

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: P833529

Luminaire Tested: **TTN-D2-735-U-DL-UPL3**

Issue Date: 5/15/2024

**Test Information**

Test Method: LM-79-08  
Report Number: P833529  
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-D2-735-U-DL-UPL3  
Description: TOPTIER NANO LED PARKING GARAGE LUMINAIRE WITH UPLIGHT  
3500K, 70 CRI LEDS AND DRIVE LANE DISTRIBUTION  
Light Source: -  
Ballast/Driver: -

**Summary**

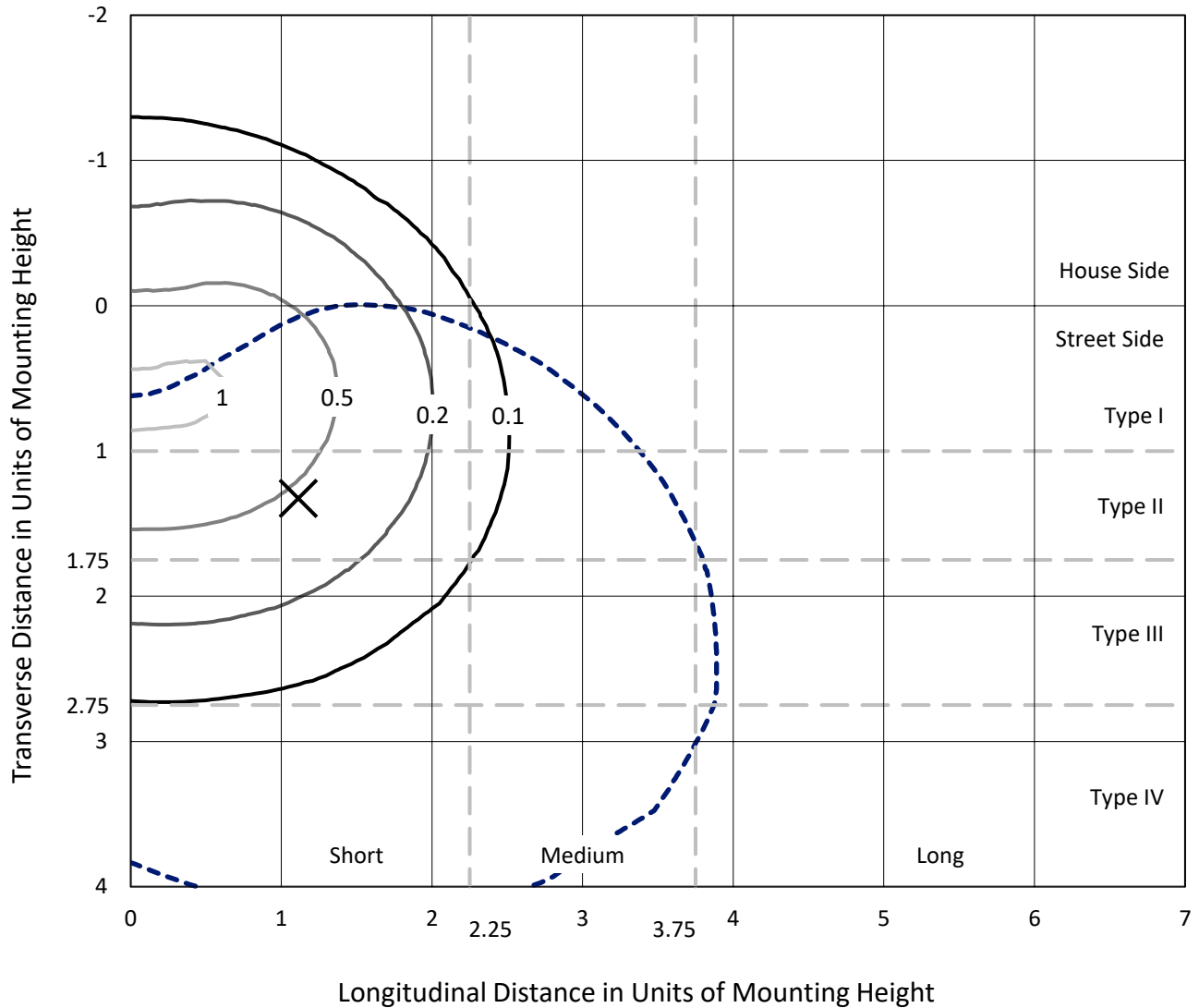
Lumens per Lamp: N/A  
Luminaire Lumens: 5504.7 lumens  
Efficiency: N/A  
Efficacy: 111.2 lumens/watt  
Luminous Opening: Vertical Cylinder (Dia: 0.71' x H: 0.1')  
IES Classification: Type IV - Short  
BUG Rating: B1 - U4 - G2  
  
Input Watts (W): 49.5  
Input Voltage (V): NR  
Input Current (Ain): 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

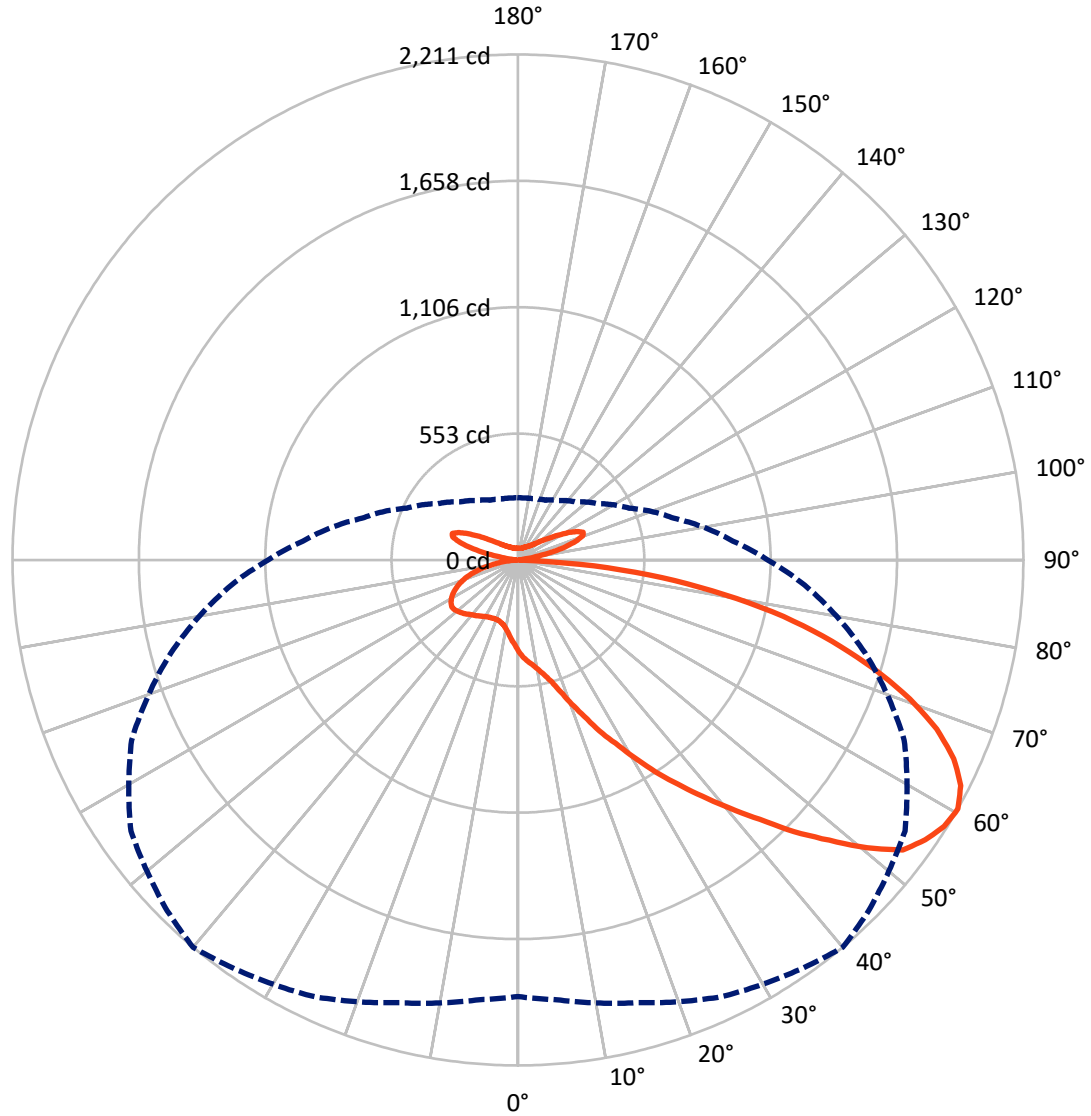
✕ Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 1.1 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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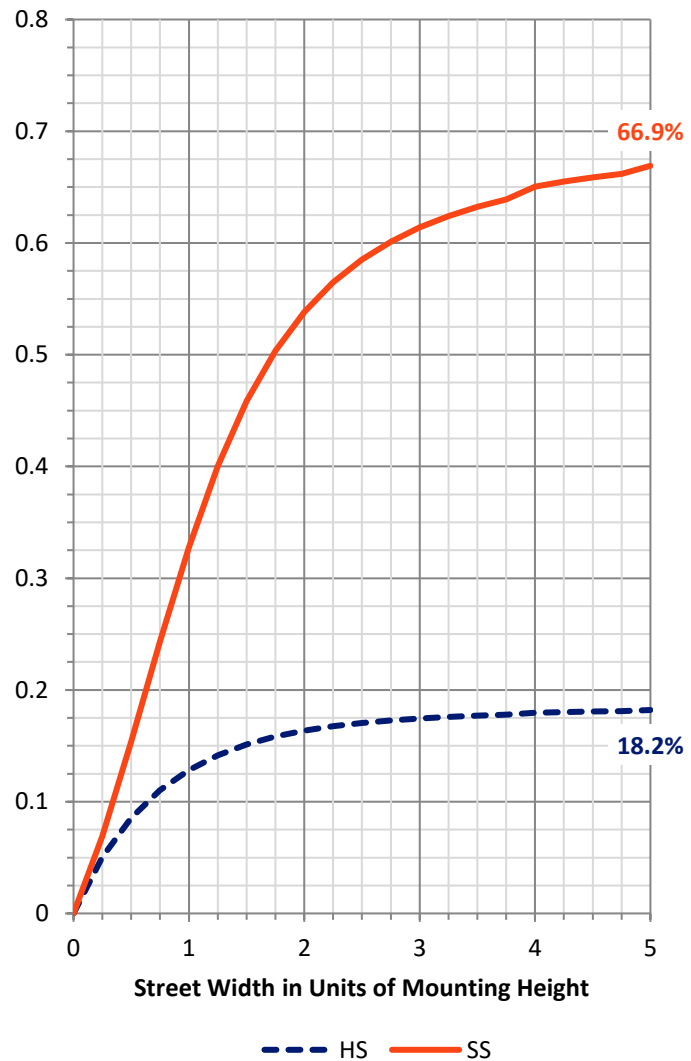
**FLUX DISTRIBUTION:**

		Downward	Upward	Total
<b>House Side</b>	Lumens	1012.3	376.3	1388.6
	% Fixture	18.4	6.8	25.2
<b>Street Side</b>	Lumens	3739.8	376.3	4116.1
	% Fixture	67.9	6.8	74.8
<b>Total</b>	Lumens	4752.0	752.7	5504.7
	% Fixture	86.3	13.7	100.0

**Coefficient of Utilization**

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	37.7	0.7
10°-20°	120.4	2.2
20°-30°	254.4	4.6
30°-40°	465.0	8.4
40°-50°	755.6	13.7
50°-60°	1050.2	19.1
60°-70°	1088.7	19.8
70°-80°	780.1	14.2
80°-90°	199.9	3.6
90°-100°	16.8	0.3
100°-110°	170.7	3.1
110°-120°	249.6	4.5
120°-130°	144.9	2.6
130°-140°	76.7	1.4
140°-150°	45.6	0.8
150°-160°	28.1	0.5
160°-170°	15.3	0.3
170°-180°	5.0	0.1
0°-90°	4752.0	86.3
0°-180°	5504.7	100.0

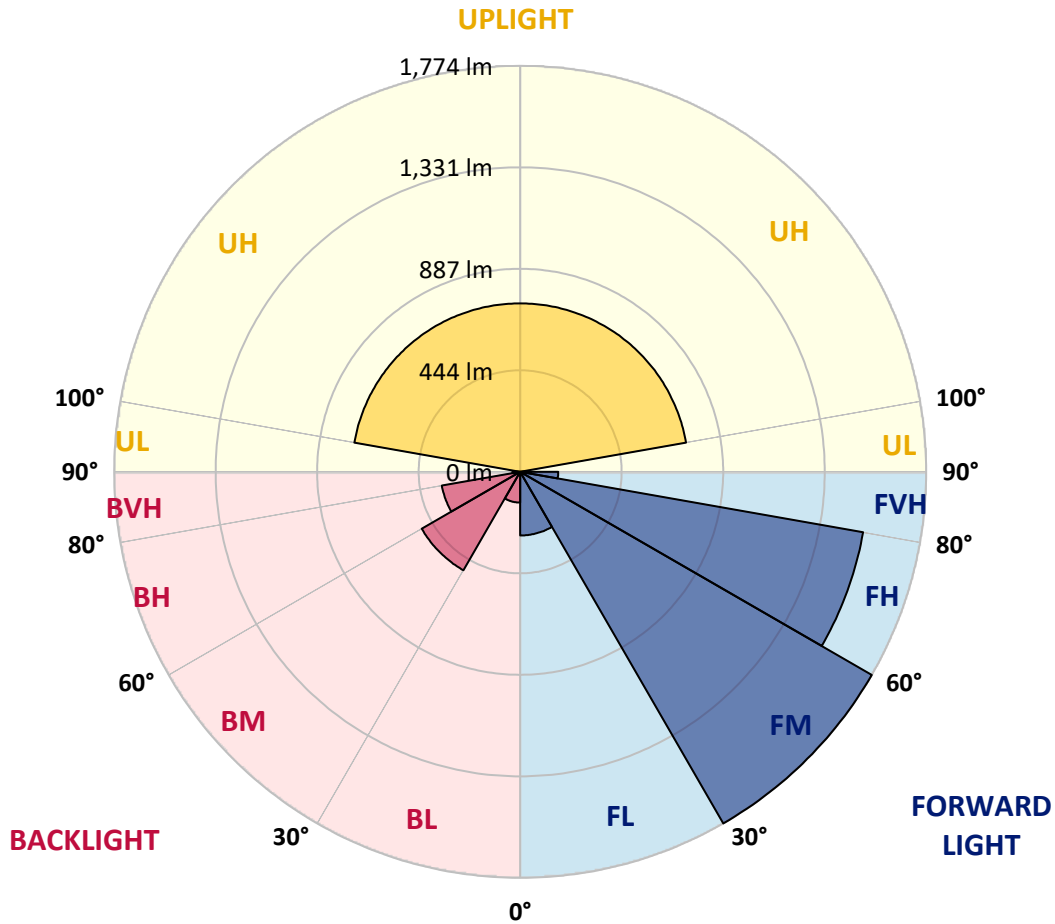


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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	278.0	5.1			
FM (30°-60°)	1774.0	32.2			
FH (60°-80°)	1521.5	27.6			G1/1800
FVH (80°-90°)	166.2	3.0			G2/225
BL (0°-30°)	134.6	2.4	B1/500		
BM (30°-60°)	496.7	9.0	B1/1000		
BH (60°-80°)	347.3	6.3	B1/500		G1/500
BVH (80°-90°)	33.7	0.6			G1/100
UL (90°-100°)	16.8	0.3		U2/50	
UH (100°-180°)	735.8	13.4		U4/1000	

**BUG Rating: B1-U4-G2**  
 Type IV Short





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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	15°	25°	35°	40°	45°	55°	65°	75°	85°
0°	400.1	400.1	400.1	400.1	400.1	400.1	400.1	400.1	400.1	400.1	400.1
2.5°	429.0	429.0	429.0	429.0	424.9	424.9	420.8	416.6	412.5	408.4	400.1
5°	466.1	466.1	462.0	457.9	449.6	445.5	441.4	433.1	424.9	416.6	404.3
7.5°	482.6	482.6	482.6	478.5	466.1	462.0	453.8	441.4	429.0	416.6	400.1
10°	511.5	511.5	507.4	503.3	490.9	486.8	478.5	462.0	441.4	420.8	400.1
12.5°	548.6	544.5	540.4	536.3	523.9	515.6	503.3	486.8	462.0	437.3	412.5
15°	594.0	585.8	585.8	577.5	565.1	552.8	544.5	519.8	495.0	462.0	429.0
17.5°	643.5	639.4	635.3	627.0	614.6	606.4	594.0	565.1	532.1	490.9	453.8
20°	705.4	697.1	701.3	688.9	676.5	672.4	651.8	618.8	577.5	532.1	486.8
22.5°	779.7	771.4	771.4	759.0	750.8	742.5	721.9	684.8	631.1	581.6	523.9
25°	862.2	853.9	853.9	845.7	837.4	829.2	804.4	763.2	701.3	639.4	573.4
27.5°	952.9	944.7	944.7	940.5	919.9	907.5	886.9	841.5	779.7	701.3	622.9
30°	1047.8	1039.5	1047.8	1039.5	1027.2	1002.4	977.7	928.2	858.0	771.4	676.5
32.5°	1122.0	1122.0	1126.2	1134.4	1126.2	1105.5	1076.7	1035.4	940.5	833.3	726.0
35°	1208.7	1208.7	1216.9	1229.3	1225.2	1204.5	1175.7	1130.3	1031.3	903.4	779.7
37.5°	1303.5	1303.5	1311.8	1332.4	1324.2	1311.8	1291.2	1233.4	1122.0	973.5	837.4
40°	1406.7	1402.5	1410.8	1439.7	1443.8	1427.3	1402.5	1344.8	1216.9	1064.3	899.3
42.5°	1509.8	1505.7	1522.2	1551.1	1555.2	1551.1	1526.3	1460.3	1315.9	1155.0	961.2
45°	1612.9	1612.9	1637.7	1683.1	1703.7	1695.4	1674.8	1592.3	1439.7	1249.9	1043.7
47.5°	1720.2	1720.2	1753.2	1810.9	1835.7	1831.6	1823.3	1724.3	1559.3	1348.9	1113.8
50°	1802.7	1802.7	1856.3	1922.3	1963.6	1980.1	1938.8	1848.1	1662.4	1435.6	1171.5
52.5°	1885.2	1885.2	1938.8	2041.9	2083.2	2107.9	2054.3	1959.4	1777.9	1513.9	1225.2
55°	1926.4	1934.7	2008.9	2107.9	2174.0	2161.6	2182.2	2054.3	1852.2	1571.7	1258.2
57.5°	1930.6	1942.9	2025.4	2128.6	2202.8	2198.7	2202.8	2087.3	1881.1	1584.1	1262.3
60°	1909.9	1930.6	2004.8	2107.9	2178.1	2211.1	2169.8	2066.7	1864.6	1571.7	1258.2
62.5°	1860.4	1901.7	1980.1	2058.4	2161.6	2174.0	2140.9	2054.3	1819.2	1559.3	1237.5
65°	1749.1	1794.4	1905.8	1996.6	2079.1	2095.6	2058.4	1984.2	1773.8	1501.6	1171.5
67.5°	1637.7	1666.6	1761.4	1901.7	1959.4	1975.9	1963.6	1876.9	1695.4	1386.0	1093.2
70°	1509.8	1546.9	1621.2	1765.6	1823.3	1819.2	1856.3	1757.3	1575.8	1287.0	1010.7
72.5°	1336.5	1390.2	1464.4	1584.1	1654.2	1629.4	1687.2	1604.7	1419.0	1163.3	899.3
75°	1134.4	1179.8	1274.7	1369.5	1447.9	1419.0	1464.4	1406.7	1237.5	1014.8	771.4
77.5°	907.5	961.2	1047.8	1134.4	1188.0	1188.0	1208.7	1159.2	1027.2	833.3	631.1
80°	672.4	721.9	800.3	862.2	911.7	915.8	936.4	911.7	792.0	647.6	482.6
82.5°	445.5	470.3	540.4	589.9	639.4	635.3	668.3	651.8	552.8	445.5	321.8
85°	189.8	206.3	264.0	305.3	350.6	334.1	379.5	375.4	297.0	214.5	144.4
87.5°	8.3	12.4	12.4	8.3	12.4	4.1	12.4	16.5	12.4	8.3	8.3
90°	6.4	6.4	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	6.4
92.5°	6.4	6.4	6.4	9.0	10.3	9.6	9.0	10.3	7.7	7.7	6.4
95°	7.7	7.7	9.0	11.6	14.2	14.8	15.5	15.5	9.0	9.0	7.7
97.5°	10.3	11.6	11.6	14.2	23.2	32.8	42.5	25.8	12.9	12.9	11.6
100°	16.7	18.0	18.0	32.2	68.2	79.8	91.4	65.7	33.5	24.5	18.0
102.5°	54.1	56.7	69.5	104.3	154.5	147.4	140.4	118.5	112.0	77.3	61.8
105°	137.8	136.5	146.8	173.8	216.3	214.4	212.5	195.7	177.7	153.2	141.6
107.5°	181.6	181.6	190.6	213.8	245.9	266.5	287.1	291.0	230.5	202.2	189.3
110°	204.7	204.7	212.5	231.8	274.3	303.2	332.2	329.6	284.6	249.8	233.1



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	15°	25°	35°	40°	45°	55°	65°	75°	85°
112.5°	209.9	211.2	221.5	251.1	297.5	310.4	323.2	311.6	293.6	278.1	265.3
115°	217.6	217.6	229.2	257.5	283.3	288.5	293.6	280.7	266.5	256.2	251.1
117.5°	215.0	218.9	221.5	236.9	253.7	257.5	261.4	255.0	235.6	227.9	225.3
120°	199.6	199.6	202.2	209.9	218.9	220.8	222.8	220.2	207.3	200.9	199.6
122.5°	177.7	179.0	177.7	181.6	188.0	190.0	191.9	189.3	179.0	176.4	176.4
125°	155.8	155.8	154.5	157.1	161.0	160.4	159.7	161.0	155.8	154.5	154.5
127.5°	140.4	139.1	136.5	137.8	139.1	139.1	139.1	140.4	135.2	136.5	137.8
130°	124.9	124.9	122.3	122.3	122.3	121.0	119.8	122.3	119.8	121.0	122.3
132.5°	110.7	110.7	106.9	105.6	105.6	105.6	105.6	106.9	105.6	108.2	110.7
135°	99.2	99.2	95.3	96.6	96.6	95.9	95.3	96.6	95.3	97.9	99.2
137.5°	90.1	90.1	87.6	87.6	87.6	86.9	86.3	87.6	87.6	88.8	91.4
140°	82.4	82.4	81.1	81.1	79.8	80.4	81.1	81.1	81.1	82.4	83.7
142.5°	78.5	77.3	76.0	74.7	76.0	76.0	76.0	76.0	74.7	76.0	78.5
145°	72.1	72.1	70.8	70.8	70.8	71.4	72.1	70.8	70.8	72.1	72.1
147.5°	68.2	68.2	67.0	68.2	68.2	68.2	68.2	68.2	67.0	68.2	68.2
150°	67.0	65.7	64.4	65.7	65.7	65.1	64.4	64.4	64.4	64.4	65.7
152.5°	63.1	63.1	61.8	63.1	61.8	61.8	61.8	61.8	61.8	61.8	63.1
155°	60.5	60.5	59.2	60.5	60.5	60.5	60.5	60.5	60.5	60.5	60.5
157.5°	57.9	59.2	57.9	57.9	57.9	57.9	57.9	57.9	57.9	57.9	59.2
160°	56.7	56.7	56.7	56.7	55.4	55.4	55.4	55.4	56.7	56.7	56.7
162.5°	55.4	55.4	55.4	55.4	54.1	54.1	54.1	54.1	54.1	55.4	55.4
165°	55.4	54.1	54.1	54.1	52.8	52.8	52.8	52.8	52.8	54.1	55.4
167.5°	52.8	52.8	52.8	52.8	52.8	52.2	51.5	51.5	52.8	52.8	52.8
170°	52.8	52.8	51.5	51.5	51.5	51.5	51.5	51.5	51.5	51.5	51.5
172.5°	52.8	52.8	52.8	52.8	51.5	51.5	51.5	51.5	51.5	51.5	52.8
175°	52.8	52.8	52.8	52.8	51.5	51.5	51.5	51.5	52.8	52.8	52.8
177.5°	52.8	52.8	52.8	52.8	51.5	52.2	52.8	52.8	52.8	52.8	52.8
180°	52.8	52.8	52.8	52.8	52.8	52.8	52.8	52.8	52.8	52.8	52.8





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**CANDELA DISTRIBUTION (continued):**

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	400.1	400.1	400.1	400.1	400.1	400.1	400.1	400.1	400.1	400.1	400.1
2.5°	400.1	396.0	387.8	383.6	379.5	371.3	371.3	367.1	367.1	367.1	363.0
5°	400.1	391.9	383.6	371.3	363.0	354.8	346.5	338.3	334.1	334.1	330.0
7.5°	391.9	383.6	371.3	358.9	346.5	330.0	321.8	305.3	301.1	297.0	297.0
10°	391.9	383.6	363.0	346.5	330.0	313.5	301.1	284.6	272.3	268.1	268.1
12.5°	396.0	383.6	363.0	342.4	321.8	301.1	284.6	268.1	255.8	247.5	247.5
15°	412.5	396.0	371.3	342.4	317.6	292.9	276.4	255.8	243.4	235.1	235.1
17.5°	433.1	416.6	379.5	346.5	317.6	288.8	268.1	247.5	235.1	226.9	222.8
20°	462.0	437.3	396.0	350.6	317.6	288.8	264.0	243.4	226.9	218.6	218.6
22.5°	495.0	466.1	412.5	358.9	321.8	288.8	264.0	239.3	222.8	214.5	214.5
25°	536.3	499.1	437.3	375.4	330.0	292.9	264.0	239.3	222.8	214.5	214.5
27.5°	581.6	540.4	462.0	391.9	338.3	297.0	264.0	239.3	222.8	214.5	214.5
30°	622.9	577.5	486.8	408.4	350.6	301.1	268.1	243.4	226.9	218.6	214.5
32.5°	668.3	610.5	511.5	424.9	358.9	309.4	272.3	247.5	226.9	218.6	218.6
35°	713.6	651.8	536.3	445.5	371.3	317.6	276.4	251.6	231.0	222.8	222.8
37.5°	763.2	697.1	565.1	462.0	383.6	325.9	284.6	255.8	235.1	226.9	226.9
40°	820.9	742.5	594.0	482.6	396.0	334.1	288.8	264.0	243.4	235.1	235.1
42.5°	874.5	783.8	622.9	499.1	408.4	342.4	297.0	268.1	251.6	243.4	243.4
45°	928.2	833.3	651.8	519.8	420.8	354.8	305.3	280.5	259.9	251.6	251.6
47.5°	990.0	878.7	684.8	536.3	433.1	363.0	313.5	288.8	268.1	264.0	259.9
50°	1039.5	911.7	705.4	552.8	441.4	371.3	321.8	292.9	276.4	268.1	268.1
52.5°	1084.9	944.7	721.9	561.0	445.5	375.4	330.0	301.1	284.6	276.4	276.4
55°	1109.7	957.0	734.3	561.0	449.6	379.5	330.0	301.1	284.6	280.5	276.4
57.5°	1109.7	957.0	726.0	552.8	441.4	371.3	325.9	297.0	284.6	276.4	276.4
60°	1093.2	944.7	705.4	536.3	429.0	358.9	317.6	288.8	276.4	272.3	272.3
62.5°	1068.4	924.0	688.9	515.6	412.5	342.4	305.3	276.4	268.1	268.1	264.0
65°	1002.4	862.2	651.8	486.8	387.8	321.8	288.8	264.0	255.8	251.6	247.5
67.5°	932.3	804.4	594.0	453.8	354.8	301.1	268.1	247.5	235.1	235.1	231.0
70°	862.2	742.5	540.4	408.4	317.6	276.4	243.4	222.8	214.5	214.5	214.5
72.5°	767.3	664.1	478.5	358.9	280.5	243.4	218.6	198.0	193.9	193.9	189.8
75°	655.9	565.1	404.3	305.3	235.1	206.3	185.6	165.0	165.0	165.0	165.0
77.5°	536.3	457.9	321.8	243.4	185.6	165.0	152.6	136.1	136.1	136.1	136.1
80°	404.3	338.3	235.1	177.4	136.1	119.6	111.4	103.1	107.3	107.3	103.1
82.5°	264.0	222.8	148.5	111.4	86.6	78.4	78.4	70.1	74.3	74.3	74.3
85°	115.5	99.0	61.9	49.5	41.3	41.3	41.3	37.1	41.3	41.3	41.3
87.5°	8.3	8.3	8.3	8.3	8.3	8.3	8.3	0.0	4.1	8.3	4.1
90°	6.4	6.4	7.7	7.7	7.7	7.7	7.7	7.7	7.7	6.4	6.4
92.5°	6.4	6.4	7.7	7.7	10.3	9.0	10.3	9.0	6.4	6.4	6.4
95°	7.7	7.7	9.0	9.0	15.5	15.5	14.2	11.6	9.0	7.7	7.7
97.5°	10.3	11.6	12.9	12.9	25.8	42.5	23.2	14.2	11.6	11.6	10.3
100°	18.0	18.0	24.5	33.5	65.7	91.4	68.2	32.2	18.0	18.0	16.7
102.5°	59.2	61.8	77.3	112.0	118.5	140.4	154.5	104.3	69.5	56.7	54.1
105°	141.6	141.6	153.2	177.7	195.7	212.5	216.3	173.8	146.8	136.5	137.8
107.5°	188.0	189.3	202.2	230.5	291.0	287.1	245.9	213.8	190.6	181.6	181.6
110°	230.5	233.1	249.8	284.6	329.6	332.2	274.3	231.8	212.5	204.7	204.7



REPORT NUMBER: P833529  
 CATALOG NUMBER: TTN-D2-735-U-DL-UPL3

**CANDELA DISTRIBUTION (continued):**

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
112.5°	262.7	265.3	278.1	293.6	311.6	323.2	297.5	251.1	221.5	211.2	209.9
115°	253.7	251.1	256.2	266.5	280.7	293.6	283.3	257.5	229.2	217.6	217.6
117.5°	221.5	225.3	227.9	235.6	255.0	261.4	253.7	236.9	221.5	218.9	215.0
120°	197.0	199.6	200.9	207.3	220.2	222.8	218.9	209.9	202.2	199.6	199.6
122.5°	173.8	176.4	176.4	179.0	189.3	191.9	188.0	181.6	177.7	179.0	177.7
125°	153.2	154.5	154.5	155.8	161.0	159.7	161.0	157.1	154.5	155.8	155.8
127.5°	136.5	137.8	136.5	135.2	140.4	139.1	139.1	137.8	136.5	139.1	140.4
130°	123.6	122.3	121.0	119.8	122.3	119.8	122.3	122.3	122.3	124.9	124.9
132.5°	110.7	110.7	108.2	105.6	106.9	105.6	105.6	105.6	106.9	110.7	110.7
135°	99.2	99.2	97.9	95.3	96.6	95.3	96.6	96.6	95.3	99.2	99.2
137.5°	92.7	91.4	88.8	87.6	87.6	86.3	87.6	87.6	87.6	90.1	90.1
140°	83.7	83.7	82.4	81.1	81.1	81.1	79.8	81.1	81.1	82.4	82.4
142.5°	78.5	78.5	76.0	74.7	76.0	76.0	76.0	74.7	76.0	77.3	78.5
145°	73.4	72.1	72.1	70.8	70.8	72.1	70.8	70.8	70.8	72.1	72.1
147.5°	69.5	68.2	68.2	67.0	68.2	68.2	68.2	68.2	67.0	68.2	68.2
150°	65.7	65.7	64.4	64.4	64.4	64.4	65.7	65.7	64.4	65.7	67.0
152.5°	64.4	63.1	61.8	61.8	61.8	61.8	61.8	63.1	61.8	63.1	63.1
155°	60.5	60.5	60.5	60.5	60.5	60.5	60.5	60.5	59.2	60.5	60.5
157.5°	59.2	59.2	57.9	57.9	57.9	57.9	57.9	57.9	57.9	59.2	57.9
160°	57.9	56.7	56.7	56.7	55.4	55.4	55.4	56.7	56.7	56.7	56.7
162.5°	56.7	55.4	55.4	54.1	54.1	54.1	54.1	55.4	55.4	55.4	55.4
165°	54.1	55.4	54.1	52.8	52.8	52.8	52.8	54.1	54.1	54.1	55.4
167.5°	54.1	52.8	52.8	52.8	51.5	51.5	52.8	52.8	52.8	52.8	52.8
170°	52.8	51.5	51.5	51.5	51.5	51.5	51.5	51.5	51.5	52.8	52.8
172.5°	52.8	52.8	51.5	51.5	51.5	51.5	51.5	52.8	52.8	52.8	52.8
175°	51.5	52.8	52.8	52.8	51.5	51.5	51.5	52.8	52.8	52.8	52.8
177.5°	52.8	52.8	52.8	52.8	52.8	52.8	51.5	52.8	52.8	52.8	52.8
180°	52.8	52.8	52.8	52.8	52.8	52.8	52.8	52.8	52.8	52.8	52.8

Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

MCGRAW EDISON

Report Number: SP1-2411-284-1

Test Date: 11/15/2024

Luminaire Tested: TTN-D0-735-U-WQ

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

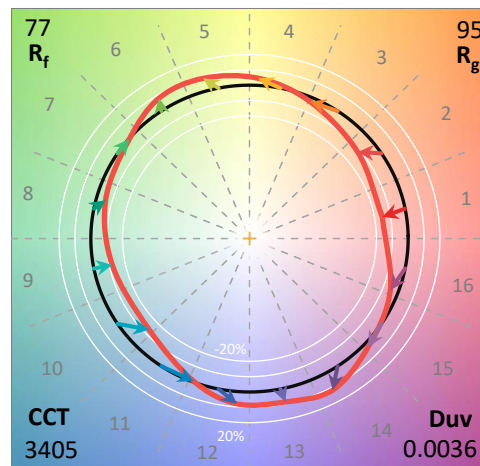
**Test Information**

Test Method: LM-79-2019  
 Report Number: SP1-2411-284-1  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry: 4π  
 Issue Date: 11/15/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: MCGRAW EDISON  
 Catalog Number: **TTN-D0-735-U-WQ**  
 Description: TOPTIER NANO LED PARKING GARAGE LUMINAIRE. 3500K, 70 CRI LEDS AND WIDE DISTRIBUTION

**Spectral Parameters**

CCT (K): 3405  
 CIE u': 0.2365  
 CIE v': 0.5180  
 Duv: 0.0036  
 CIE x: 0.4148  
 CIE y: 0.4038  
 CIE z: 0.1814  
 Peak Wavelength (nm): 596  
 Dominant Wavelength (nm): 579  
 Purity: 45.70672  
 Rf: 76.6  
 Rg: 95.4

CRI (Ra):	73.9		
R1:	71.3	R9:	-18.0
R2:	80.3	R10:	53.1
R3:	87.8	R11:	68.6
R4:	73.2	R12:	42.6
R5:	69.8	R13:	72.5
R6:	71.8	R14:	92.7
R7:	82.8	R15:	64.3
R8:	54.1		



**Test Conditions**

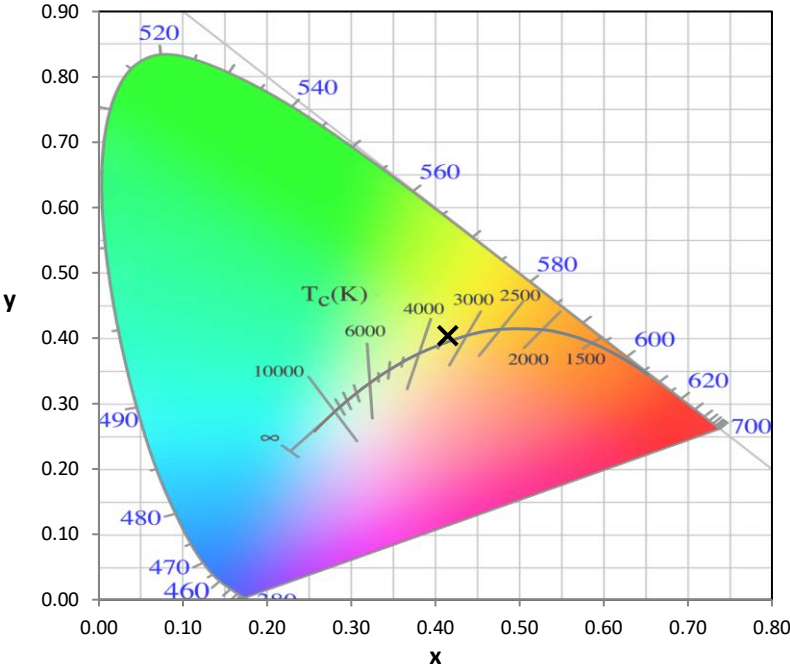
Stabilization Time: 38M  
 Operation Time: 1H 38M  
 Sphere Temperature (°C): 24.9

REPORT NUMBER: SP1-2411-284-1

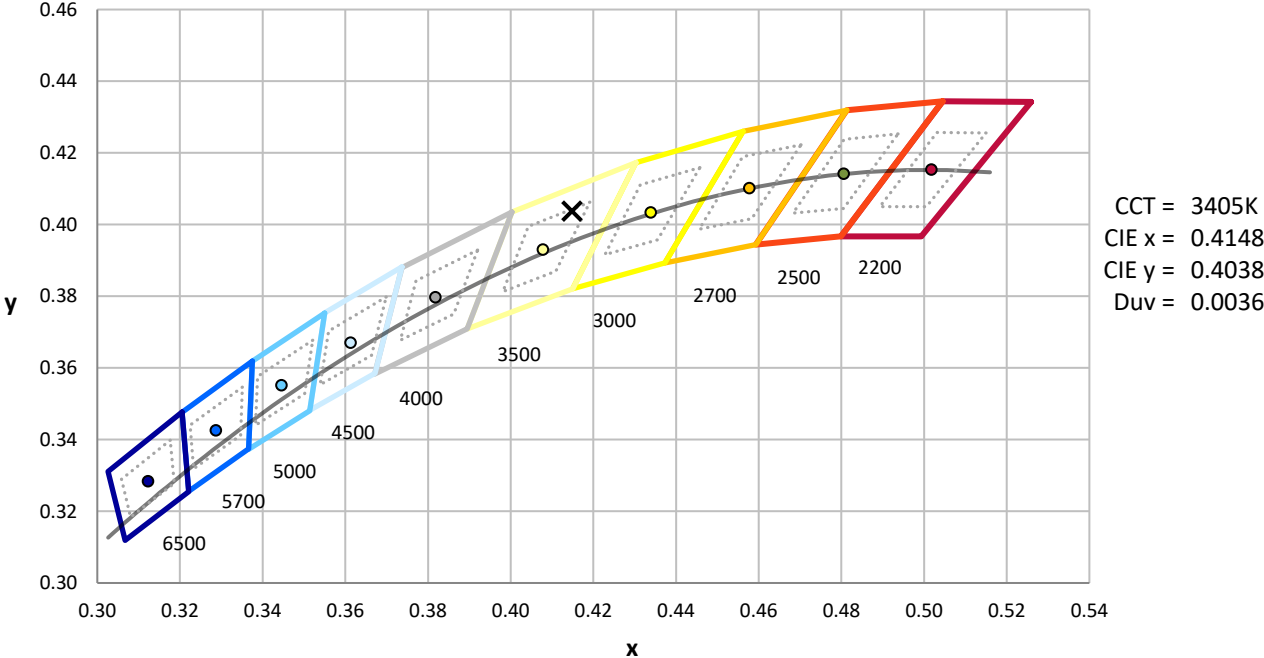
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/22/2024	10/22/2025
DC Power Source	IN0208	10/22/2024	10/22/2025
Sphere Thermometer	IN0085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

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CIE 1931 Chromaticity Diagram



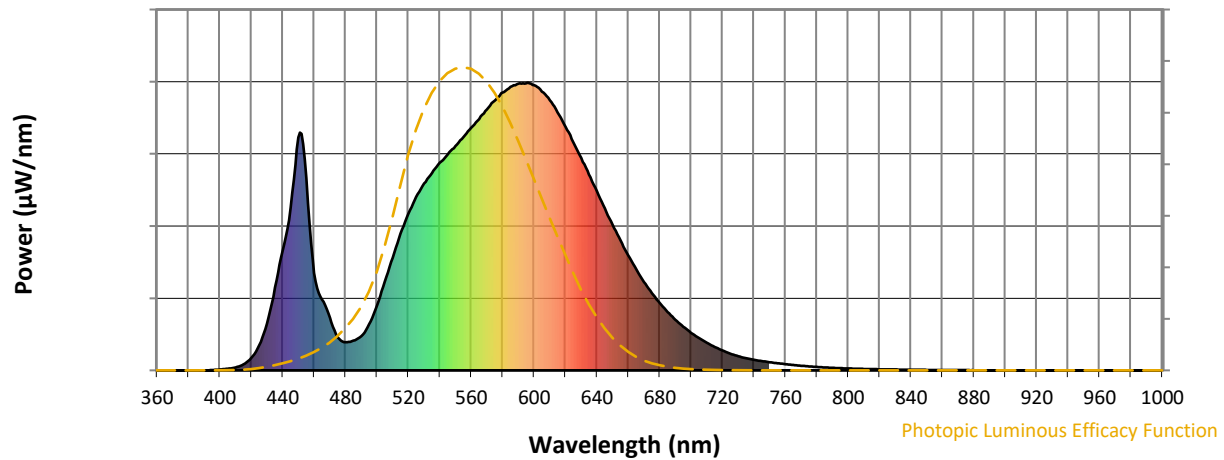
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3500K 4-step quadrangle

REPORT NUMBER: SP1-2411-284-1

**Photopic Flux vs. Wavelength**

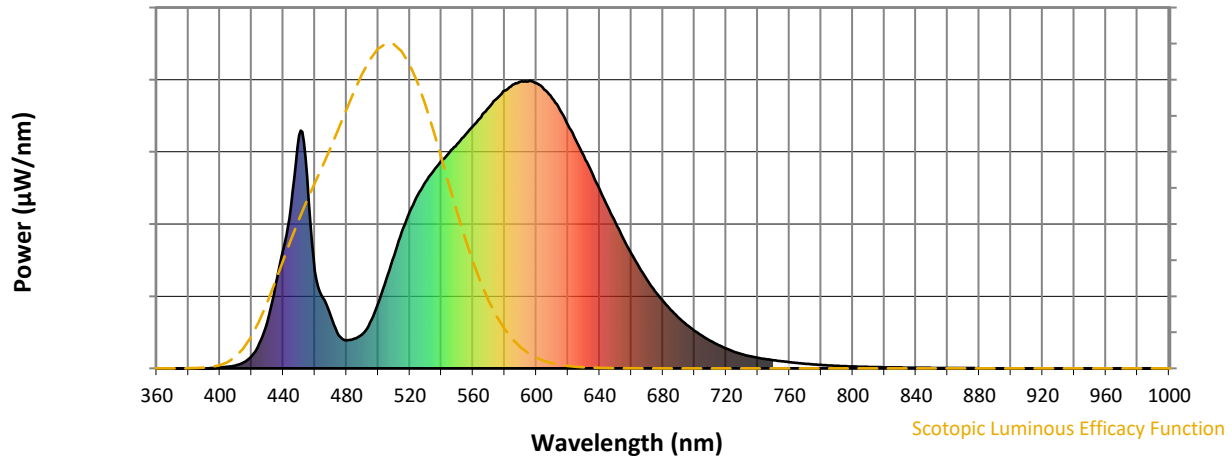


**Photopic Lumens: NR**

$\lambda$ (nm)	Power $W^{\wedge}/nm$	Lumens ( $\phi/nm$ )	$\lambda$ (nm)	Power $W^{\wedge}/nm$	Lumens ( $\phi/nm$ )	$\lambda$ (nm)	Power $W^{\wedge}/nm$	Lumens ( $\phi/nm$ )	$\lambda$ (nm)	Power $W^{\wedge}/nm$	Lumens ( $\phi/nm$ )	$\lambda$ (nm)	Power $W^{\wedge}/nm$	Lumens ( $\phi/nm$ )
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**

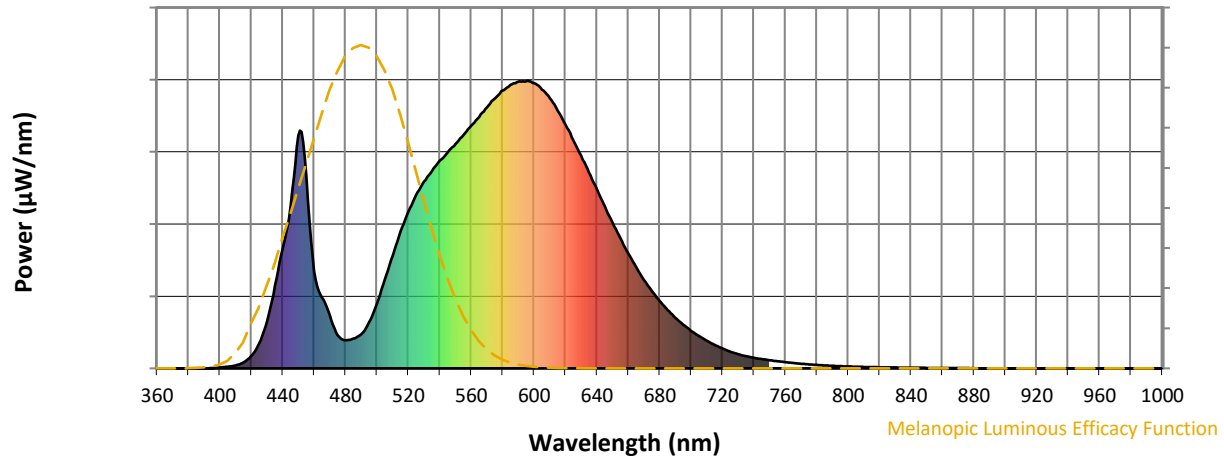
**S/P: 1.33**

λ (nm)	Power W <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	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



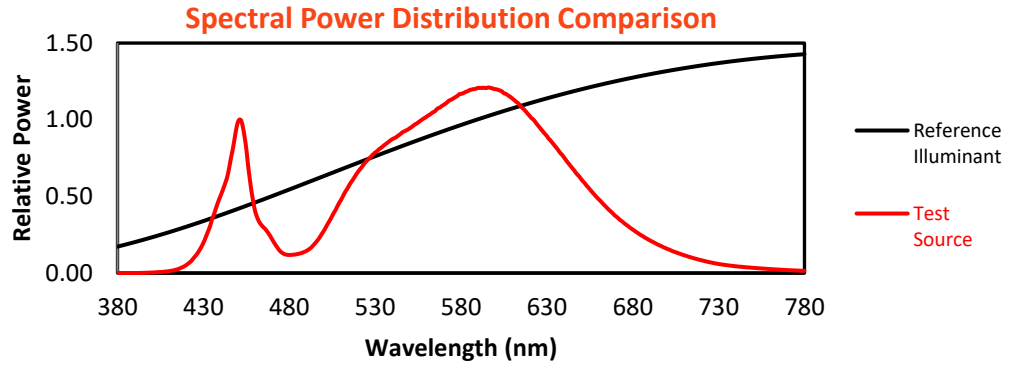
Melanopic Lumens: NR

M/P: 2.47

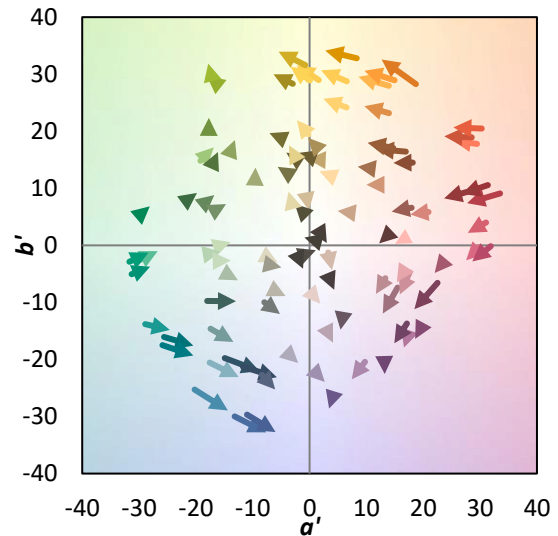
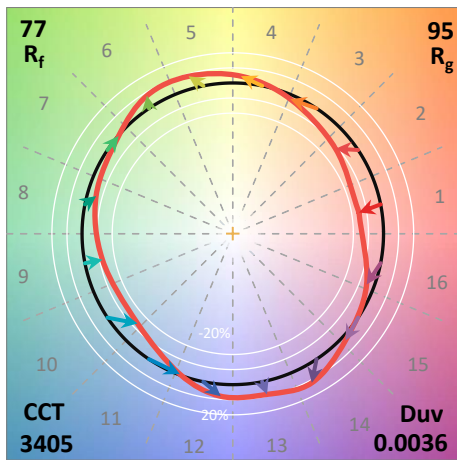
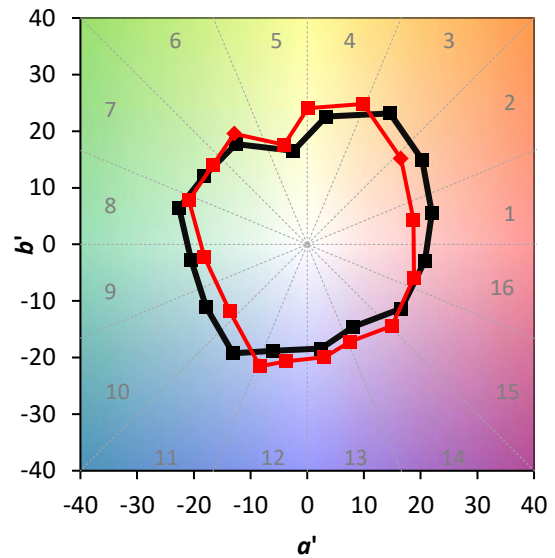
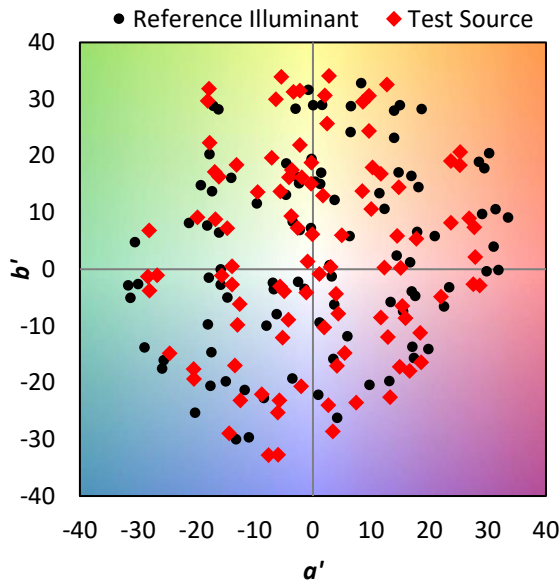
λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)
360	0	NR	490	119	NR	620	846	NR	750	28	NR	880	1	NR
365	0	NR	495	160	NR	625	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**

$R_f = 76.6$   
 $R_g = 95.4$   
 $CIE R_a = 73.9$   
 $R_g = -18.0$

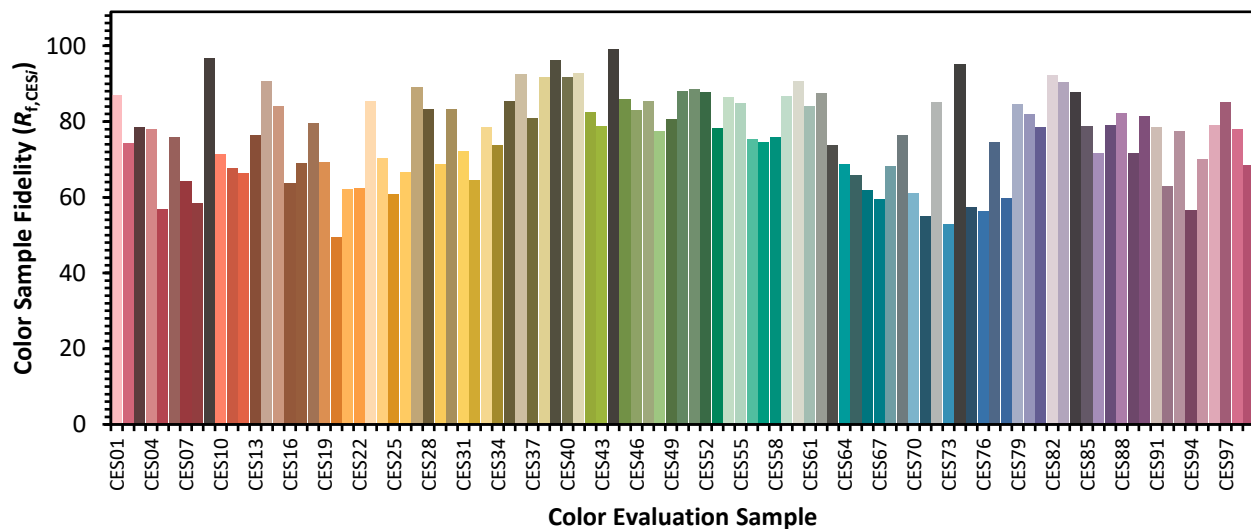


**Color Vector Graphics**

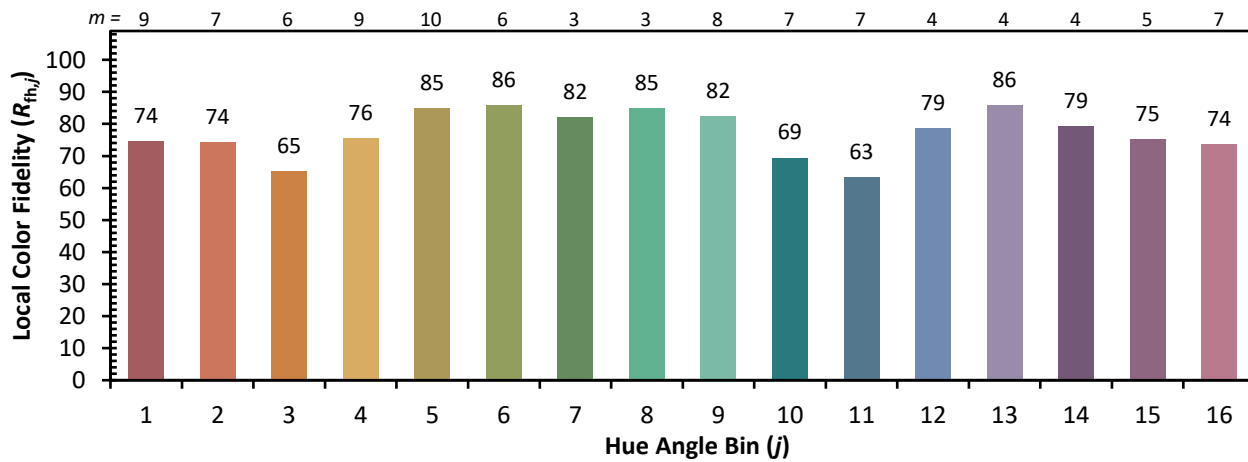
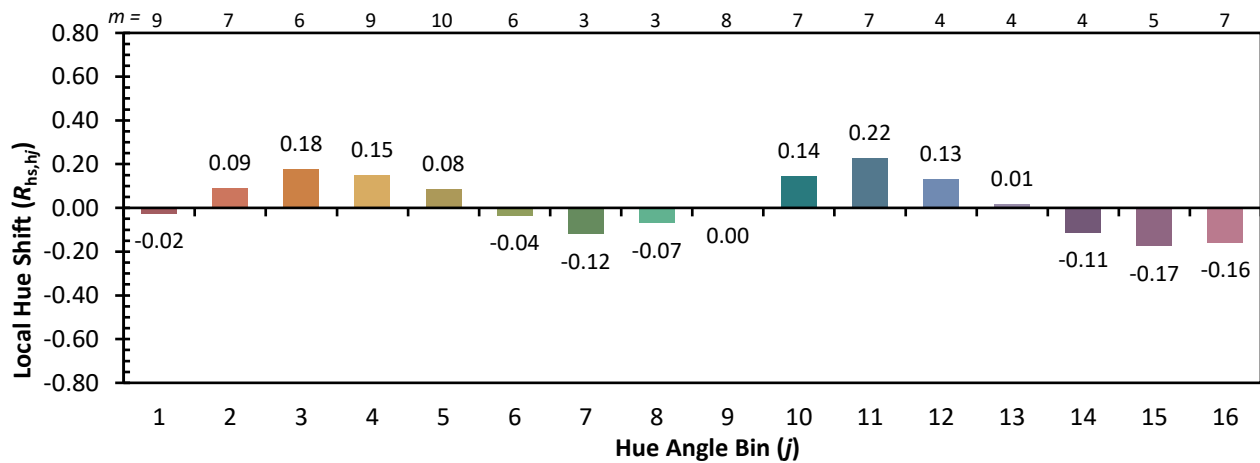
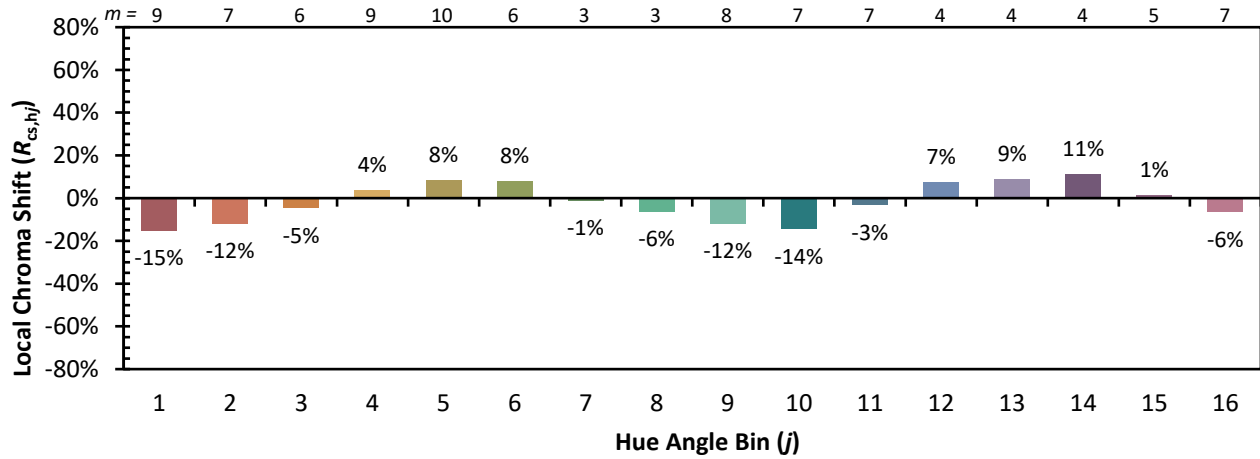


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

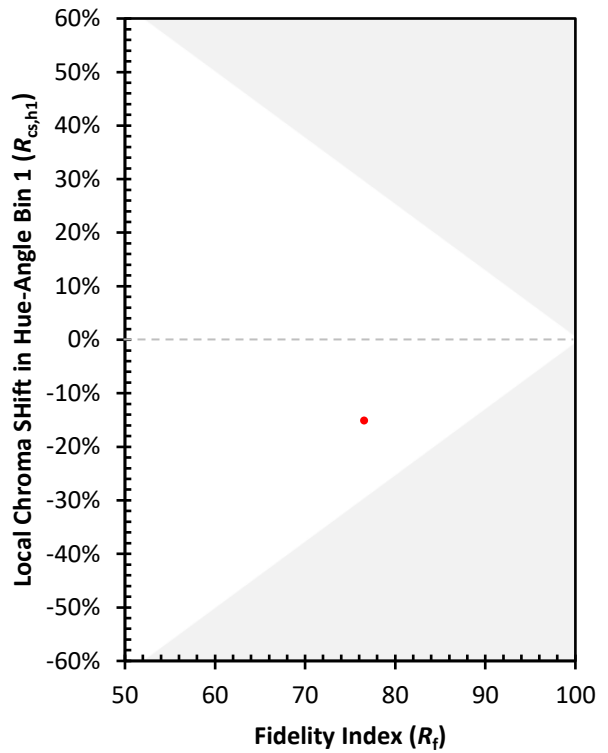
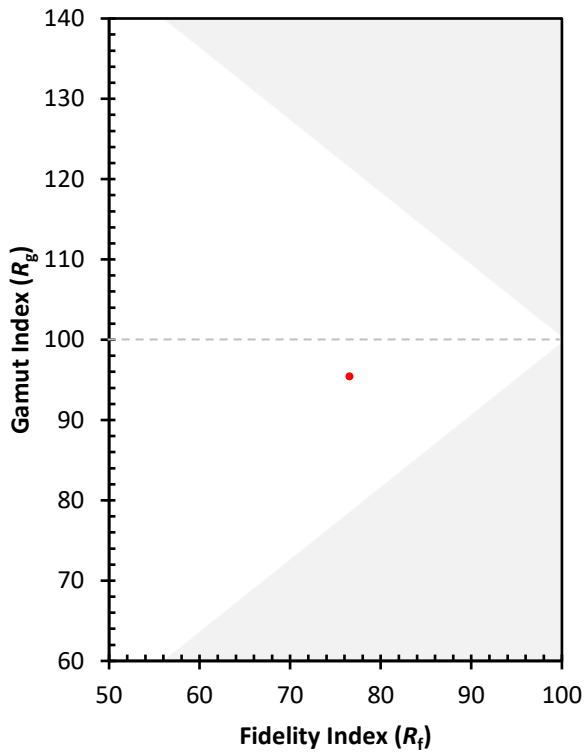
CES01 = 86	CES26 = 67	CES51 = 88	CES76 = 56
CES02 = 62	CES27 = 89	CES52 = 88	CES77 = 75
CES03 = 31	CES28 = 83	CES53 = 78	CES78 = 60
CES04 = 70	CES29 = 69	CES54 = 86	CES79 = 85
CES05 = 48	CES30 = 83	CES55 = 85	CES80 = 82
CES06 = 51	CES31 = 72	CES56 = 75	CES81 = 78
CES07 = 41	CES32 = 65	CES57 = 75	CES82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