

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: LUMARK

Report Number: P979120

Luminaire Tested: **WPSLED15S-60W-4000K**

Issue Date: 03/31/2025



Test Information

Test Method: LM-79-08
Report Number: P979120
Test Lab: Cooper Lighting Solutions
Issue Date: 03/31/2025
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: LUMARK
Catalog Number: WPSLED15S-60W-4000K
Description: LUMARK WALL PACK LED SMALL 80CRI CCT AND LUMEN SELECTIVE FIXTURE
OPERATING @60W-4000K
Light Source: 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

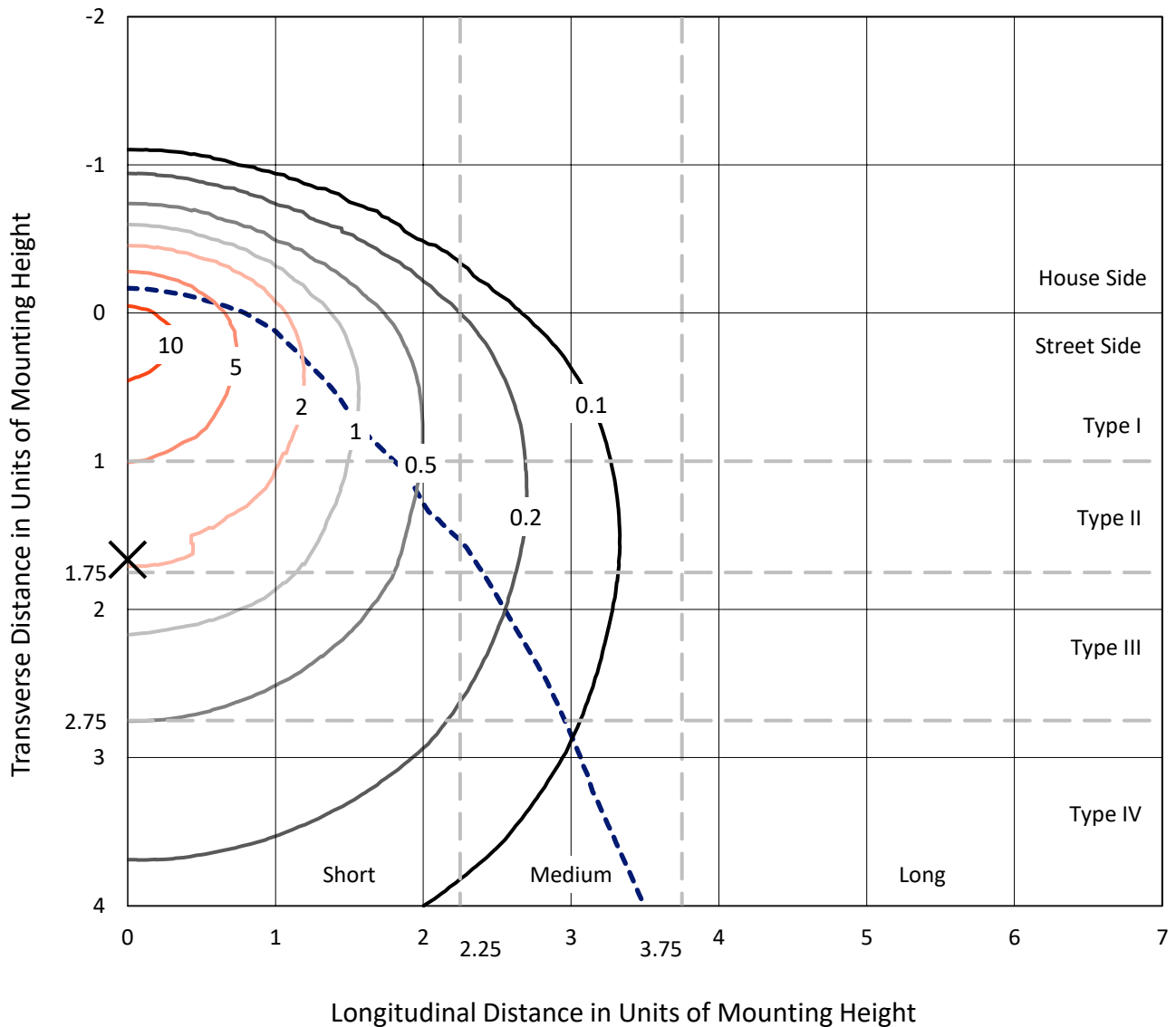
Lumens per Lamp: N/A
Luminaire Lumens: 8363 lumens
Efficiency: N/A
Efficacy: 139.2 lumens/watt
Luminous Opening: Rectangular w/ Sides (W: 0.61' x L: 0.12' x H: 0.44')
IES Classification: Type IV - Short
BUG Rating: B2 - U3 - G4

Input Watts (W): 60.1
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT

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Iso-Footcandle Lines of Horizontal Illumination

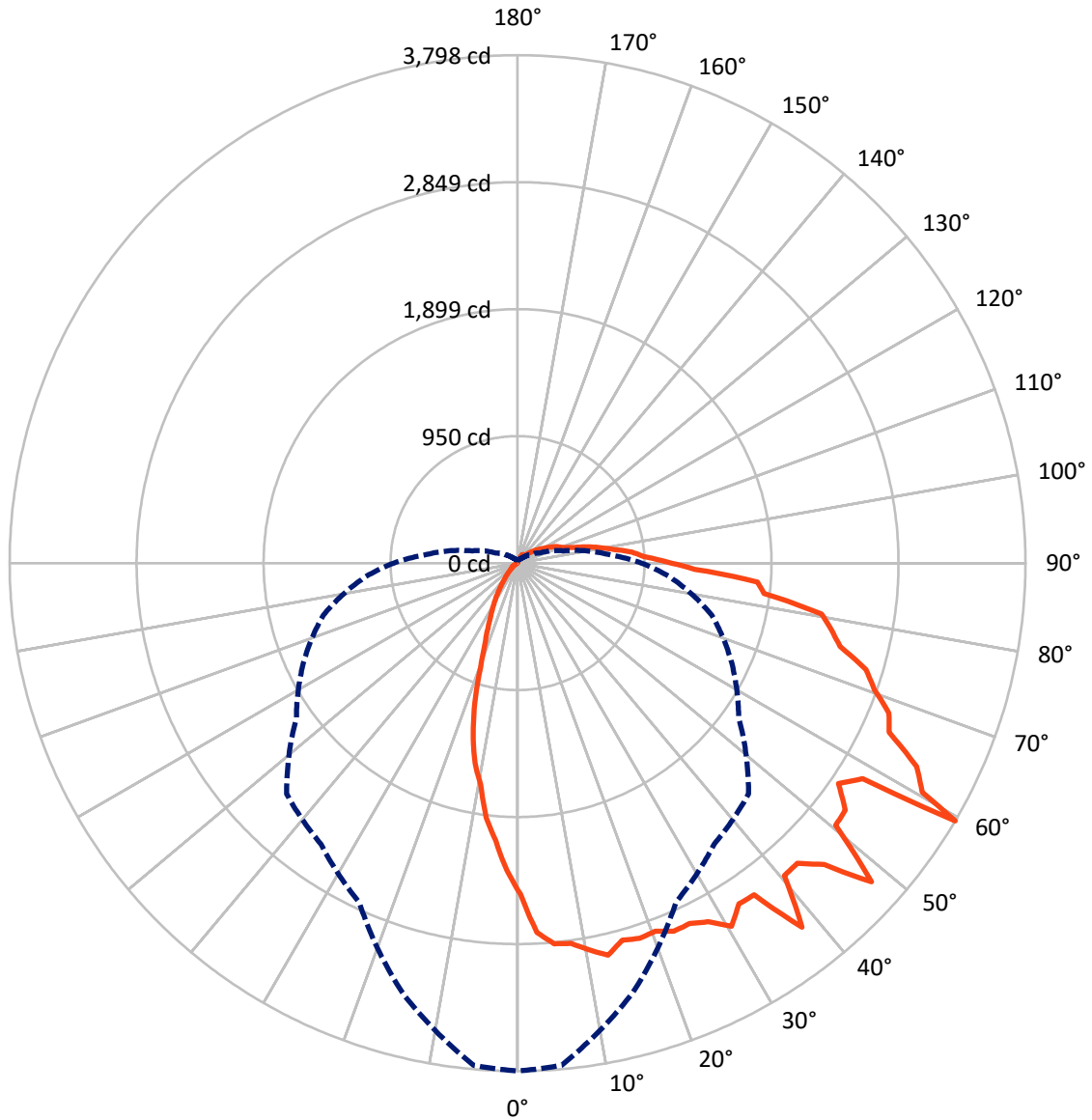
✕ Max cd
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 12.5 fc
 Type IV - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 0-Deg Lateral - - - Horizontal Cone Through 59-Deg Vertical

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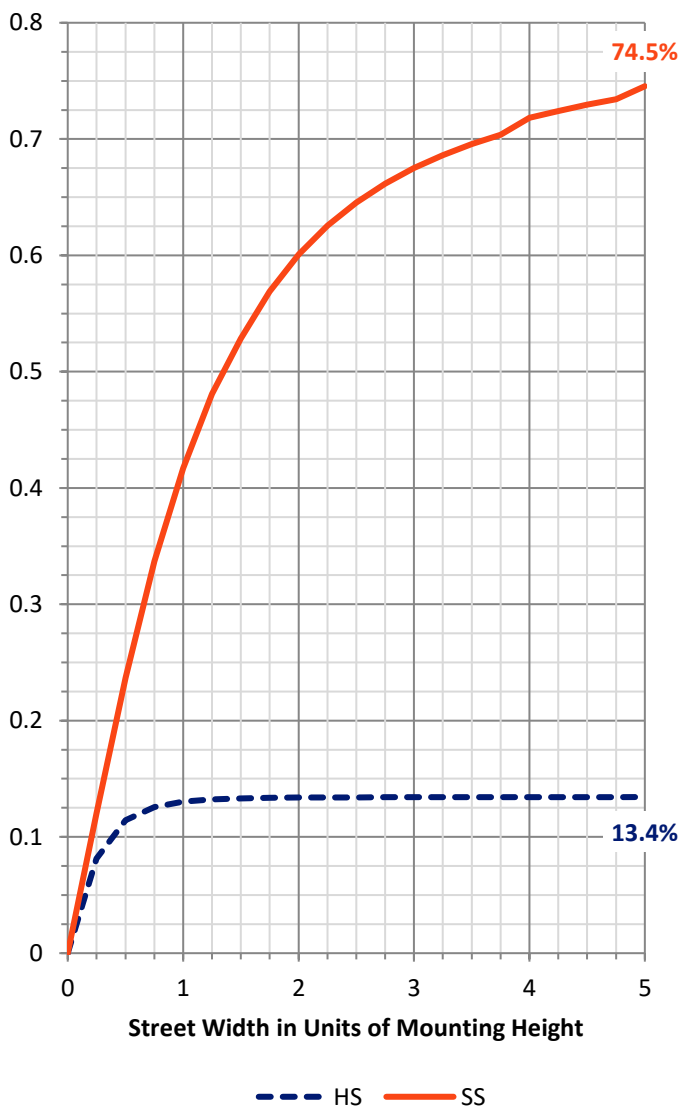
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	1136.2	10.2	1146.4
	% Fixture	13.6	0.1	13.7
Street Side	Lumens	6628.7	587.9	7216.6
	% Fixture	79.3	7.0	86.3
Total	Lumens	7764.8	598.2	8363.0
	% Fixture	92.8	7.2	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	233.4	2.8
10°-20°	623.0	7.4
20°-30°	880.0	10.5
30°-40°	1051.7	12.6
40°-50°	1146.8	13.7
50°-60°	1157.4	13.8
60°-70°	1139.5	13.6
70°-80°	936.7	11.2
80°-90°	596.4	7.1
90°-100°	282.2	3.4
100°-110°	142.2	1.7
110°-120°	80.0	1.0
120°-130°	44.3	0.5
130°-140°	24.7	0.3
140°-150°	15.8	0.2
150°-160°	7.0	0.1
160°-170°	1.8	0.0
170°-180°	0.2	0.0
0°-90°	7764.8	92.8
0°-180°	8363.0	100.0



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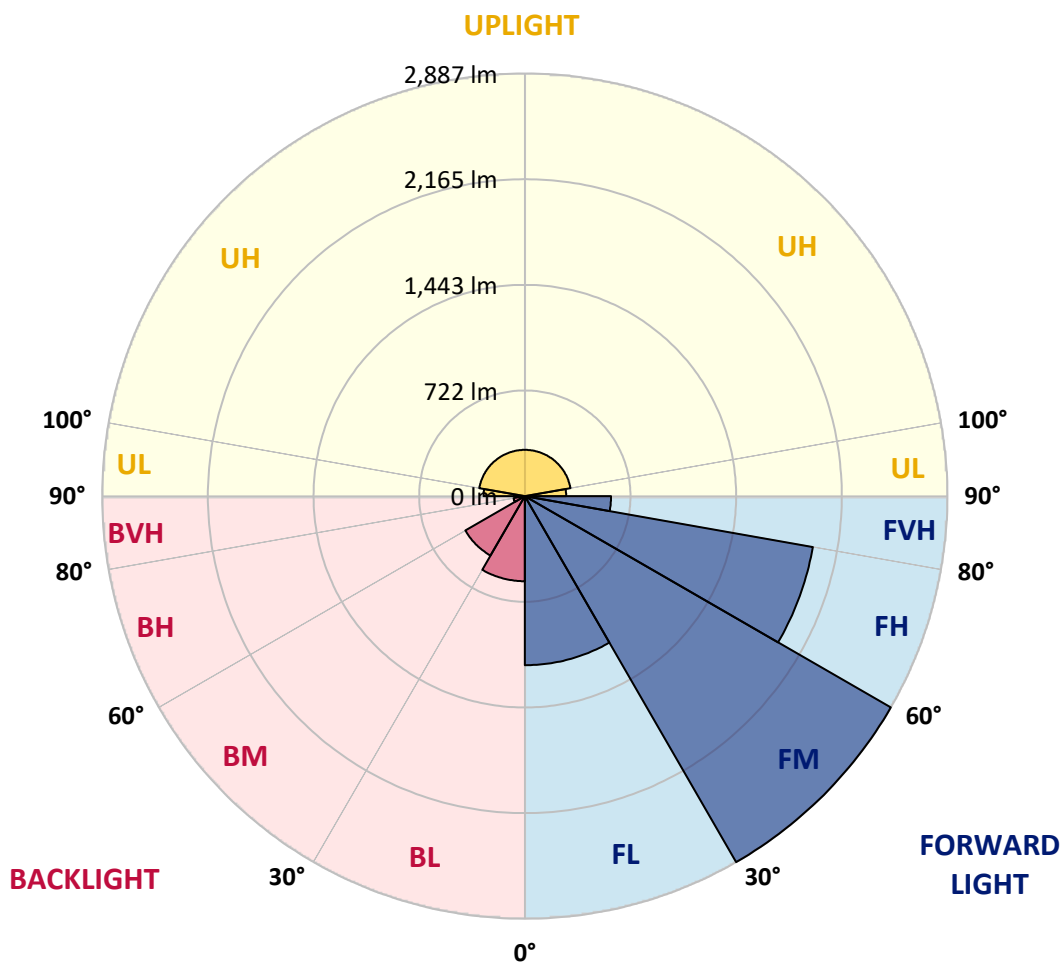
CATALOG NUMBER: WPSLED15S-60W-4000K

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	1155.0	13.8			
FM (30°-60°)	2887.0	34.5			
FH (60°-80°)	1998.0	23.9			G2/5000
FVH (80°-90°)	588.6	7.0			G4/750
BL (0°-30°)	581.3	7.0	B2/1000		
BM (30°-60°)	469.0	5.6	B1/1000		
BH (60°-80°)	78.1	0.9	B0/110		G0/110
BVH (80°-90°)	7.8	0.1			G0/10
UL (90°-100°)	282.2	3.4		U3/500	
UH (100°-180°)	316.0	3.8		U3/500	

BUG Rating: B2-U3-G4

Type IV Short





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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	2476.1	2476.1	2476.1	2476.1	2476.1	2476.1	2476.1	2476.1	2476.1	2476.1	2476.1
2.5°	2765.1	2774.3	2767.2	2769.2	2753.8	2743.6	2749.7	2704.7	2621.6	2522.2	2476.1
5°	2859.4	2870.7	2857.4	2797.9	2767.2	2743.6	2737.4	2740.5	2708.8	2553.0	2457.7
7.5°	2870.7	2868.6	2867.6	2834.8	2871.7	2891.2	2731.3	2708.8	2688.3	2537.6	2410.5
10°	2941.4	2947.5	2927.1	2866.6	2831.7	2772.3	2839.9	2669.8	2669.8	2510.9	2363.4
12.5°	3009.0	3013.1	2955.7	2901.4	2839.9	2804.1	2737.4	2756.9	2642.1	2498.7	2318.3
15°	2925.0	2935.2	2873.8	2841.0	2917.8	2801.0	2740.5	2729.2	2601.1	2488.4	2291.6
17.5°	2950.6	2957.8	2953.7	2888.1	2775.4	2858.4	2746.7	2688.3	2599.1	2470.0	2286.5
20°	2938.3	2944.5	2871.7	2845.1	2878.9	2740.5	2738.5	2666.7	2611.4	2451.5	2238.3
22.5°	2990.6	2998.8	2932.2	2858.4	2800.0	2817.4	2779.5	2658.5	2592.9	2417.7	2193.2
25°	2986.5	2996.7	2943.4	2868.6	2826.6	2763.1	2657.5	2613.4	2549.9	2372.6	2125.6
27.5°	3036.7	3025.4	2904.5	2862.5	2822.5	2732.3	2695.4	2581.7	2488.4	2299.8	2068.2
30°	3150.5	3132.0	3073.6	2910.7	2793.8	2759.0	2665.7	2564.2	2402.3	2232.2	2020.0
32.5°	3037.7	3011.1	2972.1	3001.9	2844.0	2703.6	2589.9	2470.0	2360.3	2152.2	1945.2
35°	3047.0	3034.7	2926.0	2913.7	2929.1	2689.3	2547.8	2392.1	2299.8	2070.3	1872.5
37.5°	3454.9	3392.3	3149.4	2921.9	2850.2	2737.4	2554.0	2420.8	2238.3	1998.5	1792.5
40°	3071.6	3053.1	3026.5	3160.7	2794.8	2726.2	2479.2	2409.5	2147.1	1917.5	1698.2
42.5°	3067.5	3048.0	3017.2	2928.1	2954.7	2651.4	2457.7	2327.5	2070.3	1816.1	1600.9
45°	3214.0	3199.7	3031.6	2952.7	2816.4	2638.0	2421.8	2237.3	1990.3	1712.6	1488.1
47.5°	3561.4	3498.9	3151.5	2906.6	2761.0	2678.0	2398.2	2174.8	1890.9	1593.7	1372.3
50°	3081.8	3076.7	3245.8	3137.1	2687.2	2563.2	2356.2	2094.8	1818.1	1486.1	1255.5
52.5°	3068.5	3057.2	3063.4	2975.2	2804.1	2477.1	2306.0	1991.3	1717.7	1377.4	1160.2
55°	2910.7	2884.0	2835.8	2846.1	2822.5	2414.6	2197.3	1926.8	1635.7	1288.3	1070.0
57.5°	3040.8	3043.9	2866.6	2732.3	2621.6	2479.2	2112.3	1822.2	1559.9	1190.9	965.4
59°	3798.2	3769.5	3326.8	2800.0	2564.2	2442.3	2019.0	1766.9	1503.5	1135.6	927.5
60°	3476.4	3505.1	3589.1	2943.4	2569.4	2364.4	1979.0	1733.1	1464.5	1099.7	906.0
62.5°	3348.3	3331.9	3161.7	3114.6	2720.0	2313.1	1979.0	1671.6	1377.4	1028.0	820.9
65°	3052.1	3011.1	2974.2	2930.1	2760.0	2315.2	1938.0	1605.0	1290.3	940.8	716.4
67.5°	2994.7	2988.5	2901.4	2755.9	2583.7	2301.9	1811.0	1508.6	1208.3	830.2	601.6
70°	2830.7	2832.8	2756.9	2641.1	2451.5	2160.4	1778.2	1433.8	1118.1	714.3	490.9
72.5°	2724.1	2724.1	2647.3	2531.4	2362.3	2006.7	1670.6	1364.1	1007.5	610.8	395.6
75°	2490.5	2505.8	2463.8	2357.2	2202.5	1902.2	1541.4	1229.9	875.2	505.3	307.5
77.5°	2398.2	2400.3	2315.2	2185.0	2022.1	1736.1	1404.1	1104.8	770.7	403.8	230.6
80°	2304.9	2317.2	2220.9	2076.4	1899.1	1616.2	1283.1	989.0	658.0	306.4	168.1
82.5°	1857.1	1857.1	1799.7	1766.9	1616.2	1384.6	1093.5	859.9	539.1	222.4	122.0
85°	1798.7	1781.2	1715.6	1623.4	1490.2	1240.1	920.3	704.1	421.2	160.9	88.1
87.5°	1325.2	1352.8	1321.1	1281.1	1197.1	998.2	763.5	546.3	324.9	117.9	65.6
90°	1109.9	1127.4	1083.3	1035.1	950.1	803.5	602.6	430.4	237.8	86.1	51.2
92.5°	941.9	953.1	926.5	883.4	790.2	662.1	488.9	318.7	177.3	64.6	43.0
95°	859.9	861.9	820.9	747.1	673.3	554.5	387.4	256.2	139.4	53.3	38.9
97.5°	730.7	750.2	710.2	653.9	582.1	473.5	316.7	204.0	112.7	46.1	34.8
100°	633.4	638.5	601.6	553.4	488.9	396.6	260.3	168.1	92.2	43.0	32.8
102.5°	542.2	555.5	521.7	464.3	405.9	323.9	219.3	146.6	78.9	41.0	32.8
105°	438.6	439.7	415.1	381.3	346.4	264.4	186.5	124.0	66.6	40.0	32.8
107.5°	373.1	380.2	365.9	332.1	297.2	231.6	161.9	104.5	58.4	38.9	32.8



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CANDELA DISTRIBUTION (continued):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
110°	339.2	341.3	328.0	303.4	263.4	200.9	139.4	88.1	54.3	38.9	30.7
112.5°	317.7	317.7	301.3	275.7	230.6	176.3	119.9	76.9	52.3	37.9	29.7
115°	277.7	281.8	265.4	242.9	200.9	153.7	105.6	68.7	51.2	35.9	27.7
117.5°	246.0	243.9	233.7	211.1	175.3	133.2	95.3	64.6	49.2	33.8	25.6
120°	212.1	214.2	204.0	184.5	151.7	116.8	85.1	60.5	47.1	31.8	23.6
122.5°	188.6	188.6	181.4	160.9	130.2	102.5	74.8	57.4	45.1	29.7	20.5
125°	164.0	166.0	157.8	138.4	112.7	89.2	67.6	55.3	44.1	27.7	18.4
127.5°	142.5	143.5	135.3	117.9	97.4	78.9	63.5	53.3	43.0	24.6	16.4
130°	123.0	122.0	113.8	100.4	86.1	73.8	62.5	51.2	38.9	21.5	14.3
132.5°	103.5	102.5	96.3	88.1	77.9	71.7	60.5	49.2	35.9	18.4	12.3
135°	88.1	88.1	84.0	79.9	73.8	67.6	58.4	46.1	32.8	16.4	10.2
137.5°	78.9	78.9	77.9	75.8	70.7	64.6	55.3	44.1	29.7	14.3	8.2
140°	74.8	75.8	74.8	73.8	68.7	61.5	53.3	41.0	26.6	12.3	7.2
142.5°	76.9	75.8	74.8	72.8	65.6	59.4	50.2	37.9	23.6	10.2	6.1
145°	77.9	77.9	74.8	69.7	63.5	55.3	46.1	33.8	19.5	8.2	5.1
147.5°	75.8	74.8	70.7	64.6	57.4	50.2	41.0	28.7	16.4	6.1	4.1
150°	71.7	70.7	64.6	57.4	52.3	45.1	34.8	24.6	13.3	5.1	4.1
152.5°	63.5	62.5	57.4	50.2	44.1	36.9	29.7	19.5	10.2	5.1	3.1
155°	50.2	49.2	45.1	40.0	34.8	30.7	24.6	16.4	9.2	4.1	3.1
157.5°	36.9	36.9	34.8	31.8	27.7	25.6	19.5	13.3	6.1	3.1	2.0
160°	30.7	30.7	28.7	26.6	23.6	20.5	15.4	10.2	5.1	3.1	2.0
162.5°	25.6	25.6	23.6	21.5	18.4	15.4	11.3	7.2	4.1	2.0	2.0
165°	20.5	20.5	19.5	17.4	14.3	11.3	8.2	5.1	4.1	2.0	2.0
167.5°	15.4	15.4	13.3	12.3	9.2	7.2	5.1	4.1	3.1	2.0	2.0
170°	9.2	9.2	8.2	7.2	5.1	4.1	4.1	3.1	3.1	2.0	2.0
172.5°	3.1	4.1	3.1	3.1	3.1	3.1	3.1	3.1	2.0	2.0	2.0
175°	1.0	1.0	2.0	2.0	2.0	3.1	3.1	3.1	2.0	2.0	2.0
177.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	2476.1	2476.1	2476.1	2476.1	2476.1	2476.1	2476.1	2476.1	2476.1	2476.1
2.5°	2438.2	2397.2	2372.6	2345.9	2334.7	2312.1	2286.5	2292.7	2283.4	2297.8
5°	2402.3	2336.7	2290.6	2226.0	2183.0	2149.2	2121.5	2081.5	2077.4	2082.6
7.5°	2338.8	2264.0	2176.8	2093.8	2065.1	2073.3	2011.8	1968.8	1929.8	1918.6
10°	2279.3	2171.7	2064.1	2045.7	1916.5	1852.0	1782.3	1711.5	1696.2	1677.7
12.5°	2245.5	2105.1	1999.5	1860.2	1734.1	1599.8	1524.0	1521.9	1534.2	1530.1
15°	2211.7	2034.4	1913.4	1704.4	1529.1	1485.0	1442.0	1376.4	1323.1	1324.1
17.5°	2192.2	1978.0	1771.0	1543.5	1433.8	1312.9	1146.8	1097.6	1090.5	1092.5
20°	2136.9	1912.4	1655.2	1452.3	1281.1	1072.0	979.8	869.1	840.4	827.1
22.5°	2064.1	1823.3	1525.0	1340.5	1067.9	896.8	755.3	694.9	663.1	649.8
25°	2004.7	1709.5	1414.3	1168.4	923.4	730.7	607.8	561.6	539.1	534.0
27.5°	1932.9	1601.9	1323.1	980.8	764.6	599.6	505.3	465.3	447.9	440.7
30°	1857.1	1487.1	1184.8	856.8	647.7	502.2	423.3	385.4	370.0	366.9
32.5°	1773.0	1379.5	1031.0	732.8	537.0	424.3	352.6	320.8	305.4	305.4
35°	1683.9	1268.8	885.5	627.2	456.1	348.5	293.1	255.2	241.9	238.8
37.5°	1579.3	1169.4	777.9	526.8	379.2	290.0	234.7	208.1	192.7	192.7
40°	1490.2	1071.0	675.4	442.7	311.6	230.6	189.6	161.9	152.7	152.7
42.5°	1372.3	947.0	586.2	371.0	255.2	190.6	151.7	130.2	123.0	122.0
45°	1240.1	824.0	487.8	304.4	208.1	151.7	120.9	102.5	95.3	93.3
47.5°	1106.9	702.0	408.9	252.1	168.1	122.0	96.3	82.0	75.8	74.8
50°	990.0	608.8	336.2	204.0	137.3	97.4	74.8	64.6	58.4	58.4
52.5°	892.7	528.8	288.0	169.1	110.7	74.8	59.4	50.2	50.2	51.2
55°	813.8	466.3	239.8	142.5	90.2	60.5	44.1	41.0	44.1	44.1
57.5°	738.9	391.5	200.9	120.9	70.7	47.1	33.8	33.8	34.8	34.8
59°	696.9	354.6	180.4	108.6	61.5	40.0	27.7	27.7	27.7	27.7
60°	664.1	328.0	169.1	101.5	55.3	34.8	24.6	23.6	22.5	21.5
62.5°	579.1	260.3	142.5	81.0	42.0	22.5	14.3	13.3	11.3	12.3
65°	478.6	213.2	117.9	64.6	31.8	12.3	5.1	3.1	1.0	1.0
67.5°	378.2	174.2	97.4	51.2	20.5	3.1	0.0	0.0	0.0	0.0
70°	307.5	140.4	78.9	37.9	11.3	0.0	0.0	0.0	0.0	0.0
72.5°	236.7	114.8	63.5	26.6	3.1	0.0	0.0	0.0	0.0	0.0
75°	178.3	91.2	49.2	16.4	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	136.3	72.8	37.9	10.2	0.0	0.0	0.0	0.0	0.0	0.0
80°	101.5	56.4	28.7	6.1	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	77.9	44.1	22.5	4.1	0.0	0.0	0.0	0.0	0.0	0.0
85°	59.4	33.8	16.4	2.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	47.1	26.6	13.3	2.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	36.9	21.5	10.2	1.0	0.0	0.0	0.0	0.0	0.0	0.0
92.5°	31.8	18.4	8.2	1.0	0.0	0.0	0.0	0.0	0.0	0.0
95°	28.7	16.4	6.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0
97.5°	26.6	15.4	6.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0
100°	25.6	14.3	5.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0
102.5°	25.6	13.3	4.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0
105°	25.6	13.3	4.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0
107.5°	25.6	12.3	4.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0



REPORT NUMBER: P979120
 CATALOG NUMBER: WPSLED15S-60W-4000K

CANDELA DISTRIBUTION (continued):

	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
110°	24.6	10.2	4.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0
112.5°	23.6	9.2	3.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0
115°	21.5	7.2	3.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0
117.5°	18.4	4.1	3.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0
120°	15.4	3.1	3.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0
122.5°	13.3	2.0	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
125°	12.3	2.0	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
127.5°	11.3	2.0	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
130°	9.2	3.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
132.5°	8.2	3.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
135°	7.2	3.1	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0
137.5°	6.1	3.1	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0
140°	5.1	3.1	2.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0
142.5°	4.1	3.1	2.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0
145°	4.1	3.1	2.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0
147.5°	3.1	2.0	2.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0
150°	3.1	2.0	2.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0
152.5°	3.1	2.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0
155°	2.0	2.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0
157.5°	2.0	2.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0
160°	2.0	2.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0
162.5°	2.0	2.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
165°	2.0	2.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
167.5°	2.0	2.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
170°	2.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
172.5°	2.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175°	2.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
177.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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

Report Prepared for

Cooper Lighting Solutions

Lumark

Report Number: SP1-2407-168-3

Test Date: 08/08/2024

Luminaire Tested: LSDL-92S-100W 4000k

Data in this report applies to families of products including LSDL-92S-100W 4000k.

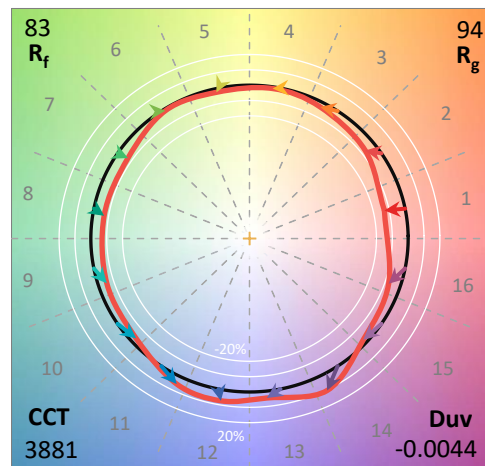
Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-168-3
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 08/12/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: Lumark
 Catalog Number: **LSDL-92S-100W 4000k**
 Description: Lumark Wallpack 100W

Spectral Parameters

CCT (K): 3881
 CIE u': 0.2297
 CIE v': 0.4983
 Duv: -0.0044
 CIE x: 0.3825
 CIE y: 0.3688
 CIE z: 0.2487
 Peak Wavelength (nm): 453
 Dominant Wavelength (nm): 582
 Purity: 25.44833
 Rf: 82.8
 Rg: 93.7

CRI (Ra):	82.7		
R1:	82.3	R9:	4.8
R2:	93.7	R10:	84.4
R3:	93.3	R11:	77.9
R4:	79.0	R12:	66.7
R5:	82.7	R13:	85.8
R6:	89.4	R14:	97.2
R7:	81.3	R15:	76.3
R8:	59.9		



Test Conditions

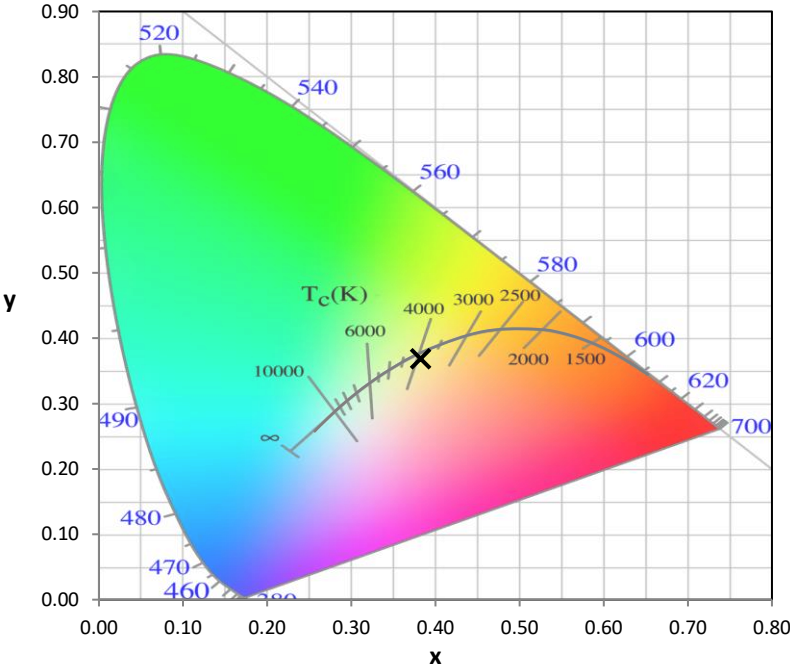
Stabilization Time: 20M
 Operation Time: 1H 20M
 Sphere Temperature (°C): 24.2

REPORT NUMBER: SP1-2407-168-3

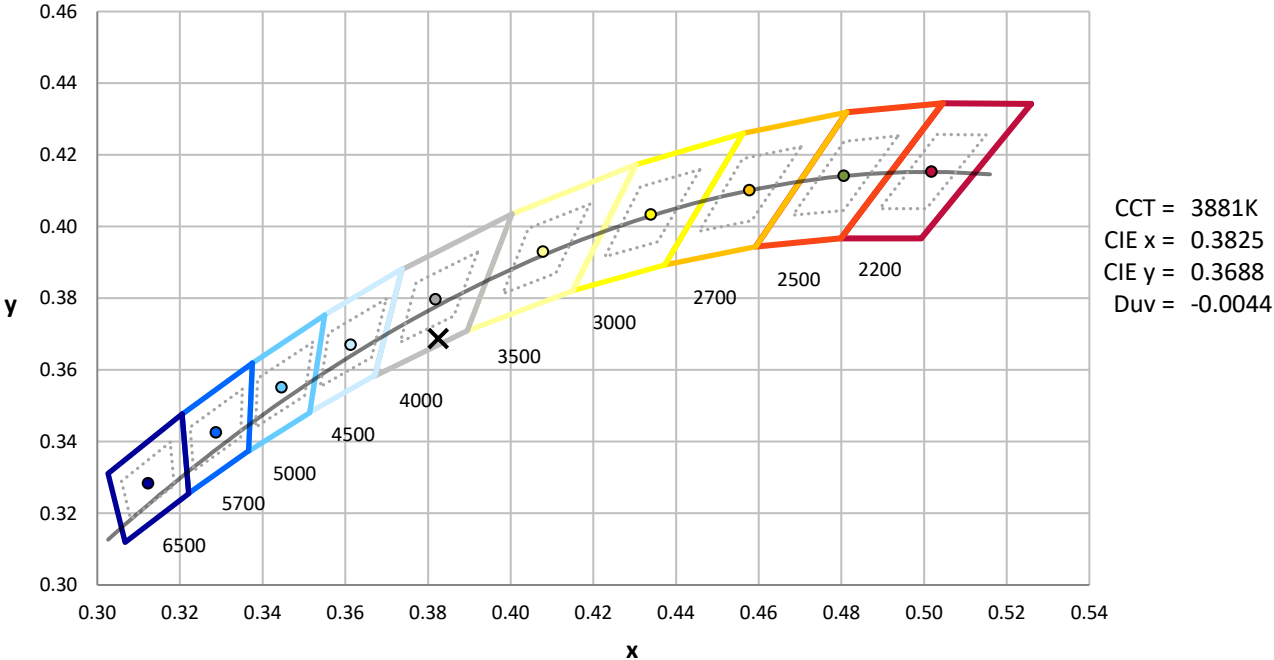
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085	10/24/2023	10/24/2024
Room Thermometer	IN0046	10/24/2023	10/24/2024

REPORT NUMBER: SP1-2407-168-3

CIE 1931 Chromaticity Diagram



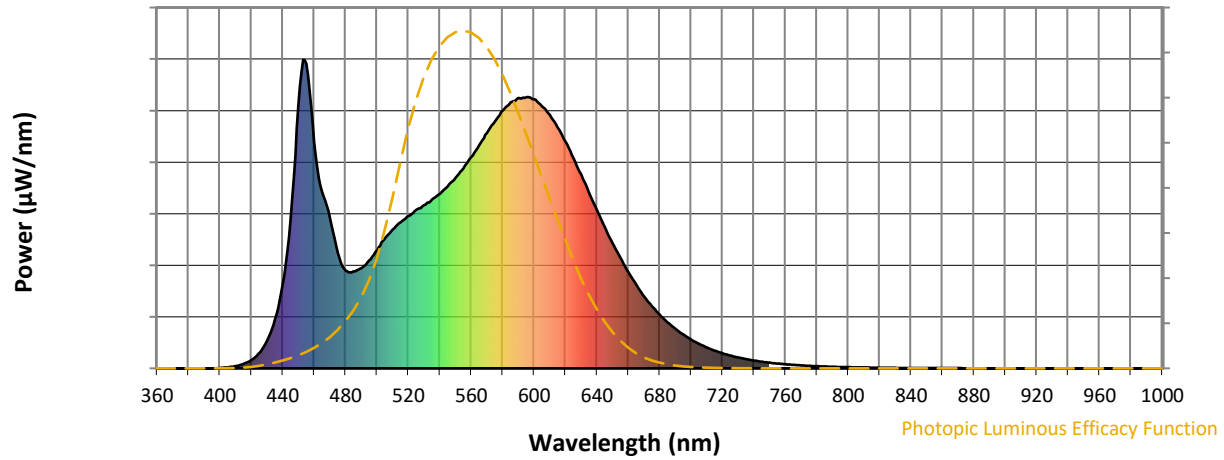
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 4000K 7-step quadrangle

REPORT NUMBER: SP1-2407-168-3

Photopic Flux vs. Wavelength

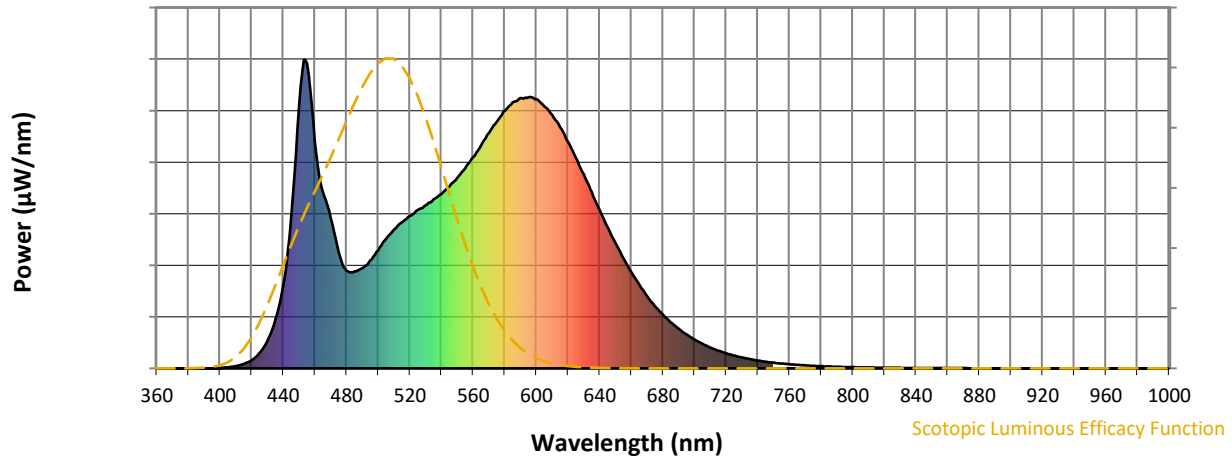


Photopic Lumens: NR

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	325	NR	620	735	NR	750	18	NR	880	0	NR
365	0	NR	495	350	NR	625	682	NR	755	16	NR	885	0	NR
370	0	NR	500	382	NR	630	629	NR	760	13	NR	890	0	NR
375	0	NR	505	421	NR	635	570	NR	765	11	NR	895	0	NR
380	0	NR	510	450	NR	640	514	NR	770	10	NR	900	0	NR
385	0	NR	515	474	NR	645	458	NR	775	8	NR	905	0	NR
390	0	NR	520	494	NR	650	406	NR	780	7	NR	910	0	NR
395	0	NR	525	513	NR	655	358	NR	785	6	NR	915	0	NR
400	2	NR	530	529	NR	660	312	NR	790	5	NR	920	0	NR
405	4	NR	535	548	NR	665	271	NR	795	4	NR	925	0	NR
410	8	NR	540	565	NR	670	234	NR	800	4	NR	930	0	NR
415	14	NR	545	591	NR	675	202	NR	805	3	NR	935	0	NR
420	27	NR	550	618	NR	680	174	NR	810	3	NR	940	0	NR
425	50	NR	555	649	NR	685	149	NR	815	2	NR	945	0	NR
430	89	NR	560	685	NR	690	129	NR	820	2	NR	950	0	NR
435	159	NR	565	723	NR	695	110	NR	825	2	NR	955	0	NR
440	272	NR	570	762	NR	700	93	NR	830	2	NR	960	0	NR
445	486	NR	575	800	NR	705	80	NR	835	1	NR	965	0	NR
450	852	NR	580	835	NR	710	67	NR	840	1	NR	970	0	NR
455	988	NR	585	862	NR	715	57	NR	845	1	NR	975	0	NR
460	735	NR	590	876	NR	720	49	NR	850	1	NR	980	0	NR
465	572	NR	595	879	NR	725	42	NR	855	1	NR	985	0	NR
470	486	NR	600	872	NR	730	35	NR	860	1	NR	990	0	NR
475	375	NR	605	850	NR	735	30	NR	865	1	NR	995	0	NR
480	317	NR	610	821	NR	740	25	NR	870	1	NR	1000	0	NR
485	314	NR	615	782	NR	745	22	NR	875	0	NR			

REPORT NUMBER: SP1-2407-168-3

Scotopic Flux vs. Wavelength



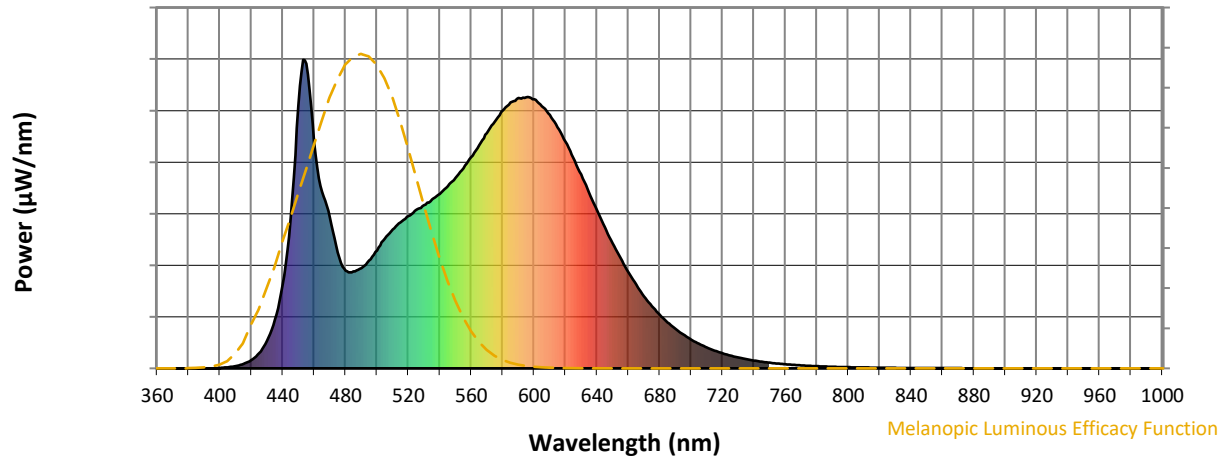
Scotopic Lumens: NR

S/P: 1.72

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	325	NR	620	735	NR	750	18	NR	880	0	NR
365	0	NR	495	350	NR	625	682	NR	755	16	NR	885	0	NR
370	0	NR	500	382	NR	630	629	NR	760	13	NR	890	0	NR
375	0	NR	505	421	NR	635	570	NR	765	11	NR	895	0	NR
380	0	NR	510	450	NR	640	514	NR	770	10	NR	900	0	NR
385	0	NR	515	474	NR	645	458	NR	775	8	NR	905	0	NR
390	0	NR	520	494	NR	650	406	NR	780	7	NR	910	0	NR
395	0	NR	525	513	NR	655	358	NR	785	6	NR	915	0	NR
400	2	NR	530	529	NR	660	312	NR	790	5	NR	920	0	NR
405	4	NR	535	548	NR	665	271	NR	795	4	NR	925	0	NR
410	8	NR	540	565	NR	670	234	NR	800	4	NR	930	0	NR
415	14	NR	545	591	NR	675	202	NR	805	3	NR	935	0	NR
420	27	NR	550	618	NR	680	174	NR	810	3	NR	940	0	NR
425	50	NR	555	649	NR	685	149	NR	815	2	NR	945	0	NR
430	89	NR	560	685	NR	690	129	NR	820	2	NR	950	0	NR
435	159	NR	565	723	NR	695	110	NR	825	2	NR	955	0	NR
440	272	NR	570	762	NR	700	93	NR	830	2	NR	960	0	NR
445	486	NR	575	800	NR	705	80	NR	835	1	NR	965	0	NR
450	852	NR	580	835	NR	710	67	NR	840	1	NR	970	0	NR
455	988	NR	585	862	NR	715	57	NR	845	1	NR	975	0	NR
460	735	NR	590	876	NR	720	49	NR	850	1	NR	980	0	NR
465	572	NR	595	879	NR	725	42	NR	855	1	NR	985	0	NR
470	486	NR	600	872	NR	730	35	NR	860	1	NR	990	0	NR
475	375	NR	605	850	NR	735	30	NR	865	1	NR	995	0	NR
480	317	NR	610	821	NR	740	25	NR	870	1	NR	1000	0	NR
485	314	NR	615	782	NR	745	22	NR	875	0	NR			

REPORT NUMBER: SP1-2407-168-3

Melanopic Flux vs. Wavelength



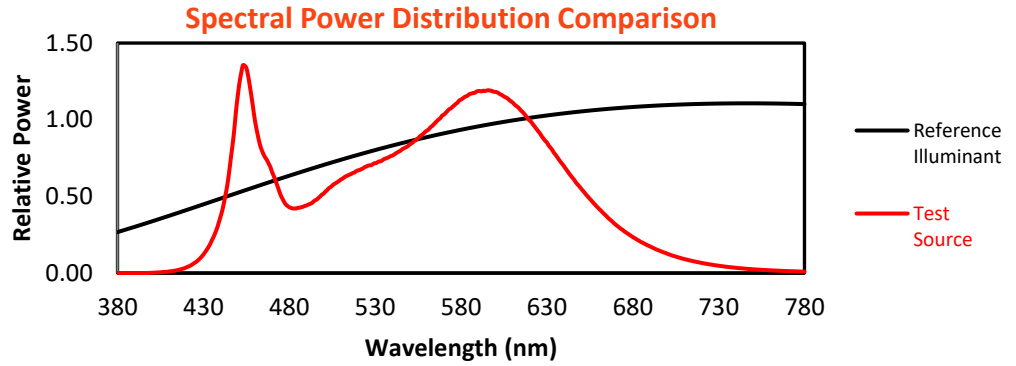
Melanopic Lumens: NR

M/P: 3.62

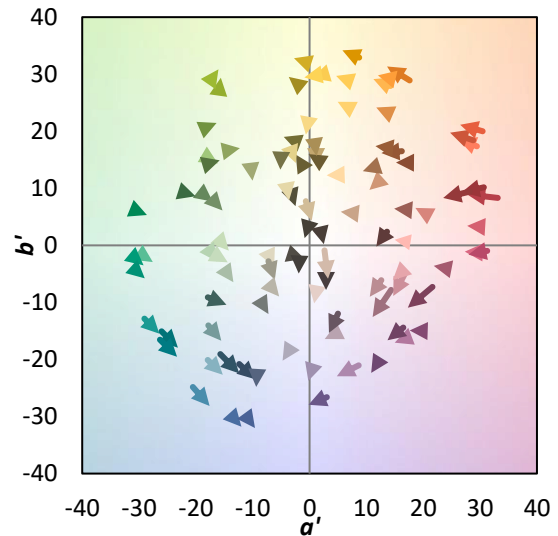
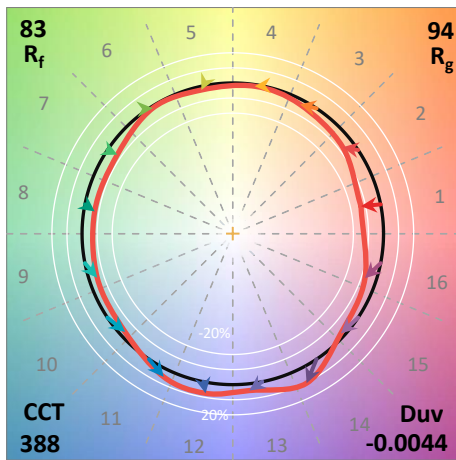
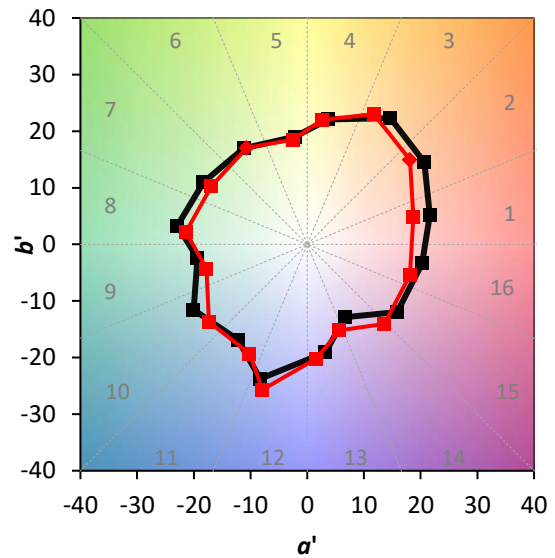
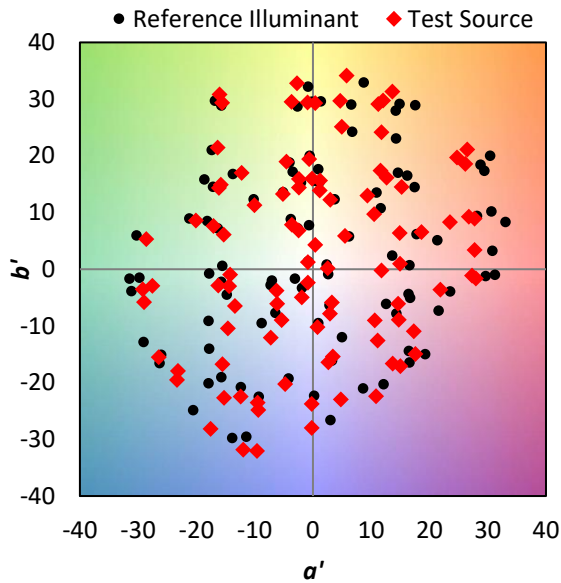
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	325	NR	620	735	NR	750	18	NR	880	0	NR
365	0	NR	495	350	NR	625	682	NR	755	16	NR	885	0	NR
370	0	NR	500	382	NR	630	629	NR	760	13	NR	890	0	NR
375	0	NR	505	421	NR	635	570	NR	765	11	NR	895	0	NR
380	0	NR	510	450	NR	640	514	NR	770	10	NR	900	0	NR
385	0	NR	515	474	NR	645	458	NR	775	8	NR	905	0	NR
390	0	NR	520	494	NR	650	406	NR	780	7	NR	910	0	NR
395	0	NR	525	513	NR	655	358	NR	785	6	NR	915	0	NR
400	2	NR	530	529	NR	660	312	NR	790	5	NR	920	0	NR
405	4	NR	535	548	NR	665	271	NR	795	4	NR	925	0	NR
410	8	NR	540	565	NR	670	234	NR	800	4	NR	930	0	NR
415	14	NR	545	591	NR	675	202	NR	805	3	NR	935	0	NR
420	27	NR	550	618	NR	680	174	NR	810	3	NR	940	0	NR
425	50	NR	555	649	NR	685	149	NR	815	2	NR	945	0	NR
430	89	NR	560	685	NR	690	129	NR	820	2	NR	950	0	NR
435	159	NR	565	723	NR	695	110	NR	825	2	NR	955	0	NR
440	272	NR	570	762	NR	700	93	NR	830	2	NR	960	0	NR
445	486	NR	575	800	NR	705	80	NR	835	1	NR	965	0	NR
450	852	NR	580	835	NR	710	67	NR	840	1	NR	970	0	NR
455	988	NR	585	862	NR	715	57	NR	845	1	NR	975	0	NR
460	735	NR	590	876	NR	720	49	NR	850	1	NR	980	0	NR
465	572	NR	595	879	NR	725	42	NR	855	1	NR	985	0	NR
470	486	NR	600	872	NR	730	35	NR	860	1	NR	990	0	NR
475	375	NR	605	850	NR	735	30	NR	865	1	NR	995	0	NR
480	317	NR	610	821	NR	740	25	NR	870	1	NR	1000	0	NR
485	314	NR	615	782	NR	745	22	NR	875	0	NR			

Summary

$R_f = 82.8$
 $R_g = 93.7$
 CIE $R_a = 82.7$
 $R_9 = 4.8$

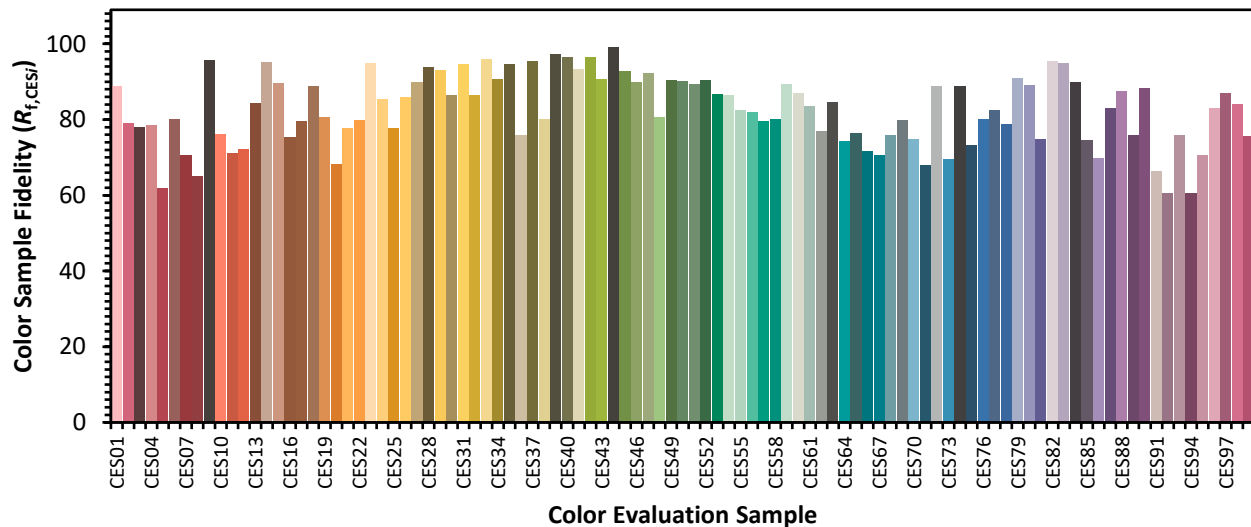


Color Vector Graphics

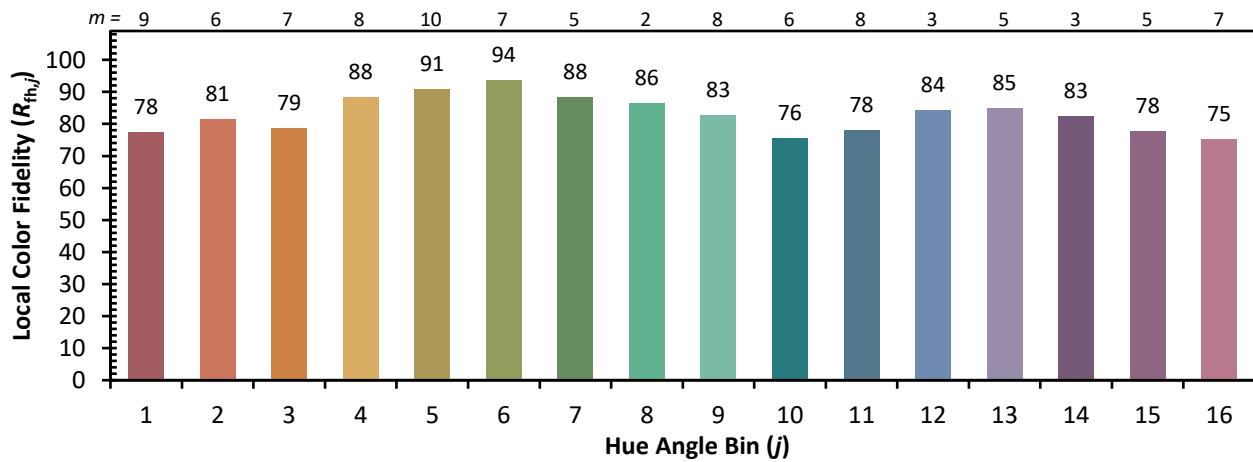
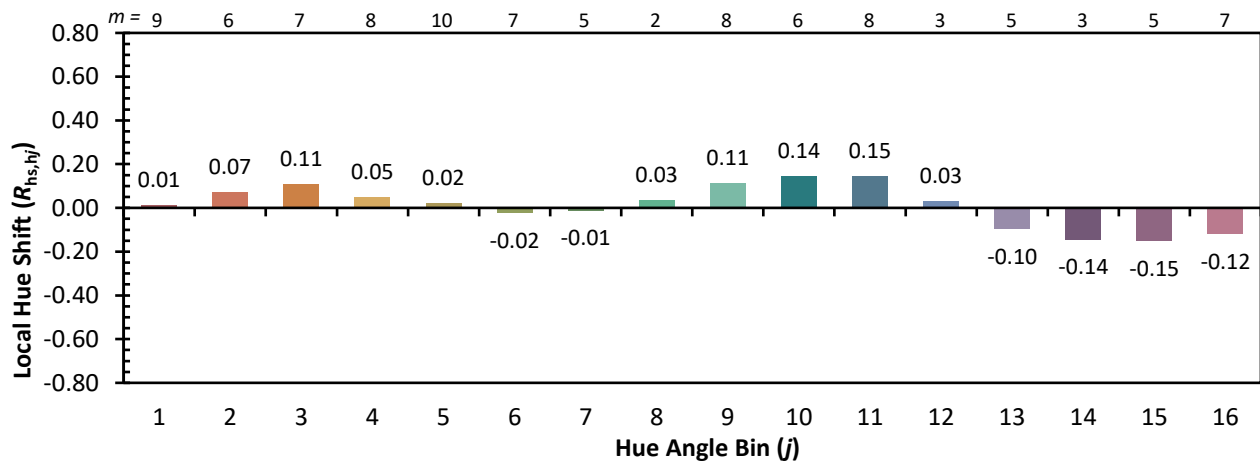
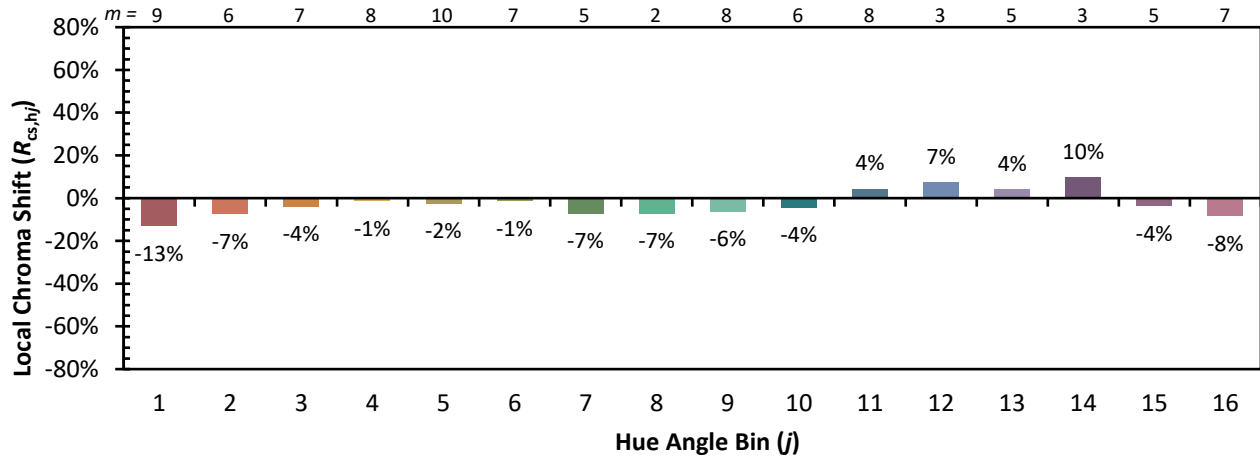


Individual Sample Fidelity Index ($R_{f,i}$)

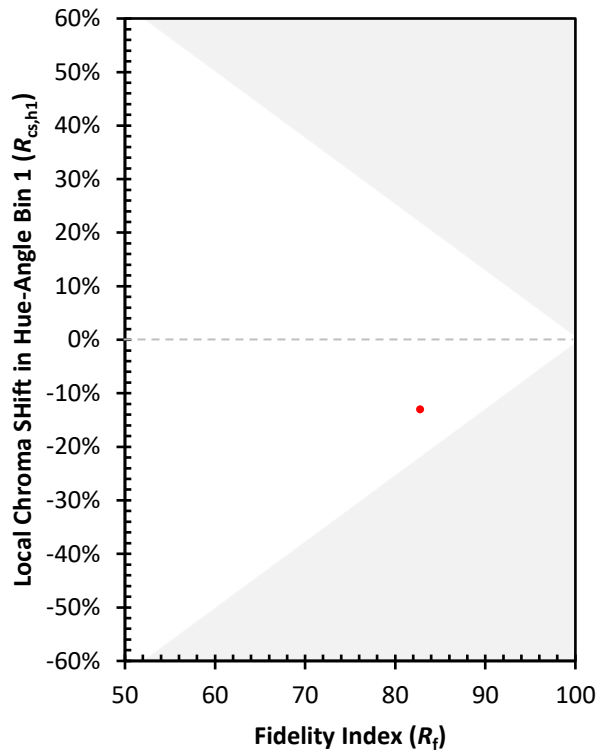
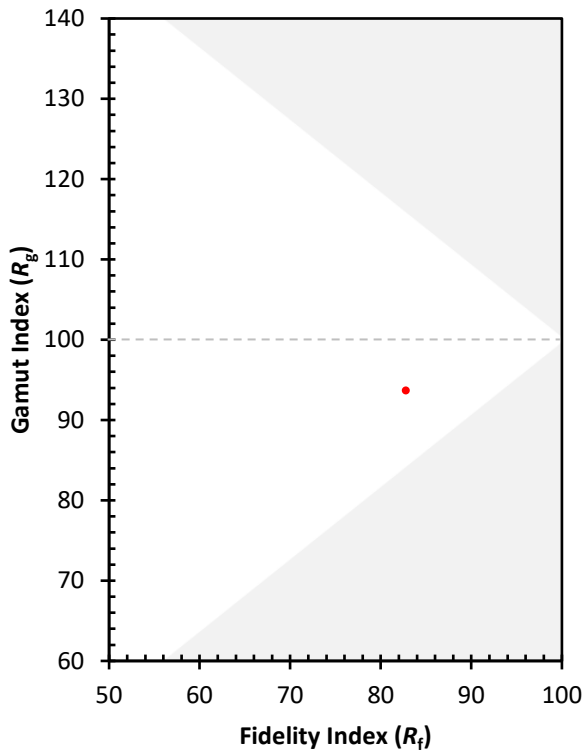
CES01 = 86	CES26 = 86	CES51 = 89	CES76 = 80
CES02 = 62	CES27 = 90	CES52 = 91	CES77 = 83
CES03 = 31	CES28 = 94	CES53 = 87	CES78 = 79
CES04 = 70	CES29 = 93	CES54 = 86	CES79 = 91
CES05 = 48	CES30 = 86	CES55 = 83	CES80 = 89
CES06 = 51	CES31 = 95	CES56 = 82	CES81 = 75
CES07 = 41	CES32 = 86	CES57 = 80	CES82 = 95
CES08 = 40	CES33 = 96	CES58 = 80	CES83 = 95
CES09 = 29	CES34 = 91	CES59 = 89	CES84 = 90
CES10 = 75	CES35 = 95	CES60 = 87	CES85 = 75
CES11 = 58	CES36 = 76	CES61 = 83	CES86 = 70
CES12 = 64	CES37 = 95	CES62 = 77	CES87 = 83
CES13 = 43	CES38 = 80	CES63 = 85	CES88 = 88
CES14 = 74	CES39 = 97	CES64 = 74	CES89 = 76
CES15 = 71	CES40 = 96	CES65 = 76	CES90 = 88
CES16 = 47	CES41 = 93	CES66 = 72	CES91 = 66
CES17 = 49	CES42 = 96	CES67 = 71	CES92 = 60
CES18 = 56	CES43 = 91	CES68 = 76	CES93 = 76
CES19 = 72	CES44 = 99	CES69 = 80	CES94 = 61
CES20 = 65	CES45 = 93	CES70 = 75	CES95 = 71
CES21 = 86	CES46 = 90	CES71 = 68	CES96 = 83
CES22 = 78	CES47 = 92	CES72 = 89	CES97 = 87
CES23 = 91	CES48 = 81	CES73 = 70	CES98 = 84
CES24 = 90	CES49 = 90	CES74 = 89	CES99 = 76
CES25 = 71	CES50 = 90	CES75 = 73	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)