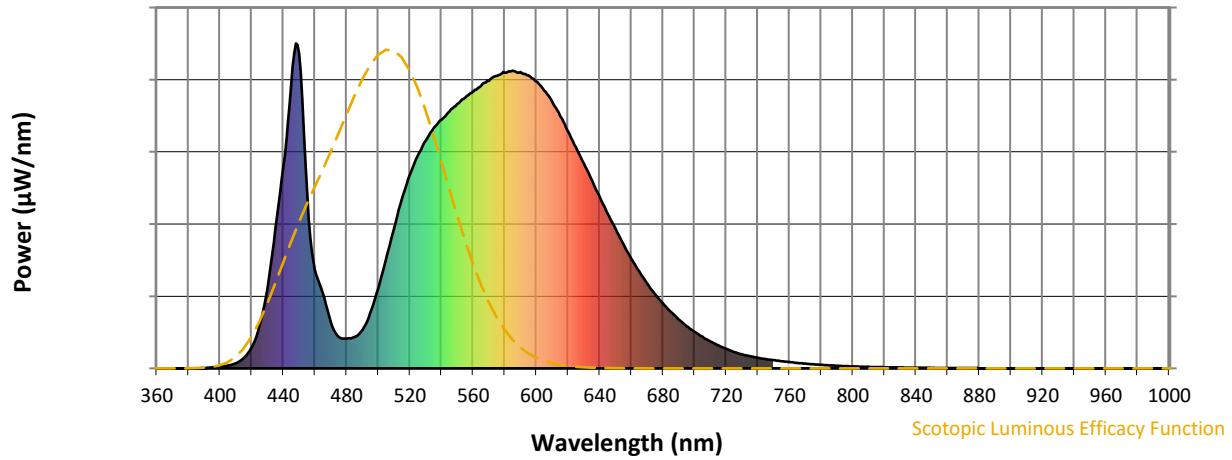


Photopic Lumens: NR

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	118	NR	620	730	NR	750	25	NR	880	1	NR
365	0	NR	495	170	NR	625	680	NR	755	22	NR	885	0	NR
370	0	NR	500	245	NR	630	630	NR	760	19	NR	890	0	NR
375	0	NR	505	338	NR	635	579	NR	765	17	NR	895	0	NR
380	0	NR	510	431	NR	640	529	NR	770	14	NR	900	0	NR
385	0	NR	515	521	NR	645	477	NR	775	13	NR	905	0	NR
390	1	NR	520	596	NR	650	429	NR	780	11	NR	910	0	NR
395	3	NR	525	655	NR	655	383	NR	785	9	NR	915	0	NR
400	6	NR	530	701	NR	660	338	NR	790	8	NR	920	0	NR
405	9	NR	535	739	NR	665	298	NR	795	7	NR	925	0	NR
410	16	NR	540	766	NR	670	261	NR	800	6	NR	930	0	NR
415	32	NR	545	791	NR	675	228	NR	805	5	NR	935	0	NR
420	65	NR	550	813	NR	680	200	NR	810	5	NR	940	0	NR
425	131	NR	555	833	NR	685	173	NR	815	4	NR	945	0	NR
430	245	NR	560	852	NR	690	151	NR	820	3	NR	950	0	NR
435	432	NR	565	870	NR	695	130	NR	825	3	NR	955	0	NR
440	622	NR	570	885	NR	700	112	NR	830	3	NR	960	0	NR
445	870	NR	575	900	NR	705	97	NR	835	2	NR	965	0	NR
450	969	NR	580	911	NR	710	83	NR	840	2	NR	970	0	NR
455	544	NR	585	916	NR	715	71	NR	845	2	NR	975	0	NR
460	304	NR	590	912	NR	720	60	NR	850	1	NR	980	0	NR
465	231	NR	595	901	NR	725	51	NR	855	1	NR	985	0	NR
470	142	NR	600	882	NR	730	43	NR	860	1	NR	990	0	NR
475	96	NR	605	855	NR	735	37	NR	865	1	NR	995	0	NR
480	92	NR	610	820	NR	740	32	NR	870	1	NR	1000	0	NR
485	96	NR	615	776	NR	745	29	NR	875	1	NR			

REPORT NUMBER: SP1-2411-284-2

Scotopic Flux vs. Wavelength



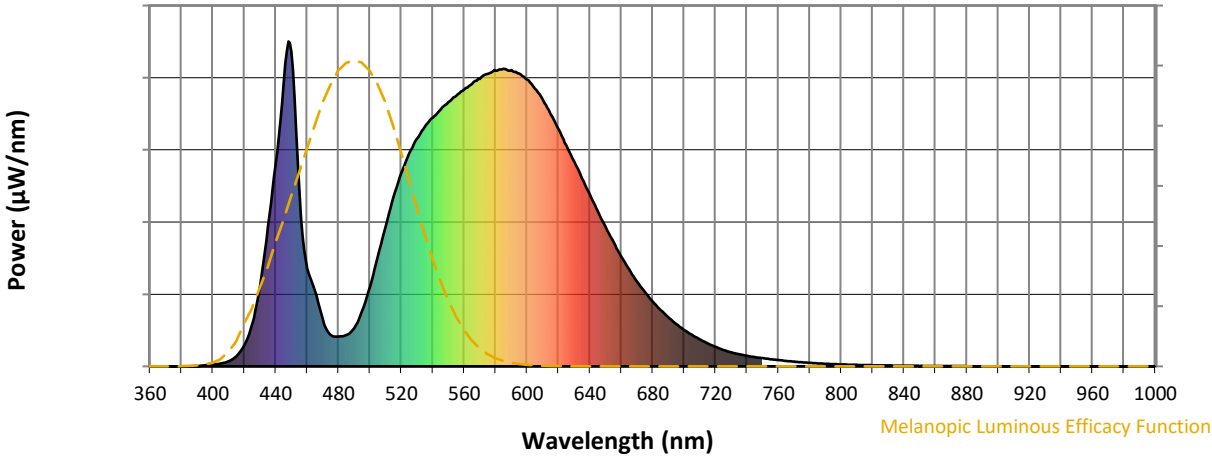
Scotopic Lumens: NR

S/P: 1.45

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	118	NR	620	730	NR	750	25	NR	880	1	NR
365	0	NR	495	170	NR	625	680	NR	755	22	NR	885	0	NR
370	0	NR	500	245	NR	630	630	NR	760	19	NR	890	0	NR
375	0	NR	505	338	NR	635	579	NR	765	17	NR	895	0	NR
380	0	NR	510	431	NR	640	529	NR	770	14	NR	900	0	NR
385	0	NR	515	521	NR	645	477	NR	775	13	NR	905	0	NR
390	1	NR	520	596	NR	650	429	NR	780	11	NR	910	0	NR
395	3	NR	525	655	NR	655	383	NR	785	9	NR	915	0	NR
400	6	NR	530	701	NR	660	338	NR	790	8	NR	920	0	NR
405	9	NR	535	739	NR	665	298	NR	795	7	NR	925	0	NR
410	16	NR	540	766	NR	670	261	NR	800	6	NR	930	0	NR
415	32	NR	545	791	NR	675	228	NR	805	5	NR	935	0	NR
420	65	NR	550	813	NR	680	200	NR	810	5	NR	940	0	NR
425	131	NR	555	833	NR	685	173	NR	815	4	NR	945	0	NR
430	245	NR	560	852	NR	690	151	NR	820	3	NR	950	0	NR
435	432	NR	565	870	NR	695	130	NR	825	3	NR	955	0	NR
440	622	NR	570	885	NR	700	112	NR	830	3	NR	960	0	NR
445	870	NR	575	900	NR	705	97	NR	835	2	NR	965	0	NR
450	969	NR	580	911	NR	710	83	NR	840	2	NR	970	0	NR
455	544	NR	585	916	NR	715	71	NR	845	2	NR	975	0	NR
460	304	NR	590	912	NR	720	60	NR	850	1	NR	980	0	NR
465	231	NR	595	901	NR	725	51	NR	855	1	NR	985	0	NR
470	142	NR	600	882	NR	730	43	NR	860	1	NR	990	0	NR
475	96	NR	605	855	NR	735	37	NR	865	1	NR	995	0	NR
480	92	NR	610	820	NR	740	32	NR	870	1	NR	1000	0	NR
485	96	NR	615	776	NR	745	29	NR	875	1	NR			

REPORT NUMBER: SP1-2411-284-2

Melanopic Flux vs. Wavelength



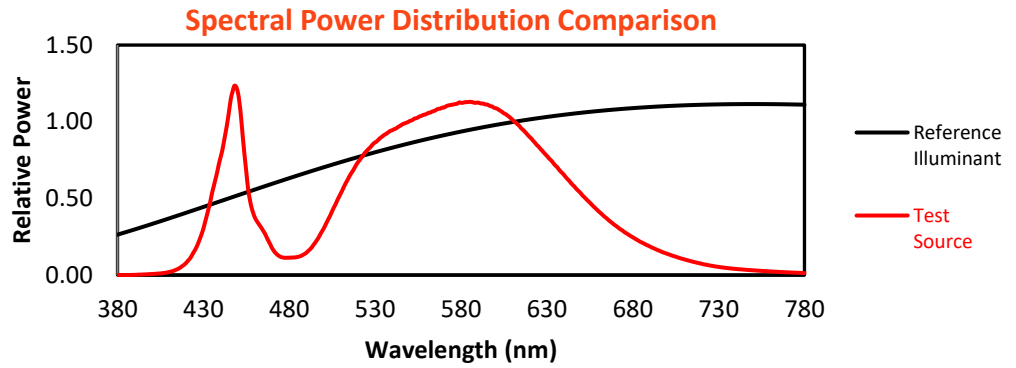
Melanopic Lumens: NR

M/P: 2.72

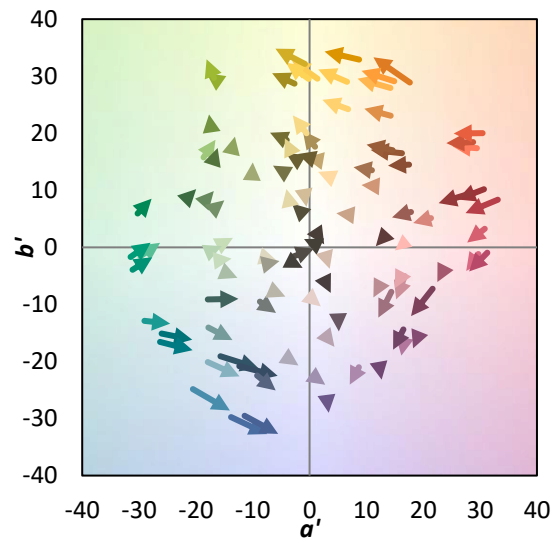
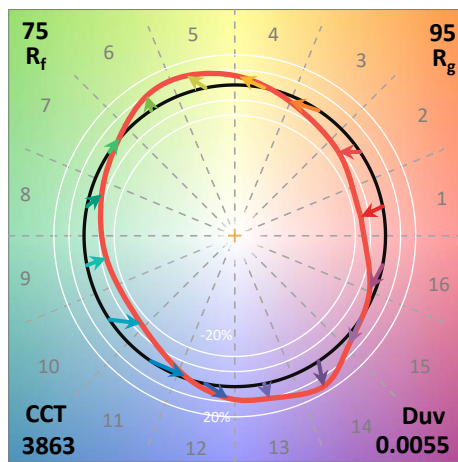
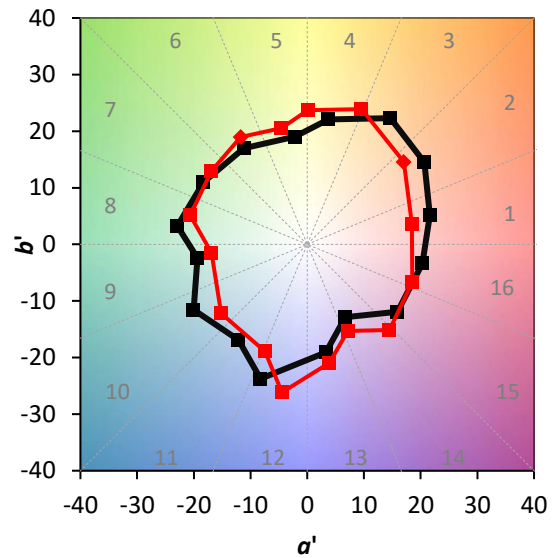
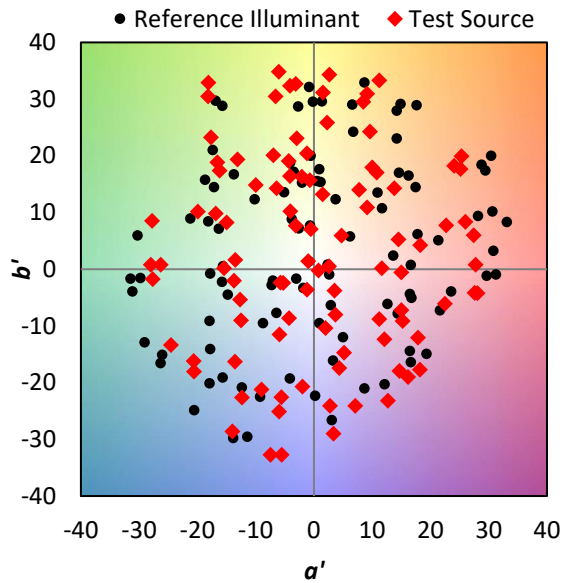
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	118	NR	620	730	NR	750	25	NR	880	1	NR
365	0	NR	495	170	NR	625	680	NR	755	22	NR	885	0	NR
370	0	NR	500	245	NR	630	630	NR	760	19	NR	890	0	NR
375	0	NR	505	338	NR	635	579	NR	765	17	NR	895	0	NR
380	0	NR	510	431	NR	640	529	NR	770	14	NR	900	0	NR
385	0	NR	515	521	NR	645	477	NR	775	13	NR	905	0	NR
390	1	NR	520	596	NR	650	429	NR	780	11	NR	910	0	NR
395	3	NR	525	655	NR	655	383	NR	785	9	NR	915	0	NR
400	6	NR	530	701	NR	660	338	NR	790	8	NR	920	0	NR
405	9	NR	535	739	NR	665	298	NR	795	7	NR	925	0	NR
410	16	NR	540	766	NR	670	261	NR	800	6	NR	930	0	NR
415	32	NR	545	791	NR	675	228	NR	805	5	NR	935	0	NR
420	65	NR	550	813	NR	680	200	NR	810	5	NR	940	0	NR
425	131	NR	555	833	NR	685	173	NR	815	4	NR	945	0	NR
430	245	NR	560	852	NR	690	151	NR	820	3	NR	950	0	NR
435	432	NR	565	870	NR	695	130	NR	825	3	NR	955	0	NR
440	622	NR	570	885	NR	700	112	NR	830	3	NR	960	0	NR
445	870	NR	575	900	NR	705	97	NR	835	2	NR	965	0	NR
450	969	NR	580	911	NR	710	83	NR	840	2	NR	970	0	NR
455	544	NR	585	916	NR	715	71	NR	845	2	NR	975	0	NR
460	304	NR	590	912	NR	720	60	NR	850	1	NR	980	0	NR
465	231	NR	595	901	NR	725	51	NR	855	1	NR	985	0	NR
470	142	NR	600	882	NR	730	43	NR	860	1	NR	990	0	NR
475	96	NR	605	855	NR	735	37	NR	865	1	NR	995	0	NR
480	92	NR	610	820	NR	740	32	NR	870	1	NR	1000	0	NR
485	96	NR	615	776	NR	745	29	NR	875	1	NR			

Summary

$R_f = 74.7$
 $R_g = 95.4$
 $CIE R_a = 71.9$
 $R_9 = -23.5$

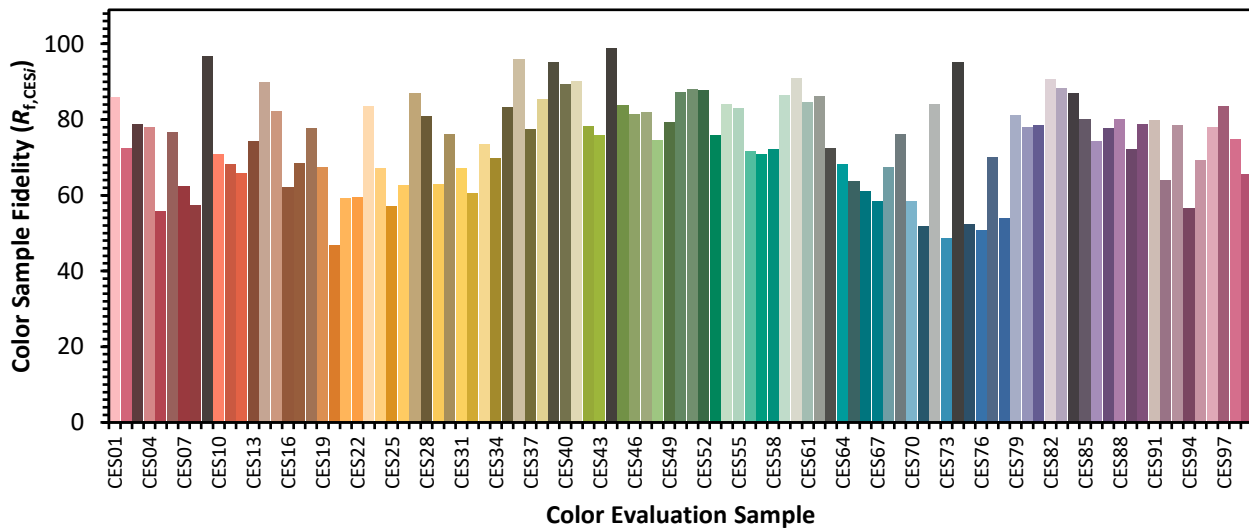


Color Vector Graphics

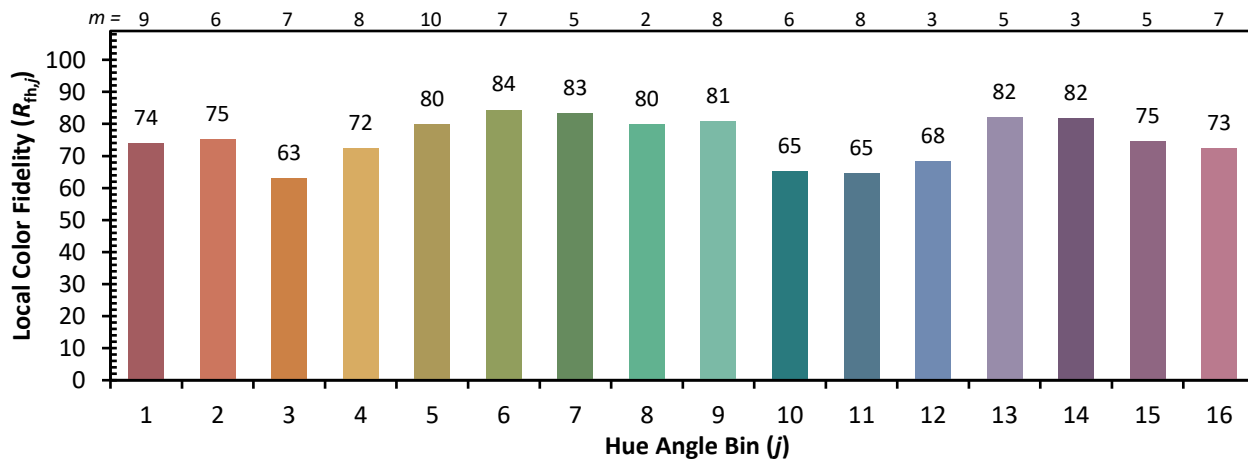
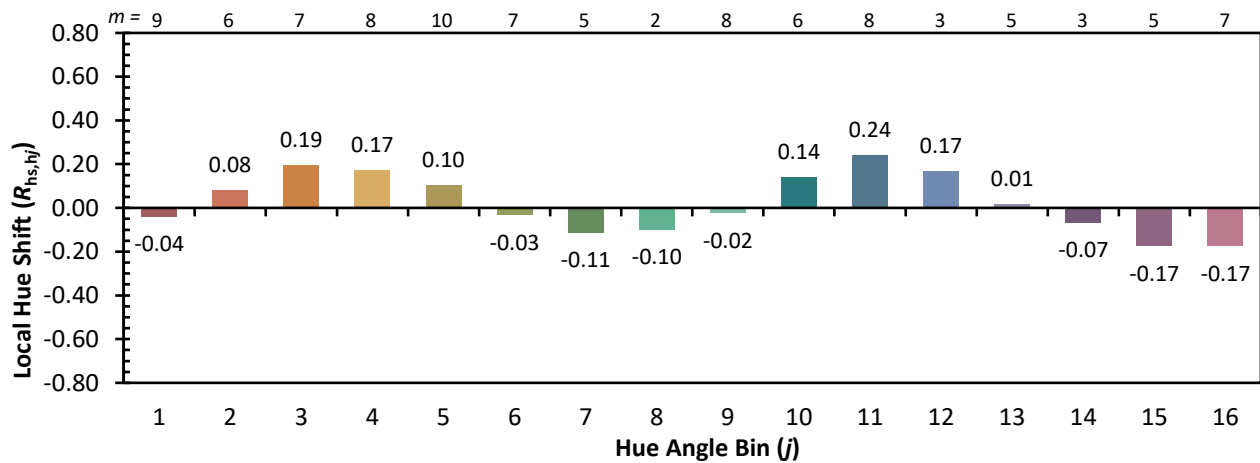
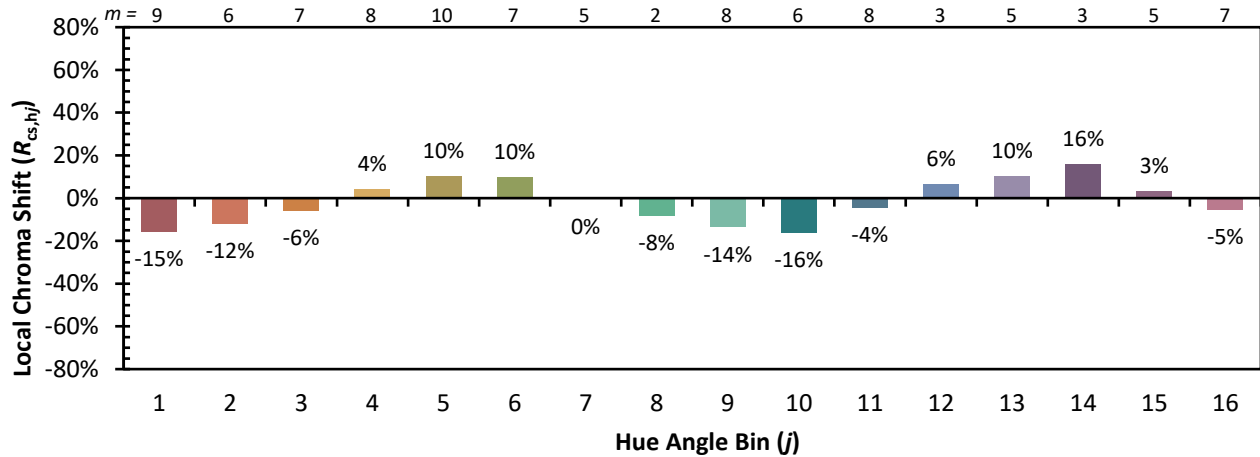


Individual Sample Fidelity Index ($R_{f,i}$)

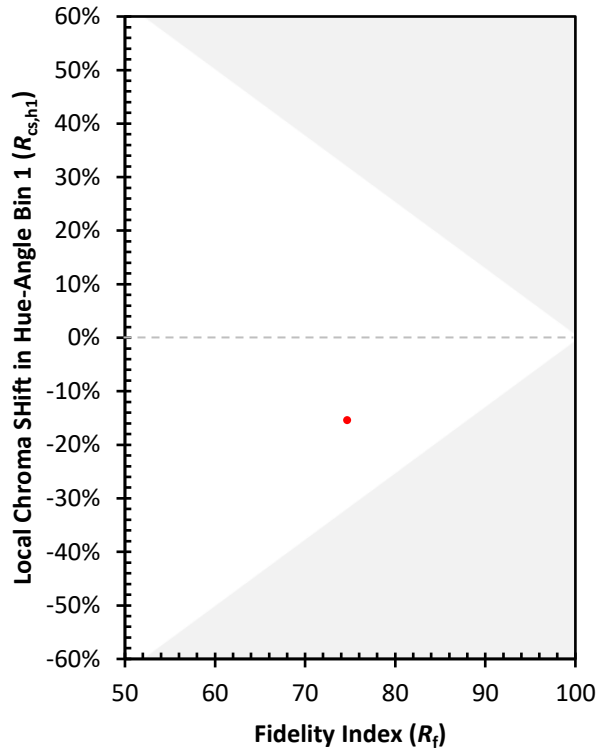
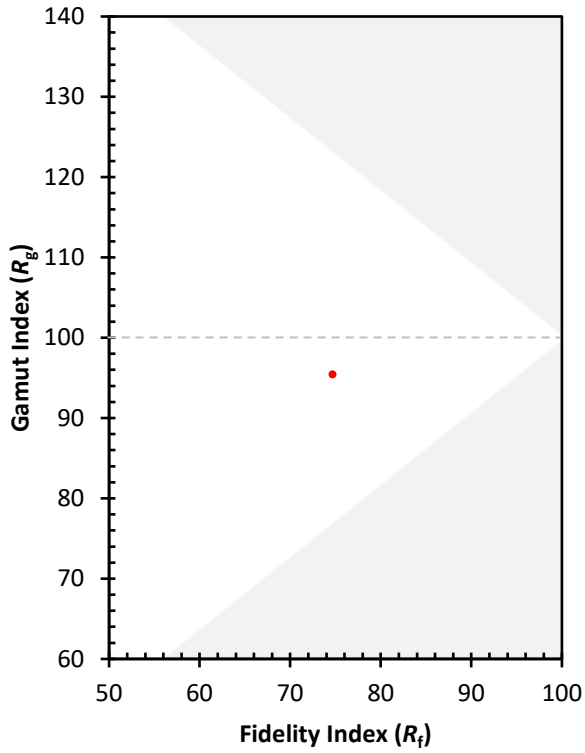
CES01 = 85	CES26 = 63	CES51 = 88	CES76 = 51
CES02 = 61	CES27 = 87	CES52 = 88	CES77 = 70
CES03 = 30	CES28 = 81	CES53 = 76	CES78 = 54
CES04 = 70	CES29 = 63	CES54 = 84	CES79 = 81
CES05 = 47	CES30 = 76	CES55 = 83	CES80 = 78
CES06 = 50	CES31 = 67	CES56 = 72	CES81 = 79
CES07 = 40	CES32 = 61	CES57 = 71	CES82 = 91
CES08 = 39	CES33 = 73	CES58 = 72	CES83 = 88
CES09 = 29	CES34 = 70	CES59 = 86	CES84 = 87
CES10 = 74	CES35 = 83	CES60 = 91	CES85 = 80
CES11 = 57	CES36 = 96	CES61 = 85	CES86 = 74
CES12 = 63	CES37 = 77	CES62 = 86	CES87 = 78
CES13 = 42	CES38 = 85	CES63 = 72	CES88 = 80
CES14 = 74	CES39 = 95	CES64 = 68	CES89 = 72
CES15 = 71	CES40 = 89	CES65 = 64	CES90 = 79
CES16 = 46	CES41 = 90	CES66 = 61	CES91 = 80
CES17 = 49	CES42 = 78	CES67 = 58	CES92 = 64
CES18 = 56	CES43 = 76	CES68 = 67	CES93 = 78
CES19 = 71	CES44 = 99	CES69 = 76	CES94 = 57
CES20 = 65	CES45 = 84	CES70 = 58	CES95 = 69
CES21 = 86	CES46 = 81	CES71 = 52	CES96 = 78
CES22 = 78	CES47 = 82	CES72 = 84	CES97 = 84
CES23 = 92	CES48 = 75	CES73 = 49	CES98 = 75
CES24 = 91	CES49 = 79	CES74 = 95	CES99 = 66
CES25 = 72	CES50 = 87	CES75 = 52	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)