

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: P386698

Luminaire Tested: **GWC-SA2B-827-U-SLL-HSS**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P386698
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-27)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: MCGRAW-EDISON
Catalog Number: GWC-SA2B-827-U-SLL-HSS
Description: GALLEON WALL LUMINAIRE
(2) 80 CRI, 2700K, 800mA LIGHTSQUARES WITH 16 LEDS EACH AND SPILL LIGHT
ELIMINATOR LEFT OPTICS WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6500 lumens
Efficiency: N/A
Efficacy: 76.5 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 0.5' x H: 0')
IES Classification: Type III - Medium
BUG Rating: B1 - U0 - G2

Input Watts (W): 85
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: 28.75 FT

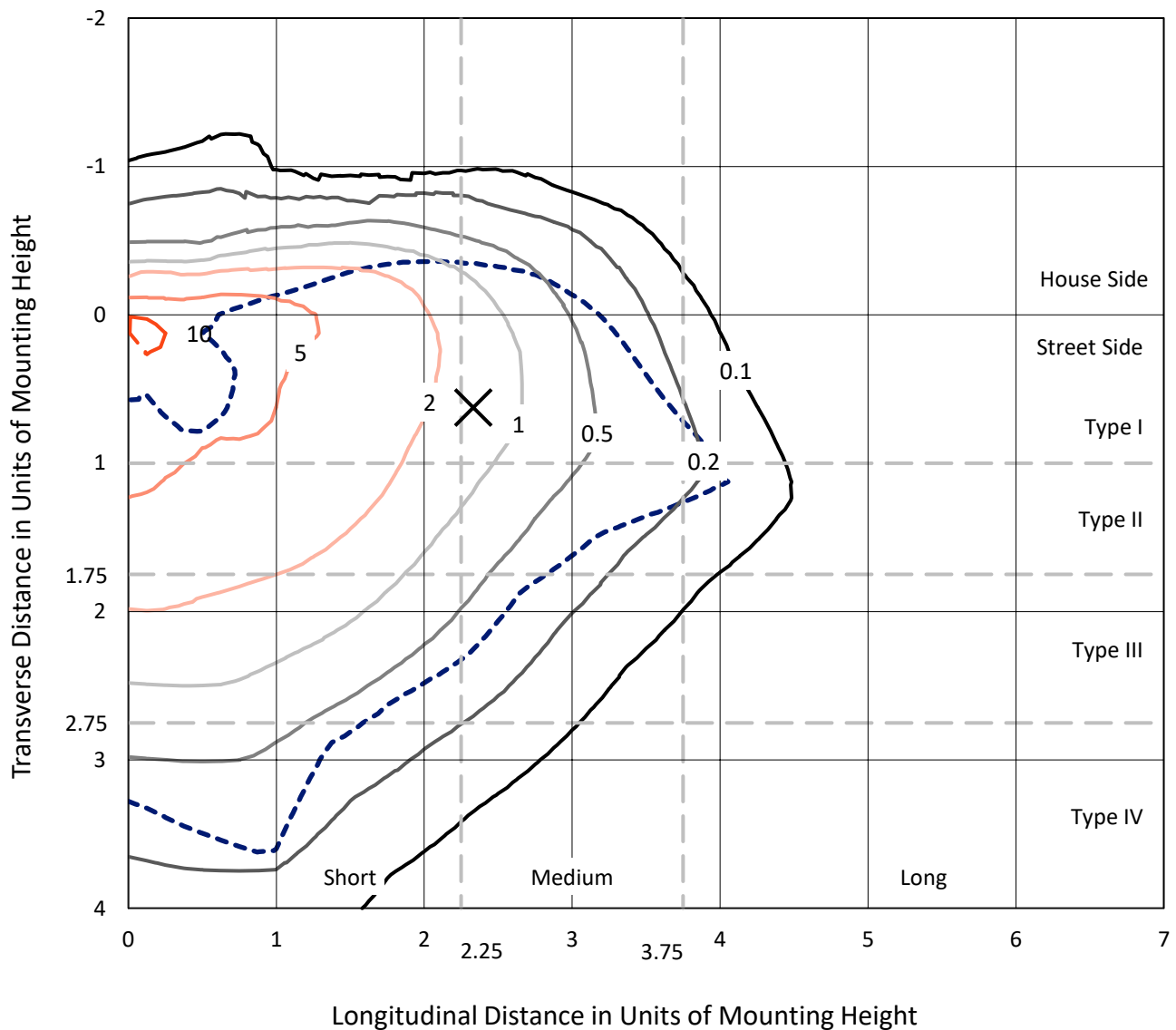


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Iso-Footcandle Lines of Horizontal Illumination

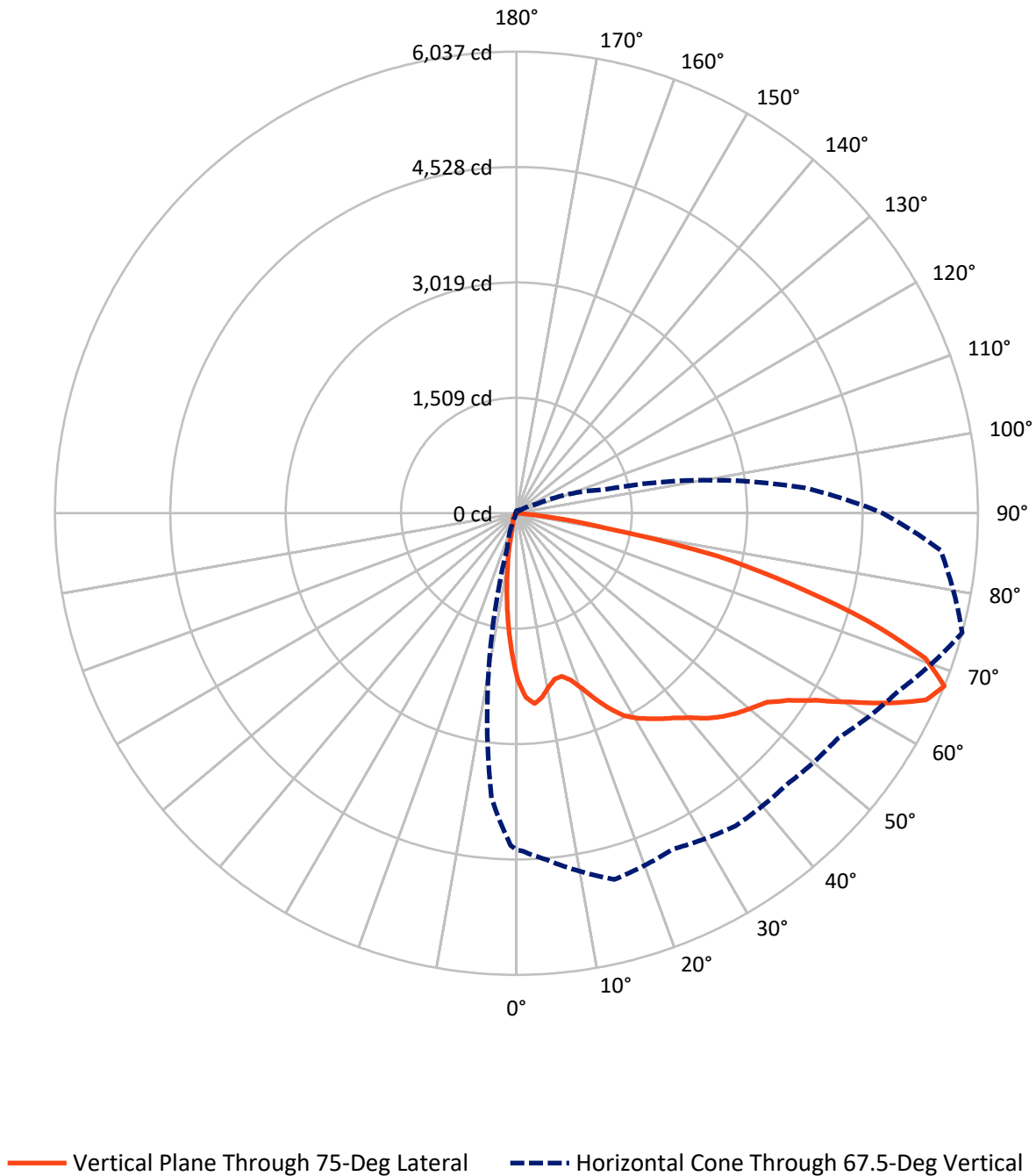
× Max cd
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 12.6 fc
 Type III - Medium - N/A

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Luminous Intensity Polar Plot



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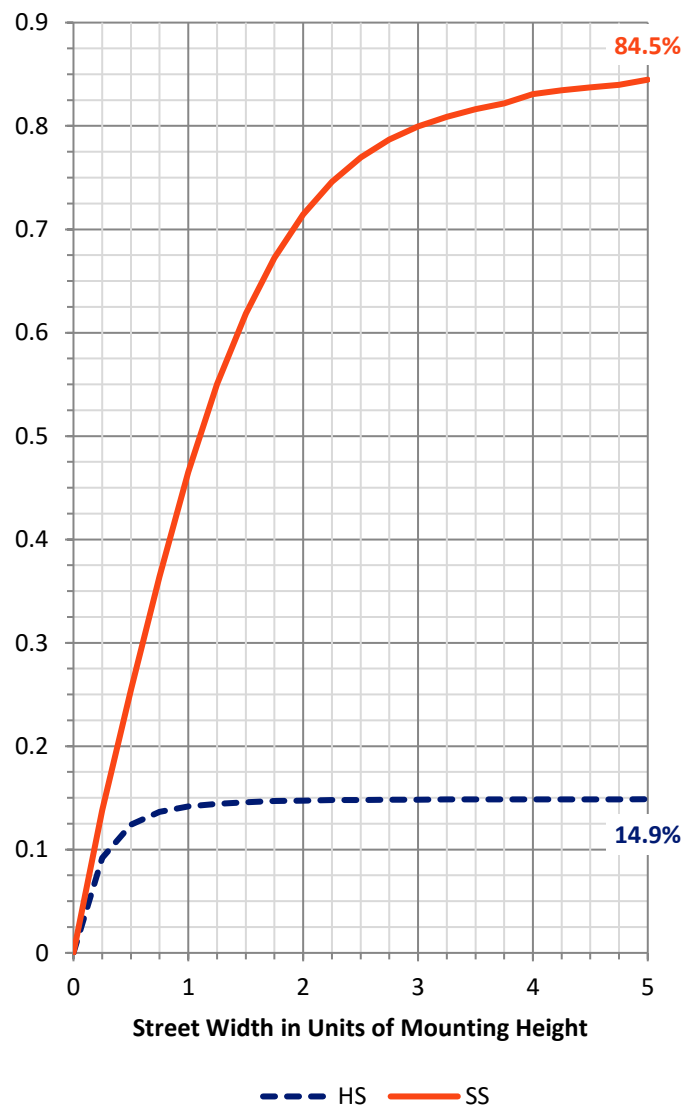
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	975.4	0.0	975.4
	% Fixture	15.0	0.0	15.0
Street Side	Lumens	5524.6	0.0	5524.6
	% Fixture	85.0	0.0	85.0
Total	Lumens	6500.0	0.0	6500.0
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	165.4	2.5
10°-20°	325.7	5.0
20°-30°	460.8	7.1
30°-40°	677.5	10.4
40°-50°	973.7	15.0
50°-60°	1370.8	21.1
60°-70°	1600.9	24.6
70°-80°	816.7	12.6
80°-90°	108.5	1.7
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-90°	6500.0	100.0
0°-180°	6500.0	100.0

Coefficient of Utilization



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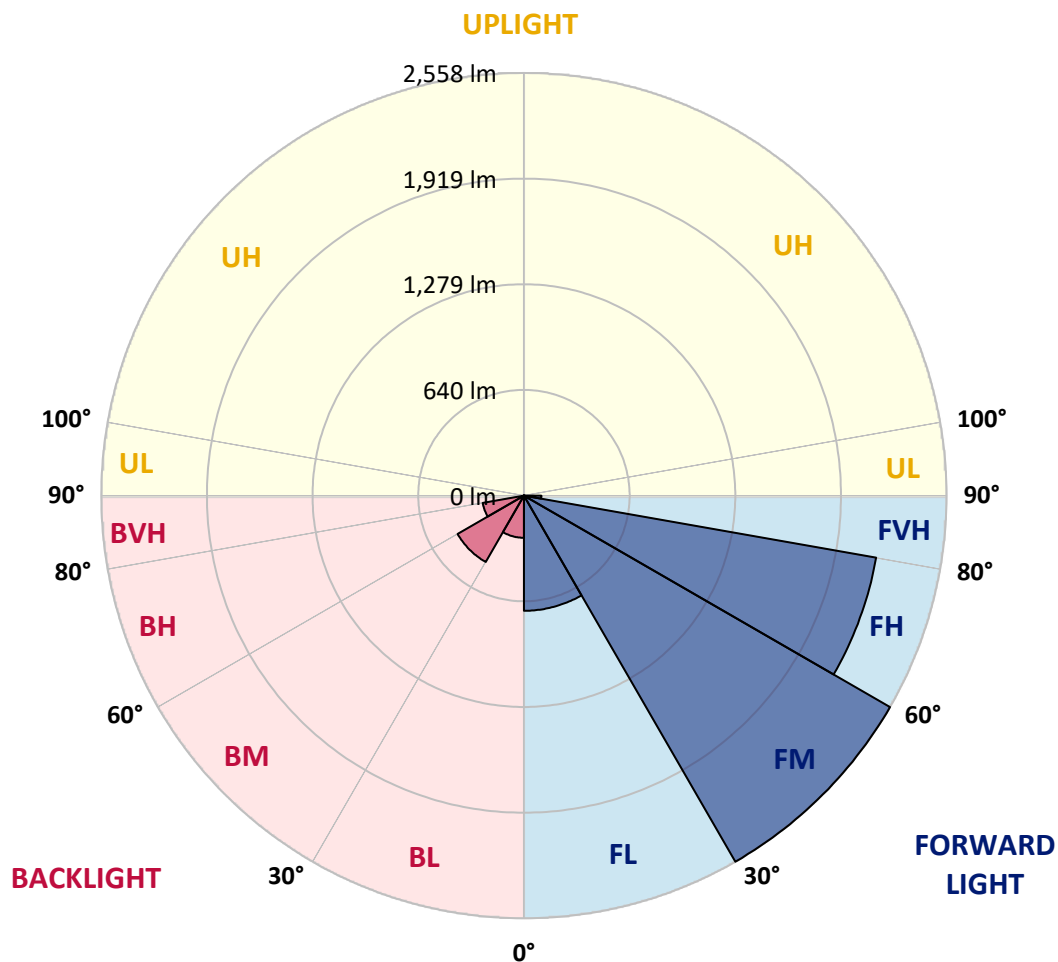
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	696.8	10.7			
FM	(30°-60°)	2558.3	39.4			
FH	(60°-80°)	2164.3	33.3			G2/5000
FVH	(80°-90°)	105.2	1.6			G2/225
BL	(0°-30°)	255.1	3.9	B1/500		
BM	(30°-60°)	463.7	7.1	B1/1000		
BH	(60°-80°)	253.4	3.9	B1/500		G1/500
BVH	(80°-90°)	3.3	0.1			G0/10
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B1-U0-G2

Type III Medium



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CANDELA DISTRIBUTION (FULL):

	0°	1°	5°	15°	25°	35°	45°	55°	65°	75°	85°
0°	2180.6	2180.6	2180.6	2180.6	2180.6	2180.6	2180.6	2180.6	2180.6	2180.6	2180.6
2.5°	2363.8	2367.5	2386.6	2431.0	2479.3	2483.0	2515.6	2482.1	2470.7	2416.5	2360.5
5°	2381.7	2395.9	2461.5	2591.7	2704.7	2741.0	2766.9	2701.0	2631.7	2499.3	2358.0
7.5°	2237.9	2261.6	2364.8	2609.3	2811.2	2900.5	2917.5	2814.3	2644.7	2426.7	2214.2
10°	2053.8	2080.9	2205.3	2505.8	2783.2	2936.3	2959.7	2824.5	2580.6	2309.0	2058.7
12.5°	1904.7	1936.5	2063.6	2389.4	2686.8	2856.2	2902.4	2790.3	2525.2	2225.6	1952.5
15°	1836.1	1872.4	2006.1	2314.3	2580.0	2713.3	2751.5	2703.2	2494.4	2212.4	1927.8
17.5°	1875.5	1914.9	2052.9	2320.7	2479.6	2536.6	2567.4	2587.1	2494.4	2292.1	1999.9
20°	2037.2	2079.6	2225.6	2386.3	2396.5	2375.2	2408.2	2477.5	2523.3	2443.6	2172.9
22.5°	2260.7	2310.6	2475.3	2498.7	2355.8	2275.5	2279.8	2388.5	2576.0	2635.7	2413.1
25°	2533.2	2594.2	2761.7	2666.2	2372.8	2216.0	2214.5	2315.2	2627.4	2828.2	2680.7
27.5°	2803.9	2871.0	3018.2	2870.7	2442.7	2205.3	2202.2	2293.0	2677.6	2999.4	2972.9
30°	3030.8	3096.1	3222.9	3018.8	2518.1	2230.5	2215.7	2316.7	2707.5	3110.5	3186.0
32.5°	3215.5	3267.9	3370.4	3120.7	2598.8	2279.5	2247.5	2380.2	2758.3	3204.4	3381.8
35°	3418.8	3473.9	3514.8	3217.7	2689.3	2350.0	2304.1	2480.9	2836.5	3299.9	3596.4
37.5°	3650.6	3705.4	3700.5	3306.4	2804.2	2466.7	2437.4	2640.4	2958.1	3394.4	3836.0
40°	3877.5	3933.6	3893.6	3403.4	2939.0	2659.1	2637.6	2879.9	3121.0	3515.4	4116.8
42.5°	4090.0	4150.7	4065.1	3495.1	3099.8	2901.8	2938.7	3188.4	3324.8	3664.5	4358.8
45°	4261.2	4323.1	4208.9	3584.4	3269.1	3196.1	3307.3	3530.2	3569.9	3790.4	4522.3
47.5°	4385.6	4444.1	4308.6	3673.7	3485.9	3556.1	3749.8	3888.6	3791.3	3899.7	4638.4
50°	4465.0	4510.6	4337.9	3785.5	3770.4	3976.1	4210.7	4278.4	3999.8	3998.2	4779.4
52.5°	4515.5	4536.2	4359.4	3902.2	4067.2	4433.3	4662.1	4683.4	4214.4	4106.6	4969.4
55°	4689.5	4706.1	4512.2	4043.5	4312.6	4833.9	5070.4	5050.7	4457.3	4318.8	5193.6
57.5°	4986.3	5003.9	4827.8	4246.7	4511.2	5081.5	5366.3	5401.7	4742.2	4616.8	5433.7
60°	5135.4	5168.0	5105.2	4504.1	4703.7	5239.8	5568.0	5681.0	5098.1	5009.7	5666.5
62.5°	5000.2	5047.6	5138.8	4789.6	4894.9	5326.9	5630.8	5781.1	5462.7	5467.6	5810.0
65°	4730.5	4768.3	4922.9	4946.0	5005.7	5316.1	5475.6	5641.3	5685.9	5888.2	5802.3
67.5°	4404.7	4418.9	4550.0	4958.3	4845.0	4992.2	5009.4	5132.0	5509.5	6037.2	5569.2
70°	3935.7	3943.4	4058.0	4546.0	4163.6	4195.9	4170.4	4195.3	4736.6	5674.2	4980.8
72.5°	3167.5	3186.9	3349.8	3775.3	3033.2	2940.0	3140.7	3129.6	3647.8	4793.9	3699.3
75°	2332.1	2365.7	2611.7	3040.9	2128.9	1925.7	2072.3	2111.4	2593.2	3708.2	2313.3
77.5°	1632.9	1657.8	1896.1	2235.4	1540.8	1377.0	1324.0	1370.5	1711.7	2682.5	1165.5
80°	940.7	949.9	1102.0	1290.8	1038.3	1187.9	1076.2	1108.2	1025.7	1193.5	501.3
82.5°	615.5	617.1	676.5	768.2	646.6	751.3	556.1	711.0	630.9	479.4	163.2
85°	332.5	334.4	392.3	545.3	366.1	206.9	121.6	249.7	390.1	109.9	44.6
87.5°	36.6	33.6	118.2	198.3	101.6	18.8	6.5	28.0	62.5	7.1	0.0
90°	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):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	2180.6	2180.6	2180.6	2180.6	2180.6	2180.6	2180.6	2180.6	2180.6	2180.6	2180.6
2.5°	2331.8	2306.3	2242.5	2175.1	2120.9	2070.1	2019.0	1956.5	1908.1	1898.3	1882.3
5°	2281.9	2201.0	2067.3	1933.1	1825.0	1688.6	1602.1	1534.6	1468.7	1464.7	1451.5
7.5°	2107.7	2001.1	1813.0	1627.3	1475.2	1345.3	1214.1	1126.3	1057.4	1033.0	1018.6
10°	1940.2	1820.4	1585.4	1373.6	1237.8	1123.0	1030.6	938.8	855.7	798.4	772.6
12.5°	1823.2	1690.7	1431.8	1249.2	1151.9	1042.9	930.2	815.7	719.9	650.9	608.7
15°	1777.9	1636.6	1380.4	1199.9	1079.9	941.9	797.8	666.9	560.7	498.2	460.3
17.5°	1831.8	1667.3	1376.4	1139.9	972.1	800.6	641.4	486.8	386.7	339.3	315.0
20°	1968.5	1765.3	1374.8	1066.3	844.0	633.1	434.5	320.2	259.6	233.1	221.7
22.5°	2161.9	1890.3	1387.1	993.6	710.7	452.3	299.9	235.2	204.1	190.0	183.5
25°	2410.6	2065.8	1421.9	927.7	585.3	337.5	233.7	197.1	175.2	164.1	159.5
27.5°	2675.8	2267.8	1476.1	870.5	483.4	269.1	200.1	168.7	153.0	145.3	141.0
30°	2894.4	2501.8	1530.9	806.7	409.5	234.6	183.2	154.0	135.8	130.9	126.9
32.5°	3085.6	2678.8	1569.7	749.2	361.2	208.5	165.7	137.6	125.3	115.8	111.5
35°	3283.6	2826.3	1568.5	708.8	327.9	188.8	150.9	123.2	108.4	97.3	93.9
37.5°	3497.9	2992.9	1541.7	674.3	313.5	173.0	142.6	115.5	100.7	89.6	85.3
40°	3748.8	3167.8	1514.3	642.0	309.5	160.4	136.7	109.3	93.6	82.8	78.5
42.5°	3993.3	3325.5	1490.3	618.0	292.2	160.1	131.5	104.7	88.1	77.6	72.7
45°	4188.8	3472.3	1485.7	603.5	274.0	165.7	128.7	101.6	83.8	73.3	68.7
47.5°	4351.4	3631.8	1515.2	593.3	256.8	151.2	135.5	99.5	79.7	69.6	64.4
50°	4544.8	3827.7	1584.8	576.7	238.6	136.1	155.2	100.1	76.4	65.9	60.4
52.5°	4814.5	4098.6	1687.1	548.7	213.7	122.2	152.7	100.7	72.7	61.9	56.3
55°	5116.9	4437.0	1797.0	502.2	178.9	104.1	130.9	96.4	65.6	57.6	52.3
57.5°	5434.7	4744.0	1862.3	446.8	142.3	89.9	104.7	87.8	57.9	51.7	48.3
60°	5484.5	4860.7	1832.4	378.7	113.0	78.2	77.6	89.3	51.7	45.6	43.1
62.5°	5360.5	4714.1	1688.0	318.1	94.5	68.7	63.7	77.9	46.8	40.6	38.2
65°	5121.8	4317.9	1454.0	286.7	87.8	58.8	53.0	54.8	41.0	35.4	33.3
67.5°	4789.9	3788.9	1193.8	268.8	86.8	50.5	45.3	41.6	35.4	30.8	28.9
70°	4111.3	3156.4	952.4	259.0	84.4	42.5	38.2	33.9	29.6	26.2	24.6
72.5°	3025.9	2236.7	740.8	248.2	85.0	33.9	33.3	28.0	23.7	20.3	19.7
75°	1748.3	1277.8	485.9	201.1	81.0	26.2	27.7	19.7	16.6	14.2	14.2
77.5°	931.7	779.3	185.1	83.8	29.6	16.6	15.7	11.7	10.5	8.6	8.3
80°	406.1	343.0	55.7	23.4	16.3	8.9	5.9	5.2	4.6	3.7	3.4
82.5°	143.8	124.1	18.2	11.4	7.1	0.0	0.0	0.0	0.0	0.0	0.0
85°	32.6	23.4	0.0	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	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):

	185°	195°	205°	215°	225°	235°	245°	255°	265°	270°	275°
0°	2180.6	2180.6	2180.6	2180.6	2180.6	2180.6	2180.6	2180.6	2180.6	2180.6	2180.6
2.5°	1849.6	1842.9	1802.8	1804.4	1811.5	1821.6	1797.6	1808.7	1838.5	1867.2	1878.0
5°	1430.3	1431.8	1407.5	1422.6	1436.1	1445.3	1406.5	1407.2	1430.9	1463.2	1480.1
7.5°	1007.8	1005.3	1006.6	1042.6	1068.1	1049.7	1064.1	1014.0	1017.0	1040.1	1022.9
10°	749.2	715.3	696.2	723.3	751.3	741.1	716.2	699.9	711.3	736.8	735.0
12.5°	588.7	540.1	511.4	492.0	515.1	496.0	495.4	481.3	465.9	468.6	509.6
15°	442.8	407.4	373.5	342.4	341.8	335.3	302.4	265.4	262.3	264.2	285.4
17.5°	304.5	292.5	278.7	251.9	244.8	217.7	185.7	170.9	163.5	166.9	174.0
20°	214.0	209.4	210.9	196.4	186.3	160.4	141.6	135.8	134.6	137.9	141.3
22.5°	177.4	169.0	168.1	161.7	151.5	132.7	122.5	119.2	117.6	120.7	123.2
25°	155.2	146.9	143.5	139.5	128.7	115.8	109.6	106.5	105.0	106.8	108.4
27.5°	136.7	129.0	125.9	123.2	112.7	103.5	98.5	95.8	94.5	95.1	96.7
30°	122.9	116.1	112.1	108.7	99.8	93.3	89.0	86.2	85.0	85.0	86.5
32.5°	108.4	104.7	101.0	96.7	88.4	84.1	79.7	76.7	75.4	75.7	77.0
35°	90.2	89.0	89.9	85.9	78.8	75.1	70.8	67.4	66.5	66.8	68.0
37.5°	80.1	74.5	77.9	75.7	71.7	66.8	61.3	58.2	56.7	57.6	58.2
40°	73.6	66.8	64.4	66.5	65.9	57.9	53.0	49.9	48.7	49.0	49.6
42.5°	68.0	60.0	54.5	54.2	57.9	50.5	45.3	42.5	41.0	41.0	41.6
45°	62.8	54.2	47.4	42.2	48.7	42.8	37.9	35.4	33.6	33.6	33.9
47.5°	58.8	49.3	41.3	34.5	36.6	35.1	31.1	28.6	26.8	26.8	27.1
50°	55.1	44.3	35.7	28.9	27.4	28.9	25.2	22.5	21.2	20.9	21.6
52.5°	51.1	39.4	30.5	24.6	21.6	21.9	19.7	17.9	16.3	16.3	16.9
55°	47.1	35.4	26.5	20.9	17.9	16.3	15.7	14.5	13.2	13.2	13.9
57.5°	43.1	31.1	22.5	17.2	14.2	12.9	12.9	12.0	11.1	11.1	11.7
60°	39.4	26.8	18.5	14.2	11.1	10.8	11.1	10.2	9.5	9.5	10.2
62.5°	35.1	22.8	15.1	11.7	8.9	8.6	9.5	8.9	8.3	8.3	8.9
65°	29.9	19.4	12.0	8.9	6.8	6.8	8.0	7.4	6.8	6.8	7.4
67.5°	25.2	16.3	9.2	6.5	4.9	5.2	6.8	6.2	5.9	5.9	6.5
70°	20.9	12.6	6.5	4.0	2.8	4.0	5.2	5.2	5.2	5.2	5.9
72.5°	15.7	8.6	3.7	1.5	1.2	2.8	4.3	4.9	4.6	4.6	5.5
75°	10.2	4.9	1.2	0.0	0.0	1.5	3.4	4.0	4.0	3.7	4.6
77.5°	5.9	1.5	0.0	0.0	0.0	0.0	2.2	1.8	1.5	1.2	2.2
80°	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	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):

	285°	295°	305°	315°	325°	335°	345°	355°	359°	360°
0°	2180.6	2180.6	2180.6	2180.6	2180.6	2180.6	2180.6	2180.6	2180.6	2180.6
2.5°	1921.4	1957.7	2008.8	2063.0	2146.5	2212.7	2277.6	2333.4	2354.9	2363.8
5°	1520.8	1574.1	1648.9	1744.9	1895.5	2031.0	2168.3	2306.6	2366.6	2381.7
7.5°	1091.2	1159.3	1254.4	1374.8	1551.3	1726.8	1918.6	2121.5	2214.5	2237.9
10°	807.7	890.8	999.8	1126.7	1295.1	1475.5	1684.6	1916.4	2022.7	2053.8
12.5°	573.0	685.4	831.4	985.6	1131.6	1292.6	1504.2	1759.7	1871.2	1904.7
15°	336.5	445.2	618.0	824.6	1011.5	1174.7	1389.6	1679.4	1802.2	1836.1
17.5°	193.1	247.3	377.8	608.1	861.8	1087.9	1353.6	1699.4	1844.1	1875.5
20°	147.5	164.7	217.7	391.7	687.0	1002.6	1353.6	1812.7	1991.0	2037.2
22.5°	129.0	141.6	163.2	233.7	505.6	911.1	1369.3	1976.5	2209.6	2260.7
25°	114.5	125.9	144.4	175.8	344.9	802.4	1406.5	2177.6	2467.0	2533.2
27.5°	102.5	113.3	129.9	154.0	235.9	671.3	1456.7	2413.4	2750.9	2803.9
30°	91.8	101.9	117.0	133.9	182.0	522.5	1499.5	2635.7	2973.8	3030.8
32.5°	81.6	90.8	104.4	117.0	149.0	386.4	1504.2	2811.9	3158.9	3215.5
35°	72.1	80.4	92.7	102.5	123.5	305.1	1432.4	2964.6	3343.9	3418.8
37.5°	62.8	70.8	81.6	89.0	108.7	248.8	1322.8	3134.9	3581.3	3650.6
40°	54.2	61.3	72.4	77.3	102.8	191.2	1203.6	3313.5	3814.1	3877.5
42.5°	46.2	53.0	63.7	73.3	90.2	142.9	1074.9	3481.0	4023.5	4090.0
45°	38.5	45.6	56.3	77.6	74.8	106.8	937.3	3592.1	4188.8	4261.2
47.5°	31.1	39.1	53.9	73.9	59.7	78.5	828.3	3697.4	4314.2	4385.6
50°	24.9	32.9	60.7	65.9	49.0	60.0	782.7	3791.6	4396.4	4465.0
52.5°	20.3	27.7	57.3	50.5	41.0	49.6	807.3	3944.4	4472.4	4515.5
55°	16.9	21.9	34.5	35.1	34.8	42.2	837.8	4163.6	4669.2	4689.5
57.5°	14.8	17.6	24.0	27.1	29.3	37.6	838.4	4478.3	4973.7	4986.3
60°	12.6	15.4	20.0	21.9	25.2	33.6	808.0	4588.2	5093.5	5135.4
62.5°	11.1	13.5	16.6	18.2	21.2	30.2	736.5	4429.0	4929.1	5000.2
65°	9.9	12.3	13.9	15.4	18.8	27.1	618.9	4110.6	4656.3	4730.5
67.5°	8.6	10.8	12.3	13.9	16.9	24.0	455.7	3740.8	4343.1	4404.7
70°	7.7	9.5	11.1	12.3	14.8	20.3	276.5	3174.3	3910.2	3935.7
72.5°	7.4	8.6	10.2	11.1	12.9	17.9	140.1	2332.7	3125.9	3167.5
75°	6.5	7.7	9.2	9.9	11.4	15.4	57.0	1532.2	2265.3	2332.1
77.5°	5.2	7.1	8.3	8.9	9.9	12.6	28.9	979.2	1589.8	1632.9
80°	1.8	5.2	7.1	7.4	8.3	9.2	19.1	536.1	922.2	940.7
82.5°	0.0	3.4	5.5	5.2	5.9	7.1	12.3	255.0	608.7	615.5
85°	0.0	1.5	4.3	3.4	2.5	4.9	4.3	55.7	319.3	332.5
87.5°	0.0	0.0	0.3	1.5	1.2	1.8	0.6	0.3	28.9	36.6
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

INVUE

Report Number: SP1-2104-224-5

Luminaire Tested: CCW-SA-2A-827-U-SL4

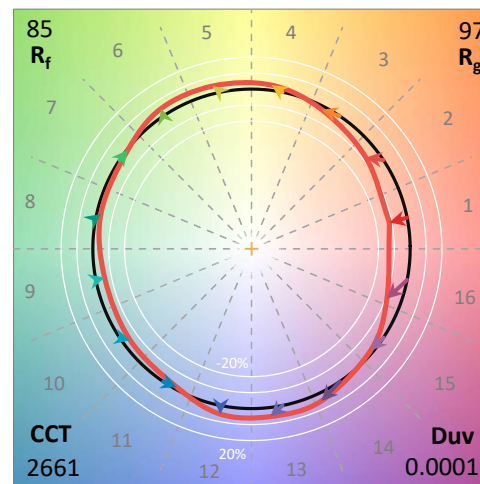
Test Date: 04/27/2021

Test Information

Test Method: LM-79-08
 Report Number: SP1-2104-224-5
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1
 Measurement Geometry: 4π
 Issue Date: 04/27/2021
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: INVUE
 Catalog Number: **CCW-SA-2A-827-U-SL4**
 Description: INVUE WALL PACK ClearCurve Light Square

Spectral Parameters

CCT (K):	2661	CRI (Ra):	82.2		
CIE u':	0.2642	R1:	80.7	R9:	5.2
CIE v':	0.5282	R2:	91.5	R10:	82.2
Duv:	0.0001	R3:	94.9	R11:	81.4
CIE x:	0.4631	R4:	80.7	R12:	80.4
CIE y:	0.4115	R5:	81.5	R13:	83.2
CIE z:	0.1254	R6:	91.6	R14:	97.8
Peak Wavelength (nm):	606	R7:	81.0		
Dominant Wavelength (nm):	584	R8:	56.0		
Purity:	62.8				
Rf:	85.3				
Rg:	96.5				



Test Conditions

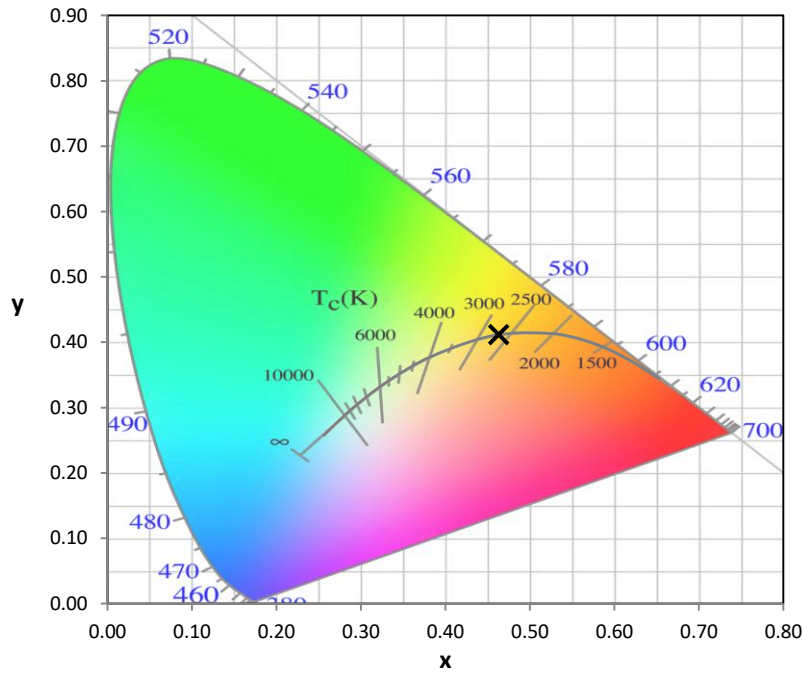
Stabilization Time: 163M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.0/47%
 Sphere Temperature (°C): 24.1

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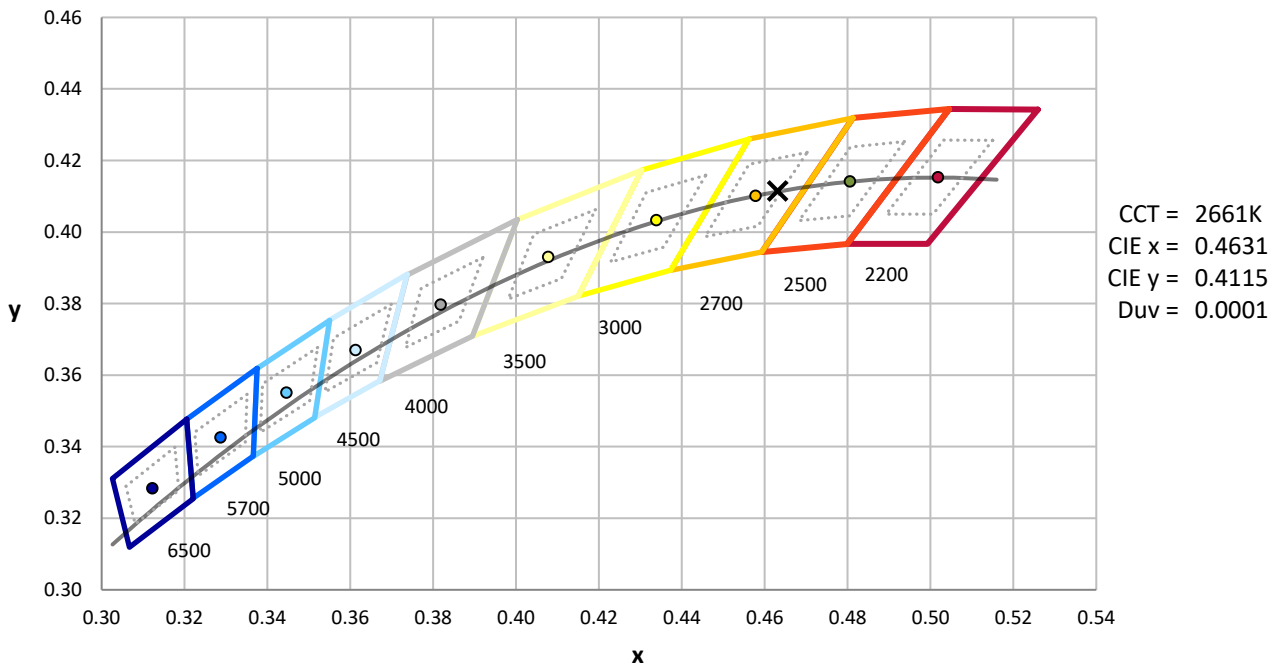
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	1/31/2021	7/31/2021
Power Meter	IN0071	12/1/2020	12/1/2021
AC Power Source	IN0063	12/1/2020	12/1/2021
DC Power Source	IN0208	12/1/2020	12/1/2021
Sphere Thermometer	IN0085	12/1/2020	12/1/2021
Room Thermometer	IN0046	12/1/2020	12/1/2021

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CIE 1931 Chromaticity Diagram



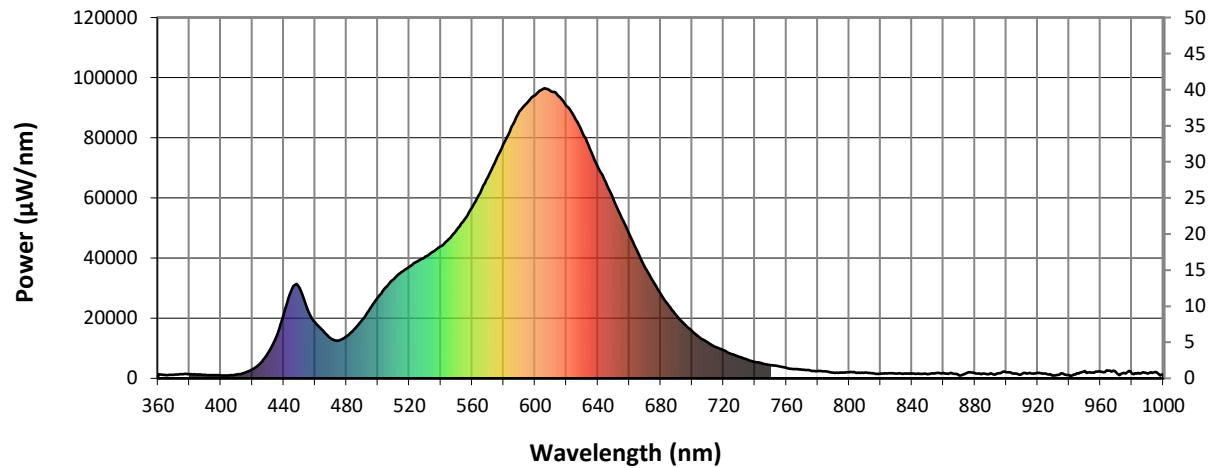
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 2700K 4-step quadrangle

REPORT NUMBER: SP1-2104-224-5

Photopic Flux vs. Wavelength

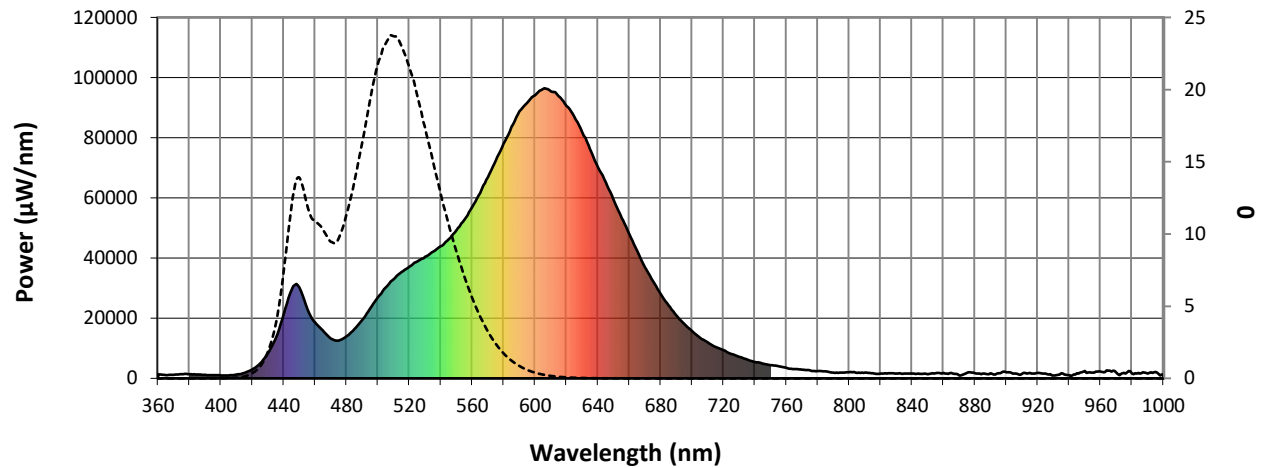


#####

λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)
360	1379	0.0	490	19477	2.8	620	90616	23.6	750	4384	0.0	880	1655	0.0
365	1114	0.0	495	23200	4.2	625	87050	19.2	755	4013	0.0	885	1597	0.0
370	1169	0.0	500	26999	6.0	630	81805	14.8	760	3486	0.0	890	1696	0.0
375	1418	0.0	505	30185	8.4	635	76273	11.5	765	3111	0.0	895	1694	0.0
380	1358	0.0	510	33025	11.3	640	70276	8.4	770	2922	0.0	900	2016	0.0
385	1234	0.0	515	35307	14.6	645	65174	6.3	775	2649	0.0	905	1631	0.0
390	1133	0.0	520	37140	18.0	650	59417	4.3	780	2399	0.0	910	1506	0.0
395	1066	0.0	525	38834	20.8	655	53417	3.1	785	2386	0.0	915	1763	0.0
400	982	0.0	530	40401	23.8	660	48038	2.0	790	1912	0.0	920	1860	0.0
405	996	0.0	535	42121	26.1	665	42350	1.3	795	1902	0.0	925	1612	0.0
410	1276	0.0	540	43918	28.6	670	36925	0.8	800	2023	0.0	930	976	0.0
415	1798	0.0	545	46244	30.8	675	32385	0.5	805	1813	0.0	935	1702	0.0
420	2943	0.0	550	49225	33.5	680	28089	0.3	810	1888	0.0	940	1083	0.0
425	4989	0.0	555	52758	36.0	685	24306	0.2	815	1669	0.0	945	1672	0.0
430	8360	0.1	560	56904	38.7	690	20941	0.1	820	1558	0.0	950	2462	0.0
435	13537	0.2	565	61643	41.0	695	18065	0.1	825	1689	0.0	955	1958	0.0
440	21265	0.3	570	66872	43.5	700	15715	0.0	830	1632	0.0	960	2236	0.0
445	29496	0.6	575	72519	45.1	705	13502	0.0	835	1615	0.0	965	2541	0.0
450	30225	0.8	580	78030	46.4	710	11899	0.0	840	1583	0.0	970	1960	0.0
455	23120	0.8	585	83595	46.4	715	10427	0.0	845	1541	0.0	975	1763	0.0
460	18596	0.8	590	88814	45.9	720	9351	0.0	850	1350	0.0	980	1627	0.0
465	15865	0.8	595	91588	43.4	725	8139	0.0	855	1689	0.0	985	1556	0.0
470	13251	0.8	600	94210	40.6	730	7143	0.0	860	1763	0.0	990	1638	0.0
475	12609	1.0	605	96240	37.3	735	6273	0.0	865	1765	0.0	995	2124	0.0
480	14016	1.3	610	95474	32.8	740	5462	0.0	870	942	0.0	1000	1228	0.0
485	16368	1.9	615	93812	28.3	745	4946	0.0	875	1844	0.0			

REPORT NUMBER: SP1-2104-224-5

Scotopic Flux vs. Wavelength



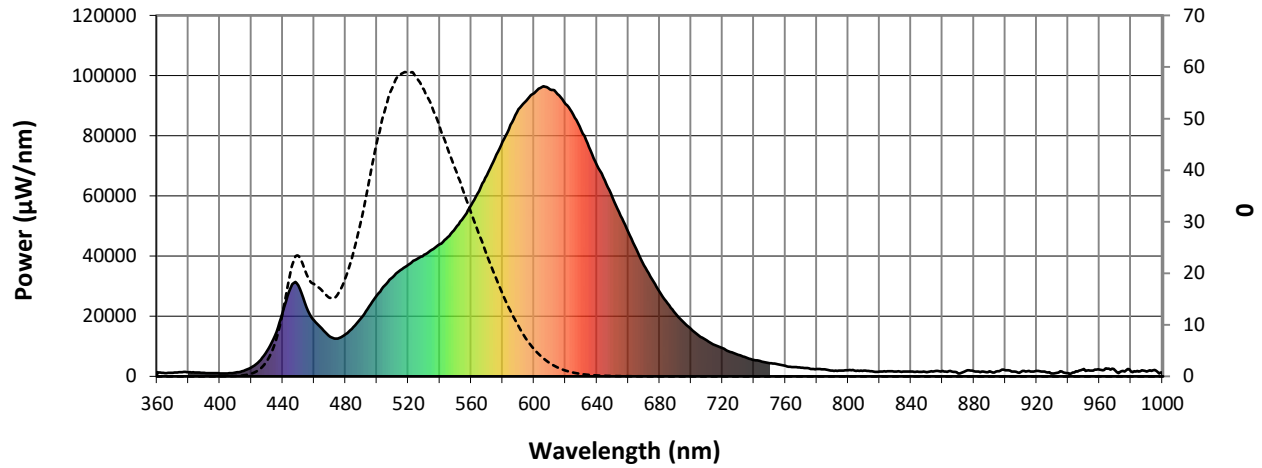
Scotopic Lumens: 5165.4

S/P: 1.2

λ (nm)	Power ($\mu\text{W/nm}$)	Lumens (Φ/nm)	λ (nm)	Power ($\mu\text{W/nm}$)	Lumens (Φ/nm)	λ (nm)	Power ($\mu\text{W/nm}$)	Lumens (Φ/nm)	λ (nm)	Power ($\mu\text{W/nm}$)	Lumens (Φ/nm)	λ (nm)	Power ($\mu\text{W/nm}$)	Lumens (Φ/nm)
360	1379	0.0	490	19477	30.0	620	90616	1.1	750	4384	0.0	880	1655	0.0
365	1114	0.0	495	23200	37.5	625	87050	0.7	755	4013	0.0	885	1597	0.0
370	1169	0.0	500	26999	45.2	630	81805	0.5	760	3486	0.0	890	1696	0.0
375	1418	0.0	505	30185	51.3	635	76273	0.3	765	3111	0.0	895	1694	0.0
380	1358	0.0	510	33025	56.0	640	70276	0.2	770	2922	0.0	900	2016	0.0
385	1234	0.0	515	35307	58.5	645	65174	0.1	775	2649	0.0	905	1631	0.0
390	1133	0.0	520	37140	59.0	650	59417	0.1	780	2399	0.0	910	1506	0.0
395	1066	0.0	525	38834	58.1	655	53417	0.0	785	2386	0.0	915	1763	0.0
400	982	0.0	530	40401	55.7	660	48038	0.0	790	1912	0.0	920	1860	0.0
405	996	0.0	535	42121	52.5	665	42350	0.0	795	1902	0.0	925	1612	0.0
410	1276	0.1	540	43918	48.5	670	36925	0.0	800	2023	0.0	930	976	0.0
415	1798	0.2	545	46244	44.3	675	32385	0.0	805	1813	0.0	935	1702	0.0
420	2943	0.5	550	49225	40.3	680	28089	0.0	810	1888	0.0	940	1083	0.0
425	4989	1.2	555	52758	36.1	685	24306	0.0	815	1669	0.0	945	1672	0.0
430	8360	2.8	560	56904	31.8	690	20941	0.0	820	1558	0.0	950	2462	0.0
435	13537	6.1	565	61643	27.7	695	18065	0.0	825	1689	0.0	955	1958	0.0
440	21265	11.9	570	66872	23.6	700	15715	0.0	830	1632	0.0	960	2236	0.0
445	29496	19.8	575	72519	19.7	705	13502	0.0	835	1615	0.0	965	2541	0.0
450	30225	23.4	580	78030	16.1	710	11899	0.0	840	1583	0.0	970	1960	0.0
455	23120	20.2	585	83595	12.8	715	10427	0.0	845	1541	0.0	975	1763	0.0
460	18596	18.0	590	88814	9.9	720	9351	0.0	850	1350	0.0	980	1627	0.0
465	15865	16.8	595	91588	7.3	725	8139	0.0	855	1689	0.0	985	1556	0.0
470	13251	15.3	600	94210	5.3	730	7143	0.0	860	1763	0.0	990	1638	0.0
475	12609	15.8	605	96240	3.8	735	6273	0.0	865	1765	0.0	995	2124	0.0
480	14016	18.9	610	95474	2.6	740	5462	0.0	870	942	0.0	1000	1228	0.0
485	16368	23.7	615	93812	1.7	745	4946	0.0	875	1844	0.0			

REPORT NUMBER: SP1-2104-224-5

Melanopic Flux vs. Wavelength


Melanopic Lumens: 1892.1 M/P: 0.44

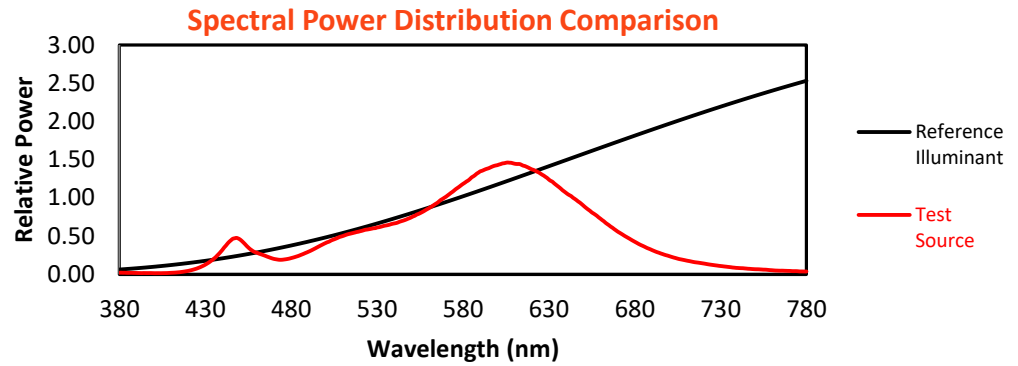
λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)
360	1379	0.0	490	19477	16.2	620	90616	0.1	750	4384	0.0	880	1655	0.0
365	1114	0.0	495	23200	19.2	625	87050	0.0	755	4013	0.0	885	1597	0.0
370	1169	0.0	500	26999	21.7	630	81805	0.0	760	3486	0.0	890	1696	0.0
375	1418	0.0	505	30185	23.2	635	76273	0.0	765	3111	0.0	895	1694	0.0
380	1358	0.0	510	33025	23.7	640	70276	0.0	770	2922	0.0	900	2016	0.0
385	1234	0.0	515	35307	23.1	645	65174	0.0	775	2649	0.0	905	1631	0.0
390	1133	0.0	520	37140	21.6	650	59417	0.0	780	2399	0.0	910	1506	0.0
395	1066	0.0	525	38834	19.7	655	53417	0.0	785	2386	0.0	915	1763	0.0
400	982	0.0	530	40401	17.5	660	48038	0.0	790	1912	0.0	920	1860	0.0
405	996	0.0	535	42121	15.2	665	42350	0.0	795	1902	0.0	925	1612	0.0
410	1276	0.0	540	43918	12.9	670	36925	0.0	800	2023	0.0	930	976	0.0
415	1798	0.1	545	46244	10.7	675	32385	0.0	805	1813	0.0	935	1702	0.0
420	2943	0.3	550	49225	8.8	680	28089	0.0	810	1888	0.0	940	1083	0.0
425	4989	0.8	555	52758	7.1	685	24306	0.0	815	1669	0.0	945	1672	0.0
430	8360	1.8	560	56904	5.6	690	20941	0.0	820	1558	0.0	950	2462	0.0
435	13537	3.6	565	61643	4.3	695	18065	0.0	825	1689	0.0	955	1958	0.0
440	21265	7.1	570	66872	3.3	700	15715	0.0	830	1632	0.0	960	2236	0.0
445	29496	11.6	575	72519	2.4	705	13502	0.0	835	1615	0.0	965	2541	0.0
450	30225	13.9	580	78030	1.7	710	11899	0.0	840	1583	0.0	970	1960	0.0
455	23120	12.1	585	83595	1.2	715	10427	0.0	845	1541	0.0	975	1763	0.0
460	18596	11.0	590	88814	0.9	720	9351	0.0	850	1350	0.0	980	1627	0.0
465	15865	10.4	595	91588	0.6	725	8139	0.0	855	1689	0.0	985	1556	0.0
470	13251	9.5	600	94210	0.4	730	7143	0.0	860	1763	0.0	990	1638	0.0
475	12609	9.6	605	96240	0.3	735	6273	0.0	865	1765	0.0	995	2124	0.0
480	14016	11.3	610	95474	0.2	740	5462	0.0	870	942	0.0	1000	1228	0.0
485	16368	13.5	615	93812	0.1	745	4946	0.0	875	1844	0.0			

REPORT NUMBER: SP1-2104-224-5

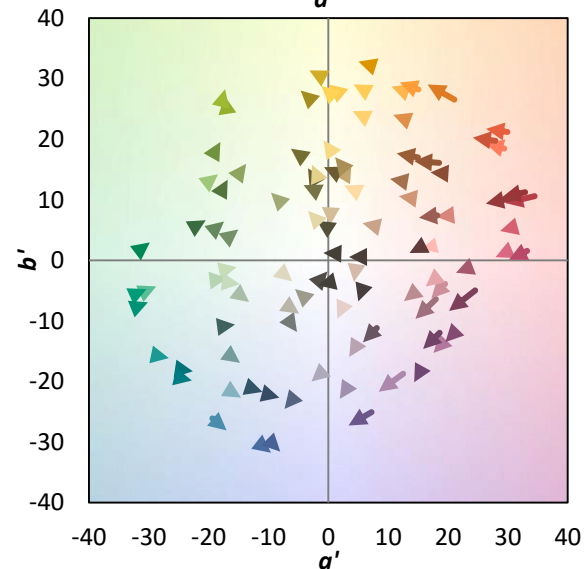
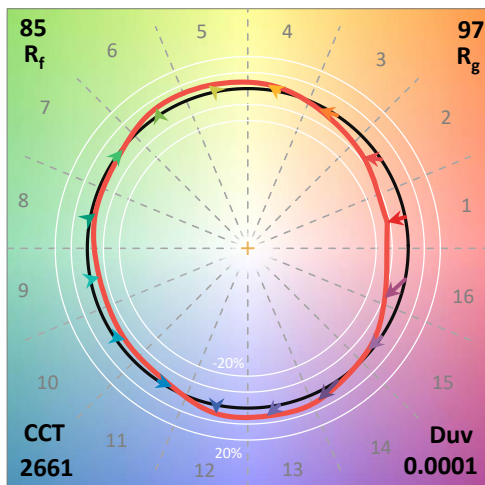
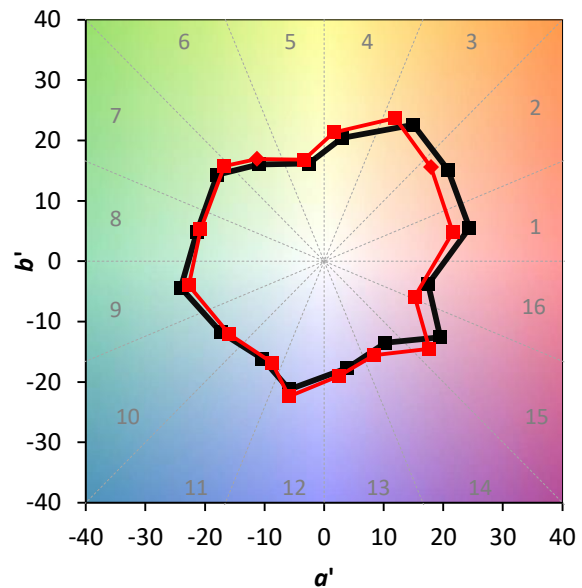
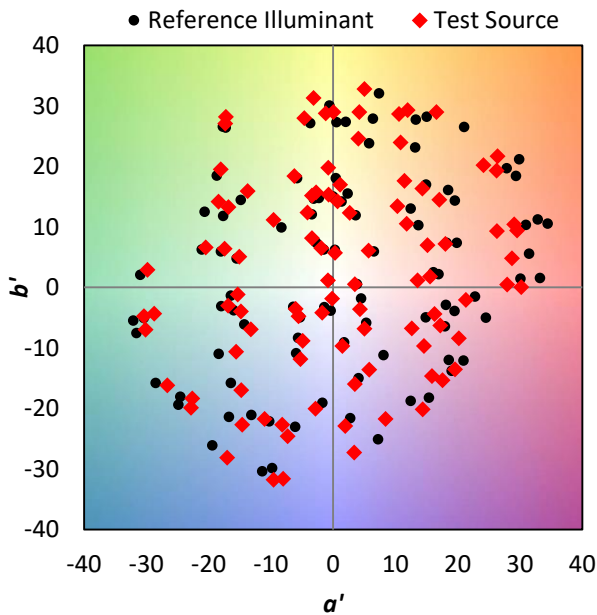
TM-30-18

Summary

$R_f = 85.3$
 $R_g = 96.5$
 CIE $R_a = 82.2$
 $R_9 = 5.2$

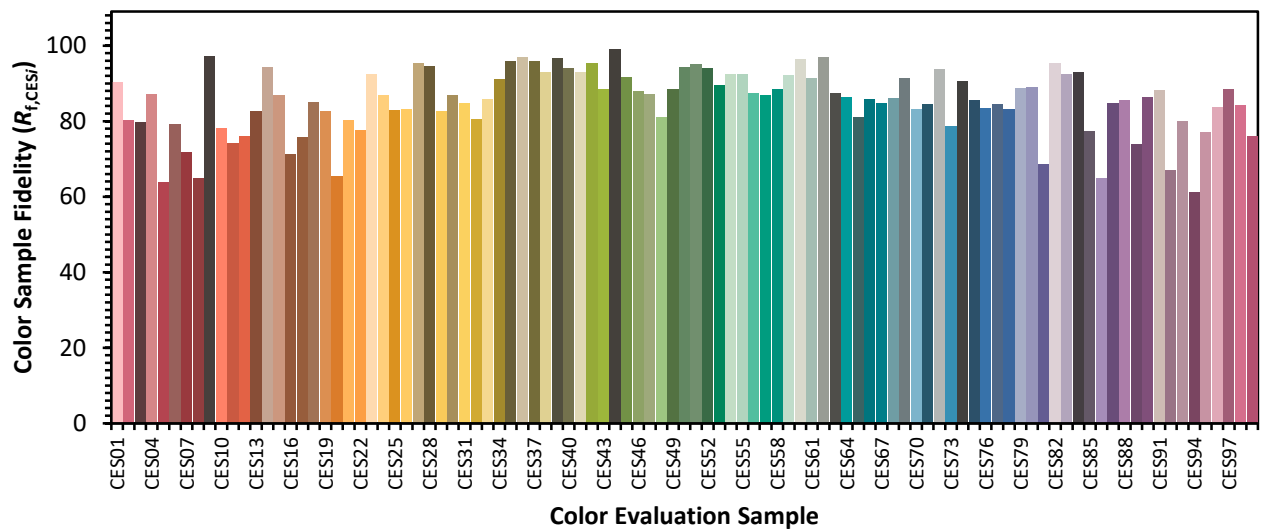


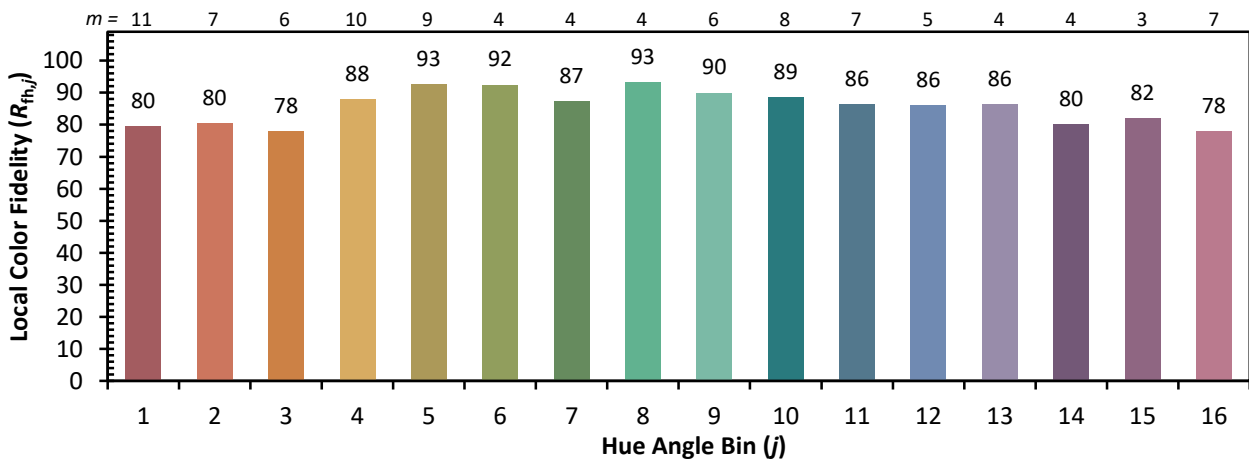
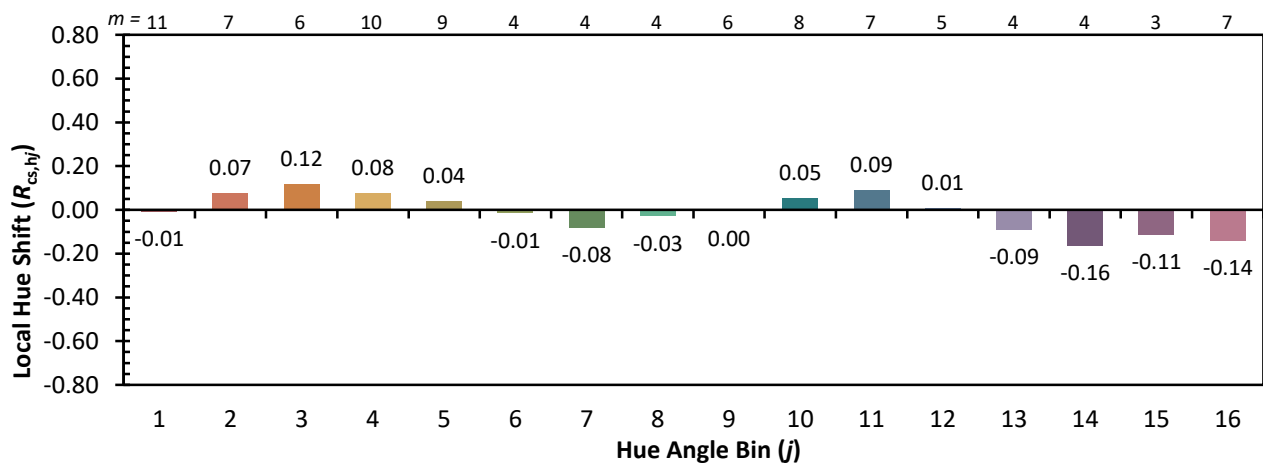
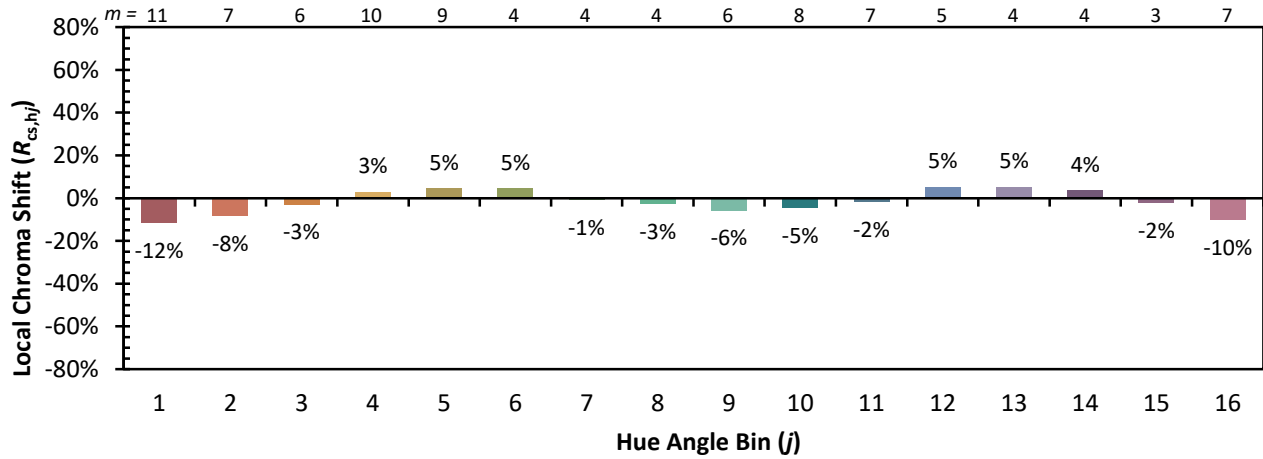
Color Vector Graphics



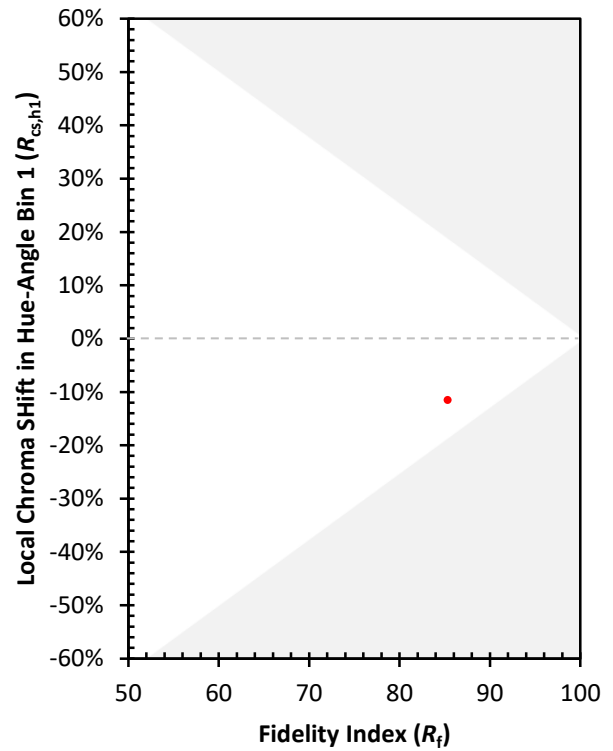
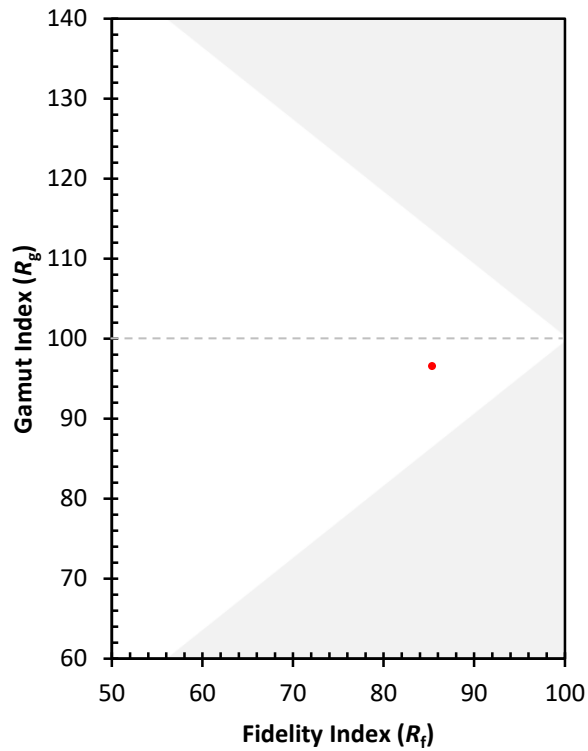
Individual Sample Fidelity Index ($R_{f,i}$)

CES01 = 87	CES26 = 83	CES51 = 95	CES76 = 83
CES02 = 64	CES27 = 95	CES52 = 94	CES77 = 85
CES03 = 32	CES28 = 95	CES53 = 89	CES78 = 83
CES04 = 71	CES29 = 83	CES54 = 92	CES79 = 89
CES05 = 51	CES30 = 87	CES55 = 92	CES80 = 89
CES06 = 52	CES31 = 85	CES56 = 87	CES81 = 69
CES07 = 43	CES32 = 81	CES57 = 87	CES82 = 95
CES08 = 42	CES33 = 86	CES58 = 88	CES83 = 92
CES09 = 29	CES34 = 91	CES59 = 92	CES84 = 93
CES10 = 77	CES35 = 96	CES60 = 96	CES85 = 77
CES11 = 60	CES36 = 97	CES61 = 91	CES86 = 65
CES12 = 66	CES37 = 96	CES62 = 97	CES87 = 85
CES13 = 44	CES38 = 93	CES63 = 87	CES88 = 85
CES14 = 74	CES39 = 97	CES64 = 86	CES89 = 74
CES15 = 72	CES40 = 94	CES65 = 81	CES90 = 86
CES16 = 48	CES41 = 93	CES66 = 86	CES91 = 88
CES17 = 50	CES42 = 95	CES67 = 85	CES92 = 67
CES18 = 57	CES43 = 88	CES68 = 86	CES93 = 80
CES19 = 73	CES44 = 99	CES69 = 91	CES94 = 61
CES20 = 67	CES45 = 92	CES70 = 83	CES95 = 77
CES21 = 87	CES46 = 88	CES71 = 85	CES96 = 84
CES22 = 80	CES47 = 87	CES72 = 94	CES97 = 88
CES23 = 92	CES48 = 81	CES73 = 79	CES98 = 84
CES24 = 91	CES49 = 88	CES74 = 90	CES99 = 76
CES25 = 72	CES50 = 94	CES75 = 86	



Color Rendition by Hue-Angle Bin


Measure Comparisons



(END OF REPORT)