

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: P833587

Luminaire Tested: **TTN-D2-750-U-DL-UPL1**

Issue Date: 5/15/2024

**Test Information**

Test Method: LM-79-08  
Report Number: P833587  
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-D2-750-U-DL-UPL1  
Description: TOPTIER NANO LED PARKING GARAGE LUMINAIRE WITH UPLIGHT  
5000K, 70 CRI LEDS AND DRIVE LANE DISTRIBUTION  
Light Source: -  
Ballast/Driver: -

**Summary**

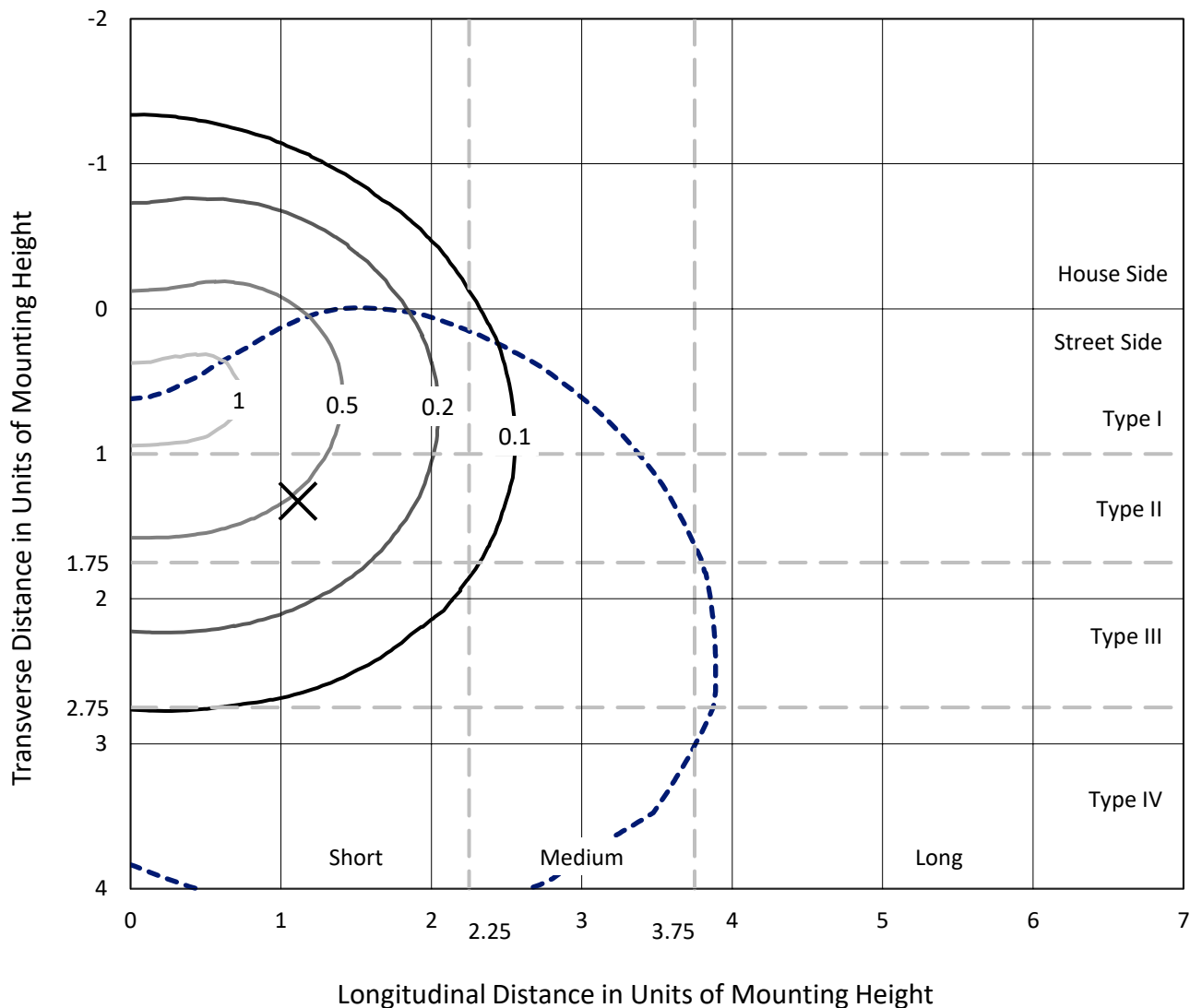
Lumens per Lamp: N/A  
Luminaire Lumens: 5335.9 lumens  
Efficiency: N/A  
Efficacy: 118.3 lumens/watt  
Luminous Opening: Vertical Cylinder (Dia: 0.71' x H: 0.1')  
IES Classification: Type IV - Short  
BUG Rating: B1 - U3 - G2  
  
Input Watts (W): 45.1  
Input Voltage (V): NR  
Input Current (Ain): 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

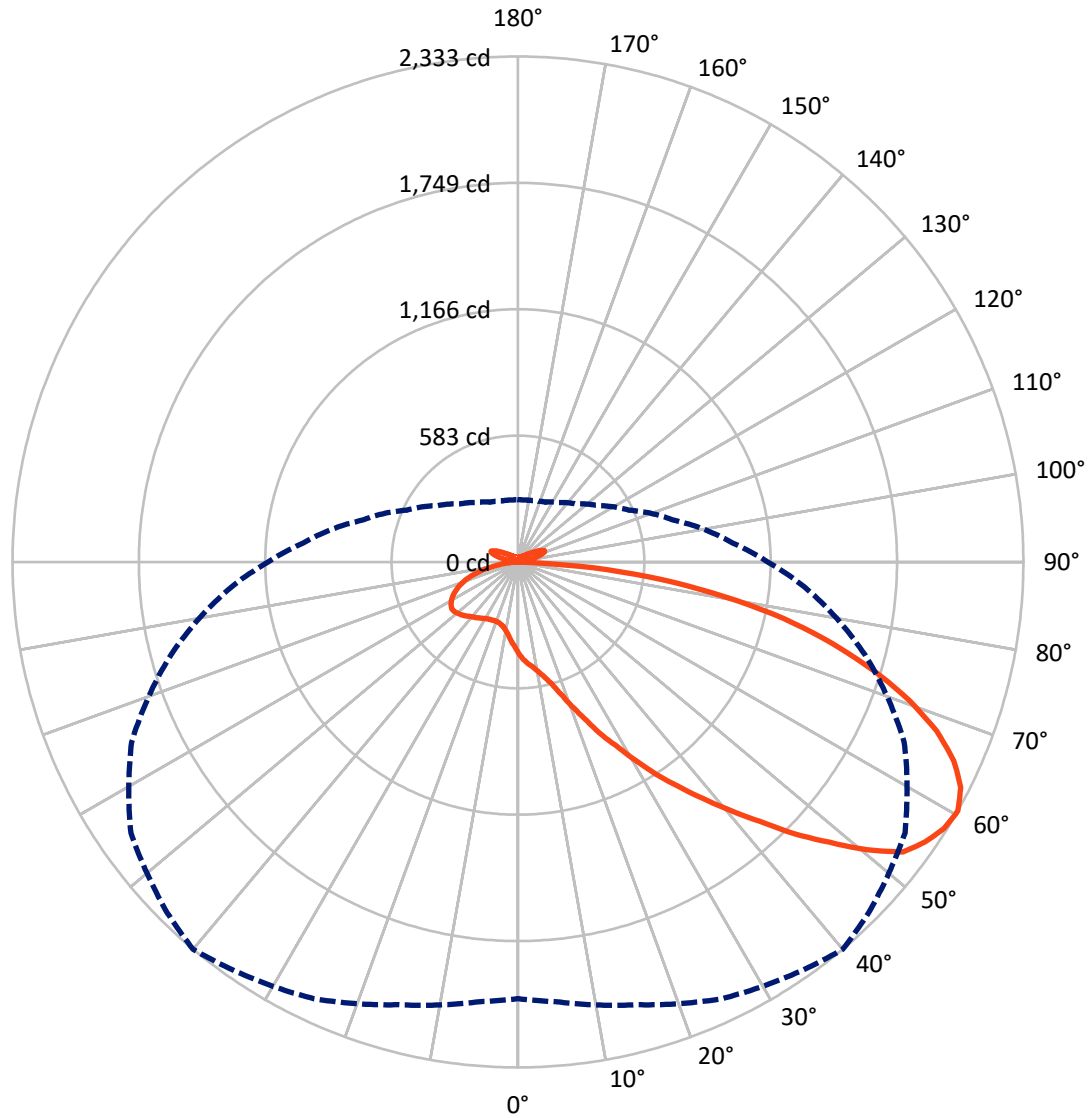
✕ Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 1.1 fc  
 Type IV - Short - N/A

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### Luminous Intensity Polar Plot



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



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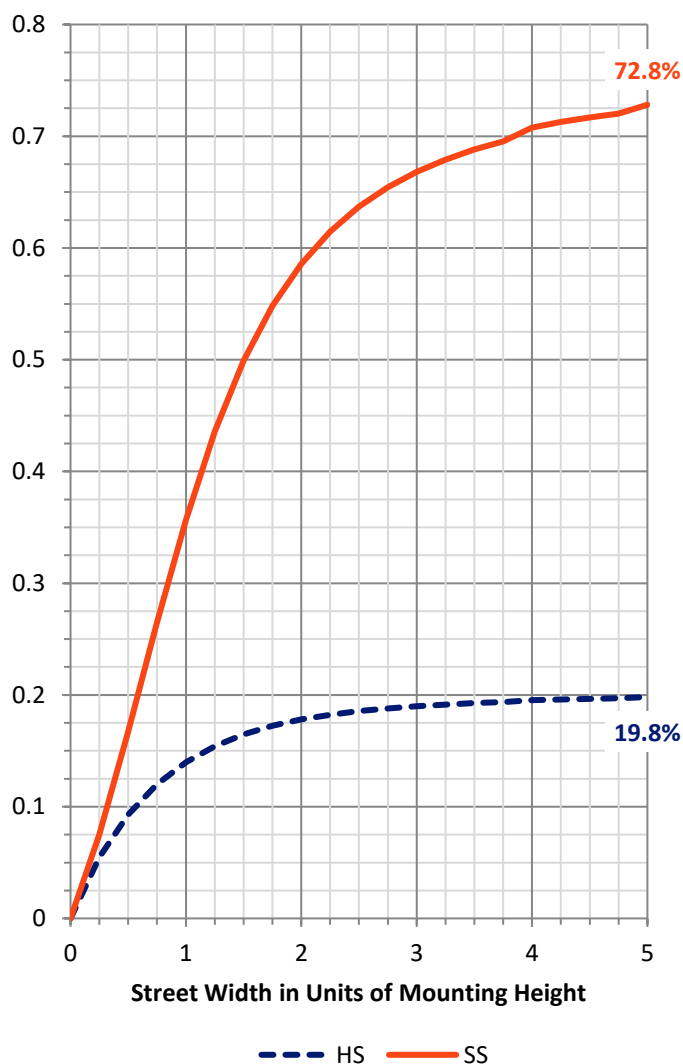
**FLUX DISTRIBUTION:**

		Downward	Upward	Total
<b>House Side</b>	Lumens	1067.5	161.7	1229.3
	% Fixture	20.0	3.0	23.0
<b>Street Side</b>	Lumens	3944.9	161.7	4106.6
	% Fixture	73.9	3.0	77.0
<b>Total</b>	Lumens	5012.4	323.4	5335.9
	% Fixture	93.9	6.1	100.0

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	39.8	0.7
10°-20°	127.0	2.4
20°-30°	268.4	5.0
30°-40°	490.5	9.2
40°-50°	797.1	14.9
50°-60°	1107.9	20.8
60°-70°	1148.5	21.5
70°-80°	823.0	15.4
80°-90°	210.3	3.9
90°-100°	7.2	0.1
100°-110°	73.4	1.4
110°-120°	107.3	2.0
120°-130°	62.3	1.2
130°-140°	33.0	0.6
140°-150°	19.6	0.4
150°-160°	12.1	0.2
160°-170°	6.6	0.1
170°-180°	2.1	0.0
0°-90°	5012.4	93.9
0°-180°	5335.9	100.0

**Coefficient of Utilization**

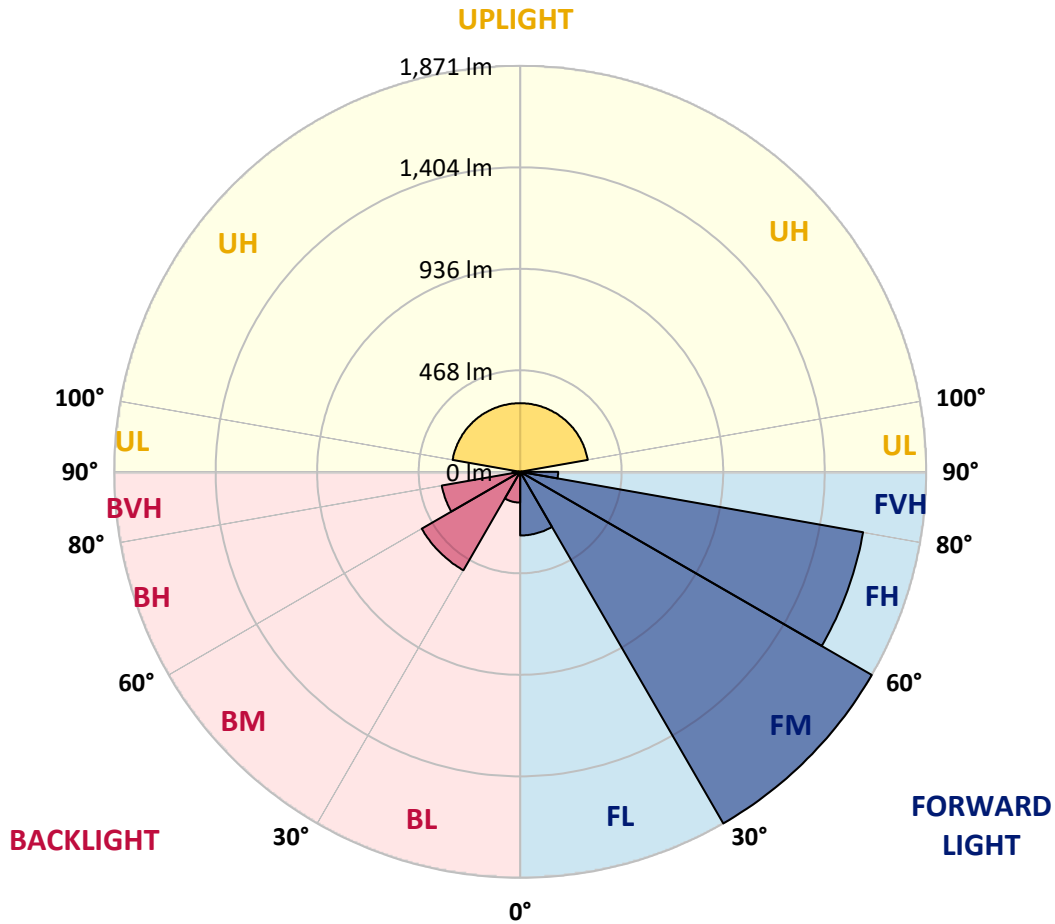


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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	293.3	5.5			
FM (30°-60°)	1871.5	35.1			
FH (60°-80°)	1605.1	30.1			G1/1800
FVH (80°-90°)	175.0	3.3			G2/225
BL (0°-30°)	141.9	2.7	B1/500		
BM (30°-60°)	524.0	9.8	B1/1000		
BH (60°-80°)	366.4	6.9	B1/500		G1/500
BVH (80°-90°)	35.2	0.7			G1/100
UL (90°-100°)	7.2	0.1		U1/10	
UH (100°-180°)	316.2	5.9		U3/500	

**BUG Rating: B1-U3-G2**  
 Type IV Short





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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	15°	25°	35°	40°	45°	55°	65°	75°	85°
0°	422.1	422.1	422.1	422.1	422.1	422.1	422.1	422.1	422.1	422.1	422.1
2.5°	452.6	452.6	452.6	452.6	448.2	448.2	443.9	439.5	435.2	430.8	422.1
5°	491.7	491.7	487.4	483.0	474.3	470.0	465.6	456.9	448.2	439.5	426.5
7.5°	509.2	509.2	509.2	504.8	491.7	487.4	478.7	465.6	452.6	439.5	422.1
10°	539.6	539.6	535.3	530.9	517.9	513.5	504.8	487.4	465.6	443.9	422.1
12.5°	578.8	574.4	570.1	565.7	552.7	544.0	530.9	513.5	487.4	461.3	435.2
15°	626.7	618.0	618.0	609.2	596.2	583.1	574.4	548.3	522.2	487.4	452.6
17.5°	678.9	674.5	670.2	661.5	648.4	639.7	626.7	596.2	561.4	517.9	478.7
20°	744.2	735.4	739.8	726.7	713.7	709.3	687.6	652.8	609.2	561.4	513.5
22.5°	822.5	813.8	813.8	800.7	792.0	783.3	761.6	722.4	665.8	613.6	552.7
25°	909.5	900.8	900.8	892.1	883.4	874.7	848.6	805.1	739.8	674.5	604.9
27.5°	1005.3	996.6	996.6	992.2	970.4	957.4	935.6	887.8	822.5	739.8	657.1
30°	1105.3	1096.6	1105.3	1096.6	1083.6	1057.5	1031.4	979.1	905.2	813.8	713.7
32.5°	1183.7	1183.7	1188.0	1196.7	1188.0	1166.3	1135.8	1092.3	992.2	879.1	765.9
35°	1275.1	1275.1	1283.8	1296.8	1292.5	1270.7	1240.3	1192.4	1087.9	953.0	822.5
37.5°	1375.2	1375.2	1383.9	1405.6	1396.9	1383.9	1362.1	1301.2	1183.7	1027.0	883.4
40°	1484.0	1479.6	1488.3	1518.8	1523.1	1505.7	1479.6	1418.7	1283.8	1122.8	948.7
42.5°	1592.7	1588.4	1605.8	1636.3	1640.6	1636.3	1610.2	1540.5	1388.2	1218.5	1014.0
45°	1701.5	1701.5	1727.6	1775.5	1797.3	1788.6	1766.8	1679.8	1518.8	1318.6	1101.0
47.5°	1814.7	1814.7	1849.5	1910.4	1936.5	1932.2	1923.5	1819.0	1645.0	1423.0	1175.0
50°	1901.7	1901.7	1958.3	2027.9	2071.4	2088.8	2045.3	1949.6	1753.8	1514.4	1235.9
52.5°	1988.8	1988.8	2045.3	2154.1	2197.6	2223.8	2167.2	2067.1	1875.6	1597.1	1292.5
55°	2032.3	2041.0	2119.3	2223.8	2293.4	2280.3	2302.1	2167.2	1953.9	1658.0	1327.3
57.5°	2036.6	2049.7	2136.7	2245.5	2323.8	2319.5	2323.8	2202.0	1984.4	1671.1	1331.6
60°	2014.9	2036.6	2115.0	2223.8	2297.7	2332.5	2289.0	2180.2	1967.0	1658.0	1327.3
62.5°	1962.6	2006.2	2088.8	2171.5	2280.3	2293.4	2258.6	2167.2	1919.1	1645.0	1305.5
65°	1845.1	1893.0	2010.5	2106.3	2193.3	2210.7	2171.5	2093.2	1871.3	1584.0	1235.9
67.5°	1727.6	1758.1	1858.2	2006.2	2067.1	2084.5	2071.4	1980.1	1788.6	1462.2	1153.2
70°	1592.7	1631.9	1710.2	1862.6	1923.5	1919.1	1958.3	1853.9	1662.4	1357.7	1066.2
72.5°	1410.0	1466.5	1544.9	1671.1	1745.1	1718.9	1779.9	1692.8	1497.0	1227.2	948.7
75°	1196.7	1244.6	1344.7	1444.8	1527.5	1497.0	1544.9	1484.0	1305.5	1070.5	813.8
77.5°	957.4	1014.0	1105.3	1196.7	1253.3	1253.3	1275.1	1222.8	1083.6	879.1	665.8
80°	709.3	761.6	844.2	909.5	961.7	966.1	987.8	961.7	835.5	683.2	509.2
82.5°	470.0	496.1	570.1	622.3	674.5	670.2	705.0	687.6	583.1	470.0	339.4
85°	200.2	217.6	278.5	322.0	369.9	352.5	400.4	396.0	313.3	226.3	152.3
87.5°	8.7	13.1	13.1	8.7	13.1	4.4	13.1	17.4	13.1	8.7	8.7
90°	2.8	2.8	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.8
92.5°	2.8	2.8	2.8	3.9	4.4	4.2	3.9	4.4	3.3	3.3	2.8
95°	3.3	3.3	3.9	5.0	6.1	6.4	6.6	6.6	3.9	3.9	3.3
97.5°	4.4	5.0	5.0	6.1	10.0	14.2	18.3	11.1	5.5	5.5	5.0
100°	7.2	7.7	7.7	13.8	29.3	34.3	39.3	28.2	14.4	10.5	7.7
102.5°	23.2	24.3	29.9	44.8	66.4	63.4	60.3	50.9	48.1	33.2	26.6
105°	59.2	58.7	63.1	74.7	93.0	92.2	91.3	84.1	76.4	65.8	60.9
107.5°	78.0	78.0	81.9	91.9	105.7	114.6	123.4	125.1	99.0	86.9	81.3
110°	88.0	88.0	91.3	99.6	117.9	130.4	142.8	141.6	122.3	107.3	100.2



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	15°	25°	35°	40°	45°	55°	65°	75°	85°
112.5°	90.2	90.7	95.2	107.9	127.8	133.4	138.9	133.9	126.2	119.5	114.0
115°	93.5	93.5	98.5	110.7	121.7	124.0	126.2	120.6	114.5	110.1	107.9
117.5°	92.4	94.1	95.2	101.8	109.0	110.6	112.3	109.6	101.3	97.9	96.8
120°	85.8	85.8	86.9	90.2	94.1	94.9	95.7	94.6	89.1	86.3	85.8
122.5°	76.4	76.9	76.4	78.0	80.8	81.6	82.4	81.3	76.9	75.8	75.8
125°	67.0	67.0	66.4	67.5	69.2	68.9	68.6	69.2	67.0	66.4	66.4
127.5°	60.3	59.8	58.7	59.2	59.8	59.8	59.8	60.3	58.1	58.7	59.2
130°	53.7	53.7	52.6	52.6	52.6	52.0	51.5	52.6	51.5	52.0	52.6
132.5°	47.6	47.6	45.9	45.4	45.4	45.4	45.4	45.9	45.4	46.5	47.6
135°	42.6	42.6	40.9	41.5	41.5	41.2	40.9	41.5	40.9	42.1	42.6
137.5°	38.7	38.7	37.6	37.6	37.6	37.4	37.1	37.6	37.6	38.2	39.3
140°	35.4	35.4	34.9	34.9	34.3	34.6	34.9	34.9	34.9	35.4	36.0
142.5°	33.8	33.2	32.6	32.1	32.6	32.6	32.6	32.6	32.1	32.6	33.8
145°	31.0	31.0	30.4	30.4	30.4	30.7	31.0	30.4	30.4	31.0	31.0
147.5°	29.3	29.3	28.8	29.3	29.3	29.3	29.3	29.3	28.8	29.3	29.3
150°	28.8	28.2	27.7	28.2	28.2	28.0	27.7	27.7	27.7	27.7	28.2
152.5°	27.1	27.1	26.6	27.1	26.6	26.6	26.6	26.6	26.6	26.6	27.1
155°	26.0	26.0	25.5	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0
157.5°	24.9	25.5	24.9	24.9	24.9	24.9	24.9	24.9	24.9	24.9	25.5
160°	24.3	24.3	24.3	24.3	23.8	23.8	23.8	23.8	24.3	24.3	24.3
162.5°	23.8	23.8	23.8	23.8	23.2	23.2	23.2	23.2	23.2	23.8	23.8
165°	23.8	23.2	23.2	23.2	22.7	22.7	22.7	22.7	22.7	23.2	23.8
167.5°	22.7	22.7	22.7	22.7	22.7	22.4	22.1	22.1	22.7	22.7	22.7
170°	22.7	22.7	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1
172.5°	22.7	22.7	22.7	22.7	22.1	22.1	22.1	22.1	22.1	22.1	22.7
175°	22.7	22.7	22.7	22.7	22.1	22.1	22.1	22.1	22.7	22.7	22.7
177.5°	22.7	22.7	22.7	22.7	22.1	22.4	22.7	22.7	22.7	22.7	22.7
180°	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7





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**CANDELA DISTRIBUTION (continued):**

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	422.1	422.1	422.1	422.1	422.1	422.1	422.1	422.1	422.1	422.1	422.1
2.5°	422.1	417.8	409.1	404.7	400.4	391.7	391.7	387.3	387.3	387.3	383.0
5°	422.1	413.4	404.7	391.7	383.0	374.3	365.5	356.8	352.5	352.5	348.1
7.5°	413.4	404.7	391.7	378.6	365.5	348.1	339.4	322.0	317.7	313.3	313.3
10°	413.4	404.7	383.0	365.5	348.1	330.7	317.7	300.3	287.2	282.9	282.9
12.5°	417.8	404.7	383.0	361.2	339.4	317.7	300.3	282.9	269.8	261.1	261.1
15°	435.2	417.8	391.7	361.2	335.1	309.0	291.6	269.8	256.8	248.1	248.1
17.5°	456.9	439.5	400.4	365.5	335.1	304.6	282.9	261.1	248.1	239.3	235.0
20°	487.4	461.3	417.8	369.9	335.1	304.6	278.5	256.8	239.3	230.6	230.6
22.5°	522.2	491.7	435.2	378.6	339.4	304.6	278.5	252.4	235.0	226.3	226.3
25°	565.7	526.6	461.3	396.0	348.1	309.0	278.5	252.4	235.0	226.3	226.3
27.5°	613.6	570.1	487.4	413.4	356.8	313.3	278.5	252.4	235.0	226.3	226.3
30°	657.1	609.2	513.5	430.8	369.9	317.7	282.9	256.8	239.3	230.6	226.3
32.5°	705.0	644.1	539.6	448.2	378.6	326.4	287.2	261.1	239.3	230.6	230.6
35°	752.9	687.6	565.7	470.0	391.7	335.1	291.6	265.5	243.7	235.0	235.0
37.5°	805.1	735.4	596.2	487.4	404.7	343.8	300.3	269.8	248.1	239.3	239.3
40°	866.0	783.3	626.7	509.2	417.8	352.5	304.6	278.5	256.8	248.1	248.1
42.5°	922.6	826.8	657.1	526.6	430.8	361.2	313.3	282.9	265.5	256.8	256.8
45°	979.1	879.1	687.6	548.3	443.9	374.3	322.0	295.9	274.2	265.5	265.5
47.5°	1044.4	926.9	722.4	565.7	456.9	383.0	330.7	304.6	282.9	278.5	274.2
50°	1096.6	961.7	744.2	583.1	465.6	391.7	339.4	309.0	291.6	282.9	282.9
52.5°	1144.5	996.6	761.6	591.8	470.0	396.0	348.1	317.7	300.3	291.6	291.6
55°	1170.6	1009.6	774.6	591.8	474.3	400.4	348.1	317.7	300.3	295.9	291.6
57.5°	1170.6	1009.6	765.9	583.1	465.6	391.7	343.8	313.3	300.3	291.6	291.6
60°	1153.2	996.6	744.2	565.7	452.6	378.6	335.1	304.6	291.6	287.2	287.2
62.5°	1127.1	974.8	726.7	544.0	435.2	361.2	322.0	291.6	282.9	282.9	278.5
65°	1057.5	909.5	687.6	513.5	409.1	339.4	304.6	278.5	269.8	265.5	261.1
67.5°	983.5	848.6	626.7	478.7	374.3	317.7	282.9	261.1	248.1	248.1	243.7
70°	909.5	783.3	570.1	430.8	335.1	291.6	256.8	235.0	226.3	226.3	226.3
72.5°	809.4	700.6	504.8	378.6	295.9	256.8	230.6	208.9	204.5	204.5	200.2
75°	691.9	596.2	426.5	322.0	248.1	217.6	195.8	174.1	174.1	174.1	174.1
77.5°	565.7	483.0	339.4	256.8	195.8	174.1	161.0	143.6	143.6	143.6	143.6
80°	426.5	356.8	248.1	187.1	143.6	126.2	117.5	108.8	113.1	113.1	108.8
82.5°	278.5	235.0	156.7	117.5	91.4	82.7	82.7	74.0	78.3	78.3	78.3
85°	121.8	104.4	65.3	52.2	43.5	43.5	43.5	39.2	43.5	43.5	43.5
87.5°	8.7	8.7	8.7	8.7	8.7	8.7	8.7	0.0	4.4	8.7	4.4
90°	2.8	2.8	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.8	2.8
92.5°	2.8	2.8	3.3	3.3	4.4	3.9	4.4	3.9	2.8	2.8	2.8
95°	3.3	3.3	3.9	3.9	6.6	6.6	6.1	5.0	3.9	3.3	3.3
97.5°	4.4	5.0	5.5	5.5	11.1	18.3	10.0	6.1	5.0	5.0	4.4
100°	7.7	7.7	10.5	14.4	28.2	39.3	29.3	13.8	7.7	7.7	7.2
102.5°	25.5	26.6	33.2	48.1	50.9	60.3	66.4	44.8	29.9	24.3	23.2
105°	60.9	60.9	65.8	76.4	84.1	91.3	93.0	74.7	63.1	58.7	59.2
107.5°	80.8	81.3	86.9	99.0	125.1	123.4	105.7	91.9	81.9	78.0	78.0
110°	99.0	100.2	107.3	122.3	141.6	142.8	117.9	99.6	91.3	88.0	88.0



REPORT NUMBER: P833587  
 CATALOG NUMBER: TTN-D2-750-U-DL-UPL1

**CANDELA DISTRIBUTION (continued):**

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
112.5°	112.9	114.0	119.5	126.2	133.9	138.9	127.8	107.9	95.2	90.7	90.2
115°	109.0	107.9	110.1	114.5	120.6	126.2	121.7	110.7	98.5	93.5	93.5
117.5°	95.2	96.8	97.9	101.3	109.6	112.3	109.0	101.8	95.2	94.1	92.4
120°	84.7	85.8	86.3	89.1	94.6	95.7	94.1	90.2	86.9	85.8	85.8
122.5°	74.7	75.8	75.8	76.9	81.3	82.4	80.8	78.0	76.4	76.9	76.4
125°	65.8	66.4	66.4	67.0	69.2	68.6	69.2	67.5	66.4	67.0	67.0
127.5°	58.7	59.2	58.7	58.1	60.3	59.8	59.8	59.2	58.7	59.8	60.3
130°	53.1	52.6	52.0	51.5	52.6	51.5	52.6	52.6	52.6	53.7	53.7
132.5°	47.6	47.6	46.5	45.4	45.9	45.4	45.4	45.4	45.9	47.6	47.6
135°	42.6	42.6	42.1	40.9	41.5	40.9	41.5	41.5	40.9	42.6	42.6
137.5°	39.8	39.3	38.2	37.6	37.6	37.1	37.6	37.6	37.6	38.7	38.7
140°	36.0	36.0	35.4	34.9	34.9	34.9	34.3	34.9	34.9	35.4	35.4
142.5°	33.8	33.8	32.6	32.1	32.6	32.6	32.6	32.1	32.6	33.2	33.8
145°	31.5	31.0	31.0	30.4	30.4	31.0	30.4	30.4	30.4	31.0	31.0
147.5°	29.9	29.3	29.3	28.8	29.3	29.3	29.3	29.3	28.8	29.3	29.3
150°	28.2	28.2	27.7	27.7	27.7	27.7	28.2	28.2	27.7	28.2	28.8
152.5°	27.7	27.1	26.6	26.6	26.6	26.6	26.6	27.1	26.6	27.1	27.1
155°	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	25.5	26.0	26.0
157.5°	25.5	25.5	24.9	24.9	24.9	24.9	24.9	24.9	24.9	25.5	24.9
160°	24.9	24.3	24.3	24.3	23.8	23.8	23.8	24.3	24.3	24.3	24.3
162.5°	24.3	23.8	23.8	23.2	23.2	23.2	23.2	23.8	23.8	23.8	23.8
165°	23.2	23.8	23.2	22.7	22.7	22.7	22.7	23.2	23.2	23.2	23.8
167.5°	23.2	22.7	22.7	22.7	22.1	22.1	22.7	22.7	22.7	22.7	22.7
170°	22.7	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.7	22.7
172.5°	22.7	22.7	22.1	22.1	22.1	22.1	22.1	22.7	22.7	22.7	22.7
175°	22.1	22.7	22.7	22.7	22.1	22.1	22.1	22.7	22.7	22.7	22.7
177.5°	22.7	22.7	22.7	22.7	22.7	22.7	22.1	22.7	22.7	22.7	22.7
180°	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7

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: SP1-2411-284-3

Test Date: 11/21/2024

Luminaire Tested: TTN-D0-750-U-WQ

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

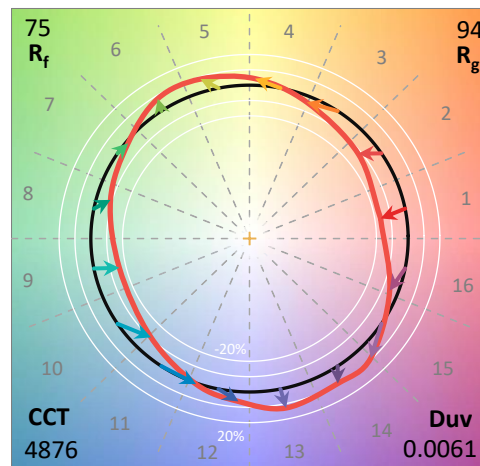
**Test Information**

Test Method: LM-79-2019  
 Report Number: SP1-2411-284-3  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry: 4π  
 Issue Date: 11/21/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: MCGRAW EDISON  
 Catalog Number: **TTN-D0-750-U-WQ**  
 Description: TOPTIER NANO LED PARKING GARAGE LUMINAIRE. 5000K, 70 CRI LEDS AND WIDE DISTRIBUTION

**Spectral Parameters**

CCT (K): 4876  
 CIE u': 0.2086  
 CIE v': 0.4932  
 Duv: 0.0061  
 CIE x: 0.3502  
 CIE y: 0.3680  
 CIE z: 0.2818  
 Peak Wavelength (nm): 451  
 Dominant Wavelength (nm): 569  
 Purity: 15.51324  
 Rf: 74.6  
 Rg: 94.4

CRI (Ra):	72.6		
R1:	69.5	R9:	-24.6
R2:	77.0	R10:	44.8
R3:	82.2	R11:	68.2
R4:	72.6	R12:	36.1
R5:	69.3	R13:	70.5
R6:	67.6	R14:	89.9
R7:	83.7	R15:	63.1
R8:	58.6		



**Test Conditions**

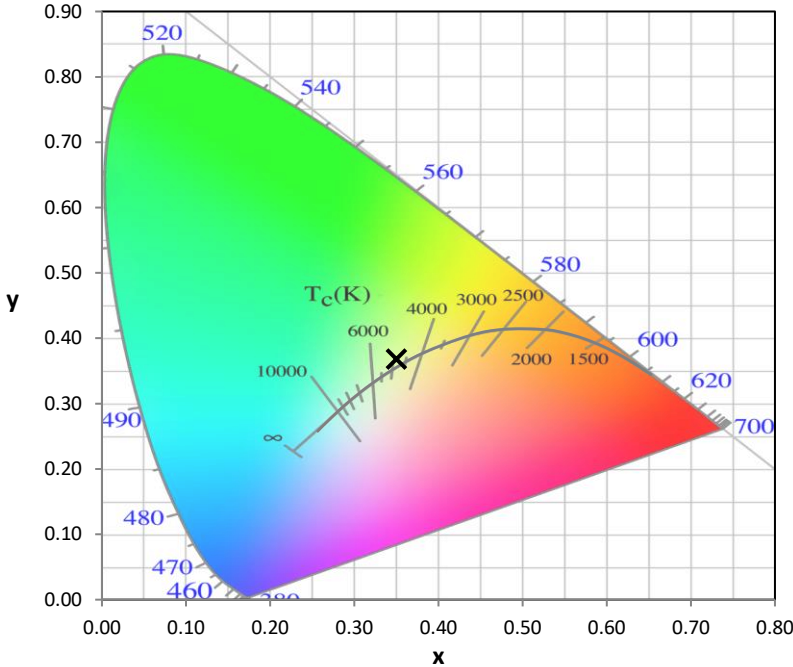
Stabilization Time: 51M  
 Operation Time: 1H 51M  
 Sphere Temperature (°C): 24.9

REPORT NUMBER: SP1-2411-284-3

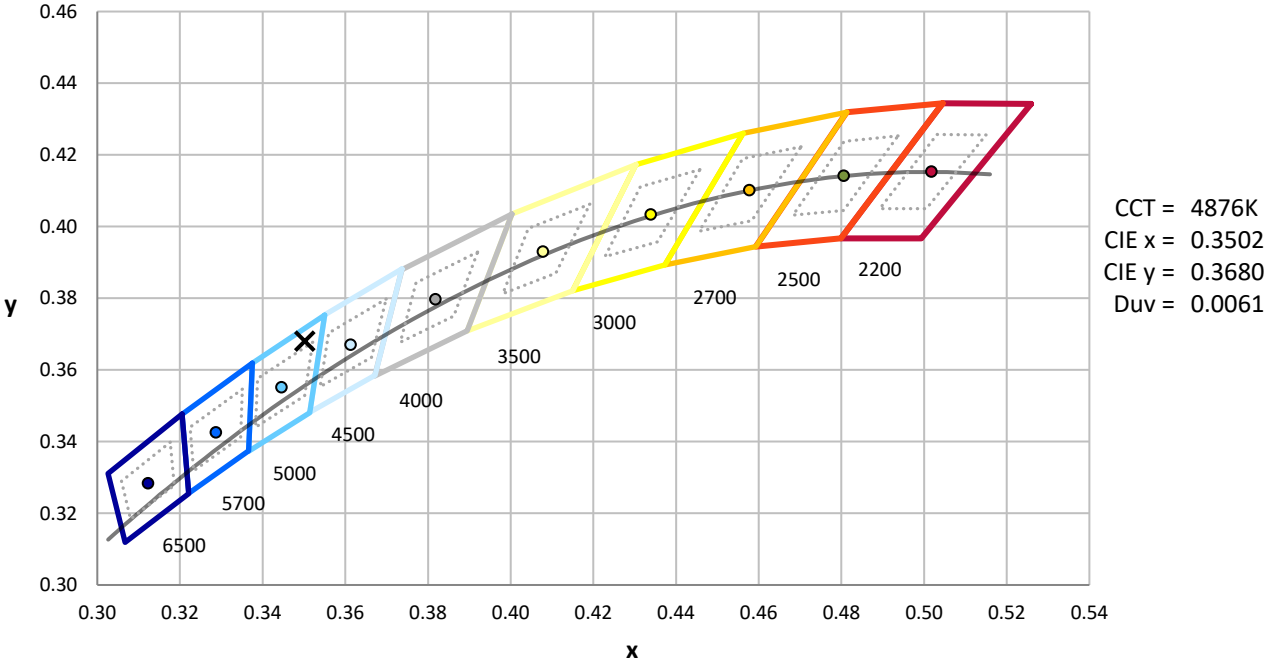
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/22/2024	10/22/2025
DC Power Source	IN0208	10/22/2024	10/22/2025
Sphere Thermometer	IN0085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

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CIE 1931 Chromaticity Diagram



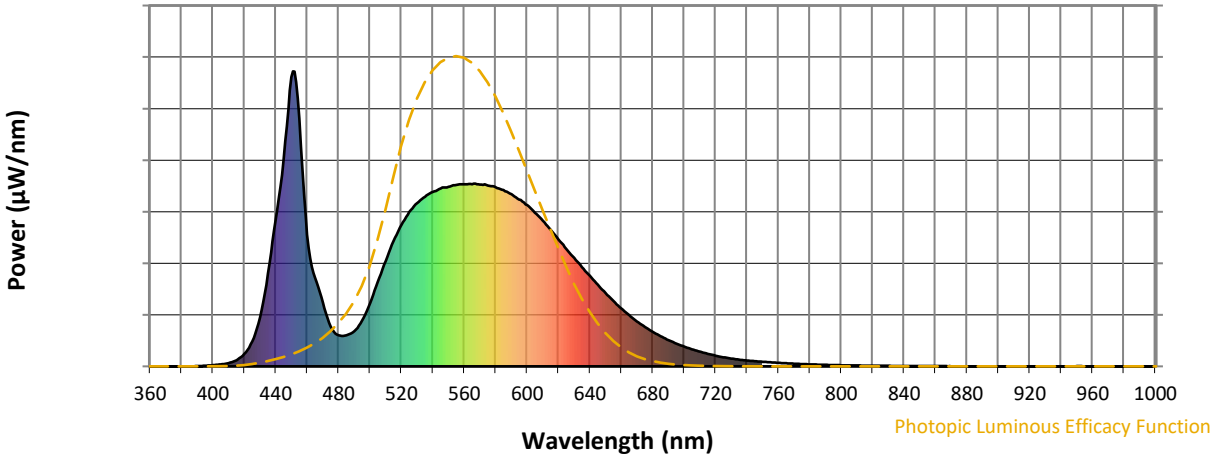
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 5000K 7-step quadrangle

REPORT NUMBER: SP1-2411-284-3

**Photopic Flux vs. Wavelength**

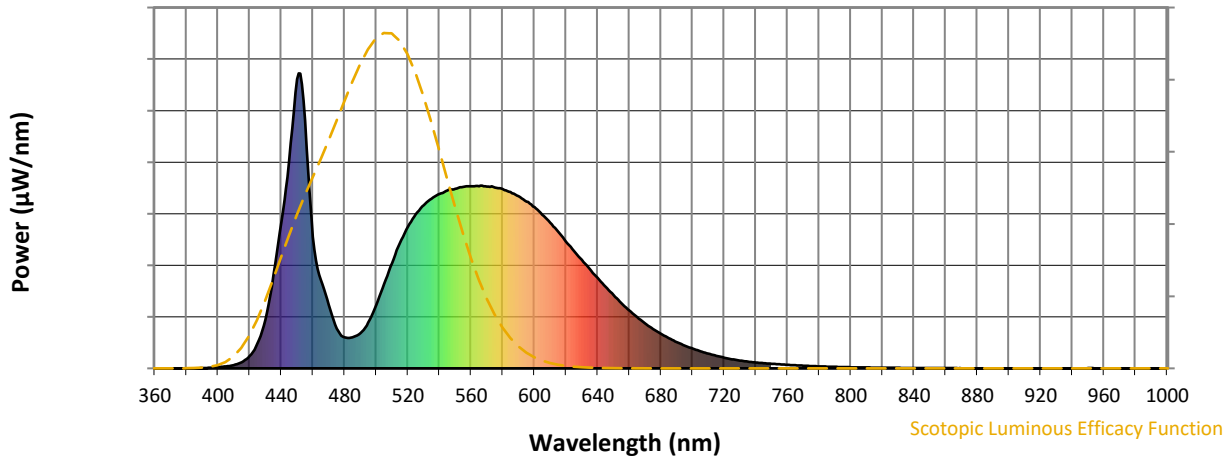


**Photopic Lumens: NR**

λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)
360	0	NR	490	119	NR	620	430	NR	750	16	NR	880	0	NR
365	0	NR	495	156	NR	625	398	NR	755	14	NR	885	0	NR
370	0	NR	500	214	NR	630	368	NR	760	12	NR	890	0	NR
375	0	NR	505	286	NR	635	336	NR	765	11	NR	895	0	NR
380	0	NR	510	357	NR	640	306	NR	770	9	NR	900	0	NR
385	0	NR	515	425	NR	645	276	NR	775	8	NR	905	0	NR
390	1	NR	520	480	NR	650	248	NR	780	7	NR	910	0	NR
395	2	NR	525	523	NR	655	221	NR	785	6	NR	915	0	NR
400	4	NR	530	554	NR	660	196	NR	790	5	NR	920	0	NR
405	7	NR	535	575	NR	665	173	NR	795	4	NR	925	0	NR
410	11	NR	540	592	NR	670	152	NR	800	4	NR	930	0	NR
415	21	NR	545	603	NR	675	133	NR	805	3	NR	935	0	NR
420	42	NR	550	609	NR	680	117	NR	810	3	NR	940	0	NR
425	85	NR	555	615	NR	685	102	NR	815	3	NR	945	0	NR
430	165	NR	560	617	NR	690	89	NR	820	2	NR	950	1	NR
435	316	NR	565	617	NR	695	77	NR	825	2	NR	955	0	NR
440	497	NR	570	616	NR	700	67	NR	830	2	NR	960	0	NR
445	702	NR	575	613	NR	705	58	NR	835	2	NR	965	0	NR
450	981	NR	580	607	NR	710	50	NR	840	1	NR	970	0	NR
455	840	NR	585	598	NR	715	43	NR	845	1	NR	975	0	NR
460	446	NR	590	583	NR	720	36	NR	850	1	NR	980	0	NR
465	300	NR	595	566	NR	725	31	NR	855	1	NR	985	0	NR
470	215	NR	600	546	NR	730	26	NR	860	1	NR	990	0	NR
475	135	NR	605	521	NR	735	23	NR	865	1	NR	995	0	NR
480	105	NR	610	494	NR	740	20	NR	870	1	NR	1000	0	NR
485	106	NR	615	463	NR	745	18	NR	875	0	NR			

REPORT NUMBER: SP1-2411-284-3

**Scotopic Flux vs. Wavelength**



**Scotopic Lumens: NR**

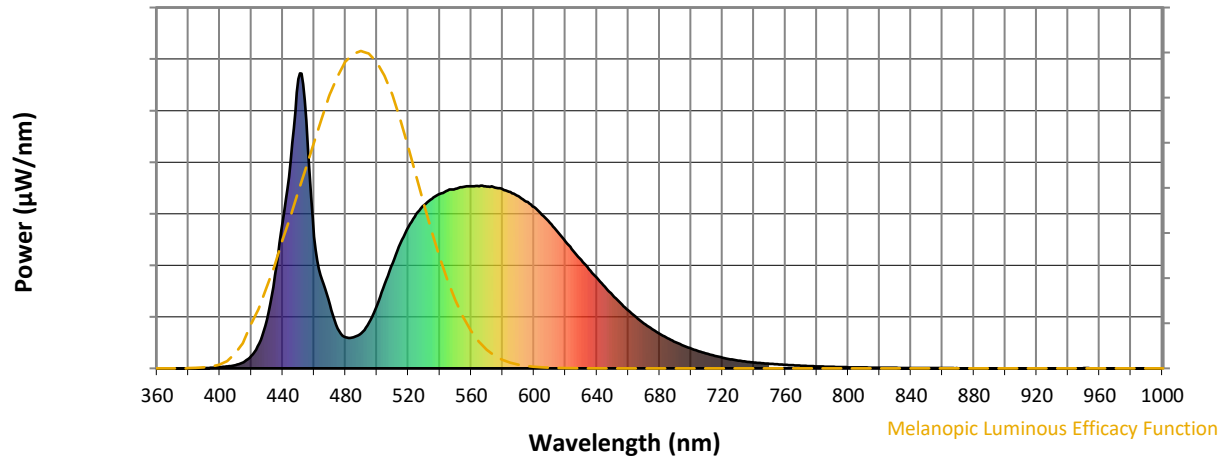
**S/P: 1.74**

λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)
360	0	NR	490	119	NR	620	430	NR	750	16	NR	880	0	NR
365	0	NR	495	156	NR	625	398	NR	755	14	NR	885	0	NR
370	0	NR	500	214	NR	630	368	NR	760	12	NR	890	0	NR
375	0	NR	505	286	NR	635	336	NR	765	11	NR	895	0	NR
380	0	NR	510	357	NR	640	306	NR	770	9	NR	900	0	NR
385	0	NR	515	425	NR	645	276	NR	775	8	NR	905	0	NR
390	1	NR	520	480	NR	650	248	NR	780	7	NR	910	0	NR
395	2	NR	525	523	NR	655	221	NR	785	6	NR	915	0	NR
400	4	NR	530	554	NR	660	196	NR	790	5	NR	920	0	NR
405	7	NR	535	575	NR	665	173	NR	795	4	NR	925	0	NR
410	11	NR	540	592	NR	670	152	NR	800	4	NR	930	0	NR
415	21	NR	545	603	NR	675	133	NR	805	3	NR	935	0	NR
420	42	NR	550	609	NR	680	117	NR	810	3	NR	940	0	NR
425	85	NR	555	615	NR	685	102	NR	815	3	NR	945	0	NR
430	165	NR	560	617	NR	690	89	NR	820	2	NR	950	1	NR
435	316	NR	565	617	NR	695	77	NR	825	2	NR	955	0	NR
440	497	NR	570	616	NR	700	67	NR	830	2	NR	960	0	NR
445	702	NR	575	613	NR	705	58	NR	835	2	NR	965	0	NR
450	981	NR	580	607	NR	710	50	NR	840	1	NR	970	0	NR
455	840	NR	585	598	NR	715	43	NR	845	1	NR	975	0	NR
460	446	NR	590	583	NR	720	36	NR	850	1	NR	980	0	NR
465	300	NR	595	566	NR	725	31	NR	855	1	NR	985	0	NR
470	215	NR	600	546	NR	730	26	NR	860	1	NR	990	0	NR
475	135	NR	605	521	NR	735	23	NR	865	1	NR	995	0	NR
480	105	NR	610	494	NR	740	20	NR	870	1	NR	1000	0	NR
485	106	NR	615	463	NR	745	18	NR	875	0	NR			



REPORT NUMBER: SP1-2411-284-3

Melanopic Flux vs. Wavelength



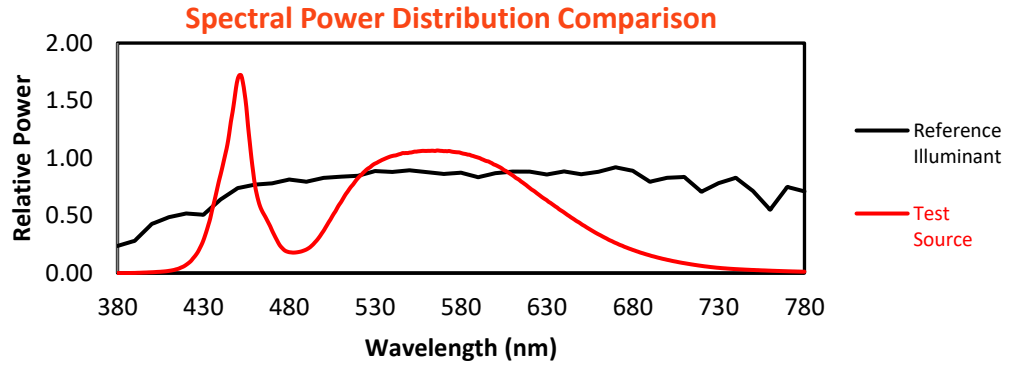
Melanopic Lumens: NR

M/P: 3.51

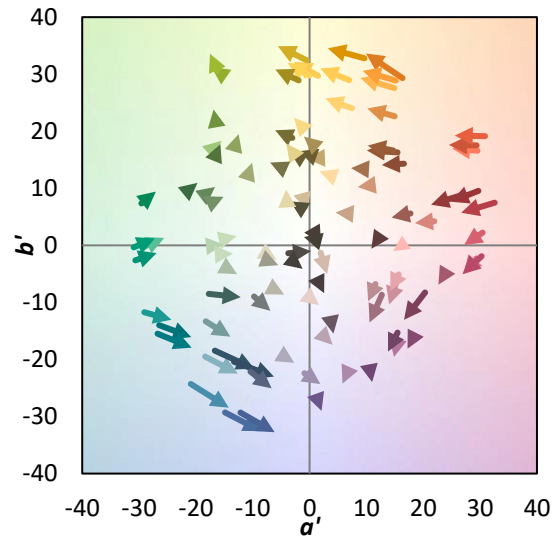
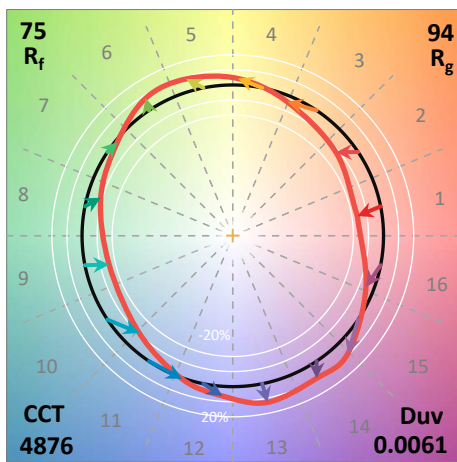
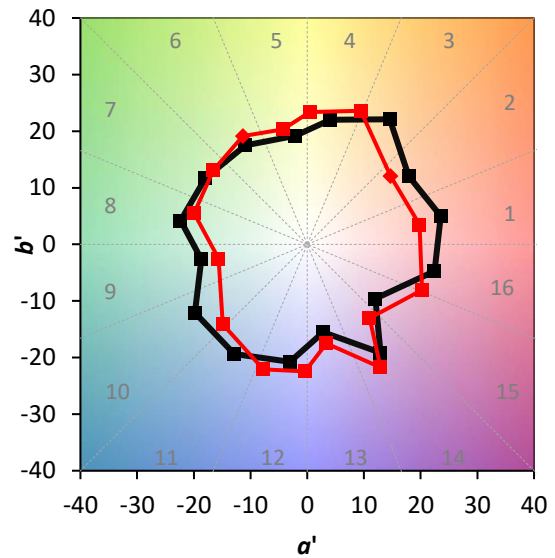
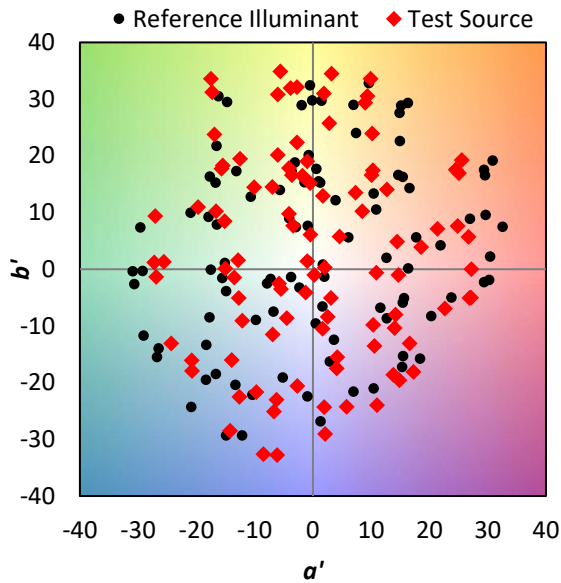
λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)
360	0	NR	490	119	NR	620	430	NR	750	16	NR	880	0	NR
365	0	NR	495	156	NR	625	398	NR	755	14	NR	885	0	NR
370	0	NR	500	214	NR	630	368	NR	760	12	NR	890	0	NR
375	0	NR	505	286	NR	635	336	NR	765	11	NR	895	0	NR
380	0	NR	510	357	NR	640	306	NR	770	9	NR	900	0	NR
385	0	NR	515	425	NR	645	276	NR	775	8	NR	905	0	NR
390	1	NR	520	480	NR	650	248	NR	780	7	NR	910	0	NR
395	2	NR	525	523	NR	655	221	NR	785	6	NR	915	0	NR
400	4	NR	530	554	NR	660	196	NR	790	5	NR	920	0	NR
405	7	NR	535	575	NR	665	173	NR	795	4	NR	925	0	NR
410	11	NR	540	592	NR	670	152	NR	800	4	NR	930	0	NR
415	21	NR	545	603	NR	675	133	NR	805	3	NR	935	0	NR
420	42	NR	550	609	NR	680	117	NR	810	3	NR	940	0	NR
425	85	NR	555	615	NR	685	102	NR	815	3	NR	945	0	NR
430	165	NR	560	617	NR	690	89	NR	820	2	NR	950	1	NR
435	316	NR	565	617	NR	695	77	NR	825	2	NR	955	0	NR
440	497	NR	570	616	NR	700	67	NR	830	2	NR	960	0	NR
445	702	NR	575	613	NR	705	58	NR	835	2	NR	965	0	NR
450	981	NR	580	607	NR	710	50	NR	840	1	NR	970	0	NR
455	840	NR	585	598	NR	715	43	NR	845	1	NR	975	0	NR
460	446	NR	590	583	NR	720	36	NR	850	1	NR	980	0	NR
465	300	NR	595	566	NR	725	31	NR	855	1	NR	985	0	NR
470	215	NR	600	546	NR	730	26	NR	860	1	NR	990	0	NR
475	135	NR	605	521	NR	735	23	NR	865	1	NR	995	0	NR
480	105	NR	610	494	NR	740	20	NR	870	1	NR	1000	0	NR
485	106	NR	615	463	NR	745	18	NR	875	0	NR			

**Summary**

$R_f = 74.6$   
 $R_g = 94.4$   
 $CIE R_a = 72.6$   
 $R_9 = -24.6$

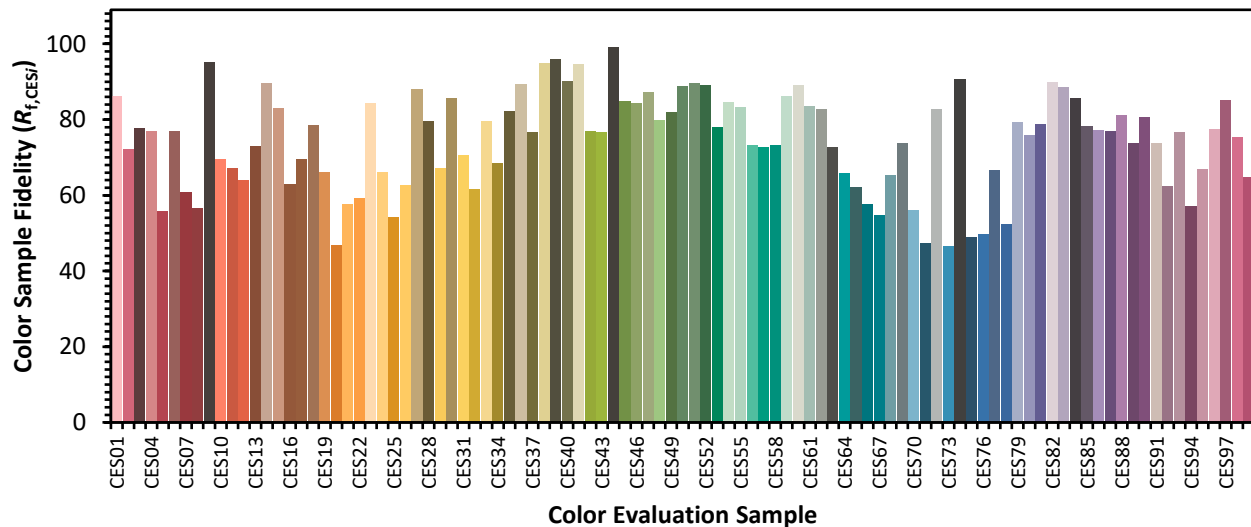


**Color Vector Graphics**

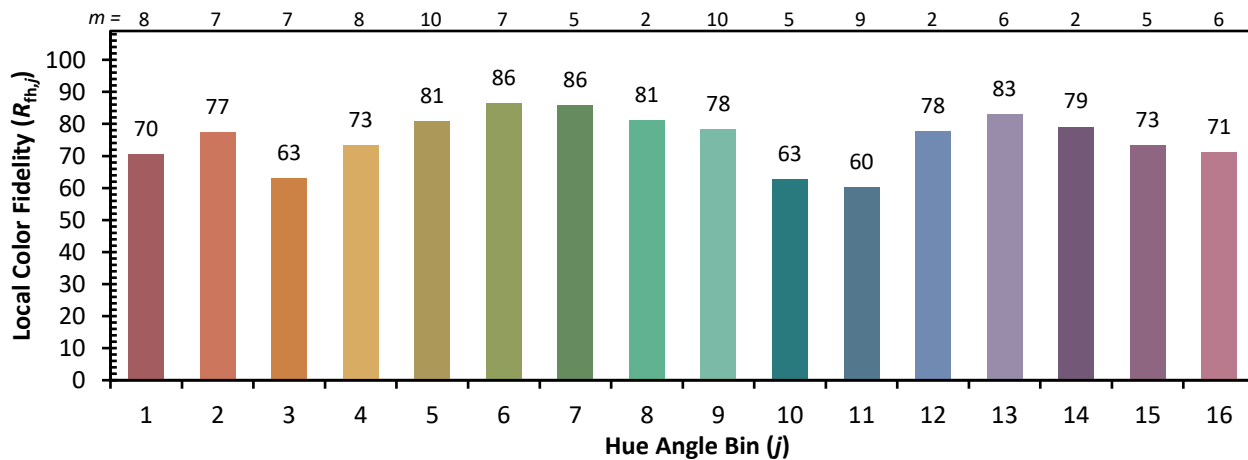
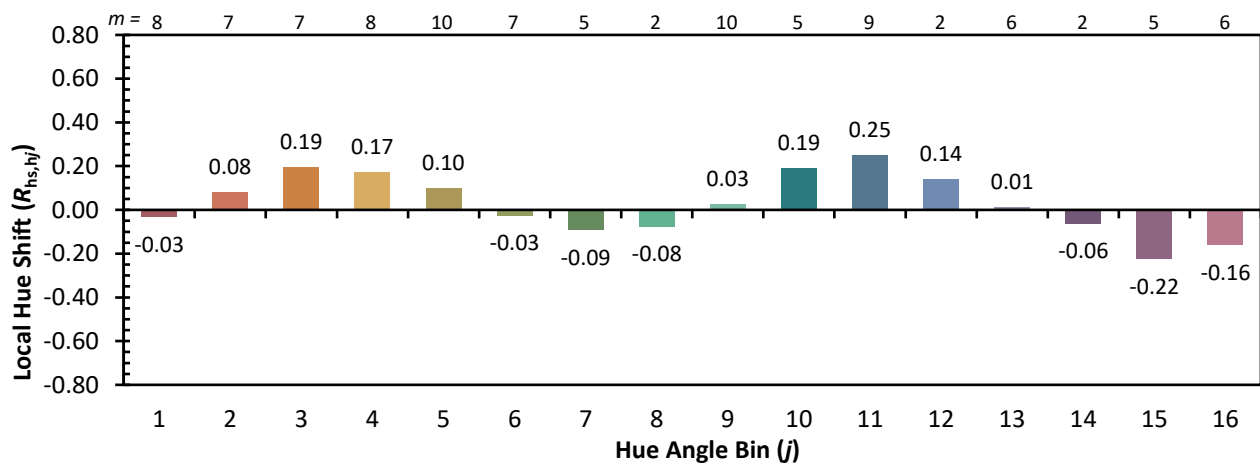
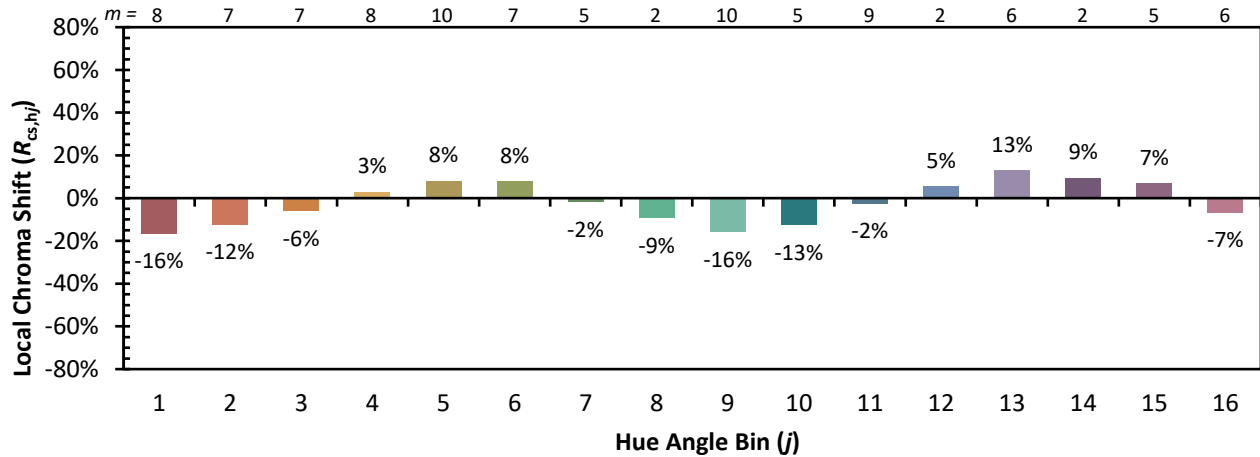


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

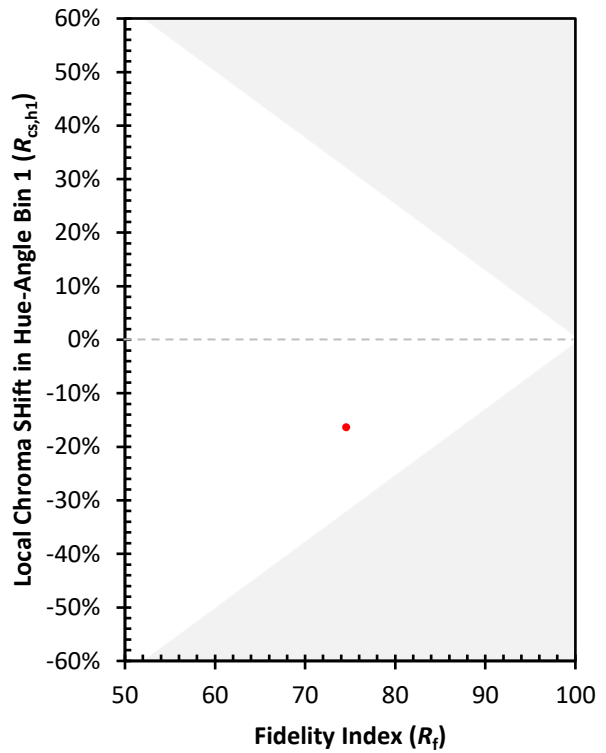
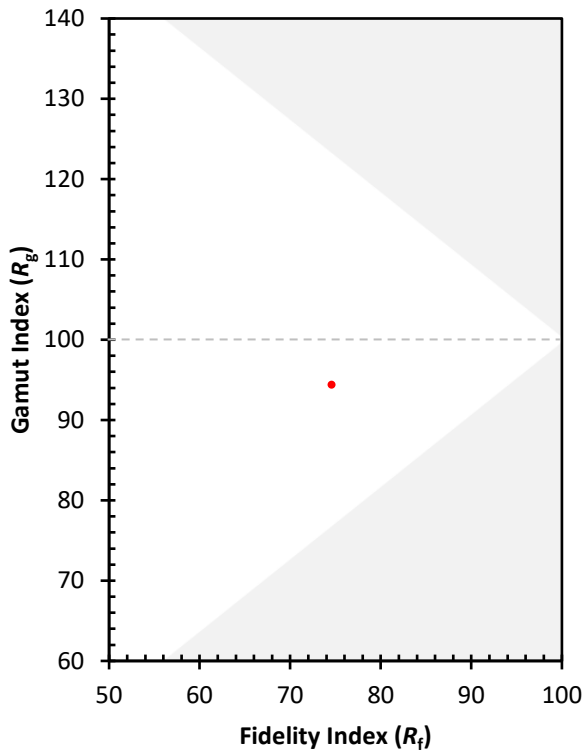
CES01 = 85	CES26 = 63	CES51 = 90	CES76 = 50
CES02 = 59	CES27 = 88	CES52 = 89	CES77 = 67
CES03 = 30	CES28 = 80	CES53 = 78	CES78 = 52
CES04 = 69	CES29 = 67	CES54 = 85	CES79 = 79
CES05 = 46	CES30 = 86	CES55 = 83	CES80 = 76
CES06 = 50	CES31 = 70	CES56 = 73	CES81 = 79
CES07 = 39	CES32 = 62	CES57 = 73	CES82 = 90
CES08 = 38	CES33 = 80	CES58 = 73	CES83 = 89
CES09 = 29	CES34 = 69	CES59 = 86	CES84 = 86
CES10 = 72	CES35 = 82	CES60 = 89	CES85 = 78
CES11 = 55	CES36 = 89	CES61 = 83	CES86 = 77
CES12 = 61	CES37 = 77	CES62 = 83	CES87 = 77
CES13 = 41	CES38 = 95	CES63 = 73	CES88 = 81
CES14 = 74	CES39 = 96	CES64 = 66	CES89 = 74
CES15 = 70	CES40 = 90	CES65 = 62	CES90 = 81
CES16 = 46	CES41 = 95	CES66 = 58	CES91 = 74
CES17 = 49	CES42 = 77	CES67 = 55	CES92 = 62
CES18 = 55	CES43 = 77	CES68 = 65	CES93 = 77
CES19 = 71	CES44 = 99	CES69 = 74	CES94 = 57
CES20 = 64	CES45 = 85	CES70 = 56	CES95 = 67
CES21 = 85	CES46 = 84	CES71 = 47	CES96 = 77
CES22 = 77	CES47 = 87	CES72 = 83	CES97 = 85
CES23 = 91	CES48 = 80	CES73 = 46	CES98 = 75
CES24 = 90	CES49 = 82	CES74 = 91	CES99 = 65
CES25 = 71	CES50 = 89	CES75 = 49	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)