

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: P385942

Luminaire Tested: **GWC-SA1C-740-U-SLL-HSS**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P385942
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-SA1C-740-U-SLL-HSS
Description: GALLEON WALL LUMINAIRE
(1) 70 CRI, 4000K, 1050mA LIGHTSQUARE WITH 16 LEDS AND SPILL LIGHT
ELIMINATOR LEFT OPTICS WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5601 lumens
Efficiency: N/A
Efficacy: 94.9 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type III - Medium
BUG Rating: B1 - U0 - G2

Input Watts (W): 59
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

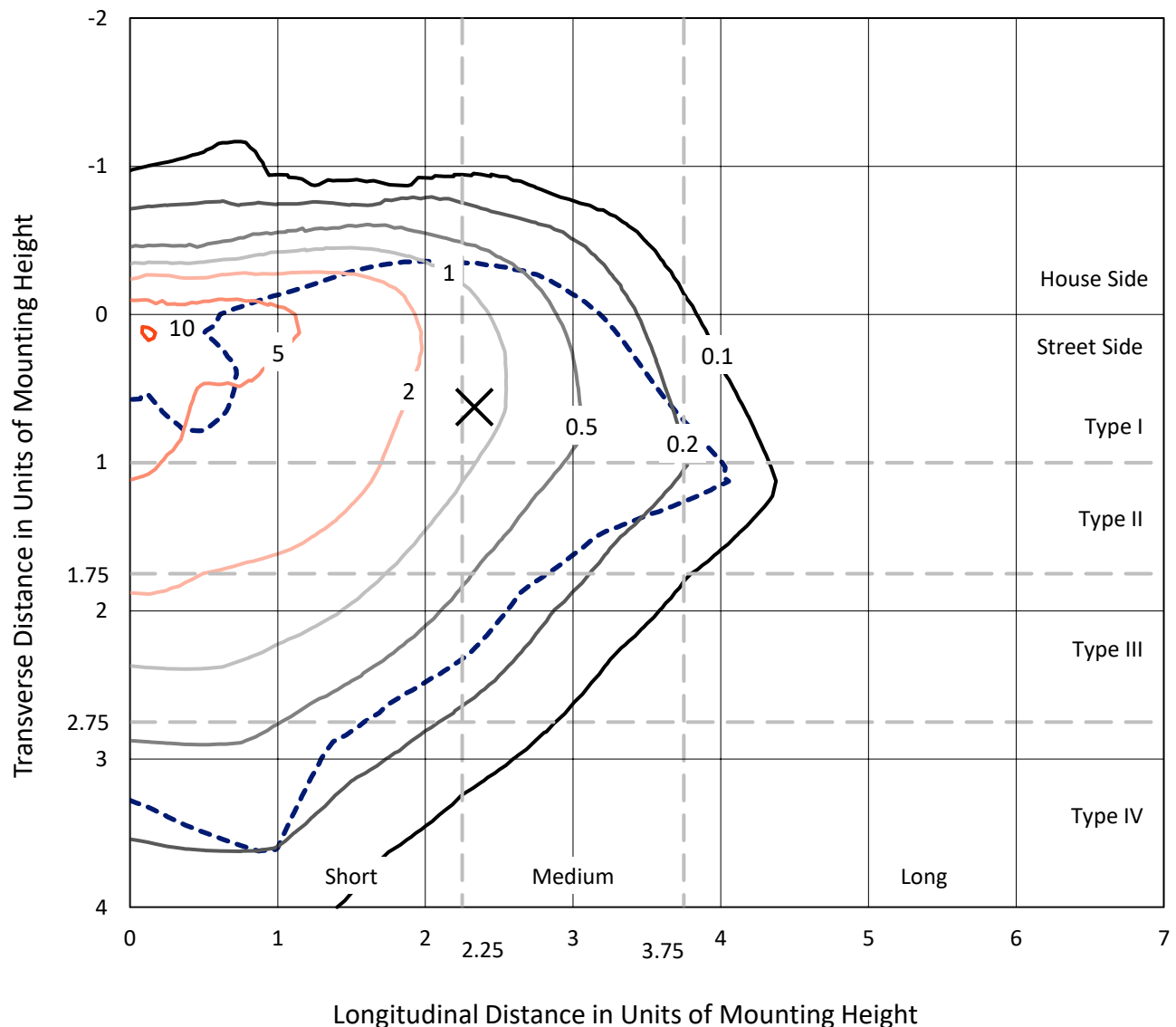


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Iso-Footcandle Lines of Horizontal Illumination

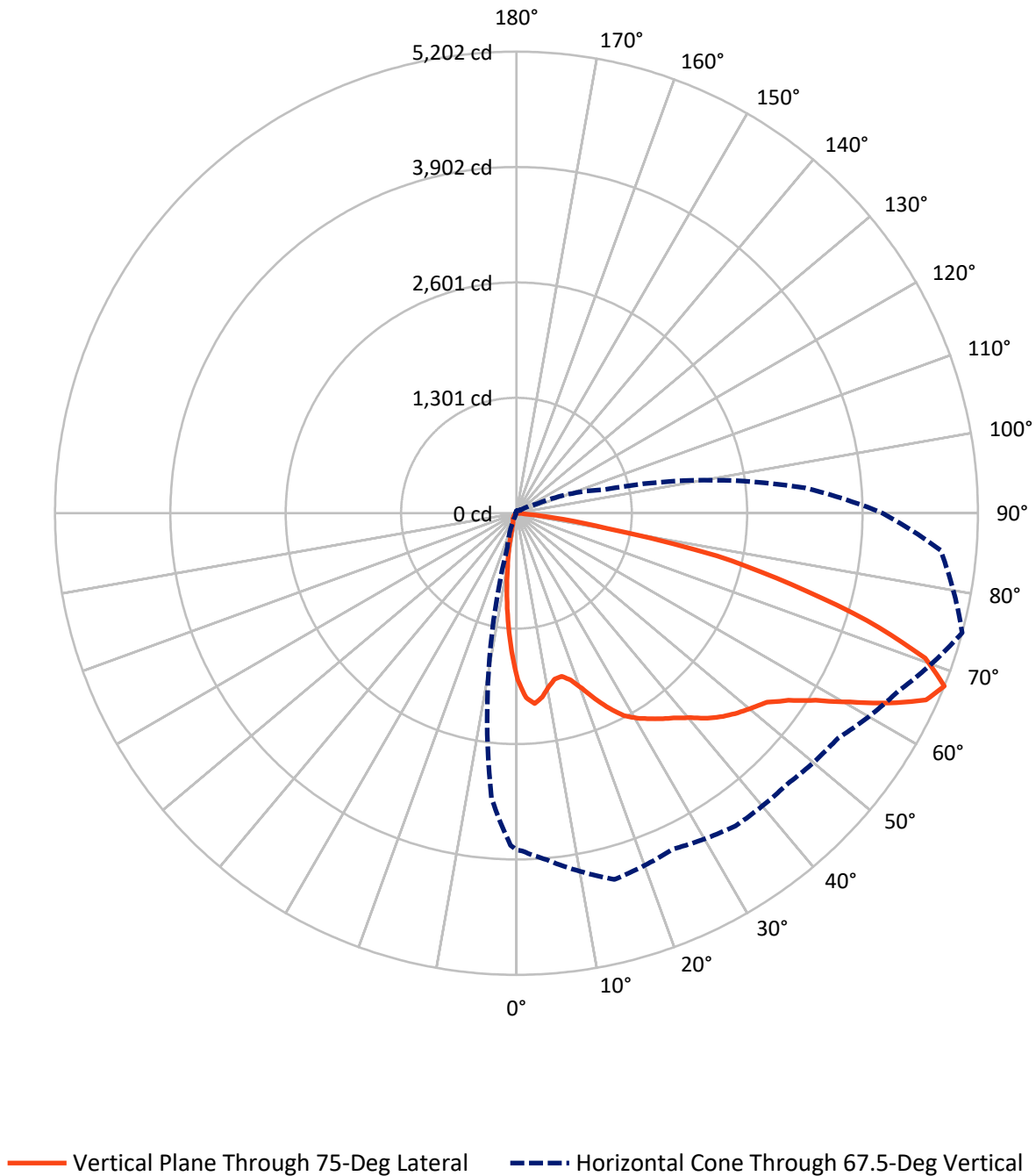
× Max cd
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 10.8 fc
 Type III - Medium - N/A

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Luminous Intensity Polar Plot



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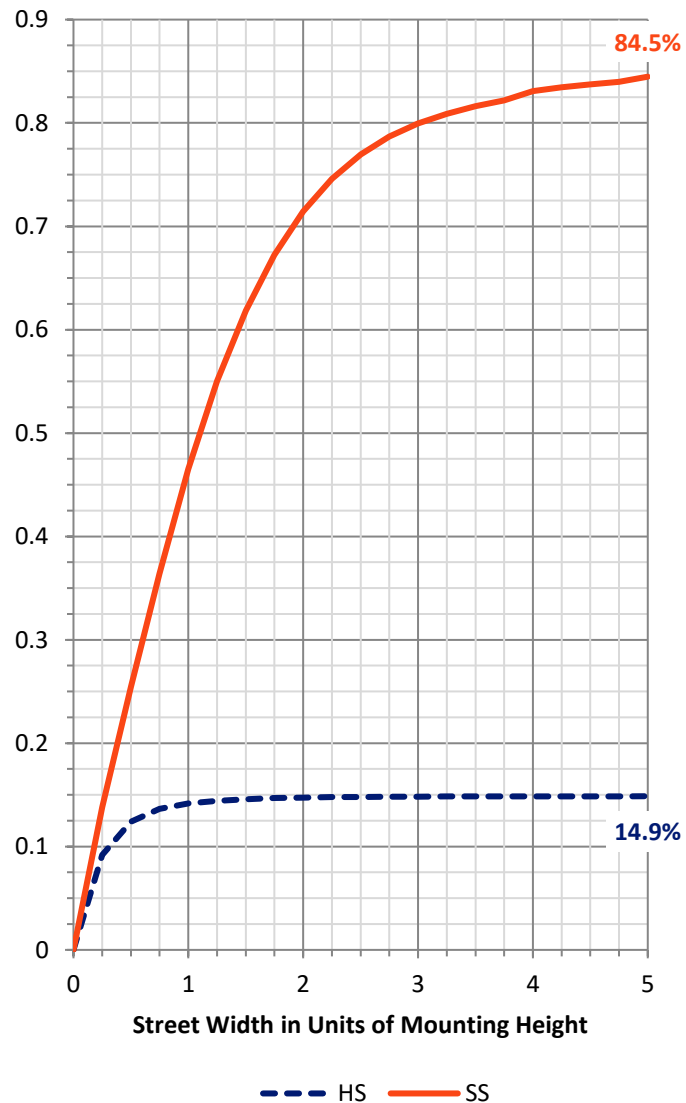
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	840.5	0.0	840.5
	% Fixture	15.0	0.0	15.0
Street Side	Lumens	4760.5	0.0	4760.5
	% Fixture	85.0	0.0	85.0
Total	Lumens	5601.0	0.0	5601.0
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	142.5	2.5
10°-20°	280.7	5.0
20°-30°	397.0	7.1
30°-40°	583.8	10.4
40°-50°	839.1	15.0
50°-60°	1181.2	21.1
60°-70°	1379.5	24.6
70°-80°	703.8	12.6
80°-90°	93.5	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°	5601.0	100.0
0°-180°	5601.0	100.0

Coefficient of Utilization



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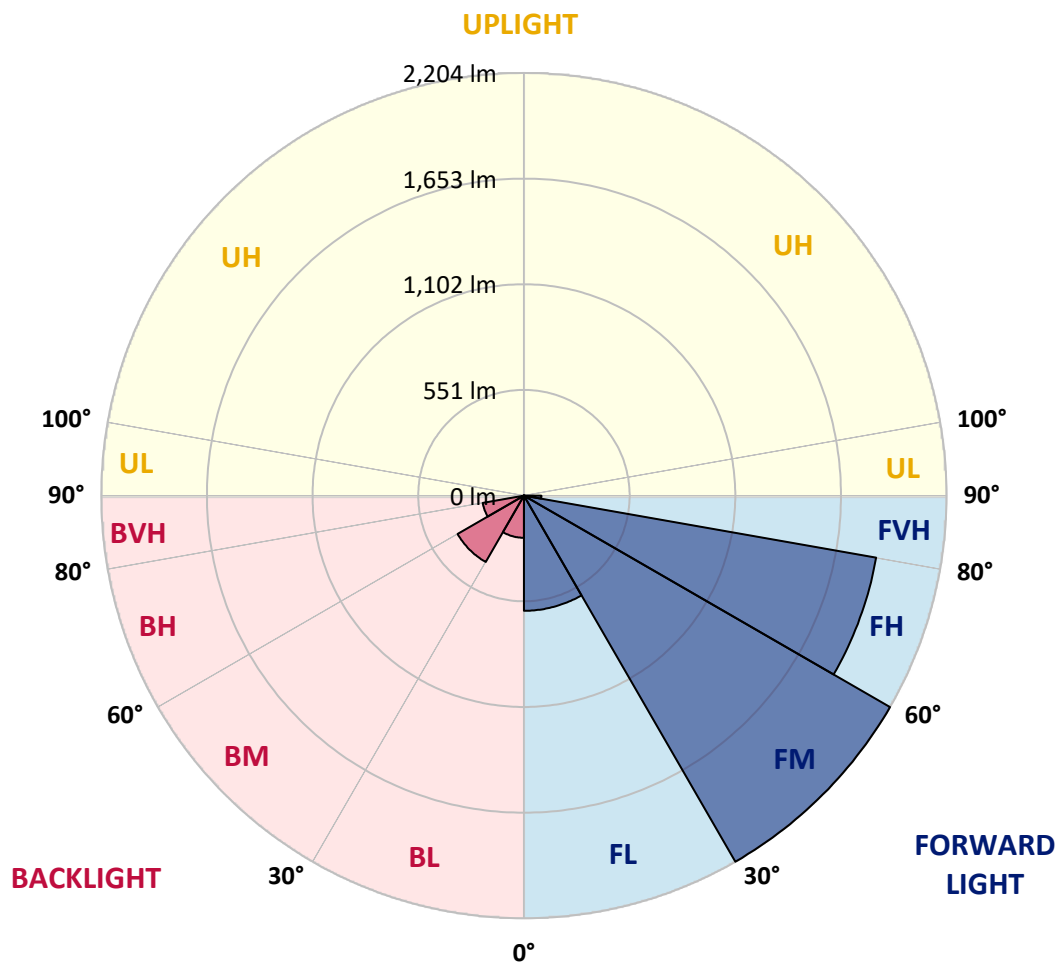
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	600.4	10.7			
FM	(30°-60°)	2204.5	39.4			
FH	(60°-80°)	1865.0	33.3			G2/5000
FVH	(80°-90°)	90.7	1.6			G1/100
BL	(0°-30°)	219.8	3.9	B1/500		
BM	(30°-60°)	399.5	7.1	B1/1000		
BH	(60°-80°)	218.3	3.9	B1/500		G1/500
BVH	(80°-90°)	2.8	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°	1879.0	1879.0	1879.0	1879.0	1879.0	1879.0	1879.0	1879.0	1879.0	1879.0	1879.0
2.5°	2036.9	2040.1	2056.5	2094.7	2136.4	2139.6	2167.7	2138.8	2129.0	2082.3	2034.0
5°	2052.3	2064.5	2121.0	2233.3	2330.6	2361.9	2384.2	2327.4	2267.7	2153.7	2031.9
7.5°	1928.4	1948.8	2037.7	2248.4	2422.4	2499.4	2514.0	2425.1	2278.9	2091.0	1908.0
10°	1769.7	1793.1	1900.3	2159.2	2398.3	2530.2	2550.3	2433.8	2223.7	1989.7	1774.0
12.5°	1641.3	1668.6	1778.2	2058.9	2315.2	2461.2	2501.0	2404.4	2175.9	1917.8	1682.4
15°	1582.1	1613.4	1728.6	1994.2	2223.2	2338.1	2371.0	2329.3	2149.4	1906.4	1661.2
17.5°	1616.1	1650.1	1768.9	1999.8	2136.7	2185.8	2212.3	2229.3	2149.4	1975.1	1723.3
20°	1755.4	1792.0	1917.8	2056.3	2065.0	2046.7	2075.1	2134.8	2174.3	2105.6	1872.4
22.5°	1948.0	1991.0	2133.0	2153.1	2030.0	1960.8	1964.5	2058.1	2219.7	2271.2	2079.4
25°	2182.8	2235.4	2379.7	2297.5	2044.6	1909.6	1908.2	1995.0	2264.0	2437.0	2309.9
27.5°	2416.1	2473.9	2600.7	2473.6	2104.8	1900.3	1897.6	1975.9	2307.3	2584.5	2561.7
30°	2611.6	2667.9	2777.2	2601.3	2169.8	1922.0	1909.3	1996.3	2333.0	2680.3	2745.3
32.5°	2770.8	2815.9	2904.3	2689.1	2239.4	1964.2	1936.6	2051.0	2376.8	2761.2	2914.1
35°	2945.9	2993.4	3028.7	2772.7	2317.4	2025.0	1985.4	2137.7	2444.2	2843.5	3099.0
37.5°	3145.7	3192.9	3188.7	2849.1	2416.3	2125.5	2100.3	2275.2	2549.0	2925.0	3305.4
40°	3341.3	3389.5	3355.0	2932.6	2532.5	2291.4	2272.8	2481.6	2689.3	3029.2	3547.4
42.5°	3524.3	3576.6	3502.8	3011.7	2671.0	2500.4	2532.3	2747.5	2865.0	3157.6	3756.0
45°	3671.8	3725.2	3626.7	3088.7	2817.0	2754.1	2849.9	3042.0	3076.2	3266.2	3896.8
47.5°	3779.0	3829.5	3712.7	3165.6	3003.8	3064.3	3231.1	3350.8	3267.0	3360.4	3996.9
50°	3847.5	3886.8	3737.9	3261.9	3248.9	3426.2	3628.3	3686.7	3446.6	3445.3	4118.4
52.5°	3891.0	3908.8	3756.5	3362.5	3504.7	3820.2	4017.3	4035.6	3631.5	3538.7	4282.1
55°	4040.9	4055.2	3888.1	3484.3	3716.2	4165.4	4369.1	4352.1	3840.9	3721.5	4475.3
57.5°	4296.7	4311.8	4160.0	3659.4	3887.3	4378.7	4624.1	4654.6	4086.3	3978.3	4682.2
60°	4425.1	4453.2	4399.1	3881.2	4053.1	4515.1	4797.9	4895.3	4393.0	4316.9	4882.8
62.5°	4308.6	4349.5	4428.0	4127.1	4217.9	4590.1	4852.0	4981.5	4707.2	4711.4	5006.4
65°	4076.2	4108.8	4242.0	4261.9	4313.4	4580.9	4718.3	4861.0	4899.5	5073.8	4999.8
67.5°	3795.5	3807.7	3920.7	4272.5	4174.9	4301.7	4316.6	4422.2	4747.5	5202.2	4799.0
70°	3391.4	3398.0	3496.7	3917.3	3587.7	3615.6	3593.6	3615.1	4081.5	4889.4	4291.9
72.5°	2729.4	2746.1	2886.5	3253.2	2613.7	2533.3	2706.3	2696.8	3143.3	4130.9	3187.6
75°	2009.6	2038.5	2250.5	2620.4	1834.5	1659.3	1785.6	1819.3	2234.6	3195.3	1993.4
77.5°	1407.0	1428.5	1633.9	1926.3	1327.7	1186.5	1140.9	1181.0	1474.9	2311.5	1004.3
80°	810.6	818.5	949.6	1112.2	894.7	1023.6	927.3	954.9	883.8	1028.4	432.0
82.5°	530.4	531.7	582.9	662.0	557.2	647.4	479.2	612.6	543.7	413.1	140.6
85°	286.6	288.1	338.0	469.9	315.5	178.3	104.8	215.2	336.2	94.7	38.5
87.5°	31.6	28.9	101.9	170.9	87.6	16.2	5.6	24.1	53.9	6.1	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°	1879.0	1879.0	1879.0	1879.0	1879.0	1879.0	1879.0	1879.0	1879.0	1879.0	1879.0
2.5°	2009.3	1987.3	1932.4	1874.3	1827.6	1783.8	1739.7	1685.9	1644.2	1635.7	1621.9
5°	1966.3	1896.6	1781.4	1665.7	1572.6	1455.0	1380.5	1322.4	1265.6	1262.2	1250.7
7.5°	1816.2	1724.4	1562.2	1402.2	1271.2	1159.2	1046.2	970.6	911.1	890.2	877.7
10°	1671.8	1568.6	1366.2	1183.6	1066.6	967.6	888.0	809.0	737.3	688.0	665.7
12.5°	1571.0	1456.9	1233.8	1076.4	992.6	898.7	801.6	702.8	620.3	560.9	524.5
15°	1532.0	1410.2	1189.5	1034.0	930.5	811.6	687.5	574.7	483.2	429.3	396.7
17.5°	1578.4	1436.7	1186.0	982.2	837.6	689.8	552.7	419.5	333.2	292.4	271.4
20°	1696.2	1521.1	1184.7	918.8	727.3	545.5	374.4	275.9	223.7	200.9	191.0
22.5°	1862.9	1628.8	1195.3	856.2	612.4	389.8	258.4	202.7	175.9	163.7	158.1
25°	2077.2	1780.1	1225.3	799.4	504.4	290.8	201.4	169.8	151.0	141.4	137.4
27.5°	2305.7	1954.1	1272.0	750.1	416.6	231.9	172.5	145.4	131.9	125.2	121.5
30°	2494.1	2155.8	1319.2	695.2	352.9	202.2	157.9	132.7	117.0	112.8	109.3
32.5°	2658.8	2308.3	1352.6	645.5	311.2	179.6	142.7	118.6	108.0	99.8	96.0
35°	2829.4	2435.4	1351.6	610.8	282.6	162.6	130.0	106.1	93.4	83.8	80.9
37.5°	3014.1	2579.0	1328.5	581.1	270.1	149.1	122.8	99.5	86.8	77.2	73.5
40°	3230.3	2729.7	1304.9	553.2	266.7	138.2	117.8	94.2	80.7	71.4	67.7
42.5°	3441.0	2865.5	1284.2	532.5	251.8	138.0	113.3	90.2	75.9	66.9	62.6
45°	3609.5	2992.1	1280.2	520.0	236.1	142.7	110.9	87.6	72.2	63.1	59.2
47.5°	3749.6	3129.5	1305.7	511.3	221.3	130.3	116.7	85.7	68.7	60.0	55.5
50°	3916.2	3298.3	1365.6	497.0	205.6	117.3	133.7	86.2	65.8	56.8	52.0
52.5°	4148.6	3531.8	1453.7	472.8	184.1	105.3	131.6	86.8	62.6	53.3	48.6
55°	4409.2	3823.3	1548.4	432.7	154.2	89.7	112.8	83.0	56.5	49.6	45.1
57.5°	4683.0	4087.9	1604.7	385.0	122.6	77.5	90.2	75.6	49.9	44.6	41.7
60°	4726.0	4188.4	1579.0	326.4	97.4	67.4	66.9	76.9	44.6	39.3	37.1
62.5°	4619.1	4062.1	1454.5	274.1	81.5	59.2	54.9	67.1	40.3	35.0	32.9
65°	4413.4	3720.7	1252.9	247.0	75.6	50.7	45.6	47.2	35.3	30.5	28.7
67.5°	4127.4	3264.8	1028.7	231.6	74.8	43.5	39.0	35.8	30.5	26.5	24.9
70°	3542.6	2719.9	820.7	223.1	72.7	36.6	32.9	29.2	25.5	22.6	21.2
72.5°	2607.4	1927.3	638.4	213.9	73.2	29.2	28.7	24.1	20.4	17.5	17.0
75°	1506.5	1101.1	418.7	173.3	69.8	22.6	23.9	17.0	14.3	12.2	12.2
77.5°	802.9	671.5	159.5	72.2	25.5	14.3	13.5	10.1	9.0	7.4	7.2
80°	350.0	295.6	48.0	20.2	14.1	7.7	5.0	4.5	4.0	3.2	2.9
82.5°	123.9	106.9	15.7	9.8	6.1	0.0	0.0	0.0	0.0	0.0	0.0
85°	28.1	20.2	0.0	2.4	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°	1879.0	1879.0	1879.0	1879.0	1879.0	1879.0	1879.0	1879.0	1879.0	1879.0	1879.0
2.5°	1593.8	1588.0	1553.5	1554.8	1560.9	1569.7	1549.0	1558.5	1584.3	1608.9	1618.2
5°	1232.4	1233.8	1212.8	1225.8	1237.5	1245.4	1212.0	1212.5	1233.0	1260.8	1275.4
7.5°	868.4	866.3	867.4	898.4	920.4	904.5	917.0	873.7	876.4	896.3	881.4
10°	645.5	616.4	599.9	623.3	647.4	638.6	617.1	603.1	612.9	634.9	633.3
12.5°	507.3	465.4	440.7	424.0	443.9	427.4	426.9	414.7	401.4	403.8	439.1
15°	381.5	351.0	321.8	295.0	294.5	288.9	260.6	228.7	226.1	227.6	246.0
17.5°	262.4	252.1	240.1	217.0	210.9	187.6	160.0	147.3	140.9	143.8	149.9
20°	184.4	180.4	181.7	169.3	160.5	138.2	122.1	117.0	115.9	118.9	121.8
22.5°	152.8	145.7	144.9	139.3	130.5	114.4	105.6	102.7	101.4	104.0	106.1
25°	133.7	126.6	123.6	120.2	110.9	99.8	94.5	91.8	90.5	92.1	93.4
27.5°	117.8	111.2	108.5	106.1	97.1	89.1	84.9	82.5	81.5	82.0	83.3
30°	105.9	100.0	96.6	93.7	86.0	80.4	76.7	74.3	73.2	73.2	74.6
32.5°	93.4	90.2	87.0	83.3	76.1	72.4	68.7	66.1	65.0	65.3	66.3
35°	77.7	76.7	77.5	74.0	67.9	64.7	61.0	58.1	57.3	57.6	58.6
37.5°	69.0	64.2	67.1	65.3	61.8	57.6	52.8	50.1	48.8	49.6	50.1
40°	63.4	57.6	55.5	57.3	56.8	49.9	45.6	43.0	41.9	42.2	42.7
42.5°	58.6	51.7	47.0	46.7	49.9	43.5	39.0	36.6	35.3	35.3	35.8
45°	54.1	46.7	40.9	36.3	41.9	36.9	32.6	30.5	28.9	28.9	29.2
47.5°	50.7	42.5	35.6	29.7	31.6	30.2	26.8	24.7	23.1	23.1	23.3
50°	47.5	38.2	30.8	24.9	23.6	24.9	21.8	19.4	18.3	18.0	18.6
52.5°	44.0	34.0	26.3	21.2	18.6	18.8	17.0	15.4	14.1	14.1	14.6
55°	40.6	30.5	22.8	18.0	15.4	14.1	13.5	12.5	11.4	11.4	11.9
57.5°	37.1	26.8	19.4	14.9	12.2	11.1	11.1	10.3	9.6	9.6	10.1
60°	34.0	23.1	15.9	12.2	9.6	9.3	9.6	8.8	8.2	8.2	8.8
62.5°	30.2	19.6	13.0	10.1	7.7	7.4	8.2	7.7	7.2	7.2	7.7
65°	25.7	16.7	10.3	7.7	5.8	5.8	6.9	6.4	5.8	5.8	6.4
67.5°	21.8	14.1	8.0	5.6	4.2	4.5	5.8	5.3	5.0	5.0	5.6
70°	18.0	10.9	5.6	3.4	2.4	3.4	4.5	4.5	4.5	4.5	5.0
72.5°	13.5	7.4	3.2	1.3	1.1	2.4	3.7	4.2	4.0	4.0	4.8
75°	8.8	4.2	1.1	0.0	0.0	1.3	2.9	3.4	3.4	3.2	4.0
77.5°	5.0	1.3	0.0	0.0	0.0	0.0	1.9	1.6	1.3	1.1	1.9
80°	1.3	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°	1879.0	1879.0	1879.0	1879.0	1879.0	1879.0	1879.0	1879.0	1879.0	1879.0
2.5°	1655.6	1686.9	1731.0	1777.7	1849.6	1906.6	1962.6	2010.6	2029.2	2036.9
5°	1310.4	1356.3	1420.8	1503.6	1633.3	1750.1	1868.4	1987.6	2039.3	2052.3
7.5°	940.3	999.0	1080.9	1184.7	1336.7	1487.9	1653.2	1828.1	1908.2	1928.4
10°	696.0	767.6	861.5	970.8	1116.0	1271.4	1451.6	1651.4	1742.9	1769.7
12.5°	493.8	590.6	716.4	849.3	975.1	1113.8	1296.1	1516.3	1612.4	1641.3
15°	290.0	383.7	532.5	710.5	871.6	1012.2	1197.4	1447.1	1553.0	1582.1
17.5°	166.4	213.1	325.6	524.0	742.6	937.4	1166.4	1464.3	1589.0	1616.1
20°	127.1	141.9	187.6	337.5	591.9	863.9	1166.4	1562.0	1715.6	1755.4
22.5°	111.2	122.1	140.6	201.4	435.7	785.1	1179.9	1703.1	1904.0	1948.0
25°	98.7	108.5	124.4	151.5	297.2	691.4	1212.0	1876.4	2125.8	2182.8
27.5°	88.4	97.6	112.0	132.7	203.2	578.4	1255.3	2079.6	2370.4	2416.1
30°	79.1	87.8	100.8	115.4	156.8	450.3	1292.1	2271.2	2562.5	2611.6
32.5°	70.3	78.3	89.9	100.8	128.4	333.0	1296.1	2423.0	2722.0	2770.8
35°	62.1	69.3	79.9	88.4	106.4	262.9	1234.3	2554.6	2881.4	2945.9
37.5°	54.1	61.0	70.3	76.7	93.7	214.4	1139.8	2701.3	3086.0	3145.7
40°	46.7	52.8	62.4	66.6	88.6	164.8	1037.2	2855.2	3286.6	3341.3
42.5°	39.8	45.6	54.9	63.1	77.7	123.1	926.3	2999.5	3467.0	3524.3
45°	33.2	39.3	48.6	66.9	64.5	92.1	807.7	3095.3	3609.5	3671.8
47.5°	26.8	33.7	46.4	63.7	51.5	67.7	713.7	3186.0	3717.5	3779.0
50°	21.5	28.4	52.3	56.8	42.2	51.7	674.5	3267.2	3788.3	3847.5
52.5°	17.5	23.9	49.4	43.5	35.3	42.7	695.7	3398.8	3853.9	3891.0
55°	14.6	18.8	29.7	30.2	30.0	36.3	722.0	3587.7	4023.4	4040.9
57.5°	12.7	15.1	20.7	23.3	25.2	32.4	722.5	3858.9	4285.8	4296.7
60°	10.9	13.3	17.2	18.8	21.8	28.9	696.2	3953.6	4389.0	4425.1
62.5°	9.6	11.7	14.3	15.7	18.3	26.0	634.7	3816.5	4247.3	4308.6
65°	8.5	10.6	11.9	13.3	16.2	23.3	533.3	3542.1	4012.3	4076.2
67.5°	7.4	9.3	10.6	11.9	14.6	20.7	392.7	3223.4	3742.4	3795.5
70°	6.6	8.2	9.6	10.6	12.7	17.5	238.3	2735.2	3369.4	3391.4
72.5°	6.4	7.4	8.8	9.6	11.1	15.4	120.7	2010.1	2693.6	2729.4
75°	5.6	6.6	8.0	8.5	9.8	13.3	49.1	1320.3	1952.0	2009.6
77.5°	4.5	6.1	7.2	7.7	8.5	10.9	24.9	843.7	1369.9	1407.0
80°	1.6	4.5	6.1	6.4	7.2	8.0	16.5	461.9	794.7	810.6
82.5°	0.0	2.9	4.8	4.5	5.0	6.1	10.6	219.7	524.5	530.4
85°	0.0	1.3	3.7	2.9	2.1	4.2	3.7	48.0	275.1	286.6
87.5°	0.0	0.0	0.3	1.3	1.1	1.6	0.5	0.3	24.9	31.6
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: SP1-2104-224-3

Luminaire Tested: CCW-SA-2A-740-U-SL4

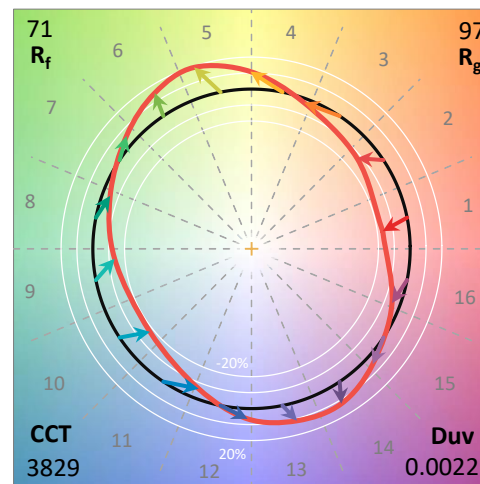
Test Date: 04/26/2021

Test Information

Test Method: LM-79-08
 Report Number: SP1-2104-224-3
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1
 Measurement Geometry: 4π
 Issue Date: 04/26/2021
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: INVUE
 Catalog Number: **CCW-SA-2A-740-U-SL4**
 Description: INVUE WALL PACK ClearCurve Light Square

Spectral Parameters

CCT (K):	3829	CRI (Ra):	69.8		
CIE u':	0.2271	R1:	67.2	R9:	-35.1
CIE v':	0.5076	R2:	75.2	R10:	43.1
Duv:	0.0022	R3:	83.2	R11:	69.0
CIE x:	0.3900	R4:	71.0	R12:	44.3
CIE y:	0.3873	R5:	67.4	R13:	67.6
CIE z:	0.2227	R6:	66.8	R14:	90.3
Peak Wavelength (nm):	440	R7:	77.6		
Dominant Wavelength (nm):	578	R8:	50.3		
Purity:	33.4				
Rf:	70.6				
Rg:	96.7				



Test Conditions

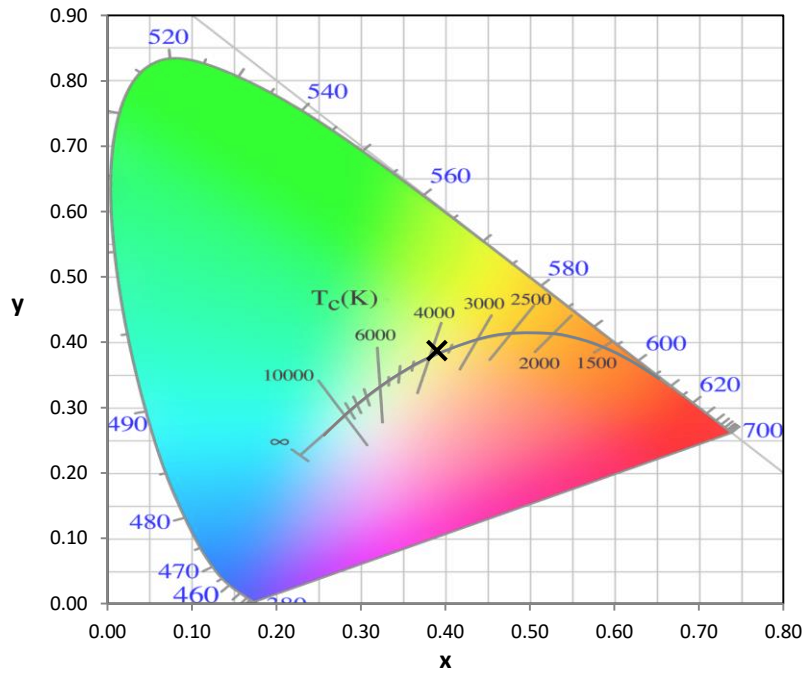
Stabilization Time: 62M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 24.8/39%
 Sphere Temperature (°C): 24.2

REPORT NUMBER: SP1-2104-224-3

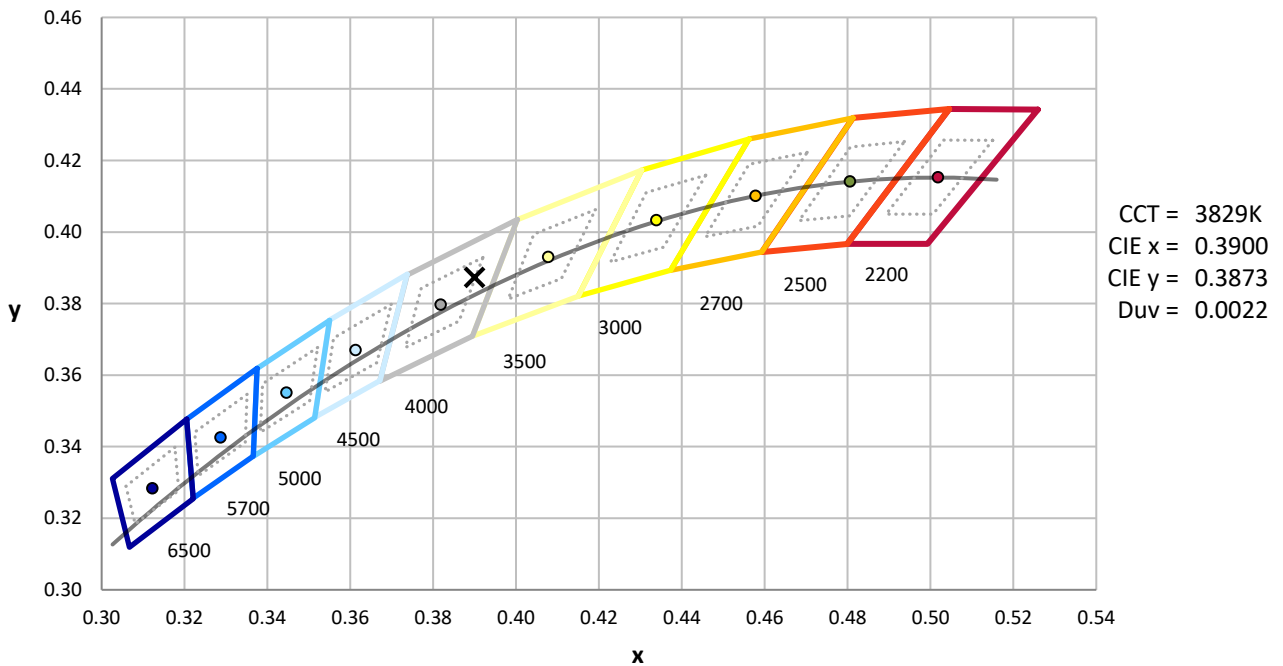
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	1/31/2021	7/31/2021
Power Meter	IN0071	12/1/2020	12/1/2021
AC Power Source	IN0063	12/1/2020	12/1/2021
DC Power Source	IN0208	12/1/2020	12/1/2021
Sphere Thermometer	IN0085	12/1/2020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

REPORT NUMBER: SP1-2104-224-3

CIE 1931 Chromaticity Diagram



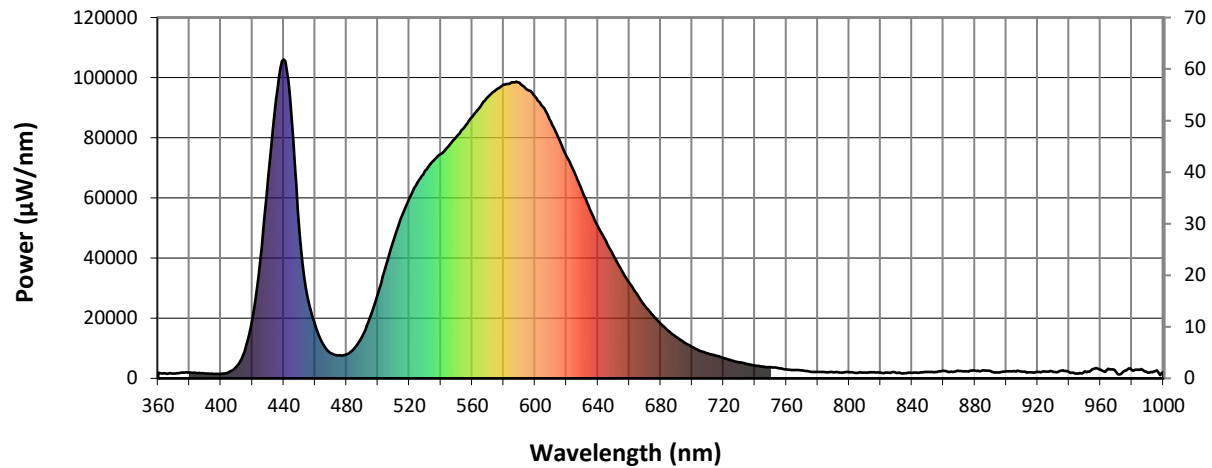
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 4000K 7-step quadrangle

REPORT NUMBER: SP1-2104-224-3

Photopic Flux vs. Wavelength

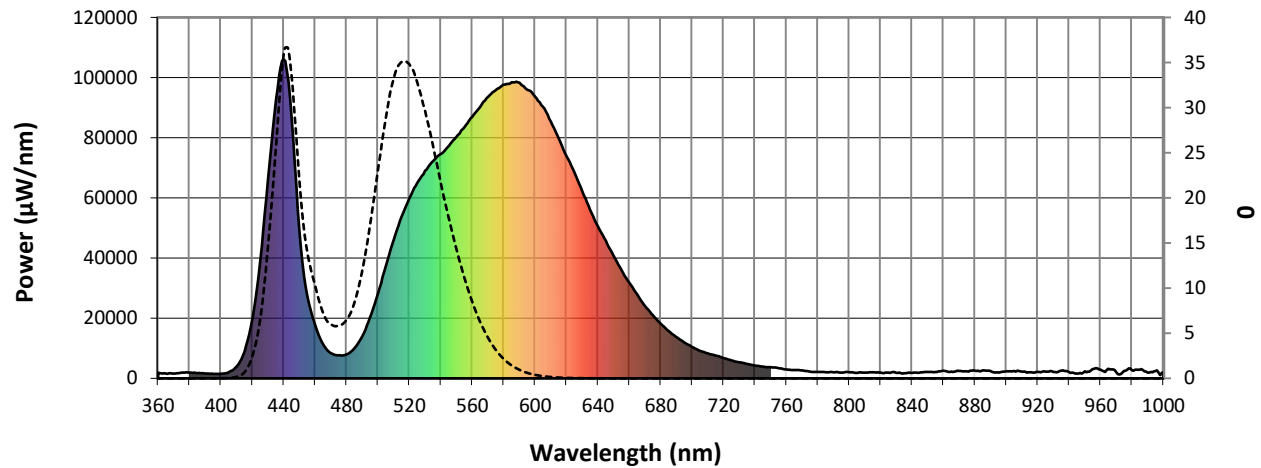


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λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)
360	1901	0.0	490	14057	2.0	620	73853	19.2	750	3678	0.0	880	2528	0.0
365	1585	0.0	495	20304	3.7	625	68653	15.1	755	3385	0.0	885	2638	0.0
370	1604	0.0	500	28346	6.3	630	62254	11.3	760	2963	0.0	890	2417	0.0
375	1905	0.0	505	37228	10.4	635	56177	8.4	765	2782	0.0	895	1902	0.0
380	1882	0.0	510	46037	15.8	640	50521	6.0	770	2657	0.0	900	2330	0.0
385	1693	0.0	515	53619	22.2	645	45727	4.4	775	2259	0.0	905	2456	0.0
390	1640	0.0	520	59890	29.0	650	40814	3.0	780	2169	0.0	910	2205	0.0
395	1513	0.0	525	64946	34.9	655	35925	2.1	785	2065	0.0	915	2002	0.0
400	1481	0.0	530	69048	40.7	660	31824	1.3	790	2054	0.0	920	2125	0.0
405	2044	0.0	535	72246	44.8	665	27860	0.9	795	1908	0.0	925	2266	0.0
410	3966	0.0	540	74621	48.6	670	24069	0.5	800	2026	0.0	930	2159	0.0
415	8943	0.0	545	77288	51.4	675	20926	0.4	805	1766	0.0	935	2581	0.0
420	19566	0.1	550	80334	54.6	680	18170	0.2	810	1913	0.0	940	2052	0.0
425	39243	0.2	555	83561	57.1	685	15785	0.1	815	2019	0.0	945	1631	0.0
430	66113	0.5	560	86964	59.1	690	13770	0.1	820	1876	0.0	950	2301	0.0
435	92550	1.1	565	90264	60.0	695	11953	0.1	825	1869	0.0	955	3077	0.0
440	106034	1.7	570	93519	60.8	700	10452	0.0	830	1862	0.0	960	2911	0.0
445	86383	1.8	575	95920	59.7	705	9162	0.0	835	1663	0.0	965	3163	0.0
450	49216	1.3	580	97650	58.0	710	8266	0.0	840	1843	0.0	970	1995	0.0
455	27376	0.9	585	98486	54.7	715	7583	0.0	845	1921	0.0	975	2418	0.0
460	17830	0.7	590	98332	50.8	720	6750	0.0	850	2105	0.0	980	2674	0.0
465	11374	0.6	595	96023	45.5	725	5965	0.0	855	2096	0.0	985	2850	0.0
470	8344	0.5	600	93650	40.4	730	5310	0.0	860	2601	0.0	990	1972	0.0
475	7639	0.6	605	90313	35.0	735	4838	0.0	865	2199	0.0	995	2443	0.0
480	7991	0.8	610	85305	29.3	740	4280	0.0	870	2491	0.0	1000	1979	0.0
485	9994	1.2	615	79870	24.1	745	3928	0.0	875	2370	0.0			

REPORT NUMBER: SP1-2104-224-3

Scotopic Flux vs. Wavelength



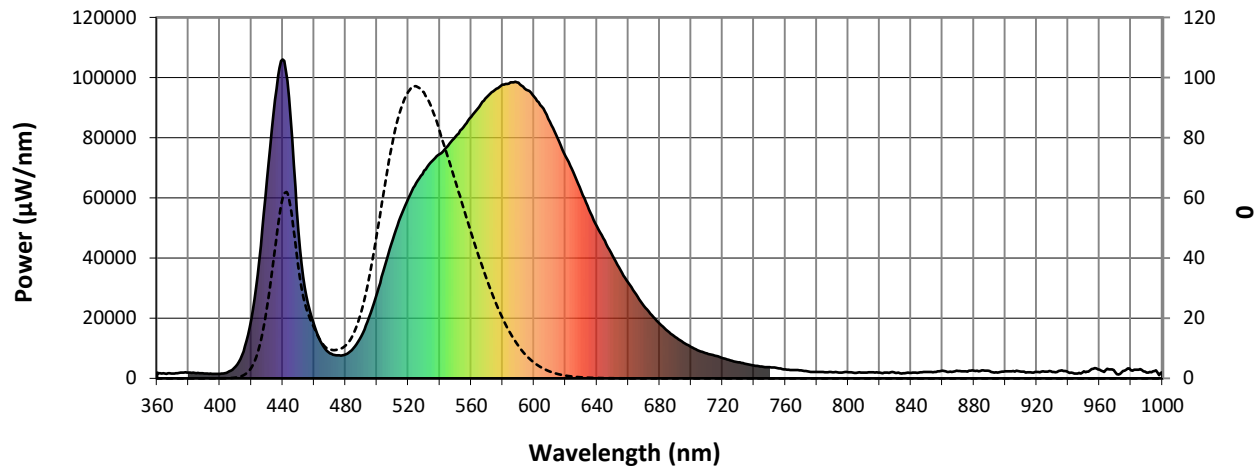
Scotopic Lumens: 7682.8

S/P: 1.42

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	1901	0.0	490	14057	21.6	620	73853	0.9	750	3678	0.0	880	2528	0.0
365	1585	0.0	495	20304	32.8	625	68653	0.6	755	3385	0.0	885	2638	0.0
370	1604	0.0	500	28346	47.4	630	62254	0.4	760	2963	0.0	890	2417	0.0
375	1905	0.0	505	37228	63.3	635	56177	0.2	765	2782	0.0	895	1902	0.0
380	1882	0.0	510	46037	78.0	640	50521	0.1	770	2657	0.0	900	2330	0.0
385	1693	0.0	515	53619	88.9	645	45727	0.1	775	2259	0.0	905	2456	0.0
390	1640	0.0	520	59890	95.2	650	40814	0.0	780	2169	0.0	910	2205	0.0
395	1513	0.0	525	64946	97.2	655	35925	0.0	785	2065	0.0	915	2002	0.0
400	1481	0.0	530	69048	95.2	660	31824	0.0	790	2054	0.0	920	2125	0.0
405	2044	0.1	535	72246	90.0	665	27860	0.0	795	1908	0.0	925	2266	0.0
410	3966	0.2	540	74621	82.5	670	24069	0.0	800	2026	0.0	930	2159	0.0
415	8943	0.9	545	77288	74.1	675	20926	0.0	805	1766	0.0	935	2581	0.0
420	19566	3.2	550	80334	65.7	680	18170	0.0	810	1913	0.0	940	2052	0.0
425	39243	9.6	555	83561	57.1	685	15785	0.0	815	2019	0.0	945	1631	0.0
430	66113	22.5	560	86964	48.6	690	13770	0.0	820	1876	0.0	950	2301	0.0
435	92550	41.4	565	90264	40.5	695	11953	0.0	825	1869	0.0	955	3077	0.0
440	106034	59.3	570	93519	33.0	700	10452	0.0	830	1862	0.0	960	2911	0.0
445	86383	57.8	575	95920	26.1	705	9162	0.0	835	1663	0.0	965	3163	0.0
450	49216	38.1	580	97650	20.1	710	8266	0.0	840	1843	0.0	970	1995	0.0
455	27376	23.9	585	98486	15.1	715	7583	0.0	845	1921	0.0	975	2418	0.0
460	17830	17.2	590	98332	10.9	720	6750	0.0	850	2105	0.0	980	2674	0.0
465	11374	12.0	595	96023	7.7	725	5965	0.0	855	2096	0.0	985	2850	0.0
470	8344	9.6	600	93650	5.3	730	5310	0.0	860	2601	0.0	990	1972	0.0
475	7639	9.6	605	90313	3.5	735	4838	0.0	865	2199	0.0	995	2443	0.0
480	7991	10.8	610	85305	2.3	740	4280	0.0	870	2491	0.0	1000	1979	0.0
485	9994	14.5	615	79870	1.5	745	3928	0.0	875	2370	0.0			

REPORT NUMBER: SP1-2104-224-3

Melanopic Flux vs. Wavelength



Melanopic Lumens: 2823

M/P: 0.52

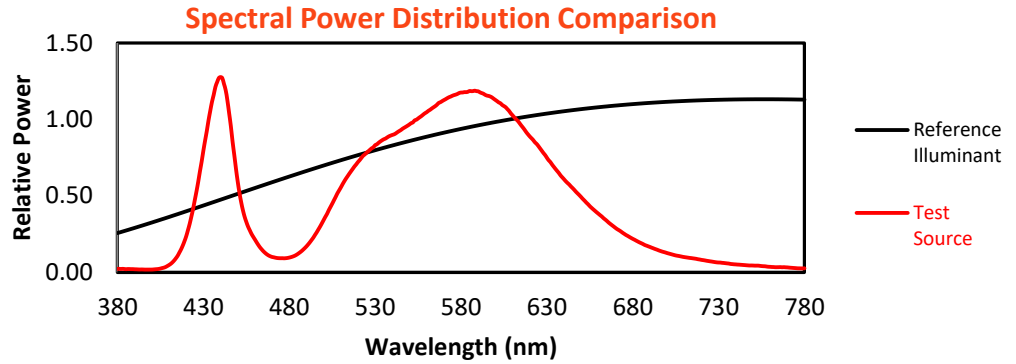
λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)
360	1901	0.0	490	14057	11.7	620	73853	0.1	750	3678	0.0	880	2528	0.0
365	1585	0.0	495	20304	16.8	625	68653	0.0	755	3385	0.0	885	2638	0.0
370	1604	0.0	500	28346	22.8	630	62254	0.0	760	2963	0.0	890	2417	0.0
375	1905	0.0	505	37228	28.6	635	56177	0.0	765	2782	0.0	895	1902	0.0
380	1882	0.0	510	46037	33.1	640	50521	0.0	770	2657	0.0	900	2330	0.0
385	1693	0.0	515	53619	35.0	645	45727	0.0	775	2259	0.0	905	2456	0.0
390	1640	0.0	520	59890	34.9	650	40814	0.0	780	2169	0.0	910	2205	0.0
395	1513	0.0	525	64946	32.9	655	35925	0.0	785	2065	0.0	915	2002	0.0
400	1481	0.0	530	69048	29.8	660	31824	0.0	790	2054	0.0	920	2125	0.0
405	2044	0.0	535	72246	26.0	665	27860	0.0	795	1908	0.0	925	2266	0.0
410	3966	0.2	540	74621	21.8	670	24069	0.0	800	2026	0.0	930	2159	0.0
415	8943	0.6	545	77288	18.0	675	20926	0.0	805	1766	0.0	935	2581	0.0
420	19566	2.2	550	80334	14.4	680	18170	0.0	810	1913	0.0	940	2052	0.0
425	39243	6.1	555	83561	11.3	685	15785	0.0	815	2019	0.0	945	1631	0.0
430	66113	14.0	560	86964	8.6	690	13770	0.0	820	1876	0.0	950	2301	0.0
435	92550	24.7	565	90264	6.3	695	11953	0.0	825	1869	0.0	955	3077	0.0
440	106034	35.4	570	93519	4.6	700	10452	0.0	830	1862	0.0	960	2911	0.0
445	86383	34.1	575	95920	3.2	705	9162	0.0	835	1663	0.0	965	3163	0.0
450	49216	22.7	580	97650	2.2	710	8266	0.0	840	1843	0.0	970	1995	0.0
455	27376	14.3	585	98486	1.5	715	7583	0.0	845	1921	0.0	975	2418	0.0
460	17830	10.5	590	98332	1.0	720	6750	0.0	850	2105	0.0	980	2674	0.0
465	11374	7.4	595	96023	0.6	725	5965	0.0	855	2096	0.0	985	2850	0.0
470	8344	6.0	600	93650	0.4	730	5310	0.0	860	2601	0.0	990	1972	0.0
475	7639	5.8	605	90313	0.2	735	4838	0.0	865	2199	0.0	995	2443	0.0
480	7991	6.4	610	85305	0.2	740	4280	0.0	870	2491	0.0	1000	1979	0.0
485	9994	8.2	615	79870	0.1	745	3928	0.0	875	2370	0.0			

REPORT NUMBER: SP1-2104-224-3

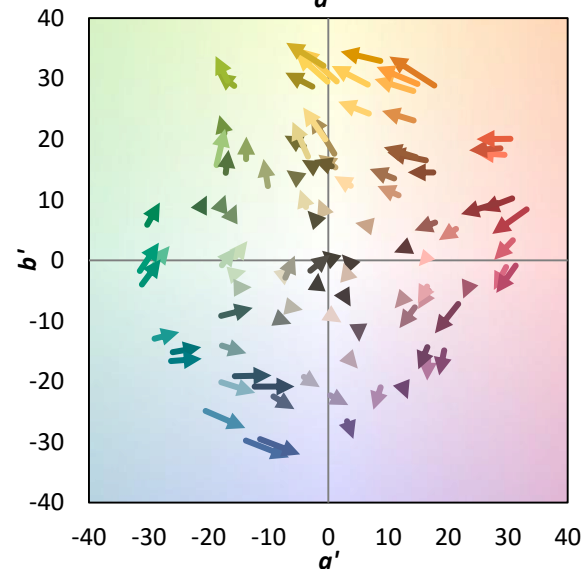
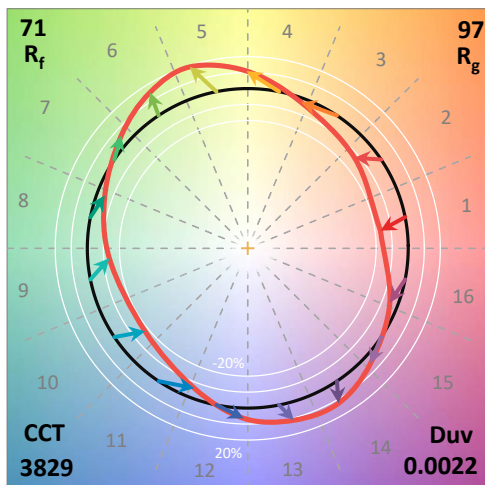
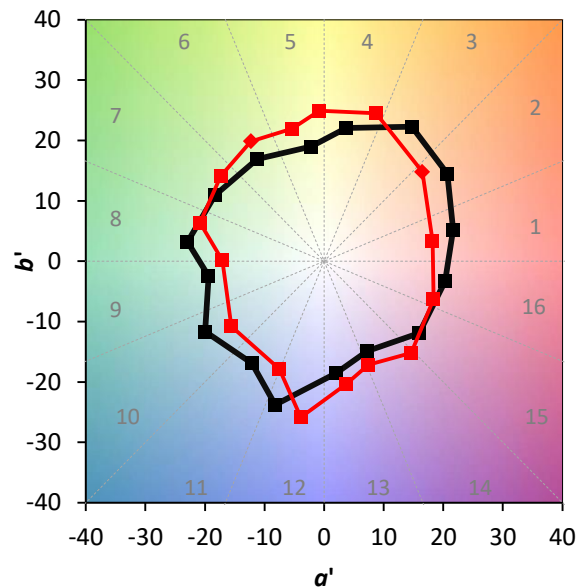
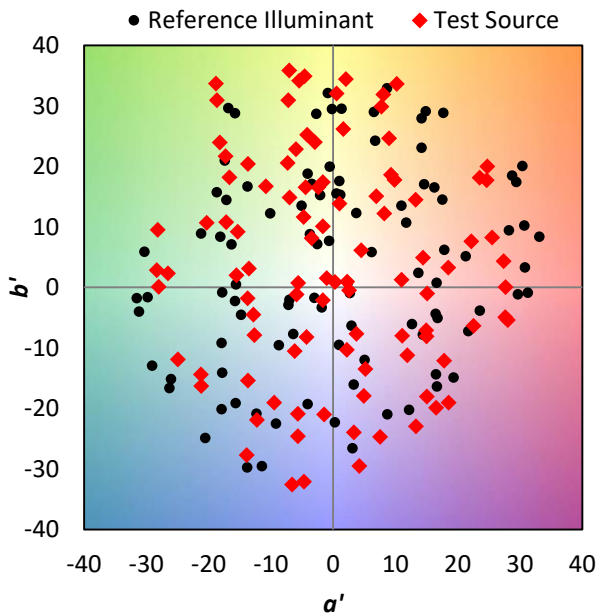
TM-30-18

Summary

$R_f = 70.6$
 $R_g = 96.7$
 CIE $R_a = 69.8$
 $R_g = -35.1$

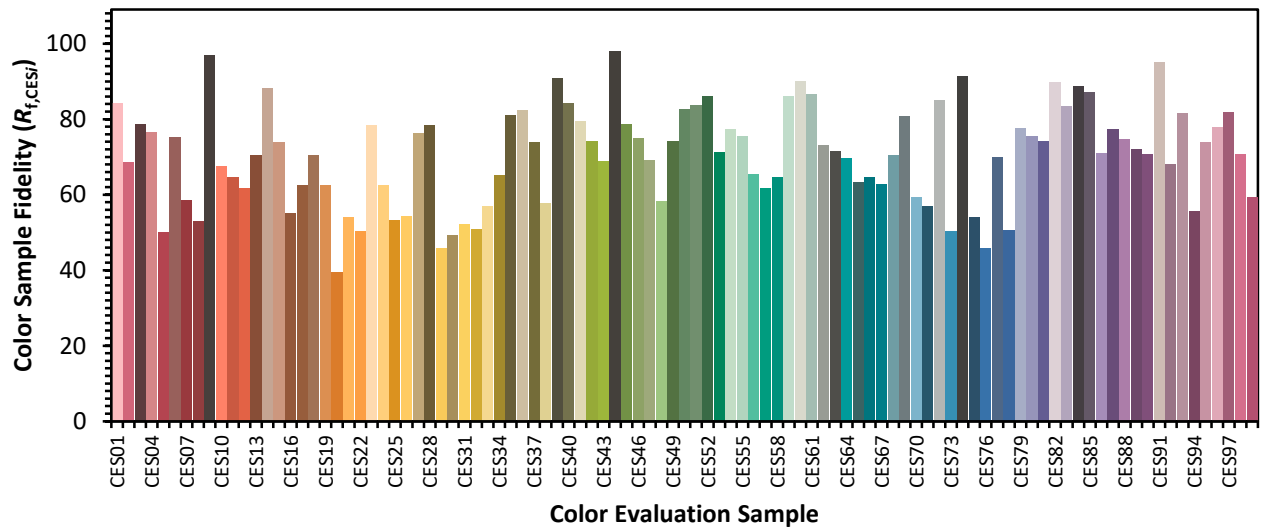


Color Vector Graphics

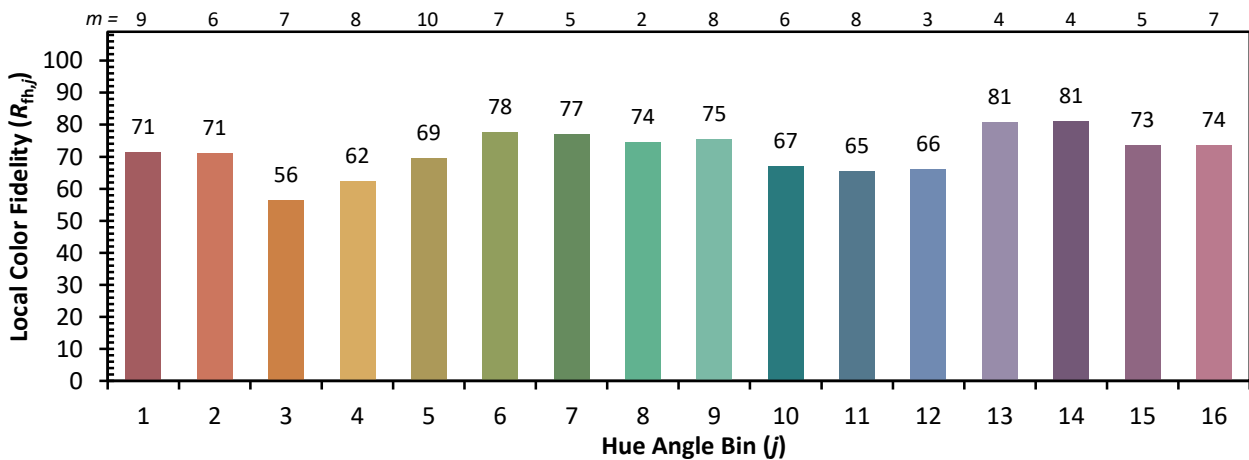
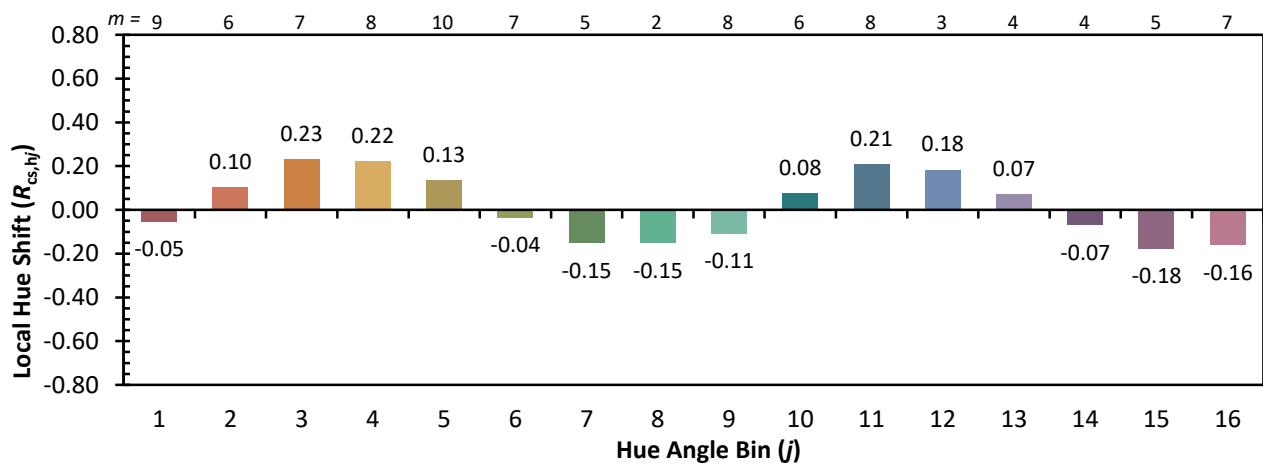
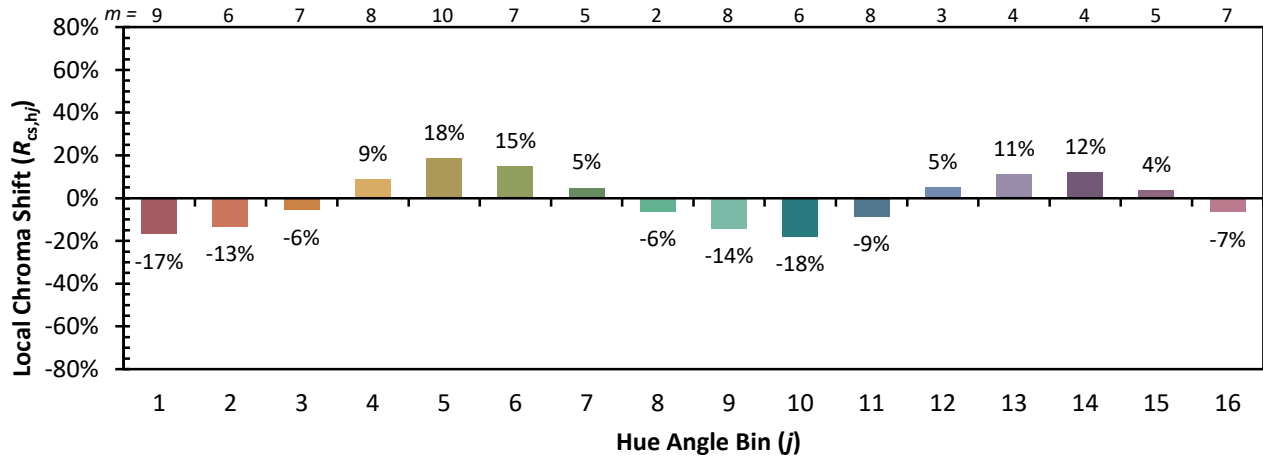


Individual Sample Fidelity Index ($R_{f,i}$)

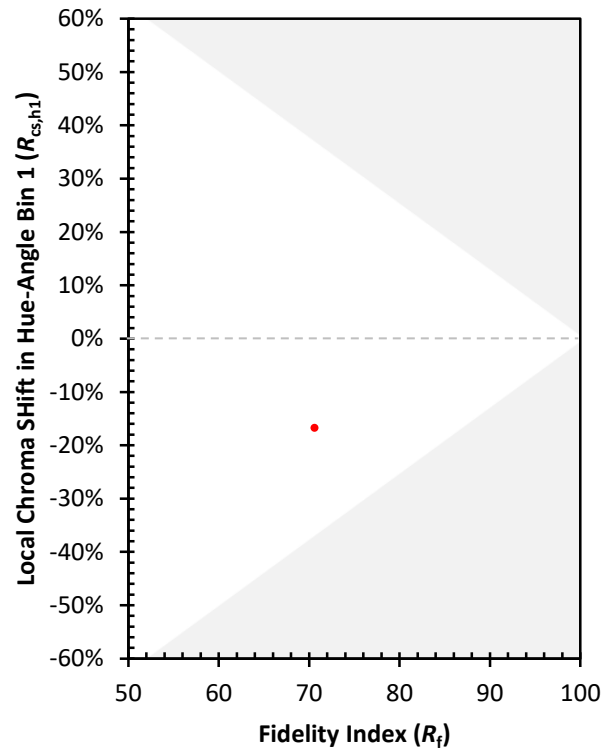
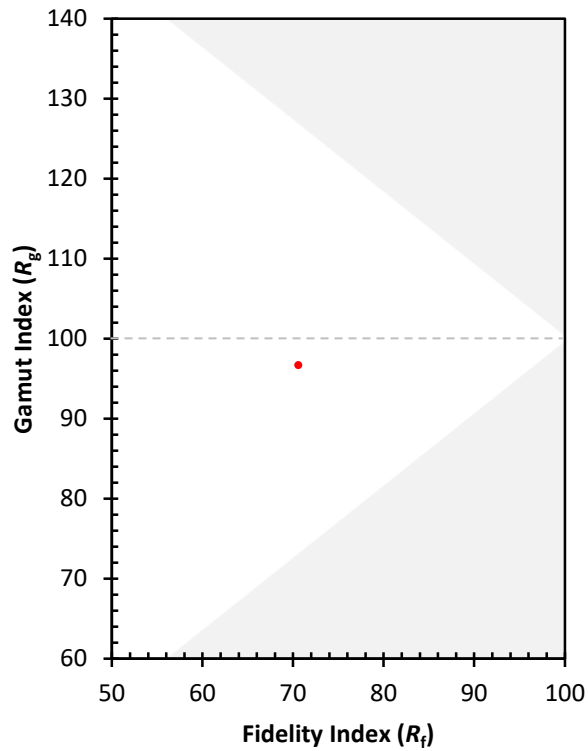
CES01 = 85	CES26 = 54	CES51 = 84	CES76 = 46
CES02 = 61	CES27 = 76	CES52 = 86	CES77 = 70
CES03 = 30	CES28 = 78	CES53 = 71	CES78 = 50
CES04 = 70	CES29 = 46	CES54 = 77	CES79 = 77
CES05 = 47	CES30 = 49	CES55 = 76	CES80 = 75
CES06 = 50	CES31 = 52	CES56 = 65	CES81 = 74
CES07 = 40	CES32 = 51	CES57 = 62	CES82 = 90
CES08 = 39	CES33 = 57	CES58 = 65	CES83 = 84
CES09 = 29	CES34 = 65	CES59 = 86	CES84 = 89
CES10 = 74	CES35 = 81	CES60 = 90	CES85 = 87
CES11 = 57	CES36 = 82	CES61 = 87	CES86 = 71
CES12 = 63	CES37 = 74	CES62 = 73	CES87 = 77
CES13 = 42	CES38 = 58	CES63 = 72	CES88 = 75
CES14 = 74	CES39 = 91	CES64 = 70	CES89 = 72
CES15 = 71	CES40 = 84	CES65 = 63	CES90 = 71
CES16 = 46	CES41 = 79	CES66 = 65	CES91 = 95
CES17 = 49	CES42 = 74	CES67 = 63	CES92 = 68
CES18 = 56	CES43 = 69	CES68 = 70	CES93 = 82
CES19 = 72	CES44 = 98	CES69 = 81	CES94 = 56
CES20 = 65	CES45 = 79	CES70 = 59	CES95 = 74
CES21 = 86	CES46 = 75	CES71 = 57	CES96 = 78
CES22 = 78	CES47 = 69	CES72 = 85	CES97 = 82
CES23 = 92	CES48 = 58	CES73 = 50	CES98 = 71
CES24 = 91	CES49 = 74	CES74 = 91	CES99 = 59
CES25 = 72	CES50 = 83	CES75 = 54	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)