

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: P385746

Luminaire Tested: **GWC-SA1B-750-U-SLL-HSS**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P385746
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-SA1B-750-U-SLL-HSS
Description: GALLEON WALL LUMINAIRE
(1) 70 CRI, 5000K, 800mA 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: 4526 lumens
Efficiency: N/A
Efficacy: 102.9 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type III - Medium
BUG Rating: B1 - U0 - G1

Input Watts (W): 44
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

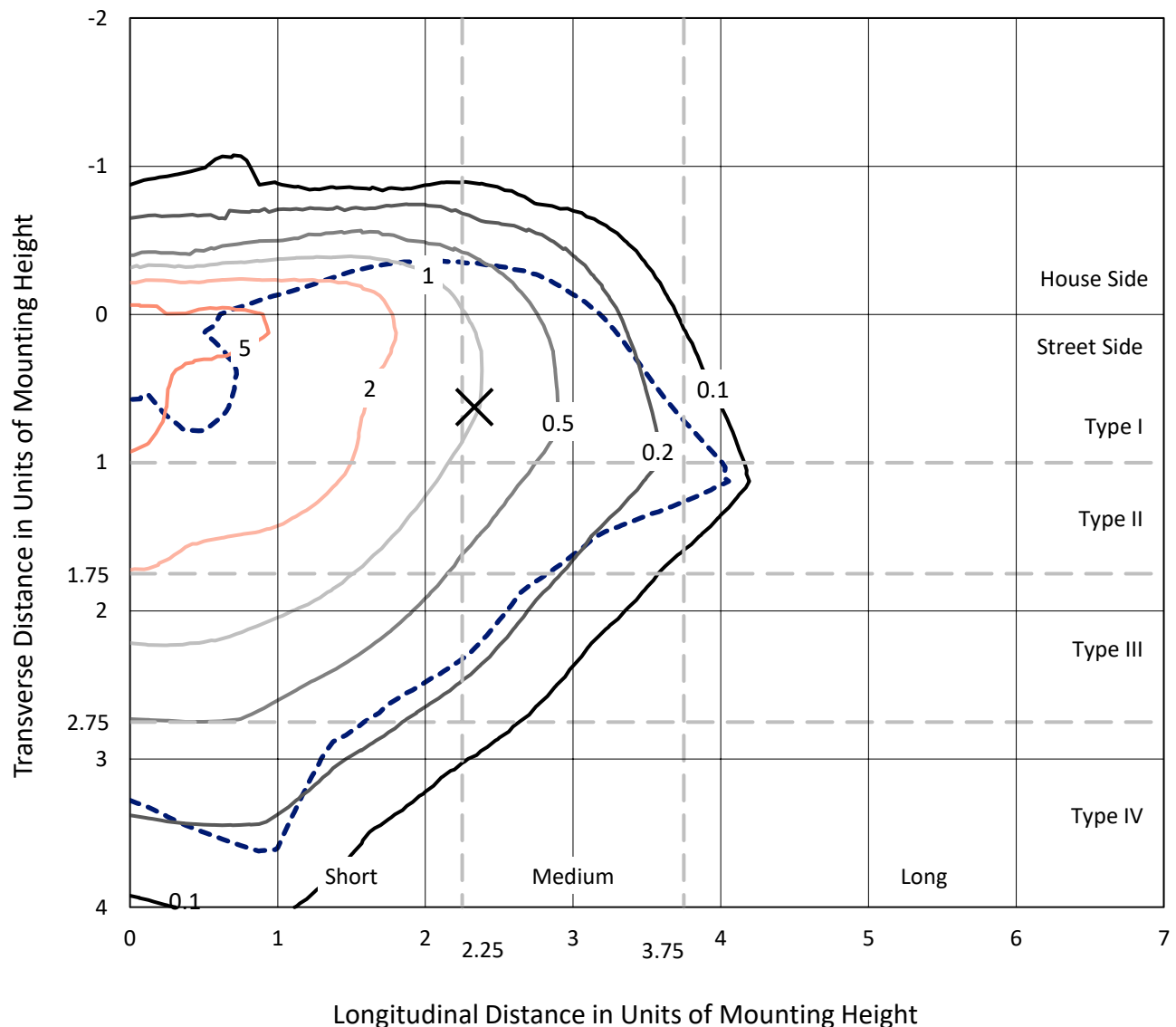


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Iso-Footcandle Lines of Horizontal Illumination

× Max cd
 - - - 1/2 Max cd

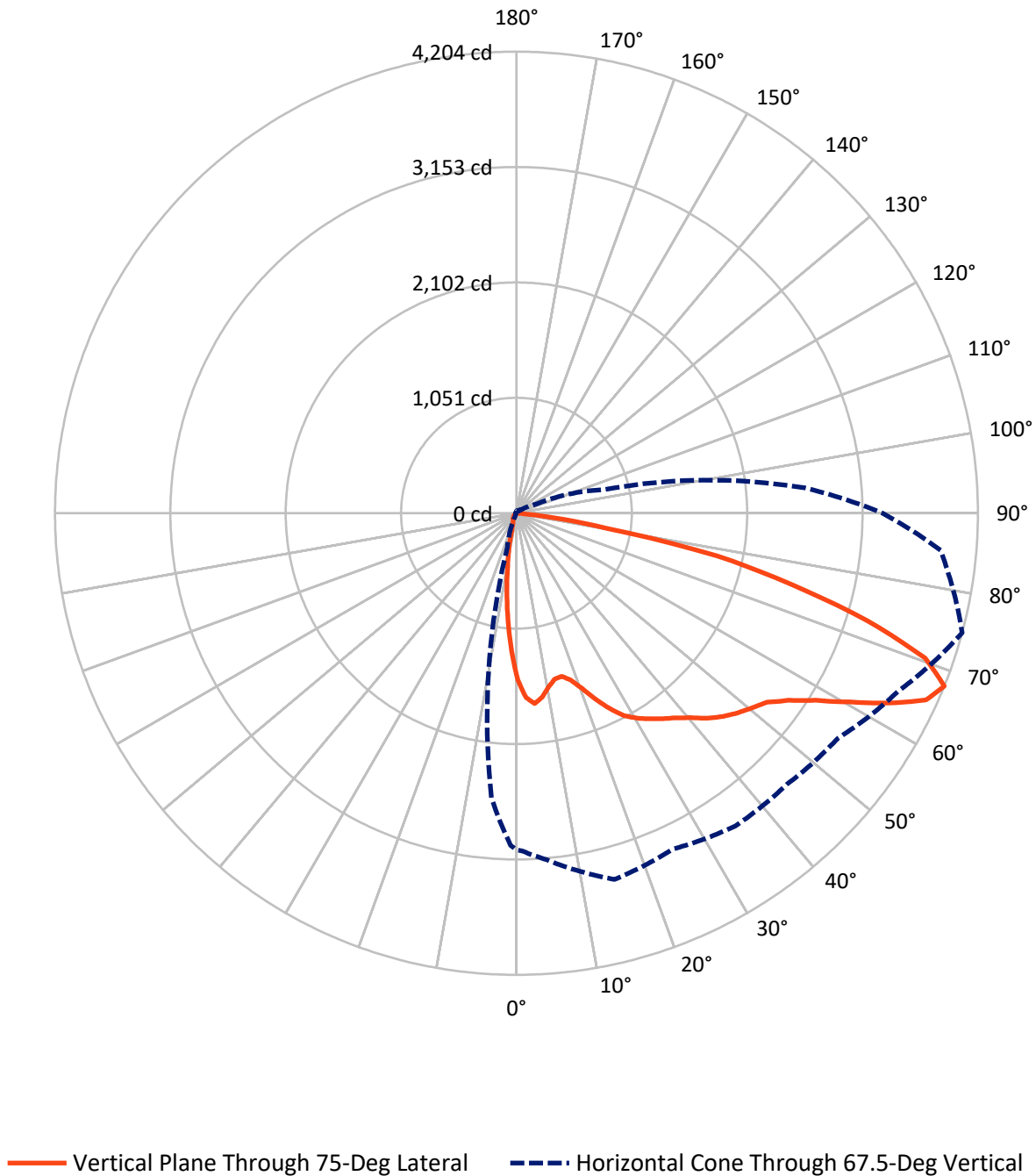


Based on 15 foot mounting height. Maximum calculated value = 8.7 fc
 Type III - Medium - N/A

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Luminous Intensity Polar Plot



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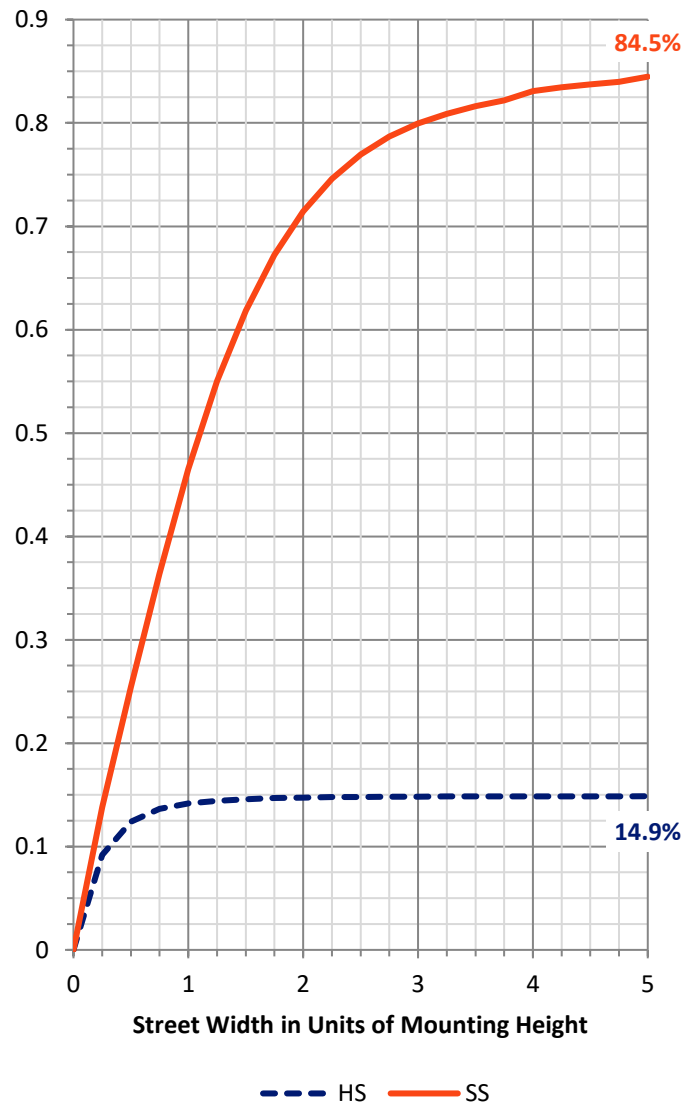
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	679.2	0.0	679.2
	% Fixture	15.0	0.0	15.0
Street Side	Lumens	3846.8	0.0	3846.8
	% Fixture	85.0	0.0	85.0
Total	Lumens	4526.0	0.0	4526.0
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	115.2	2.5
10°-20°	226.8	5.0
20°-30°	320.8	7.1
30°-40°	471.7	10.4
40°-50°	678.0	15.0
50°-60°	954.5	21.1
60°-70°	1114.7	24.6
70°-80°	568.7	12.6
80°-90°	75.5	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°	4526.0	100.0
0°-180°	4526.0	100.0

Coefficient of Utilization



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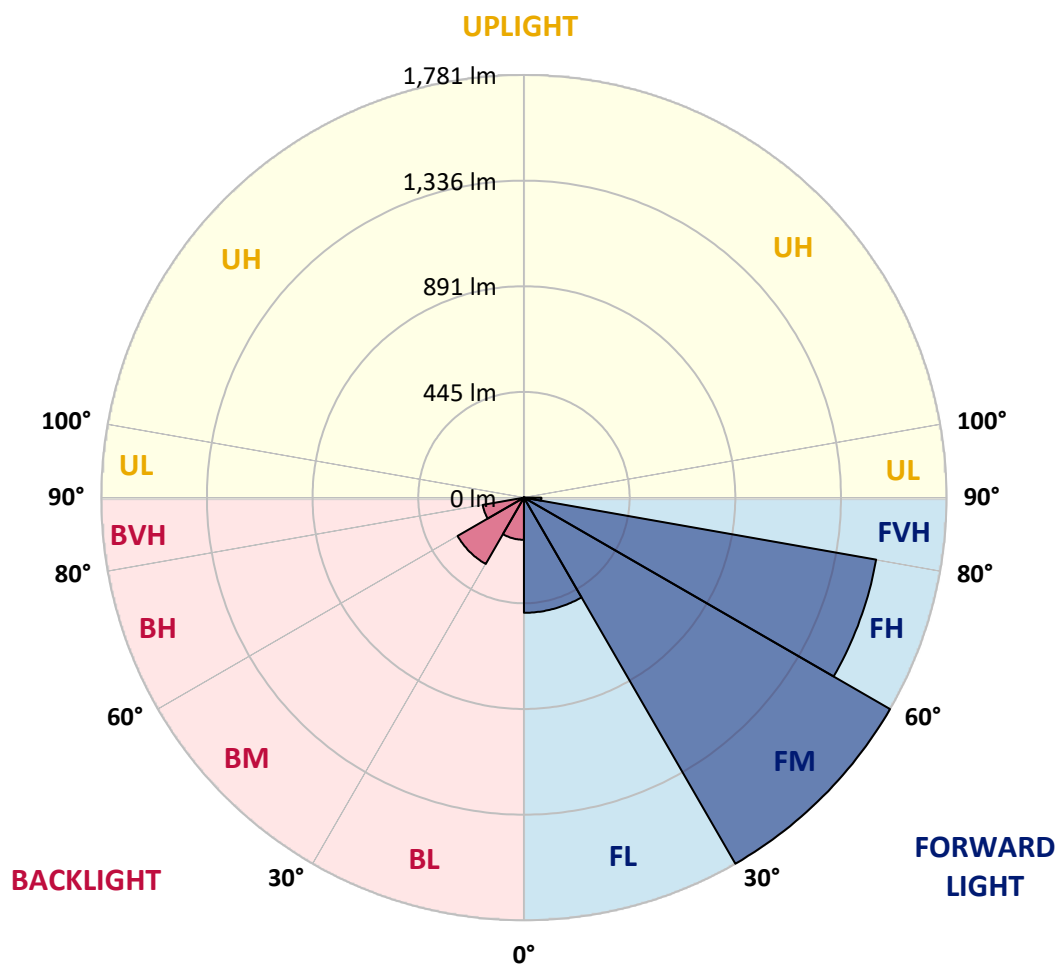
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	485.2	10.7			
FM	(30°-60°)	1781.4	39.4			
FH	(60°-80°)	1507.0	33.3			G1/1800
FVH	(80°-90°)	73.3	1.6			G1/100
BL	(0°-30°)	177.6	3.9	B1/500		
BM	(30°-60°)	322.9	7.1	B1/1000		
BH	(60°-80°)	176.4	3.9	B1/500		G1/500
BVH	(80°-90°)	2.3	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-G1

Type III Medium



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CANDELA DISTRIBUTION (FULL):

	0°	1°	5°	15°	25°	35°	45°	55°	65°	75°	85°
0°	1518.4	1518.4	1518.4	1518.4	1518.4	1518.4	1518.4	1518.4	1518.4	1518.4	1518.4
2.5°	1646.0	1648.5	1661.8	1692.7	1726.4	1728.9	1751.7	1728.3	1720.4	1682.6	1643.6
5°	1658.4	1668.3	1713.9	1804.6	1883.3	1908.6	1926.6	1880.7	1832.5	1740.3	1641.9
7.5°	1558.3	1574.8	1646.6	1816.8	1957.5	2019.7	2031.5	1959.6	1841.5	1689.7	1541.8
10°	1430.1	1448.9	1535.5	1744.8	1938.0	2044.5	2060.8	1966.7	1796.9	1607.8	1433.5
12.5°	1326.3	1348.4	1436.9	1663.8	1870.9	1988.8	2021.0	1942.9	1758.3	1549.7	1359.5
15°	1278.5	1303.8	1396.8	1611.4	1796.5	1889.3	1915.9	1882.2	1736.9	1540.5	1342.4
17.5°	1305.9	1333.4	1429.4	1615.9	1726.6	1766.2	1787.7	1801.4	1736.9	1596.0	1392.5
20°	1418.5	1448.1	1549.7	1661.6	1668.7	1653.9	1676.8	1725.1	1757.0	1701.5	1513.0
22.5°	1574.1	1608.9	1723.6	1739.9	1640.4	1584.4	1587.4	1663.1	1793.7	1835.3	1680.3
25°	1763.9	1806.3	1923.0	1856.5	1652.2	1543.1	1542.0	1612.1	1829.5	1969.3	1866.6
27.5°	1952.3	1999.1	2101.6	1998.9	1700.9	1535.5	1533.4	1596.7	1864.4	2088.5	2070.1
30°	2110.4	2155.8	2244.1	2102.0	1753.4	1553.1	1542.8	1613.2	1885.2	2165.9	2218.4
32.5°	2239.0	2275.4	2346.8	2173.0	1809.6	1587.2	1564.9	1657.3	1920.6	2231.3	2354.8
35°	2380.5	2418.9	2447.4	2240.5	1872.6	1636.3	1604.4	1727.4	1975.1	2297.7	2504.2
37.5°	2542.0	2580.1	2576.7	2302.2	1952.6	1717.6	1697.2	1838.5	2059.8	2363.6	2671.0
40°	2700.0	2739.0	2711.1	2369.8	2046.5	1851.6	1836.6	2005.3	2173.2	2447.8	2866.6
42.5°	2847.9	2890.1	2830.5	2433.7	2158.4	2020.5	2046.3	2220.1	2315.1	2551.6	3035.1
45°	2967.1	3010.2	2930.7	2495.9	2276.3	2225.5	2302.9	2458.1	2485.8	2639.3	3148.9
47.5°	3053.7	3094.5	3000.1	2558.0	2427.2	2476.1	2611.0	2707.7	2639.9	2715.4	3229.8
50°	3109.0	3140.8	3020.5	2635.9	2625.4	2768.6	2931.9	2979.1	2785.1	2784.0	3327.9
52.5°	3144.2	3158.6	3035.5	2717.1	2832.0	3087.0	3246.3	3261.1	2934.5	2859.5	3460.2
55°	3265.3	3276.9	3141.8	2815.5	3002.9	3365.9	3530.6	3516.8	3103.7	3007.2	3616.3
57.5°	3472.0	3484.2	3361.6	2957.0	3141.2	3538.3	3736.6	3761.3	3302.0	3214.7	3783.6
60°	3575.8	3598.5	3554.8	3136.3	3275.2	3648.5	3877.0	3955.7	3549.9	3488.3	3945.6
62.5°	3481.7	3514.7	3578.2	3335.0	3408.4	3709.2	3920.8	4025.4	3803.7	3807.1	4045.6
65°	3293.9	3320.2	3427.9	3443.9	3485.5	3701.7	3812.7	3928.1	3959.1	4100.0	4040.2
67.5°	3067.0	3076.9	3168.2	3452.5	3373.6	3476.1	3488.1	3573.4	3836.3	4203.8	3877.9
70°	2740.5	2745.8	2825.6	3165.4	2899.1	2921.7	2903.9	2921.2	3298.1	3951.0	3468.2
72.5°	2205.6	2219.1	2332.5	2628.8	2112.1	2047.1	2186.9	2179.2	2540.0	3338.0	2575.8
75°	1623.9	1647.3	1818.6	2117.4	1482.4	1340.9	1442.9	1470.2	1805.7	2582.0	1610.8
77.5°	1137.0	1154.3	1320.3	1556.6	1072.9	958.8	921.9	954.3	1191.9	1867.9	811.5
80°	655.0	661.4	767.3	898.8	723.0	827.2	749.3	771.6	714.2	831.0	349.0
82.5°	428.6	429.7	471.0	534.9	450.2	523.1	387.2	495.1	439.3	333.8	113.6
85°	231.6	232.8	273.1	379.7	254.9	144.1	84.7	173.9	271.6	76.5	31.1
87.5°	25.5	23.4	82.3	138.1	70.8	13.1	4.5	19.5	43.5	4.9	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°	1518.4	1518.4	1518.4	1518.4	1518.4	1518.4	1518.4	1518.4	1518.4	1518.4	1518.4
2.5°	1623.7	1605.9	1561.5	1514.5	1476.8	1441.4	1405.8	1362.3	1328.6	1321.8	1310.6
5°	1588.9	1532.5	1439.5	1346.0	1270.8	1175.8	1115.5	1068.6	1022.7	1019.9	1010.7
7.5°	1467.6	1393.4	1262.4	1133.1	1027.2	936.7	845.4	784.3	736.3	719.3	709.2
10°	1350.9	1267.5	1104.0	956.4	861.9	781.9	717.6	653.7	595.8	555.9	537.9
12.5°	1269.5	1177.3	997.0	869.8	802.1	726.2	647.7	568.0	501.3	453.2	423.9
15°	1238.0	1139.5	961.2	835.5	751.9	655.9	555.5	464.4	390.4	346.9	320.5
17.5°	1275.5	1161.0	958.4	793.7	676.9	557.4	446.6	339.0	269.3	236.3	219.3
20°	1370.7	1229.2	957.3	742.5	587.7	440.8	302.5	223.0	180.7	162.3	154.4
22.5°	1505.3	1316.2	965.9	691.9	494.8	315.0	208.8	163.8	142.1	132.3	127.8
25°	1678.6	1438.4	990.1	646.0	407.6	235.0	162.7	137.2	122.0	114.3	111.1
27.5°	1863.2	1579.1	1027.8	606.1	336.6	187.4	139.4	117.5	106.6	101.2	98.2
30°	2015.4	1742.0	1066.0	561.7	285.2	163.4	127.6	107.2	94.6	91.1	88.3
32.5°	2148.5	1865.3	1093.0	521.6	251.5	145.2	115.3	95.8	87.3	80.6	77.6
35°	2286.4	1968.0	1092.2	493.6	228.3	131.4	105.1	85.8	75.5	67.8	65.4
37.5°	2435.6	2084.0	1073.5	469.5	218.3	120.5	99.3	80.4	70.1	62.4	59.4
40°	2610.3	2205.8	1054.4	447.0	215.5	111.7	95.2	76.1	65.2	57.7	54.7
42.5°	2780.6	2315.5	1037.7	430.3	203.5	111.5	91.5	72.9	61.3	54.0	50.6
45°	2916.7	2417.8	1034.5	420.2	190.8	115.3	89.6	70.8	58.3	51.0	47.8
47.5°	3029.9	2528.9	1055.1	413.2	178.8	105.3	94.3	69.3	55.5	48.5	44.8
50°	3164.6	2665.2	1103.5	401.6	166.2	94.8	108.1	69.7	53.2	45.9	42.0
52.5°	3352.4	2853.9	1174.7	382.1	148.8	85.1	106.3	70.1	50.6	43.1	39.2
55°	3562.9	3089.5	1251.3	349.7	124.6	72.5	91.1	67.1	45.7	40.1	36.4
57.5°	3784.2	3303.3	1296.7	311.1	99.1	62.6	72.9	61.1	40.3	36.0	33.7
60°	3818.9	3384.6	1275.9	263.7	78.7	54.5	54.0	62.2	36.0	31.7	30.0
62.5°	3732.5	3282.5	1175.4	221.5	65.8	47.8	44.4	54.2	32.6	28.3	26.6
65°	3566.4	3006.6	1012.4	199.6	61.1	41.0	36.9	38.2	28.5	24.7	23.2
67.5°	3335.2	2638.2	831.2	187.2	60.5	35.2	31.5	28.9	24.7	21.4	20.2
70°	2862.7	2197.8	663.1	180.3	58.7	29.6	26.6	23.6	20.6	18.2	17.2
72.5°	2106.9	1557.4	515.9	172.8	59.2	23.6	23.2	19.5	16.5	14.2	13.7
75°	1217.4	889.8	338.3	140.0	56.4	18.2	19.3	13.7	11.6	9.9	9.9
77.5°	648.8	542.7	128.9	58.3	20.6	11.6	10.9	8.1	7.3	6.0	5.8
80°	282.8	238.8	38.8	16.3	11.4	6.2	4.1	3.6	3.2	2.6	2.4
82.5°	100.1	86.4	12.6	7.9	4.9	0.0	0.0	0.0	0.0	0.0	0.0
85°	22.7	16.3	0.0	1.9	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°	1518.4	1518.4	1518.4	1518.4	1518.4	1518.4	1518.4	1518.4	1518.4	1518.4	1518.4
2.5°	1287.9	1283.2	1255.3	1256.4	1261.3	1268.4	1251.7	1259.4	1280.2	1300.1	1307.6
5°	995.9	997.0	980.0	990.5	1000.0	1006.4	979.4	979.8	996.3	1018.8	1030.6
7.5°	701.7	700.0	700.9	726.0	743.8	730.9	741.0	706.0	708.2	724.3	712.2
10°	521.6	498.1	484.8	503.6	523.1	516.1	498.7	487.3	495.3	513.1	511.8
12.5°	409.9	376.1	356.1	342.6	358.7	345.4	345.0	335.1	324.4	326.3	354.8
15°	308.3	283.7	260.1	238.4	238.0	233.5	210.5	184.8	182.7	184.0	198.8
17.5°	212.0	203.7	194.0	175.4	170.4	151.6	129.3	119.0	113.8	116.2	121.1
20°	149.0	145.8	146.9	136.8	129.7	111.7	98.6	94.6	93.7	96.1	98.4
22.5°	123.5	117.7	117.1	112.6	105.5	92.4	85.3	83.0	81.9	84.0	85.8
25°	108.1	102.3	99.9	97.1	89.6	80.6	76.3	74.2	73.1	74.4	75.5
27.5°	95.2	89.8	87.7	85.8	78.5	72.0	68.6	66.7	65.8	66.3	67.3
30°	85.5	80.8	78.0	75.7	69.5	65.0	62.0	60.0	59.2	59.2	60.2
32.5°	75.5	72.9	70.3	67.3	61.5	58.5	55.5	53.4	52.5	52.7	53.6
35°	62.8	62.0	62.6	59.8	54.9	52.3	49.3	47.0	46.3	46.5	47.4
37.5°	55.7	51.9	54.2	52.7	50.0	46.5	42.7	40.5	39.4	40.1	40.5
40°	51.2	46.5	44.8	46.3	45.9	40.3	36.9	34.7	33.9	34.1	34.5
42.5°	47.4	41.8	37.9	37.7	40.3	35.2	31.5	29.6	28.5	28.5	28.9
45°	43.7	37.7	33.0	29.4	33.9	29.8	26.4	24.7	23.4	23.4	23.6
47.5°	41.0	34.3	28.7	24.0	25.5	24.4	21.7	19.9	18.7	18.7	18.9
50°	38.4	30.9	24.9	20.2	19.1	20.2	17.6	15.7	14.8	14.6	15.0
52.5°	35.6	27.4	21.2	17.2	15.0	15.2	13.7	12.4	11.4	11.4	11.8
55°	32.8	24.7	18.4	14.6	12.4	11.4	10.9	10.1	9.2	9.2	9.6
57.5°	30.0	21.7	15.7	12.0	9.9	9.0	9.0	8.4	7.7	7.7	8.1
60°	27.4	18.7	12.9	9.9	7.7	7.5	7.7	7.1	6.6	6.6	7.1
62.5°	24.4	15.9	10.5	8.1	6.2	6.0	6.6	6.2	5.8	5.8	6.2
65°	20.8	13.5	8.4	6.2	4.7	4.7	5.6	5.1	4.7	4.7	5.1
67.5°	17.6	11.4	6.4	4.5	3.4	3.6	4.7	4.3	4.1	4.1	4.5
70°	14.6	8.8	4.5	2.8	1.9	2.8	3.6	3.6	3.6	3.6	4.1
72.5°	10.9	6.0	2.6	1.1	0.9	1.9	3.0	3.4	3.2	3.2	3.9
75°	7.1	3.4	0.9	0.0	0.0	1.1	2.4	2.8	2.8	2.6	3.2
77.5°	4.1	1.1	0.0	0.0	0.0	0.0	1.5	1.3	1.1	0.9	1.5
80°	1.1	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°	1518.4	1518.4	1518.4	1518.4	1518.4	1518.4	1518.4	1518.4	1518.4	1518.4
2.5°	1337.9	1363.2	1398.8	1436.5	1494.6	1540.7	1585.9	1624.7	1639.7	1646.0
5°	1058.9	1096.0	1148.1	1215.0	1319.9	1414.2	1509.8	1606.1	1647.9	1658.4
7.5°	759.8	807.2	873.5	957.3	1080.2	1202.4	1335.9	1477.2	1542.0	1558.3
10°	562.4	620.3	696.2	784.5	901.8	1027.4	1173.0	1334.4	1408.4	1430.1
12.5°	399.0	477.3	578.9	686.3	787.9	900.1	1047.4	1225.3	1302.9	1326.3
15°	234.3	310.0	430.3	574.2	704.3	817.9	967.6	1169.3	1254.9	1278.5
17.5°	134.4	172.2	263.1	423.4	600.1	757.5	942.5	1183.3	1284.1	1305.9
20°	102.7	114.7	151.6	272.7	478.3	698.1	942.5	1262.2	1386.3	1418.5
22.5°	89.8	98.6	113.6	162.7	352.0	634.4	953.4	1376.2	1538.5	1574.1
25°	79.8	87.7	100.6	122.4	240.1	558.7	979.4	1516.3	1717.8	1763.9
27.5°	71.4	78.9	90.5	107.2	164.2	467.4	1014.3	1680.5	1915.5	1952.3
30°	63.9	71.0	81.5	93.3	126.7	363.8	1044.1	1835.3	2070.7	2110.4
32.5°	56.8	63.2	72.7	81.5	103.8	269.1	1047.4	1957.9	2199.6	2239.0
35°	50.2	56.0	64.5	71.4	86.0	212.5	997.4	2064.3	2328.4	2380.5
37.5°	43.7	49.3	56.8	62.0	75.7	173.2	921.1	2182.8	2493.7	2542.0
40°	37.7	42.7	50.4	53.8	71.6	133.1	838.1	2307.2	2655.8	2700.0
42.5°	32.2	36.9	44.4	51.0	62.8	99.5	748.5	2423.8	2801.6	2847.9
45°	26.8	31.7	39.2	54.0	52.1	74.4	652.6	2501.2	2916.7	2967.1
47.5°	21.7	27.2	37.5	51.5	41.6	54.7	576.7	2574.5	3004.0	3053.7
50°	17.4	22.9	42.2	45.9	34.1	41.8	545.0	2640.1	3061.2	3109.0
52.5°	14.2	19.3	39.9	35.2	28.5	34.5	562.2	2746.5	3114.2	3144.2
55°	11.8	15.2	24.0	24.4	24.2	29.4	583.4	2899.1	3251.2	3265.3
57.5°	10.3	12.2	16.7	18.9	20.4	26.2	583.8	3118.3	3463.2	3472.0
60°	8.8	10.7	13.9	15.2	17.6	23.4	562.6	3194.8	3546.6	3575.8
62.5°	7.7	9.4	11.6	12.6	14.8	21.0	512.8	3084.0	3432.1	3481.7
65°	6.9	8.6	9.6	10.7	13.1	18.9	430.9	2862.3	3242.2	3293.9
67.5°	6.0	7.5	8.6	9.6	11.8	16.7	317.3	2604.8	3024.1	3067.0
70°	5.4	6.6	7.7	8.6	10.3	14.2	192.5	2210.3	2722.7	2740.5
72.5°	5.1	6.0	7.1	7.7	9.0	12.4	97.6	1624.3	2176.6	2205.6
75°	4.5	5.4	6.4	6.9	7.9	10.7	39.7	1066.9	1577.4	1623.9
77.5°	3.6	4.9	5.8	6.2	6.9	8.8	20.2	681.8	1107.0	1137.0
80°	1.3	3.6	4.9	5.1	5.8	6.4	13.3	373.3	642.1	655.0
82.5°	0.0	2.4	3.9	3.6	4.1	4.9	8.6	177.5	423.9	428.6
85°	0.0	1.1	3.0	2.4	1.7	3.4	3.0	38.8	222.3	231.6
87.5°	0.0	0.0	0.2	1.1	0.9	1.3	0.4	0.2	20.2	25.5
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

LM-79-08: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

INVUE

Report Number: SP1-2104-224-4

Luminaire Tested: CCW-SA-2A-750-U-SL4

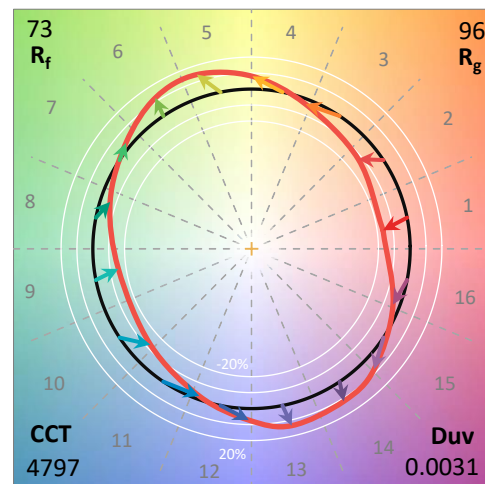
Test Date: 05/04/2021

Test Information

Test Method: LM-79-08
 Report Number: SP1-2104-224-4
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1
 Measurement Geometry: 4π
 Issue Date: 05/04/2021
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: INVUE
 Catalog Number: **CCW-SA-2A-750-U-SL4**
 Description: INVUE WALL PACK ClearCurve Light Square

Spectral Parameters

CCT (K):	4797	CRI (Ra):	71.8		
CIE u':	0.2115	R1:	69.5	R9:	-28.1
CIE v':	0.4912	R2:	75.8	R10:	43.3
Duv:	0.0031	R3:	81.2	R11:	71.1
CIE x:	0.3518	R4:	73.2	R12:	43.8
CIE y:	0.3631	R5:	70.2	R13:	69.8
CIE z:	0.2851	R6:	67.5	R14:	89.4
Peak Wavelength (nm):	445	R7:	80.3		
Dominant Wavelength (nm):	572	R8:	57.0		
Purity:	14.6				
Rf:	72.7				
Rg:	96.4				



Test Conditions

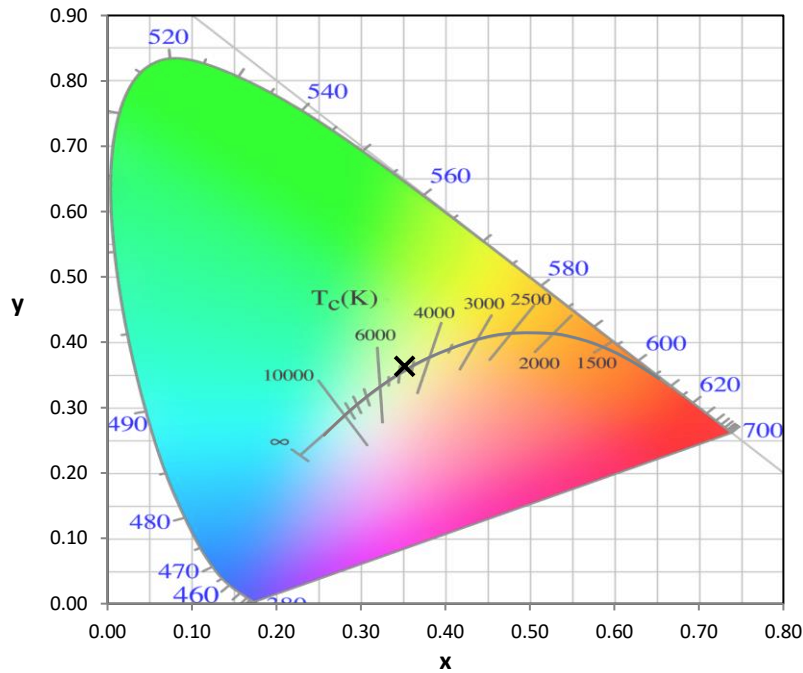
Stabilization Time: 91M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 24.8/44%
 Sphere Temperature (°C): 24.5

REPORT NUMBER: SP1-2104-224-4

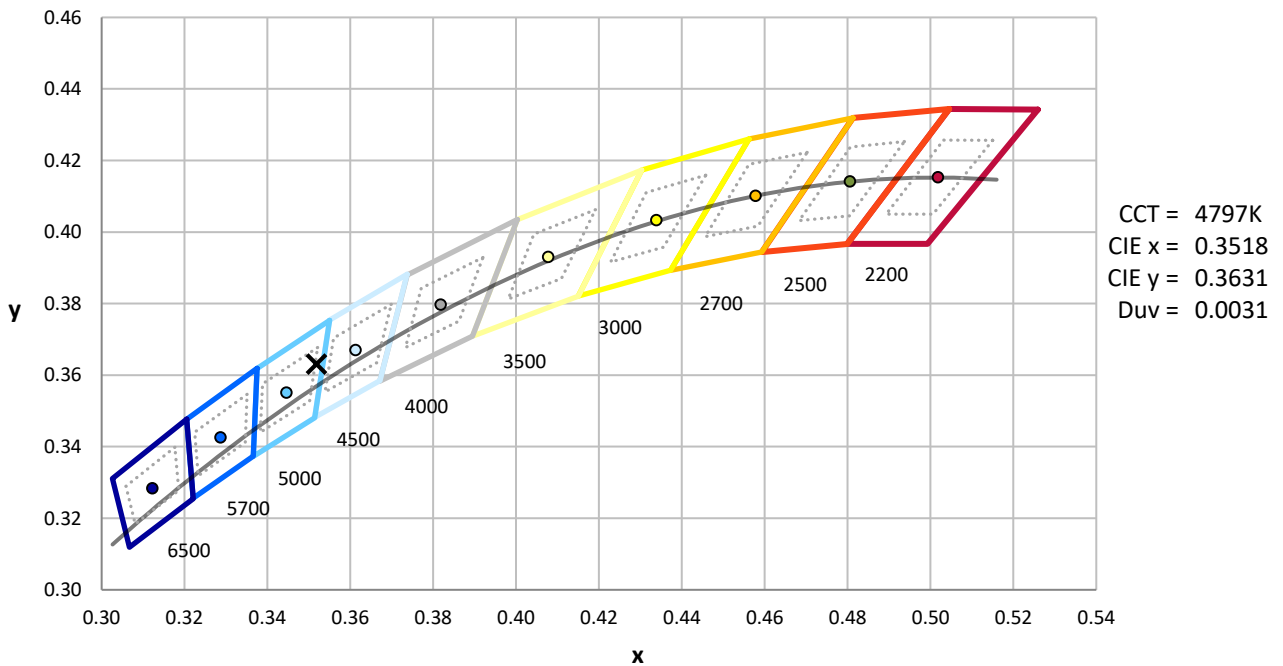
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	1/31/2021	7/31/2021
Power Meter	IN0071	12/1/2020	12/1/2021
AC Power Source	IN0063	12/1/2020	12/1/2021
DC Power Source	IN0208	12/1/2020	12/1/2021
Sphere Thermometer	IN0085	12/1/2020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

REPORT NUMBER: SP1-2104-224-4

CIE 1931 Chromaticity Diagram



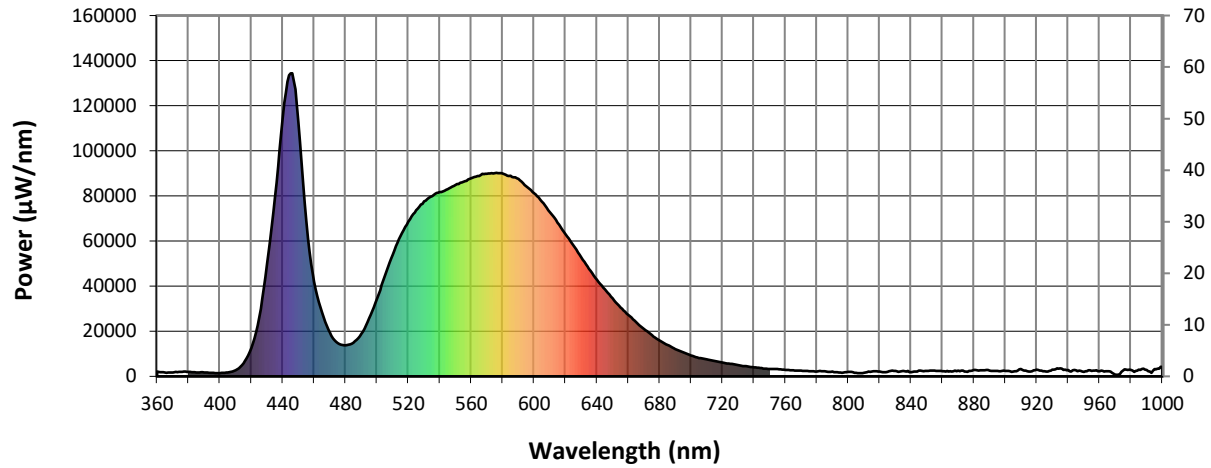
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 5000K 7-step quadrangle

REPORT NUMBER: SP1-2104-224-4

Photopic Flux vs. Wavelength

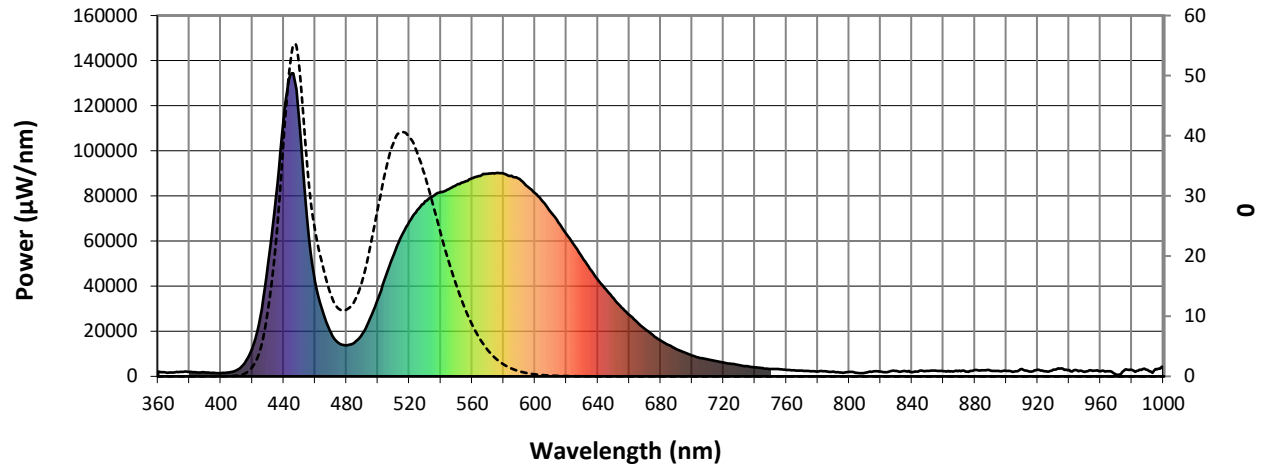


#####

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	2166	0.0	490	18819	2.7	620	63002	16.4	750	3328	0.0	880	2830	0.0
365	1672	0.0	495	25621	4.6	625	58119	12.8	755	3244	0.0	885	2751	0.0
370	1688	0.0	500	34501	7.6	630	52745	9.5	760	2856	0.0	890	2579	0.0
375	2041	0.0	505	44365	12.4	635	47707	7.2	765	2696	0.0	895	2461	0.0
380	1996	0.0	510	53923	18.5	640	42815	5.1	770	2495	0.0	900	2372	0.0
385	1720	0.0	515	62101	25.7	645	38643	3.7	775	2247	0.0	905	2190	0.0
390	1706	0.0	520	68661	33.3	650	34557	2.5	780	2133	0.0	910	3204	0.0
395	1550	0.0	525	73606	39.5	655	30447	1.7	785	2276	0.0	915	2069	0.0
400	1444	0.0	530	77628	45.7	660	27287	1.1	790	2093	0.0	920	2977	0.0
405	1761	0.0	535	79955	49.6	665	24046	0.8	795	1681	0.0	925	2332	0.0
410	2694	0.0	540	81715	53.2	670	20995	0.5	800	2044	0.0	930	2929	0.0
415	5767	0.0	545	83067	55.3	675	18242	0.3	805	1519	0.0	935	3495	0.0
420	12476	0.0	550	84799	57.6	680	15871	0.2	810	1549	0.0	940	2810	0.0
425	26189	0.1	555	86279	58.9	685	13910	0.1	815	2097	0.0	945	2657	0.0
430	49608	0.4	560	87792	59.7	690	12111	0.1	820	2098	0.0	950	1935	0.0
435	79442	0.9	565	88893	59.1	695	10644	0.0	825	2049	0.0	955	2408	0.0
440	114477	1.8	570	89760	58.4	700	9267	0.0	830	2352	0.0	960	2331	0.0
445	134358	2.8	575	90097	56.1	705	8161	0.0	835	2358	0.0	965	2231	0.0
450	112862	2.9	580	90008	53.5	710	7567	0.0	840	1853	0.0	970	688	0.0
455	68630	2.3	585	88925	49.4	715	6794	0.0	845	2553	0.0	975	2537	0.0
460	41987	1.7	590	87580	45.3	720	6069	0.0	850	2413	0.0	980	2826	0.0
465	28353	1.5	595	84246	39.9	725	5588	0.0	855	2597	0.0	985	3000	0.0
470	19290	1.2	600	81176	35.0	730	4999	0.0	860	2269	0.0	990	2880	0.0
475	14790	1.2	605	77529	30.0	735	4495	0.0	865	2210	0.0	995	3332	0.0
480	13767	1.3	610	72750	25.0	740	4033	0.0	870	2564	0.0	1000	4187	0.0
485	14964	1.8	615	68174	20.6	745	3625	0.0	875	2169	0.0			

REPORT NUMBER: SP1-2104-224-4

Scotopic Flux vs. Wavelength



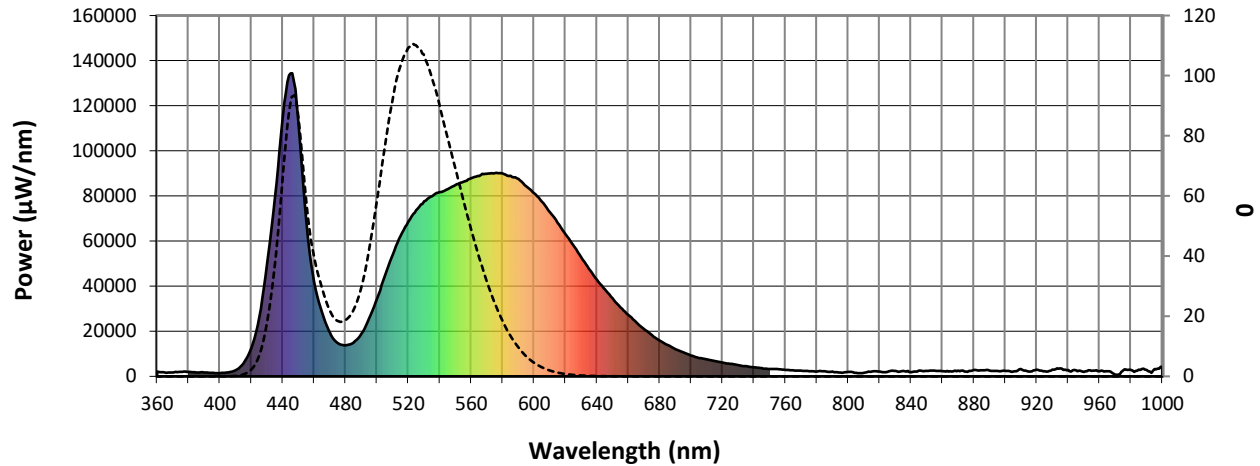
Scotopic Lumens: 9214.6

S/P: 1.71

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	2166	0.0	490	18819	29.0	620	63002	0.8	750	3328	0.0	880	2830	0.0
365	1672	0.0	495	25621	41.4	625	58119	0.5	755	3244	0.0	885	2751	0.0
370	1688	0.0	500	34501	57.7	630	52745	0.3	760	2856	0.0	890	2579	0.0
375	2041	0.0	505	44365	75.4	635	47707	0.2	765	2696	0.0	895	2461	0.0
380	1996	0.0	510	53923	91.4	640	42815	0.1	770	2495	0.0	900	2372	0.0
385	1720	0.0	515	62101	102.9	645	38643	0.1	775	2247	0.0	905	2190	0.0
390	1706	0.0	520	68661	109.1	650	34557	0.0	780	2133	0.0	910	3204	0.0
395	1550	0.0	525	73606	110.1	655	30447	0.0	785	2276	0.0	915	2069	0.0
400	1444	0.0	530	77628	107.0	660	27287	0.0	790	2093	0.0	920	2977	0.0
405	1761	0.1	535	79955	99.6	665	24046	0.0	795	1681	0.0	925	2332	0.0
410	2694	0.2	540	81715	90.3	670	20995	0.0	800	2044	0.0	930	2929	0.0
415	5767	0.6	545	83067	79.6	675	18242	0.0	805	1519	0.0	935	3495	0.0
420	12476	2.1	550	84799	69.3	680	15871	0.0	810	1549	0.0	940	2810	0.0
425	26189	6.4	555	86279	59.0	685	13910	0.0	815	2097	0.0	945	2657	0.0
430	49608	16.9	560	87792	49.1	690	12111	0.0	820	2098	0.0	950	1935	0.0
435	79442	35.5	565	88893	39.9	695	10644	0.0	825	2049	0.0	955	2408	0.0
440	114477	64.0	570	89760	31.7	700	9267	0.0	830	2352	0.0	960	2331	0.0
445	134358	90.0	575	90097	24.5	705	8161	0.0	835	2358	0.0	965	2231	0.0
450	112862	87.5	580	90008	18.5	710	7567	0.0	840	1853	0.0	970	688	0.0
455	68630	60.0	585	88925	13.6	715	6794	0.0	845	2553	0.0	975	2537	0.0
460	41987	40.6	590	87580	9.8	720	6069	0.0	850	2413	0.0	980	2826	0.0
465	28353	29.9	595	84246	6.7	725	5588	0.0	855	2597	0.0	985	3000	0.0
470	19290	22.2	600	81176	4.6	730	4999	0.0	860	2269	0.0	990	2880	0.0
475	14790	18.5	605	77529	3.0	735	4495	0.0	865	2210	0.0	995	3332	0.0
480	13767	18.6	610	72750	2.0	740	4033	0.0	870	2564	0.0	1000	4187	0.0
485	14964	21.7	615	68174	1.3	745	3625	0.0	875	2169	0.0			

REPORT NUMBER: SP1-2104-224-4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 3619.9

M/P: 0.67

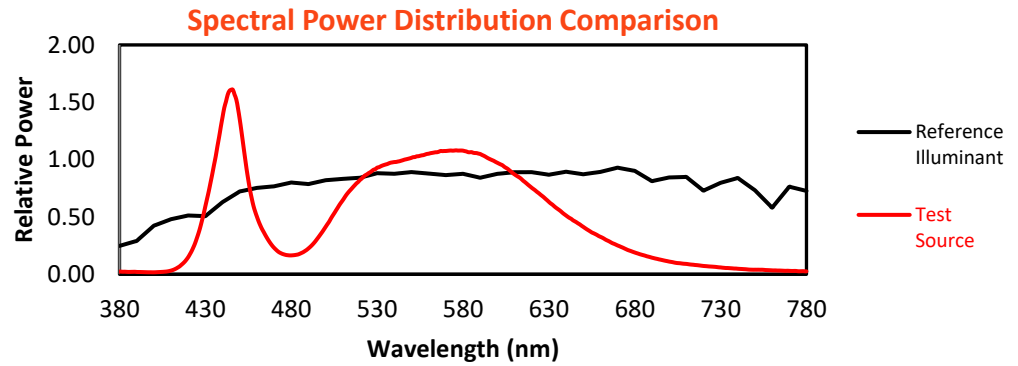
λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)
360	2166	0.0	490	18819	15.7	620	63002	0.0	750	3328	0.0	880	2830	0.0
365	1672	0.0	495	25621	21.2	625	58119	0.0	755	3244	0.0	885	2751	0.0
370	1688	0.0	500	34501	27.7	630	52745	0.0	760	2856	0.0	890	2579	0.0
375	2041	0.0	505	44365	34.0	635	47707	0.0	765	2696	0.0	895	2461	0.0
380	1996	0.0	510	53923	38.7	640	42815	0.0	770	2495	0.0	900	2372	0.0
385	1720	0.0	515	62101	40.6	645	38643	0.0	775	2247	0.0	905	2190	0.0
390	1706	0.0	520	68661	40.0	650	34557	0.0	780	2133	0.0	910	3204	0.0
395	1550	0.0	525	73606	37.3	655	30447	0.0	785	2276	0.0	915	2069	0.0
400	1444	0.0	530	77628	33.5	660	27287	0.0	790	2093	0.0	920	2977	0.0
405	1761	0.0	535	79955	28.8	665	24046	0.0	795	1681	0.0	925	2332	0.0
410	2694	0.1	540	81715	23.9	670	20995	0.0	800	2044	0.0	930	2929	0.0
415	5767	0.4	545	83067	19.3	675	18242	0.0	805	1519	0.0	935	3495	0.0
420	12476	1.4	550	84799	15.2	680	15871	0.0	810	1549	0.0	940	2810	0.0
425	26189	4.1	555	86279	11.6	685	13910	0.0	815	2097	0.0	945	2657	0.0
430	49608	10.5	560	87792	8.7	690	12111	0.0	820	2098	0.0	950	1935	0.0
435	79442	21.2	565	88893	6.2	695	10644	0.0	825	2049	0.0	955	2408	0.0
440	114477	38.3	570	89760	4.4	700	9267	0.0	830	2352	0.0	960	2331	0.0
445	134358	53.0	575	90097	3.0	705	8161	0.0	835	2358	0.0	965	2231	0.0
450	112862	52.0	580	90008	2.0	710	7567	0.0	840	1853	0.0	970	688	0.0
455	68630	36.0	585	88925	1.3	715	6794	0.0	845	2553	0.0	975	2537	0.0
460	41987	24.7	590	87580	0.9	720	6069	0.0	850	2413	0.0	980	2826	0.0
465	28353	18.5	595	84246	0.5	725	5588	0.0	855	2597	0.0	985	3000	0.0
470	19290	13.8	600	81176	0.3	730	4999	0.0	860	2269	0.0	990	2880	0.0
475	14790	11.3	605	77529	0.2	735	4495	0.0	865	2210	0.0	995	3332	0.0
480	13767	11.1	610	72750	0.1	740	4033	0.0	870	2564	0.0	1000	4187	0.0
485	14964	12.3	615	68174	0.1	745	3625	0.0	875	2169	0.0			

REPORT NUMBER: SP1-2104-224-4

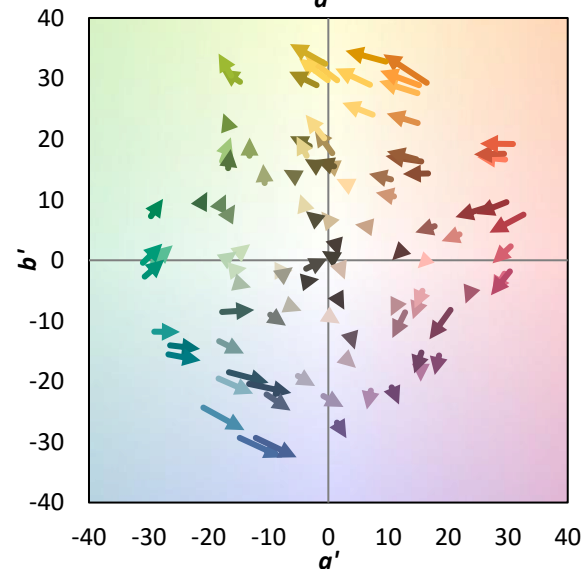
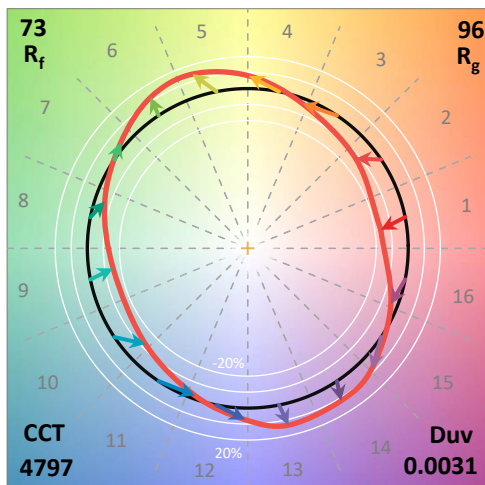
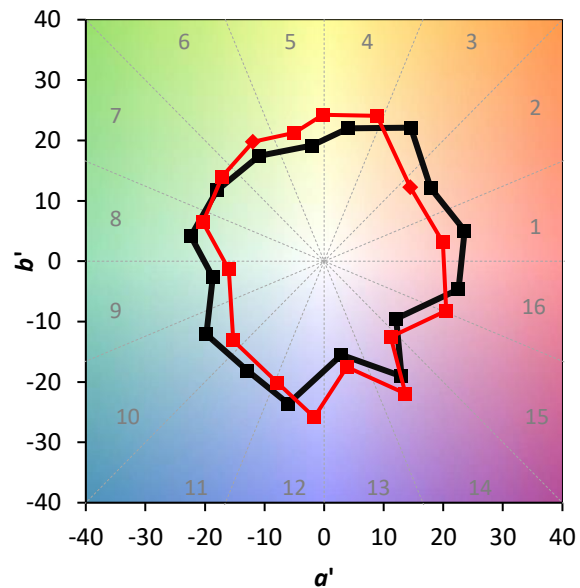
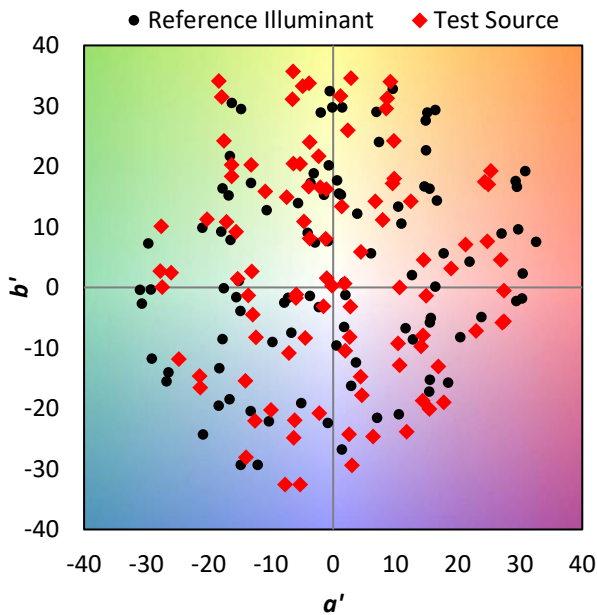
TM-30-18

Summary

$R_f = 72.7$
 $R_g = 96.4$
 $CIE R_a = 71.8$
 $R_g = -28.1$

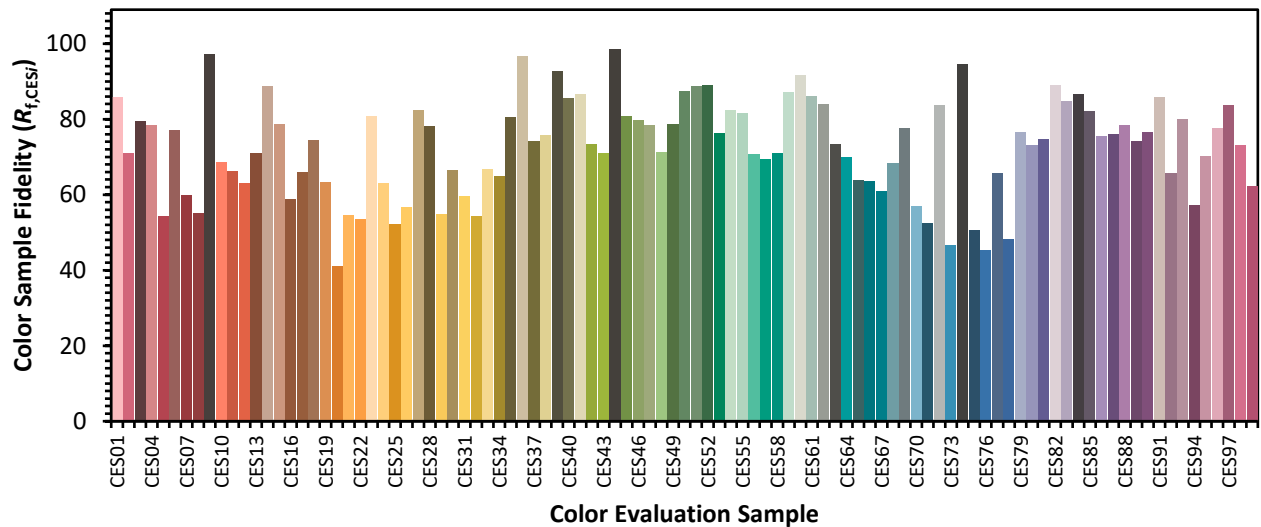


Color Vector Graphics

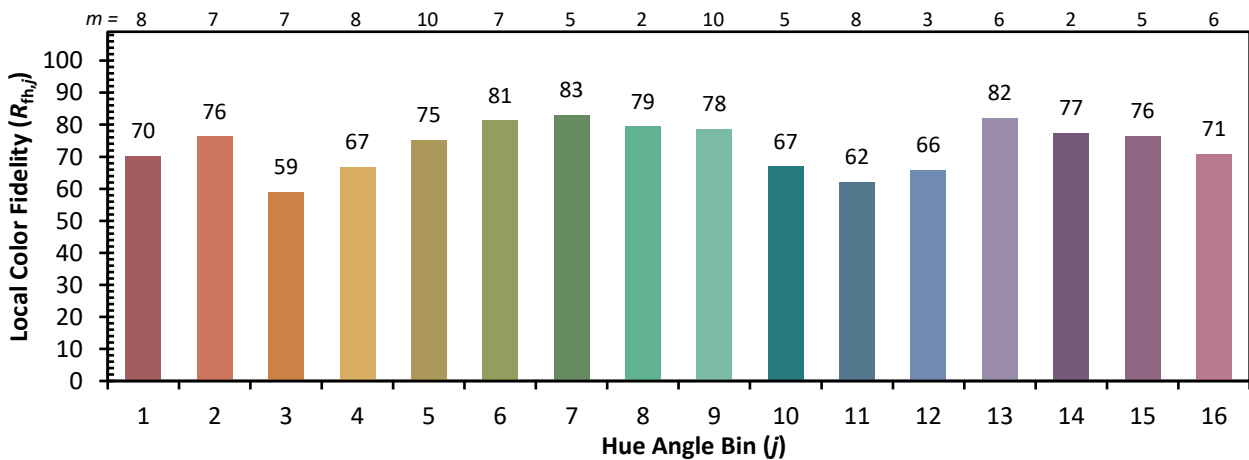
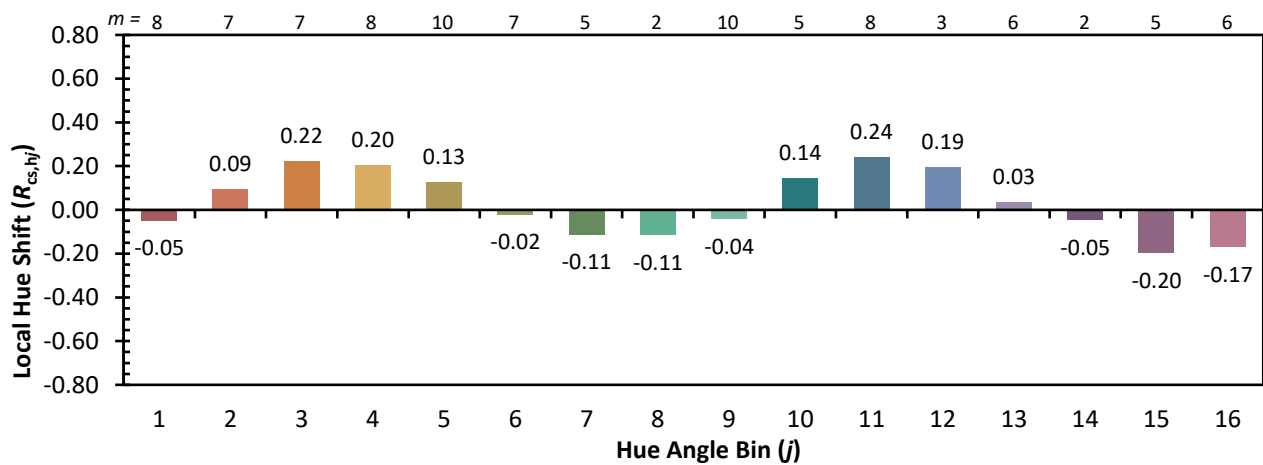
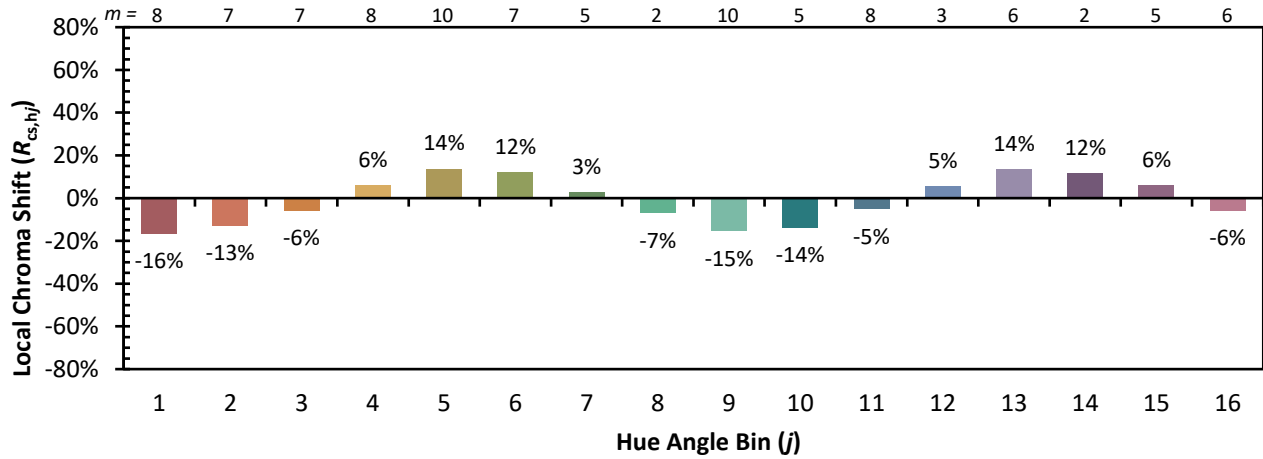


Individual Sample Fidelity Index ($R_{f,i}$)

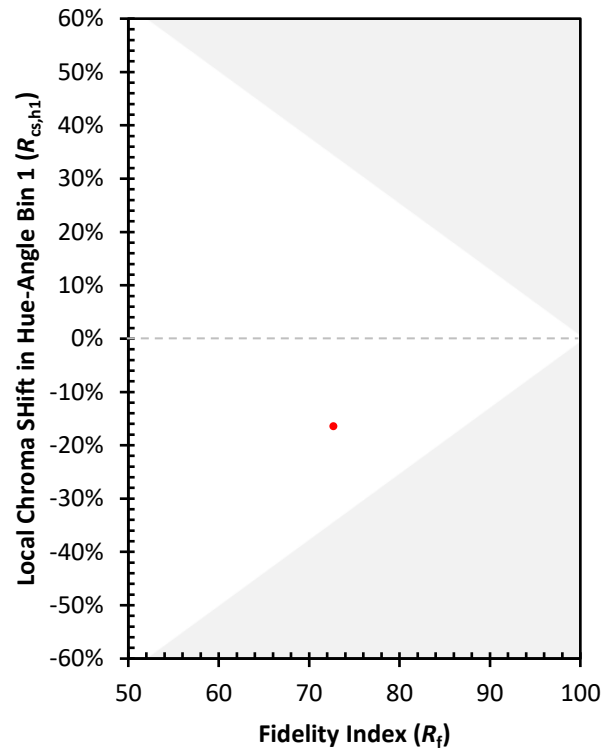
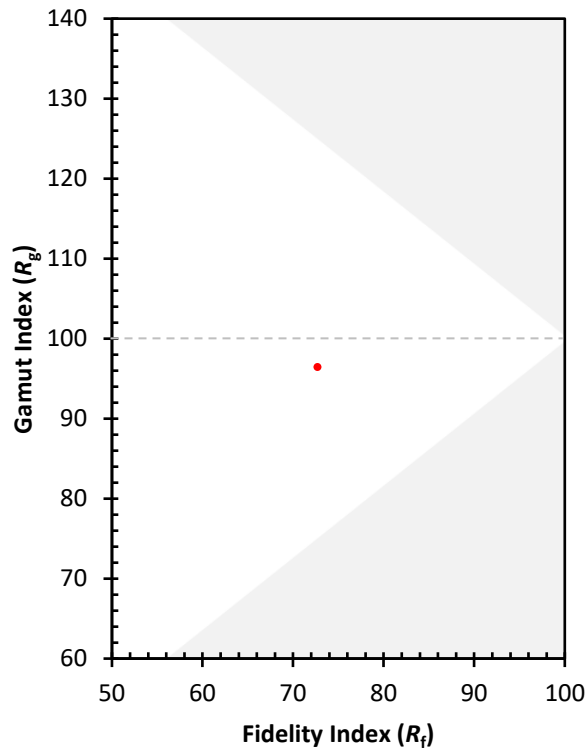
CES01 = 85	CES26 = 57	CES51 = 89	CES76 = 45
CES02 = 60	CES27 = 82	CES52 = 89	CES77 = 66
CES03 = 30	CES28 = 78	CES53 = 76	CES78 = 48
CES04 = 69	CES29 = 55	CES54 = 82	CES79 = 76
CES05 = 46	CES30 = 66	CES55 = 82	CES80 = 73
CES06 = 50	CES31 = 60	CES56 = 71	CES81 = 75
CES07 = 39	CES32 = 54	CES57 = 69	CES82 = 89
CES08 = 38	CES33 = 67	CES58 = 71	CES83 = 85
CES09 = 29	CES34 = 65	CES59 = 87	CES84 = 87
CES10 = 73	CES35 = 80	CES60 = 92	CES85 = 82
CES11 = 56	CES36 = 97	CES61 = 86	CES86 = 75
CES12 = 62	CES37 = 74	CES62 = 84	CES87 = 76
CES13 = 42	CES38 = 76	CES63 = 73	CES88 = 78
CES14 = 74	CES39 = 93	CES64 = 70	CES89 = 74
CES15 = 70	CES40 = 86	CES65 = 64	CES90 = 76
CES16 = 46	CES41 = 87	CES66 = 64	CES91 = 86
CES17 = 49	CES42 = 73	CES67 = 61	CES92 = 66
CES18 = 55	CES43 = 71	CES68 = 68	CES93 = 80
CES19 = 71	CES44 = 98	CES69 = 78	CES94 = 57
CES20 = 64	CES45 = 81	CES70 = 57	CES95 = 70
CES21 = 85	CES46 = 80	CES71 = 53	CES96 = 78
CES22 = 77	CES47 = 78	CES72 = 84	CES97 = 84
CES23 = 91	CES48 = 71	CES73 = 47	CES98 = 73
CES24 = 90	CES49 = 79	CES74 = 95	CES99 = 62
CES25 = 71	CES50 = 87	CES75 = 51	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)