

Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions
(formerly Eaton)

Brand: McGRAW-EDISON

Report Number: P387176

Luminaire Tested: **GWC-SA2D-830-U-SLR-HSS**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P387176
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-28)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: MCGRAW-EDISON
Catalog Number: GWC-SA2D-830-U-SLR-HSS
Description: GALLEON WALL LUMINAIRE
(2) 80 CRI, 3000K, 1200mA LIGHTSQUARES WITH 16 LEDS EACH AND SPILL LIGHT
ELIMINATOR RIGHT OPTICS WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9539 lumens
Efficiency: N/A
Efficacy: 74.5 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 0.5' x H: 0')
IES Classification: Type IV - Medium
BUG Rating: B1 - U0 - G2

Input Watts (W): 128
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

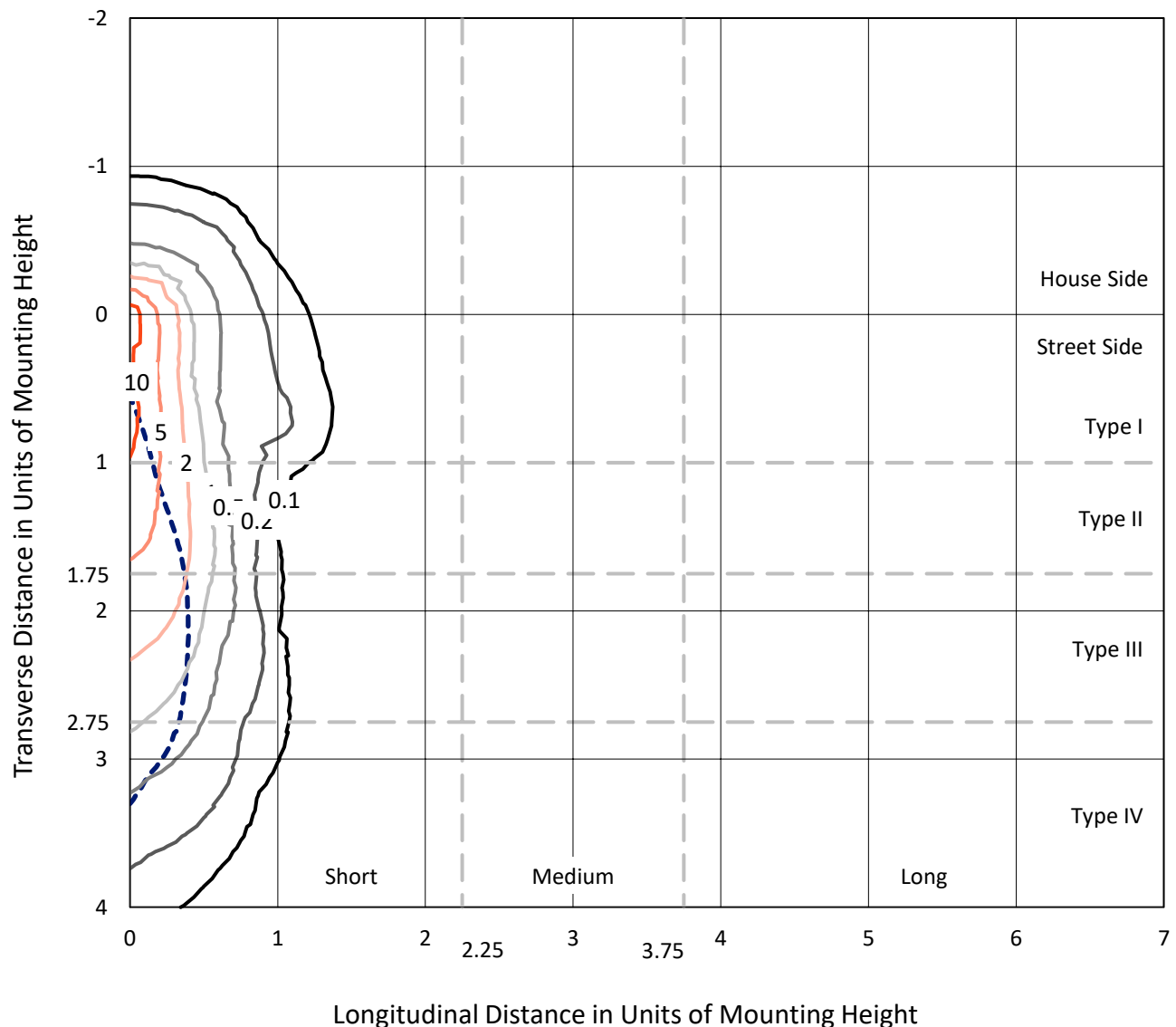


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Iso-Footcandle Lines of Horizontal Illumination

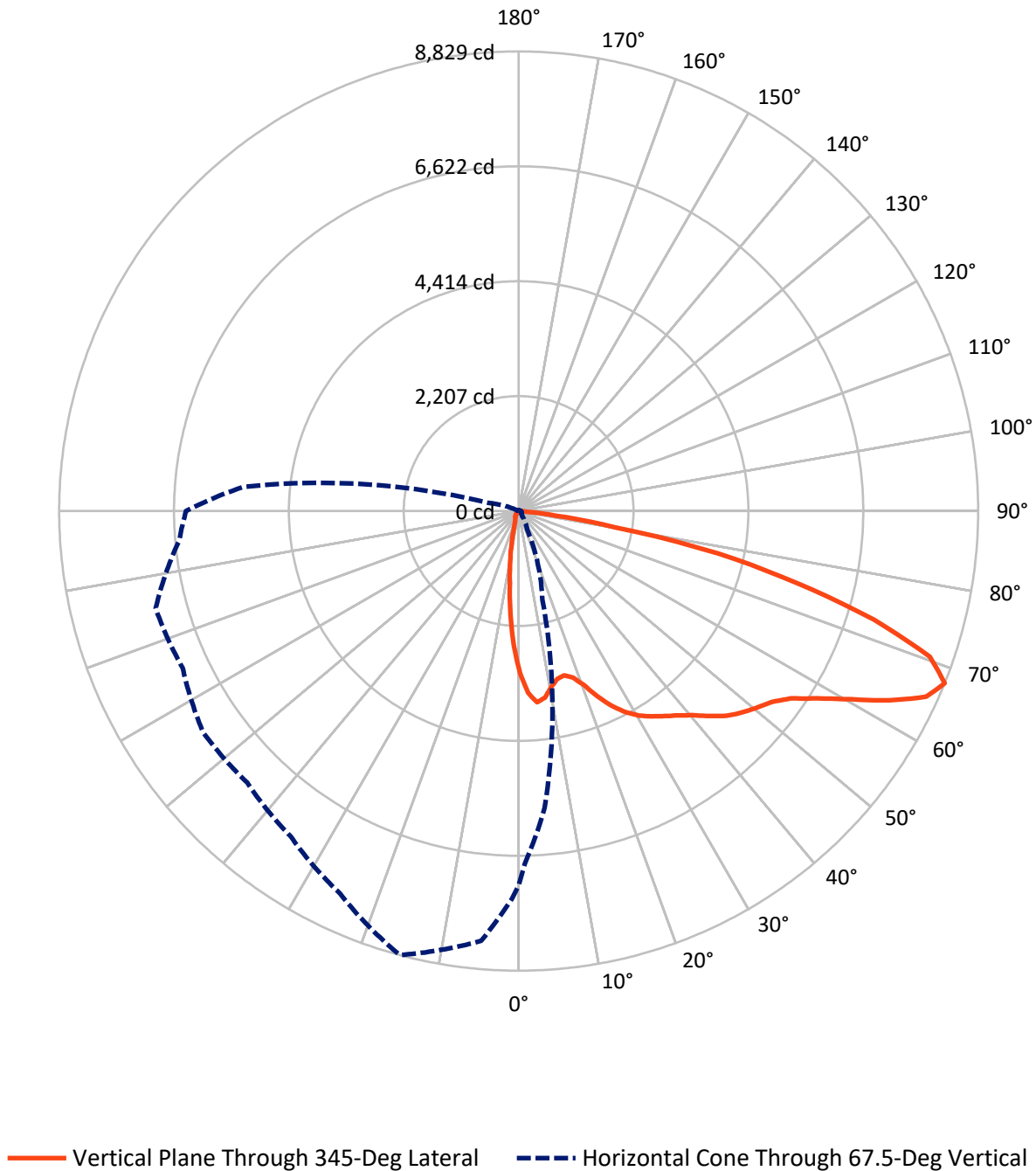
× Max cd
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 13.8 fc
 Type IV - Medium - N/A

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Luminous Intensity Polar Plot



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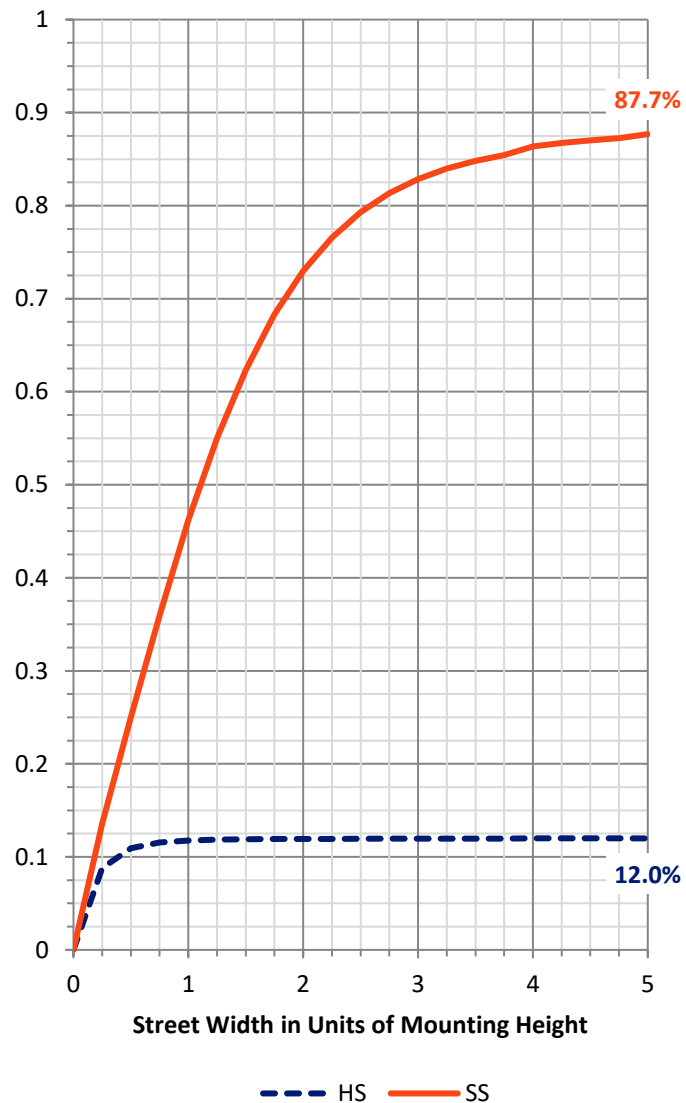
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	1154.5	0.0	1154.5
	% Fixture	12.1	0.0	12.1
Street Side	Lumens	8384.5	0.0	8384.5
	% Fixture	87.9	0.0	87.9
Total	Lumens	9539.0	0.0	9539.0
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	238.5	2.5
10°-20°	474.7	5.0
20°-30°	674.1	7.1
30°-40°	995.6	10.4
40°-50°	1435.9	15.1
50°-60°	2015.7	21.1
60°-70°	2349.8	24.6
70°-80°	1201.2	12.6
80°-90°	153.4	1.6
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°	9539.0	100.0
0°-180°	9539.0	100.0

Coefficient of Utilization



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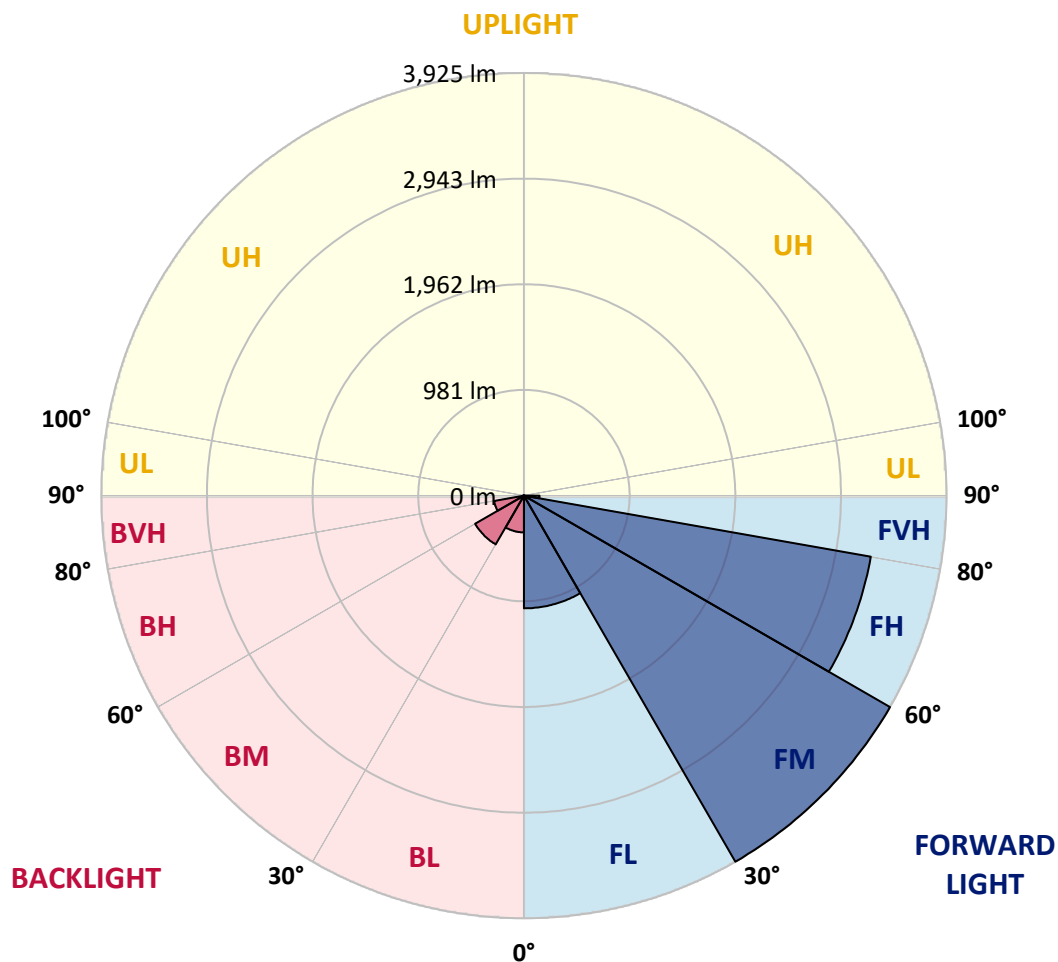
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	1046.2	11.0			
FM	(30°-60°)	3924.5	41.1			
FH	(60°-80°)	3269.6	34.3			G2/5000
FVH	(80°-90°)	144.1	1.5			G2/225
BL	(0°-30°)	341.0	3.6	B1/500		
BM	(30°-60°)	522.8	5.5	B1/1000		
BH	(60°-80°)	281.4	2.9	B1/500		G1/500
BVH	(80°-90°)	9.3	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 IV Medium



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CANDELA DISTRIBUTION (FULL):

	0°	1°	5°	15°	25°	35°	45°	55°	65°	75°	85°
0°	3107.3	3107.3	3107.3	3107.3	3107.3	3107.3	3107.3	3107.3	3107.3	3107.3	3107.3
2.5°	3402.4	3376.2	3347.3	3252.8	3165.2	3064.8	2983.0	2926.1	2854.7	2762.1	2738.6
5°	3378.0	3350.0	3259.2	3049.0	2865.1	2686.1	2513.5	2412.3	2286.6	2159.2	2127.6
7.5°	3132.6	3103.2	2972.2	2684.3	2436.7	2178.2	1954.0	1815.3	1673.4	1556.8	1494.9
10°	2877.3	2845.2	2697.9	2348.6	2043.5	1809.9	1645.4	1513.0	1378.8	1254.0	1154.6
12.5°	2701.5	2659.5	2499.5	2103.6	1837.9	1679.3	1525.6	1367.0	1185.4	1051.6	942.2
15°	2627.8	2579.9	2410.9	2009.2	1765.1	1579.0	1378.8	1184.0	971.1	818.0	717.6
17.5°	2684.8	2622.4	2441.2	2002.9	1673.9	1420.3	1167.3	938.6	707.7	552.7	481.3
20°	2878.2	2796.4	2566.4	2001.0	1563.1	1231.9	911.0	652.6	466.4	375.1	337.6
22.5°	3182.8	3074.8	2746.2	2015.5	1448.8	1034.0	658.0	443.3	350.2	302.8	280.6
25°	3550.6	3425.5	3005.2	2066.6	1348.5	841.5	478.1	350.2	295.5	260.8	242.2
27.5°	3900.4	3798.7	3332.4	2140.2	1270.8	686.0	388.2	296.9	252.6	229.6	214.7
30°	4249.7	4121.8	3668.1	2227.9	1177.2	580.7	341.2	270.7	226.4	202.0	192.5
32.5°	4503.7	4397.5	3931.1	2291.2	1077.3	512.0	305.0	247.6	211.5	186.6	172.6
35°	4802.4	4682.2	4156.6	2305.2	1013.2	468.6	274.3	222.8	183.5	161.3	146.4
37.5°	5125.1	4975.5	4416.9	2274.4	963.0	447.4	251.3	211.5	171.3	148.7	132.9
40°	5482.1	5313.1	4666.8	2230.2	913.8	440.2	233.6	202.9	161.8	138.7	122.5
42.5°	5858.1	5658.8	4883.3	2183.6	882.6	415.3	231.8	194.3	154.6	129.7	113.4
45°	6174.0	5971.9	5105.6	2168.2	860.4	388.2	239.5	188.4	149.6	122.5	106.7
47.5°	6425.7	6234.5	5333.4	2202.6	847.8	363.3	218.3	196.1	146.9	116.1	100.8
50°	6726.2	6509.7	5654.3	2305.2	829.2	338.5	197.5	224.6	146.9	112.1	95.8
52.5°	7103.1	6888.9	6012.2	2464.2	792.2	304.1	177.6	225.0	148.2	106.7	89.5
55°	7577.1	7421.7	6523.3	2638.7	733.0	253.5	153.6	193.4	142.8	96.7	83.6
57.5°	8031.7	7904.8	6989.2	2758.0	653.9	197.9	133.8	155.9	130.6	85.0	74.6
59°	8156.0	8017.3	7160.0	2763.4	594.7	172.6	123.8	128.8	127.9	79.5	69.1
60°	8156.0	8008.7	7209.3	2734.5	551.8	158.6	117.5	114.8	133.3	75.9	66.0
62.5°	8008.2	7801.3	7049.3	2538.8	450.1	135.1	102.6	94.9	119.8	68.2	58.3
65°	7700.9	7399.5	6504.3	2185.0	401.3	123.8	88.6	77.7	83.2	60.1	51.1
67.5°	7188.5	6780.0	5718.4	1765.1	381.9	120.7	76.4	66.0	62.8	51.5	44.7
70°	6286.0	5832.8	4764.5	1387.8	365.1	119.3	64.2	55.6	50.6	43.4	38.0
72.5°	4575.1	4102.4	3382.5	1085.0	355.2	122.0	51.5	46.5	41.6	33.9	29.4
75°	2617.0	2307.4	1901.2	716.7	302.8	116.6	39.8	38.9	29.8	24.4	20.3
77.5°	1352.1	1311.0	1139.3	275.2	145.1	51.1	26.2	22.6	17.6	14.9	12.2
80°	583.4	577.1	499.4	79.5	38.4	28.5	14.9	9.5	8.1	6.3	5.0
82.5°	201.6	201.6	177.6	26.7	17.2	14.0	1.8	0.0	0.0	0.0	0.0
85°	40.7	45.6	32.1	0.0	5.9	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):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	3107.3	3107.3	3107.3	3107.3	3107.3	3107.3	3107.3	3107.3	3107.3	3107.3	3107.3
2.5°	2710.1	2655.4	2651.8	2617.4	2574.5	2555.1	2543.8	2563.7	2588.1	2590.8	2627.4
5°	2103.6	2046.2	2070.2	2009.2	2021.4	2009.2	1989.3	1992.9	2003.8	1969.9	2011.9
7.5°	1477.3	1433.9	1461.5	1445.2	1466.9	1475.5	1463.3	1445.2	1391.9	1385.5	1422.2
10°	1113.5	1064.2	1034.9	1004.1	1010.9	1024.9	1020.4	1007.3	973.4	975.2	1010.5
12.5°	894.8	839.6	781.3	705.9	687.4	697.7	687.4	679.7	647.1	649.8	681.0
15°	678.8	633.6	572.6	512.0	479.0	482.2	453.3	432.9	412.6	388.2	407.2
17.5°	458.2	430.7	412.6	394.5	355.2	346.2	309.6	270.2	254.9	243.6	251.7
20°	324.5	309.6	302.3	301.4	278.8	267.5	231.8	207.4	199.7	197.5	202.5
22.5°	271.1	260.3	249.9	244.0	232.7	219.6	192.5	180.3	174.9	172.2	175.8
25°	235.9	227.8	216.9	207.0	202.5	188.4	169.0	160.0	156.4	153.6	155.5
27.5°	209.7	202.5	189.8	183.5	179.9	167.7	150.9	143.7	140.5	139.6	139.2
30°	188.9	182.1	170.4	163.1	156.8	146.0	136.0	128.8	125.6	124.7	123.8
32.5°	168.1	162.7	155.0	147.8	141.0	131.1	122.5	116.6	111.6	110.7	110.3
35°	141.9	136.5	132.4	132.0	125.6	116.1	109.8	102.1	98.1	96.7	97.2
37.5°	126.1	118.9	109.8	113.0	111.2	104.4	95.8	88.1	84.1	83.2	83.2
40°	116.1	108.5	98.1	92.6	98.1	96.7	83.2	75.5	71.4	70.9	70.0
42.5°	106.7	99.0	87.2	78.2	80.9	85.0	71.9	64.6	60.6	59.7	58.3
45°	99.9	91.7	78.6	68.2	62.8	71.4	61.5	52.4	50.2	48.4	47.5
47.5°	93.5	85.9	70.9	59.2	50.2	51.5	49.3	42.9	40.2	38.4	38.0
50°	88.1	80.0	64.2	50.6	41.6	38.0	39.8	33.9	31.6	29.8	28.9
52.5°	81.8	74.1	56.9	43.8	34.8	29.8	30.3	26.7	24.4	23.0	22.6
55°	76.8	69.1	51.1	38.4	30.7	24.4	21.7	20.8	19.4	18.5	18.1
57.5°	70.0	62.8	45.2	32.5	26.2	19.9	16.7	16.7	16.3	15.4	14.9
59°	66.0	59.7	41.6	29.4	24.0	17.2	14.9	15.4	14.9	14.0	13.6
60°	62.8	56.9	38.9	27.1	22.6	15.8	13.6	14.5	14.0	13.1	12.7
62.5°	55.6	51.5	33.4	22.6	19.9	12.7	11.3	12.2	12.2	11.7	11.3
65°	48.8	44.3	28.5	19.0	18.5	10.8	9.0	10.8	11.3	10.4	9.5
67.5°	42.5	38.0	24.9	15.4	17.2	8.6	6.8	9.0	12.2	9.5	8.6
70°	36.2	31.6	19.4	12.2	18.1	5.9	5.4	8.1	14.5	10.4	8.1
72.5°	28.0	24.4	13.6	9.0	19.4	4.1	4.1	6.8	16.3	11.3	7.7
75°	19.4	15.8	8.1	5.4	15.8	2.7	2.7	6.3	15.4	10.4	7.2
77.5°	11.3	8.6	2.7	0.5	8.1	0.0	0.5	4.5	10.8	6.3	3.2
80°	4.1	1.8	0.0	0.0	5.0	0.0	0.0	0.0	0.9	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):

	185°	195°	205°	215°	225°	235°	245°	255°	265°	270°	275°
0°	3107.3	3107.3	3107.3	3107.3	3107.3	3107.3	3107.3	3107.3	3107.3	3107.3	3107.3
2.5°	2636.9	2697.9	2752.6	2835.3	2933.3	3046.3	3143.5	3247.9	3345.9	3386.6	3414.6
5°	2020.5	2095.9	2184.1	2305.6	2467.4	2666.7	2853.3	3064.4	3291.2	3404.7	3511.3
7.5°	1428.5	1505.3	1614.7	1743.9	1939.6	2176.8	2420.9	2712.3	3019.6	3199.0	3375.7
10°	1027.2	1121.6	1223.8	1400.5	1599.3	1824.3	2075.6	2401.0	2743.5	2942.4	3155.2
12.5°	699.1	806.7	961.2	1159.1	1392.8	1613.3	1831.6	2142.0	2539.7	2736.7	2965.0
15°	419.4	479.0	642.6	871.7	1158.2	1433.0	1672.1	1983.4	2407.3	2648.6	2885.9
17.5°	258.5	286.1	375.1	563.1	864.0	1211.6	1539.2	1929.6	2426.3	2720.0	2974.0
20°	206.1	216.9	245.4	332.6	572.6	967.5	1389.6	1918.8	2581.3	2942.8	3215.3
22.5°	179.0	189.3	208.3	241.8	360.2	724.4	1247.7	1928.7	2803.6	3276.8	3594.9
25°	157.7	166.8	184.8	212.4	263.9	510.2	1095.9	1973.0	3093.3	3691.2	4029.2
27.5°	141.0	148.7	165.4	190.7	226.4	356.1	923.7	2026.8	3436.8	4115.1	4448.6
30°	125.6	132.4	147.3	170.8	196.6	273.9	734.8	2063.4	3780.7	4448.6	4748.2
32.5°	112.5	117.5	131.1	150.9	170.8	218.3	558.6	2057.5	4036.0	4726.0	4963.7
35°	99.0	103.9	115.7	132.9	148.7	180.3	439.3	1947.7	4258.3	5013.9	5210.5
37.5°	84.1	90.4	101.7	117.0	127.9	158.6	355.2	1815.3	4483.8	5342.9	5485.7
40°	71.4	77.7	87.7	104.4	111.2	150.5	273.0	1654.0	4737.3	5710.7	5787.6
42.5°	59.2	65.1	75.5	89.9	104.8	129.7	202.0	1469.6	4980.9	6025.3	6062.8
45°	47.9	53.8	64.6	79.1	112.1	107.6	156.4	1272.1	5177.5	6286.9	6299.1
47.5°	38.0	43.4	54.7	74.6	104.4	85.9	111.6	1117.1	5342.4	6491.2	6459.1
50°	29.4	33.9	45.6	85.4	91.3	70.9	84.5	1065.6	5490.2	6617.7	6534.6
52.5°	23.0	27.1	37.5	80.0	70.9	58.7	70.9	1114.0	5692.7	6722.6	6577.1
55°	18.5	22.6	29.4	45.6	48.4	49.7	60.6	1159.1	6042.0	6968.4	6827.9
57.5°	15.4	19.4	24.0	32.1	36.6	42.0	53.8	1164.1	6453.7	7376.9	7244.1
59°	14.0	17.6	21.7	28.5	32.1	38.4	50.6	1137.0	6598.7	7525.6	7459.2
60°	13.1	16.7	20.3	26.2	29.8	36.2	48.8	1111.2	6605.1	7520.2	7550.9
62.5°	11.3	14.9	18.1	22.1	25.3	30.7	43.8	1015.9	6337.5	7273.9	7495.8
65°	9.9	13.1	16.3	19.0	21.7	27.6	39.8	841.9	5880.7	6876.7	7118.4
67.5°	9.0	11.3	14.9	16.7	19.4	24.4	35.2	600.1	5309.9	6390.9	6547.7
70°	8.1	10.8	13.6	15.4	17.6	21.2	30.3	344.8	4483.8	5679.6	5791.2
72.5°	7.7	10.4	12.2	14.5	15.8	19.0	27.6	162.2	3283.1	4549.8	4841.3
75°	6.8	9.5	11.3	13.6	14.9	17.2	23.5	77.7	2183.6	3292.6	3623.8
77.5°	4.1	7.7	10.4	12.2	13.1	14.9	19.4	44.7	1393.7	2279.0	2684.3
80°	0.0	2.7	7.7	10.4	11.3	12.7	14.9	35.2	745.6	1301.9	1562.7
82.5°	0.0	0.0	5.4	8.1	7.7	8.6	11.3	22.1	336.2	850.9	958.9
85°	0.0	0.0	1.8	6.3	5.4	4.1	7.7	7.7	73.7	430.7	537.3
87.5°	0.0	0.0	0.0	0.5	2.7	1.8	3.2	0.9	0.5	32.1	130.1
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°	3107.3	3107.3	3107.3	3107.3	3107.3	3107.3	3107.3	3107.3	3107.3	3107.3
2.5°	3512.7	3546.1	3602.6	3629.3	3616.2	3560.6	3494.1	3426.4	3386.6	3402.4
5°	3728.7	3900.9	4000.3	4033.3	3978.1	3853.4	3690.3	3475.2	3398.8	3378.0
7.5°	3728.7	4052.7	4257.9	4294.0	4171.1	3926.6	3620.7	3284.9	3173.3	3132.6
10°	3597.6	4038.7	4324.7	4382.1	4210.4	3844.8	3434.9	3051.7	2919.3	2877.3
12.5°	3449.9	3924.8	4226.2	4305.3	4164.3	3763.5	3306.2	2894.0	2738.1	2701.5
15°	3359.0	3784.7	4034.2	4091.6	4031.9	3716.0	3275.4	2846.6	2663.1	2627.8
17.5°	3391.6	3676.3	3766.2	3799.6	3839.9	3699.3	3359.0	2950.5	2718.2	2684.8
20°	3514.0	3561.9	3515.4	3557.4	3665.9	3715.6	3558.3	3201.8	2922.9	2878.2
22.5°	3721.9	3502.7	3372.1	3388.8	3520.8	3769.4	3862.9	3560.6	3238.8	3182.8
25°	3964.1	3550.6	3292.6	3277.7	3413.3	3840.3	4141.3	3951.0	3612.5	3550.6
27.5°	4268.7	3658.2	3276.3	3261.4	3375.7	3906.7	4372.7	4337.0	4006.2	3900.4
30°	4503.7	3763.9	3324.7	3290.3	3413.3	3952.8	4558.4	4664.6	4319.8	4249.7
32.5°	4672.3	3888.7	3403.3	3353.6	3519.0	4032.4	4701.6	4964.6	4609.9	4503.7
35°	4800.6	4024.2	3530.3	3448.5	3664.5	4153.0	4835.9	5284.1	4918.6	4802.4
37.5°	4920.8	4214.5	3728.7	3631.1	3892.7	4347.3	4977.8	5646.6	5263.8	5125.1
40°	5088.5	4430.0	4034.6	3947.9	4276.4	4612.2	5154.9	6024.4	5656.5	5482.1
42.5°	5256.1	4661.4	4347.8	4371.3	4755.0	4933.9	5383.6	6423.9	6044.3	5858.1
45°	5409.3	4900.0	4793.8	4902.3	5199.2	5286.9	5610.9	6654.8	6353.8	6174.0
47.5°	5545.8	5198.3	5237.1	5525.9	5704.4	5606.4	5780.8	6854.1	6584.3	6425.7
50°	5704.4	5584.2	5821.5	6230.0	6286.0	5895.6	5935.3	7090.0	6853.6	6726.2
52.5°	5878.0	5990.9	6468.6	6828.8	6810.7	6209.7	6090.8	7354.3	7222.8	7103.1
55°	6075.0	6319.5	7038.4	7389.1	7373.8	6560.3	6348.4	7681.1	7685.6	7577.1
57.5°	6367.4	6602.4	7425.3	7842.4	7868.2	6965.2	6784.9	8047.1	8104.0	8031.7
59°	6577.1	6785.8	7578.5	8031.7	8136.6	7278.4	7104.0	8259.5	8222.0	8156.0
60°	6732.5	6902.4	7654.4	8130.7	8292.5	7490.8	7339.4	8384.2	8236.0	8156.0
62.5°	7117.1	7156.4	7791.3	8242.8	8471.9	7962.6	8001.9	8596.6	8138.8	8008.2
65°	7296.5	7316.8	7789.5	8042.1	8298.4	8330.0	8603.0	8603.0	7901.6	7700.9
67.5°	7221.5	7123.4	7403.1	7376.9	7632.7	8111.7	8828.9	8287.5	7447.9	7188.5
70°	6611.4	6234.1	6109.8	6121.1	6316.8	7055.6	8381.5	7359.3	6589.3	6286.0
72.5°	5501.1	4595.9	4289.0	4639.3	4690.3	5422.4	7142.8	5542.2	4859.4	4575.1
75°	4424.6	3239.7	2740.8	3110.5	3197.2	3968.2	5525.5	3451.7	2838.4	2617.0
77.5°	3178.7	2325.5	1966.7	1940.9	2053.0	2516.7	3920.7	1737.1	1448.8	1352.1
80°	1805.8	1530.6	1648.1	1555.0	1611.5	1573.5	1862.8	761.9	624.1	583.4
82.5°	1090.0	904.7	979.7	815.7	1032.2	898.8	717.6	244.0	211.9	201.6
85°	709.0	494.4	257.6	172.6	355.7	574.4	160.4	66.4	51.1	40.7
87.5°	244.5	126.1	12.7	5.4	38.0	107.1	5.9	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

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: SP1-2012-088-3

Luminaire Tested: WIS-SA-830-2D-U-SL4

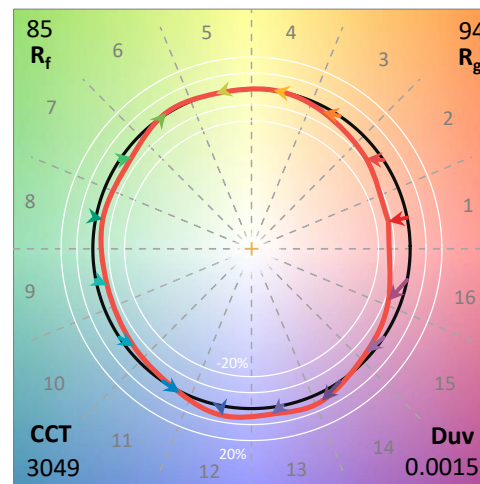
Test Date: 01/11/2021

Test Information

Test Method: LM-79-08
 Report Number: SP1-2012-088-3
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1
 Measurement Geometry: 4π
 Issue Date: 01/11/2021
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: INVUE
 Catalog Number: **WIS-SA-830-2D-U-SL4**
 Description: INVUE. WALL PACK LIGHT SQUARE SL4 OPTICS 2-SQUARE.

Spectral Parameters

CCT (K):	3049	CRI (Ra):	81.7		
CIE u':	0.2482	R1:	79.6	R9:	1.9
CIE v':	0.5224	R2:	90.6	R10:	79.3
Duv:	0.0015	R3:	95.7	R11:	78.7
CIE x:	0.4354	R4:	79.4	R12:	72.2
CIE y:	0.4072	R5:	80.2	R13:	82.2
CIE z:	0.1574	R6:	89.0	R14:	98.1
Peak Wavelength (nm):	601	R7:	82.2		
Dominant Wavelength (nm):	582	R8:	57.0		
Purity:	53				
Rf:	85.1				
Rg:	94.3				



Test Conditions

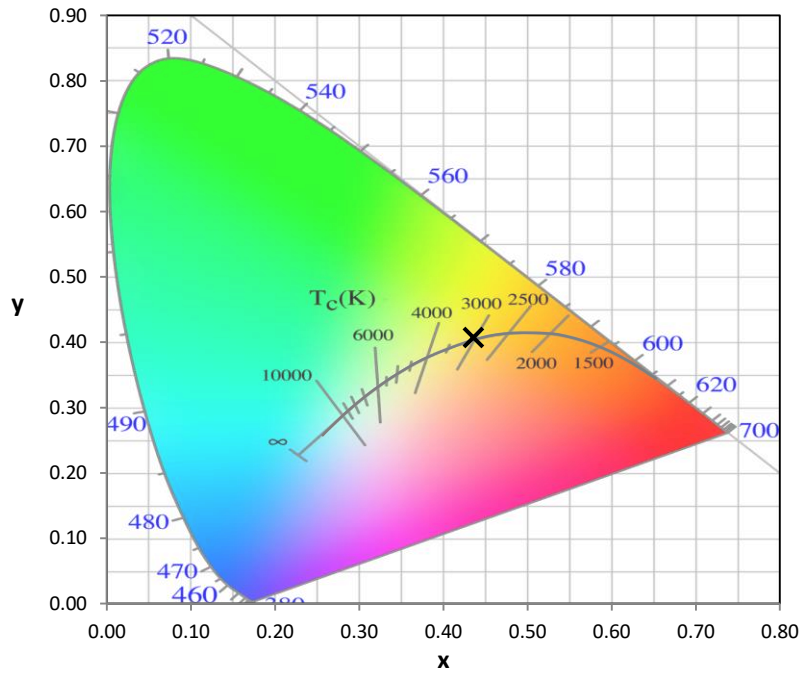
Stabilization Time: 83M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.6/29%
 Sphere Temperature (°C): 25.6

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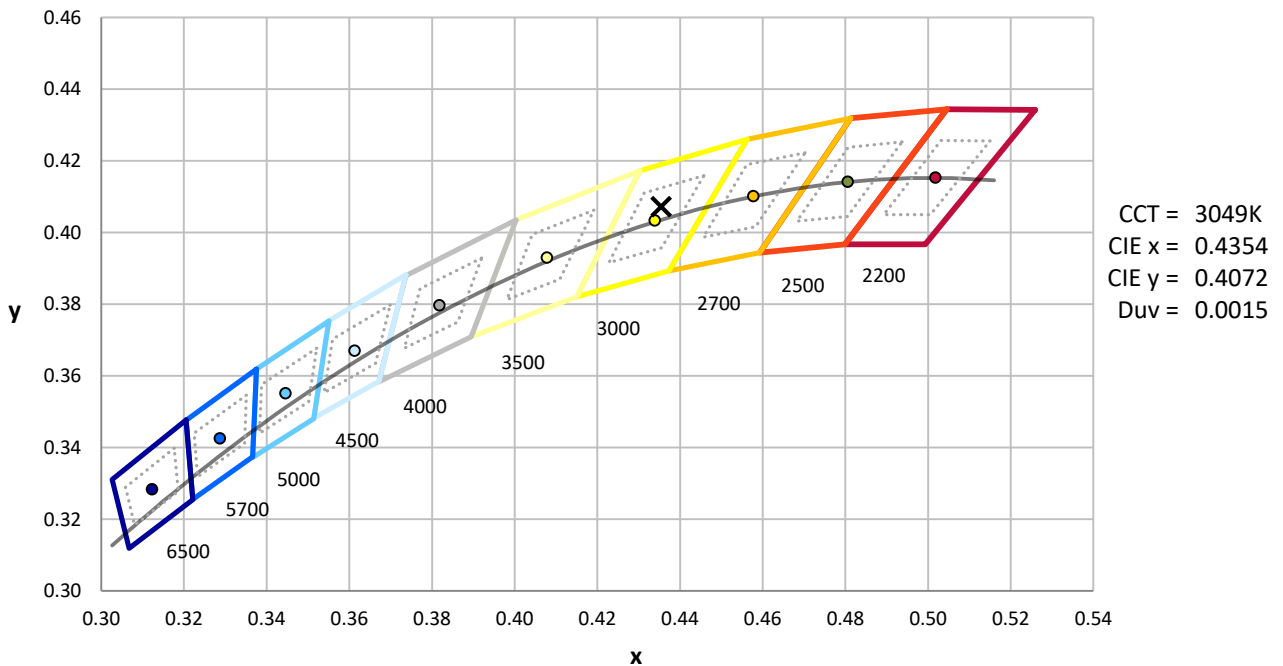
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	7/29/2020	1/29/2021
Power Meter	IN0071	12/1/2020	12/1/2021
AC Power Source	IN0063	12/1/2020	12/1/2021
DC Power Source	IN0208	12/1/2020	12/1/2021
Sphere Thermometer	IN0085	12/1/2020	12/1/2021
Room Thermometer	IN0046	12/1/2020	12/1/2021

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CIE 1931 Chromaticity Diagram



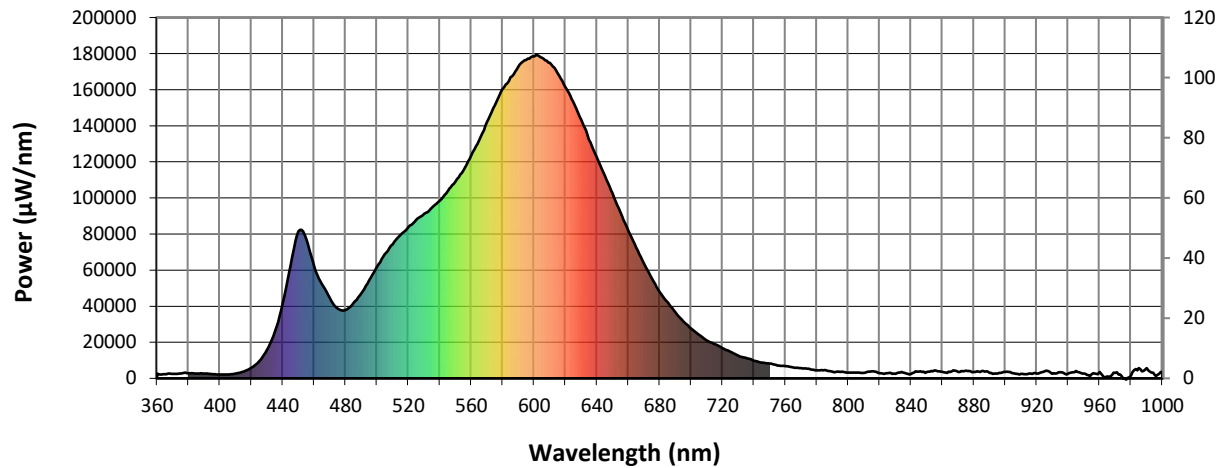
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2012-088-3

Photopic Flux vs. Wavelength

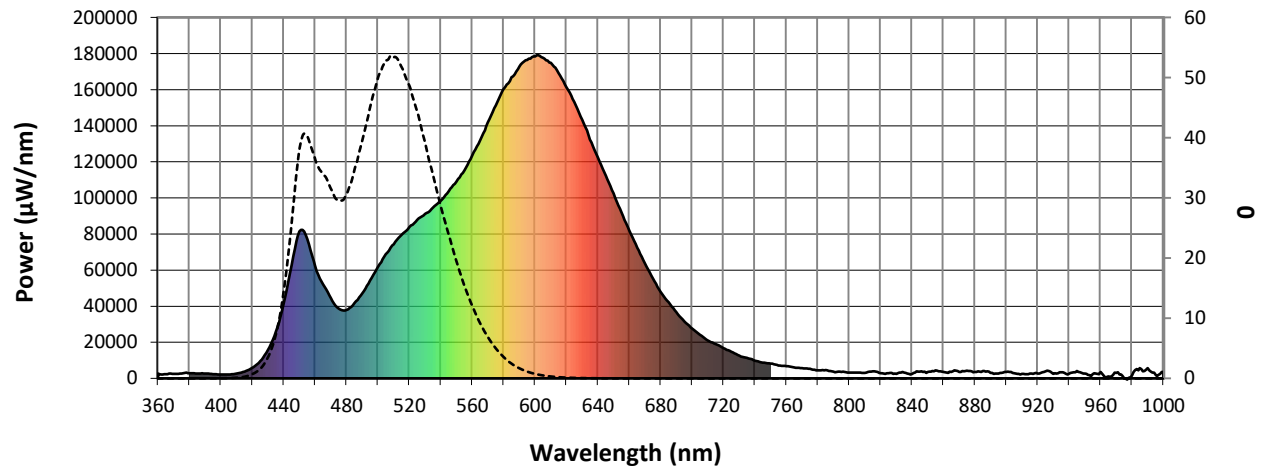


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λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)
360	2750	0.0	490	47173	6.7	620	161309	42.0	750	8155	0.0	880	3493	0.0
365	2250	0.0	495	54281	9.8	625	153301	33.8	755	7110	0.0	885	4023	0.0
370	2449	0.0	500	61837	13.6	630	143292	25.9	760	6829	0.0	890	2983	0.0
375	2752	0.0	505	68833	19.3	635	132368	19.9	765	6022	0.0	895	2605	0.0
380	2834	0.0	510	74324	25.5	640	122334	14.6	770	5682	0.0	900	3576	0.0
385	2613	0.0	515	79410	32.9	645	112200	10.8	775	5247	0.0	905	2786	0.0
390	2589	0.0	520	83815	40.6	650	102448	7.5	780	4493	0.0	910	2480	0.0
395	2344	0.0	525	87774	47.1	655	91886	5.3	785	4667	0.0	915	2633	0.0
400	2067	0.0	530	91247	53.7	660	81865	3.4	790	3736	0.0	920	2726	0.0
405	2087	0.0	535	94694	58.7	665	72448	2.3	795	3568	0.0	925	3905	0.0
410	2663	0.0	540	98431	64.1	670	63654	1.4	800	3190	0.0	930	2414	0.0
415	3760	0.0	545	103765	69.1	675	55284	0.9	805	3215	0.0	935	3414	0.0
420	5815	0.0	550	109130	74.2	680	47949	0.6	810	3108	0.0	940	2725	0.0
425	9591	0.1	555	115271	78.7	685	42173	0.4	815	3889	0.0	945	4070	0.0
430	15806	0.1	560	123390	83.9	690	36755	0.2	820	2869	0.0	950	2640	0.0
435	26035	0.3	565	131926	87.7	695	31630	0.1	825	2776	0.0	955	2231	0.0
440	41509	0.7	570	141815	92.2	700	27642	0.1	830	2538	0.0	960	3598	0.0
445	62857	1.3	575	151359	94.2	705	24213	0.1	835	3283	0.0	965	1098	0.0
450	81434	2.1	580	160364	95.3	710	21007	0.0	840	2477	0.0	970	3057	0.0
455	77103	2.6	585	166836	92.7	715	18986	0.0	845	3781	0.0	975	152	0.0
460	62408	2.6	590	172885	89.4	720	16766	0.0	850	3525	0.0	980	1629	0.0
465	52134	2.7	595	176548	83.7	725	14792	0.0	855	4413	0.0	985	5600	0.0
470	44297	2.8	600	178427	76.9	730	12553	0.0	860	3598	0.0	990	5671	0.0
475	38679	3.0	605	177729	68.8	735	11291	0.0	865	3617	0.0	995	1881	0.0
480	38032	3.6	610	174846	60.1	740	9818	0.0	870	3567	0.0	1000	3484	0.0
485	41652	4.9	615	169274	51.1	745	8656	0.0	875	4346	0.0			

REPORT NUMBER: SP1-2012-088-3

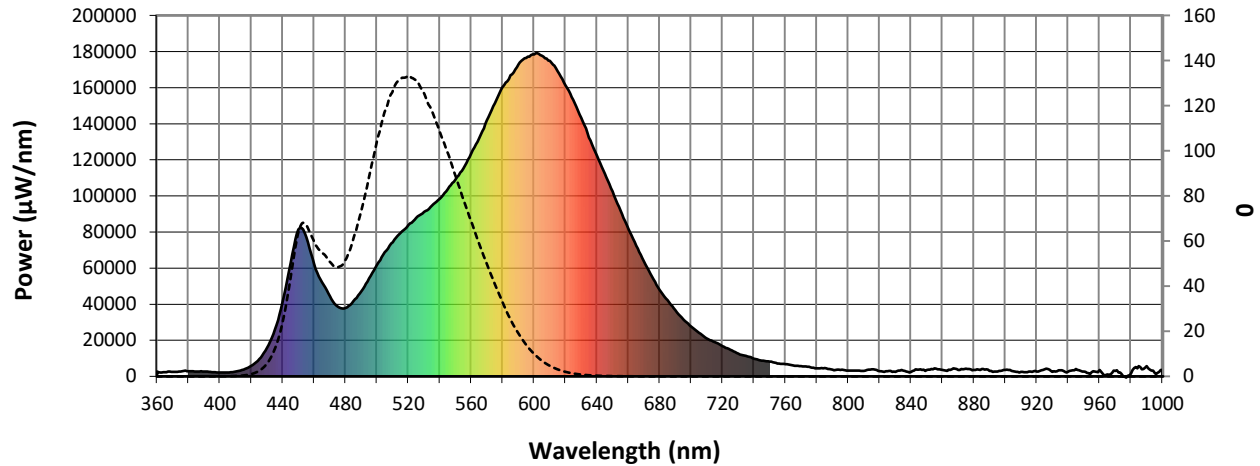
Scotopic Flux vs. Wavelength


Scotopic Lumens: 4584.8
S/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	2750	0.0	490	47173	72.6	620	161309	2.0	750	8155	0.0	880	3493	0.0
365	2250	0.0	495	54281	87.7	625	153301	1.3	755	7110	0.0	885	4023	0.0
370	2449	0.0	500	61837	103.4	630	143292	0.8	760	6829	0.0	890	2983	0.0
375	2752	0.0	505	68833	117.0	635	132368	0.5	765	6022	0.0	895	2605	0.0
380	2834	0.0	510	74324	126.0	640	122334	0.3	770	5682	0.0	900	3576	0.0
385	2613	0.0	515	79410	131.6	645	112200	0.2	775	5247	0.0	905	2786	0.0
390	2589	0.0	520	83815	133.2	650	102448	0.1	780	4493	0.0	910	2480	0.0
395	2344	0.0	525	87774	131.3	655	91886	0.1	785	4667	0.0	915	2633	0.0
400	2067	0.0	530	91247	125.8	660	81865	0.0	790	3736	0.0	920	2726	0.0
405	2087	0.1	535	94694	118.0	665	72448	0.0	795	3568	0.0	925	3905	0.0
410	2663	0.2	540	98431	108.8	670	63654	0.0	800	3190	0.0	930	2414	0.0
415	3760	0.4	545	103765	99.5	675	55284	0.0	805	3215	0.0	935	3414	0.0
420	5815	1.0	550	109130	89.2	680	47949	0.0	810	3108	0.0	940	2725	0.0
425	9591	2.3	555	115271	78.8	685	42173	0.0	815	3889	0.0	945	4070	0.0
430	15806	5.4	560	123390	69.0	690	36755	0.0	820	2869	0.0	950	2640	0.0
435	26035	11.6	565	131926	59.2	695	31630	0.0	825	2776	0.0	955	2231	0.0
440	41509	23.2	570	141815	50.0	700	27642	0.0	830	2538	0.0	960	3598	0.0
445	62857	42.1	575	151359	41.2	705	24213	0.0	835	3283	0.0	965	1098	0.0
450	81434	63.1	580	160364	33.0	710	21007	0.0	840	2477	0.0	970	3057	0.0
455	77103	67.4	585	166836	25.5	715	18986	0.0	845	3781	0.0	975	152	0.0
460	62408	60.3	590	172885	19.3	720	16766	0.0	850	3525	0.0	980	1629	0.0
465	52134	55.1	595	176548	14.1	725	14792	0.0	855	4413	0.0	985	5600	0.0
470	44297	51.0	600	178427	10.1	730	12553	0.0	860	3598	0.0	990	5671	0.0
475	38679	48.4	605	177729	7.0	735	11291	0.0	865	3617	0.0	995	1881	0.0
480	38032	51.4	610	174846	4.7	740	9818	0.0	870	3567	0.0	1000	3484	0.0
485	41652	60.4	615	169274	3.1	745	8656	0.0	875	4346	0.0			

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Melanopic Flux vs. Wavelength


Melanopic Lumens: 12033.4 S/P: 1.36

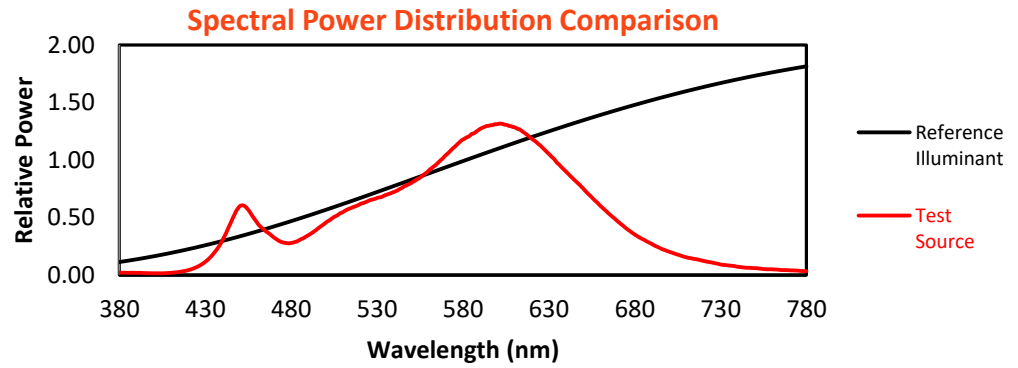
λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)
360	2750	0.0	490	47173	39.3	620	161309	0.1	750	8155	0.0	880	3493	0.0
365	2250	0.0	495	54281	44.8	625	153301	0.1	755	7110	0.0	885	4023	0.0
370	2449	0.0	500	61837	49.7	630	143292	0.0	760	6829	0.0	890	2983	0.0
375	2752	0.0	505	68833	52.8	635	132368	0.0	765	6022	0.0	895	2605	0.0
380	2834	0.0	510	74324	53.4	640	122334	0.0	770	5682	0.0	900	3576	0.0
385	2613	0.0	515	79410	51.9	645	112200	0.0	775	5247	0.0	905	2786	0.0
390	2589	0.0	520	83815	48.8	650	102448	0.0	780	4493	0.0	910	2480	0.0
395	2344	0.0	525	87774	44.5	655	91886	0.0	785	4667	0.0	915	2633	0.0
400	2067	0.0	530	91247	39.4	660	81865	0.0	790	3736	0.0	920	2726	0.0
405	2087	0.0	535	94694	34.1	665	72448	0.0	795	3568	0.0	925	3905	0.0
410	2663	0.1	540	98431	28.8	670	63654	0.0	800	3190	0.0	930	2414	0.0
415	3760	0.2	545	103765	24.1	675	55284	0.0	805	3215	0.0	935	3414	0.0
420	5815	0.7	550	109130	19.6	680	47949	0.0	810	3108	0.0	940	2725	0.0
425	9591	1.5	555	115271	15.5	685	42173	0.0	815	3889	0.0	945	4070	0.0
430	15806	3.3	560	123390	12.2	690	36755	0.0	820	2869	0.0	950	2640	0.0
435	26035	6.9	565	131926	9.3	695	31630	0.0	825	2776	0.0	955	2231	0.0
440	41509	13.9	570	141815	6.9	700	27642	0.0	830	2538	0.0	960	3598	0.0
445	62857	24.8	575	151359	5.0	705	24213	0.0	835	3283	0.0	965	1098	0.0
450	81434	37.5	580	160364	3.6	710	21007	0.0	840	2477	0.0	970	3057	0.0
455	77103	40.4	585	166836	2.5	715	18986	0.0	845	3781	0.0	975	152	0.0
460	62408	36.8	590	172885	1.7	720	16766	0.0	850	3525	0.0	980	1629	0.0
465	52134	34.1	595	176548	1.1	725	14792	0.0	855	4413	0.0	985	5600	0.0
470	44297	31.7	600	178427	0.8	730	12553	0.0	860	3598	0.0	990	5671	0.0
475	38679	29.5	605	177729	0.5	735	11291	0.0	865	3617	0.0	995	1881	0.0
480	38032	30.6	610	174846	0.3	740	9818	0.0	870	3567	0.0	1000	3484	0.0
485	41652	34.3	615	169274	0.2	745	8656	0.0	875	4346	0.0			

REPORT NUMBER: SP1-2012-088-3

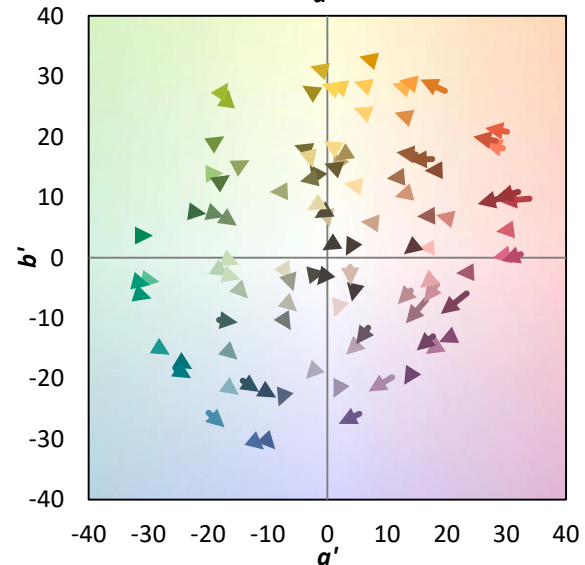
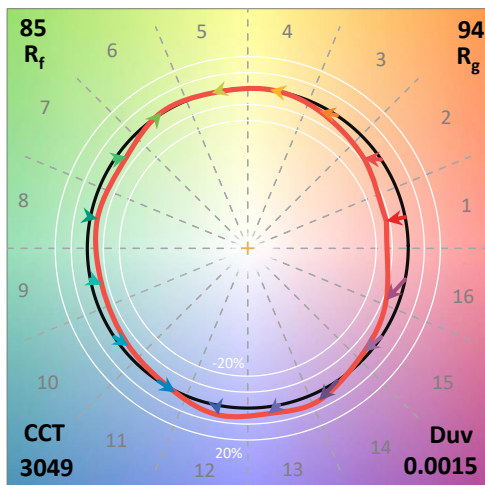
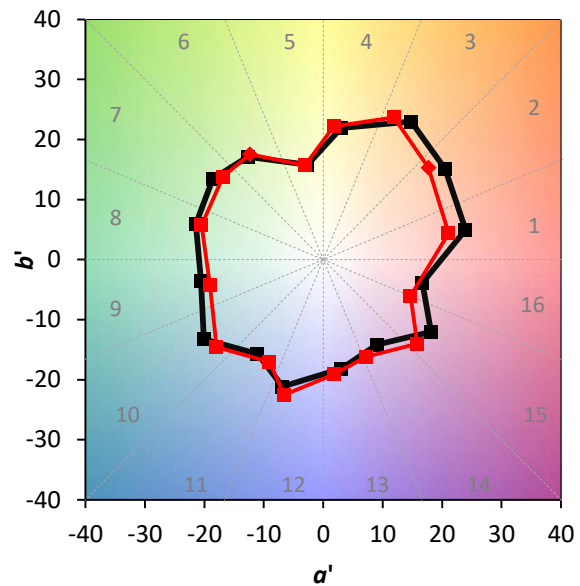
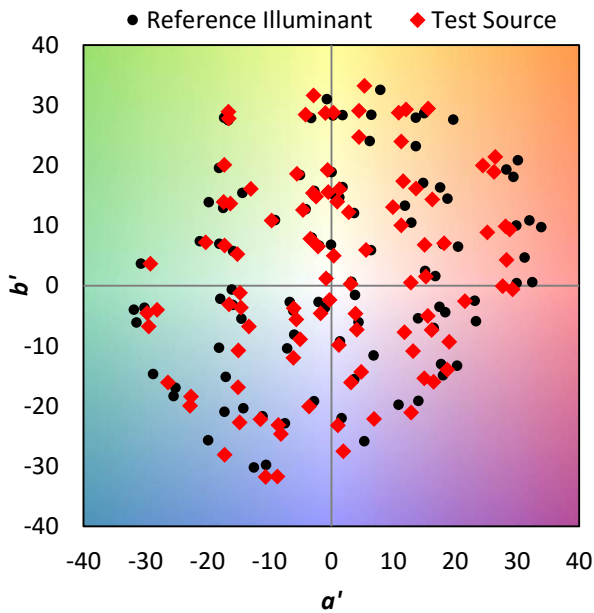
TM-30-18

Summary

$R_f = 85.1$
 $R_g = 94.3$
 CIE $R_a = 81.7$
 $R_g = 1.9$

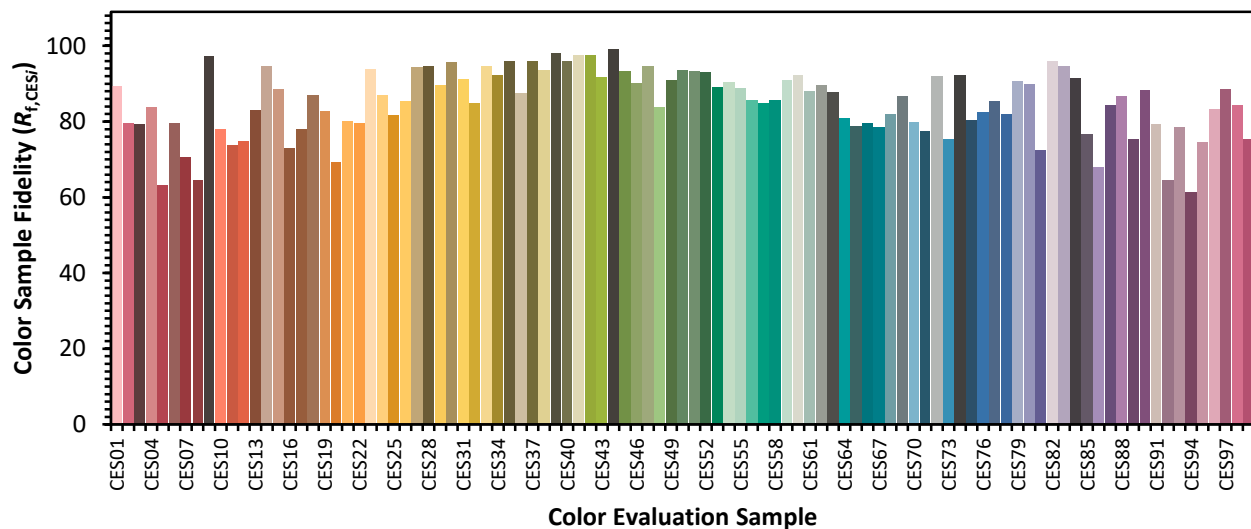


Color Vector Graphics

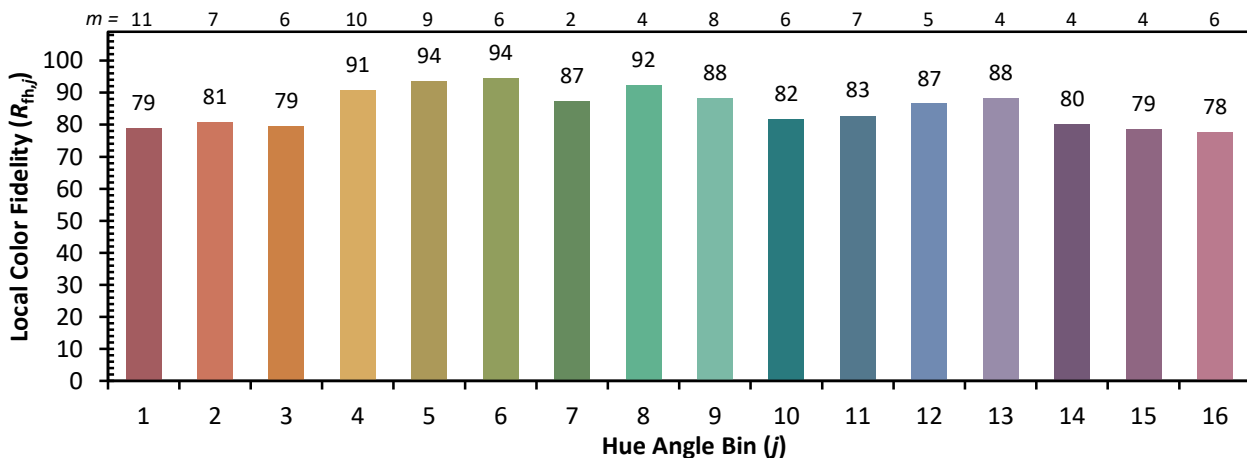
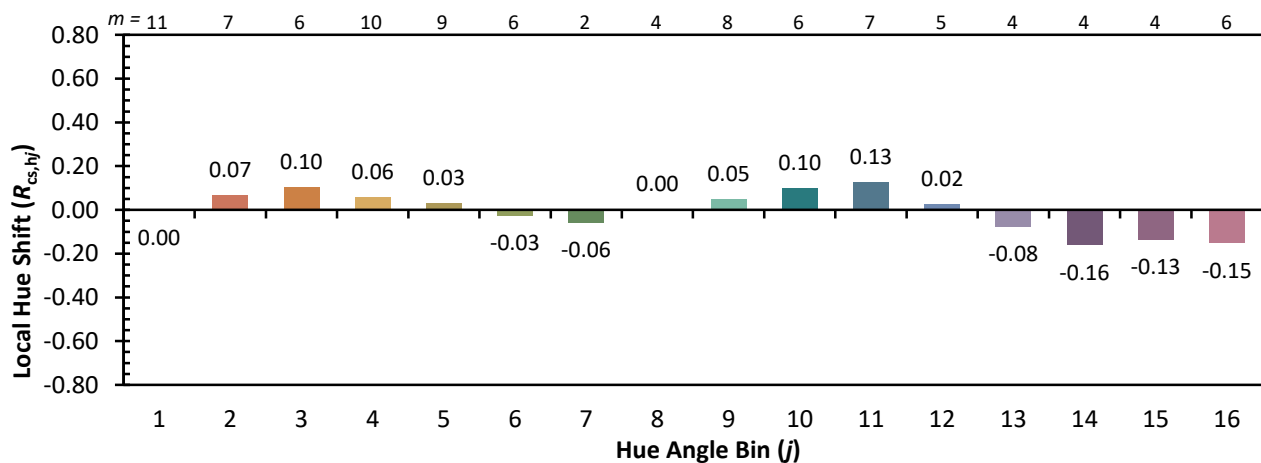
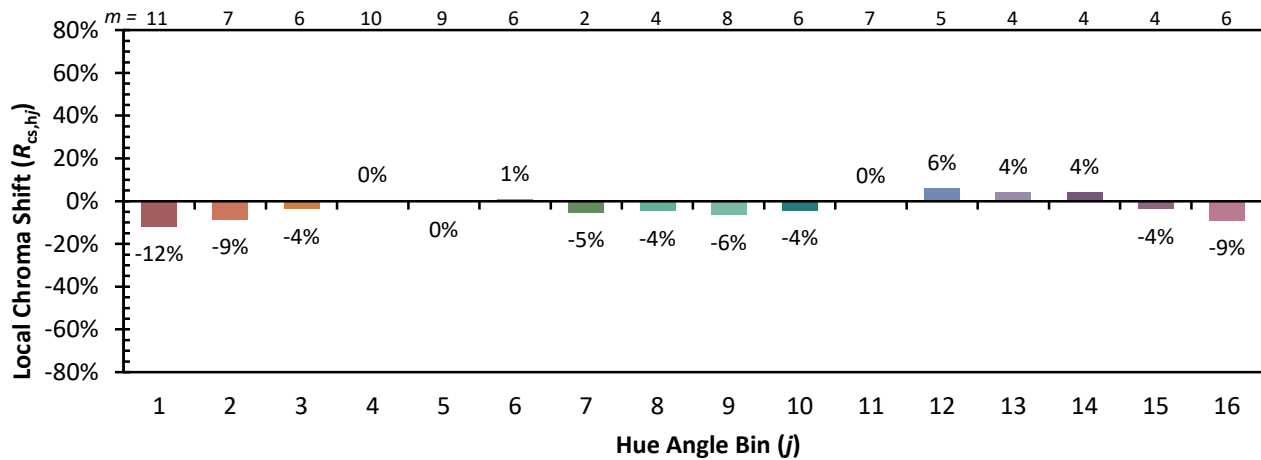


Individual Sample Fidelity Index ($R_{f,i}$)

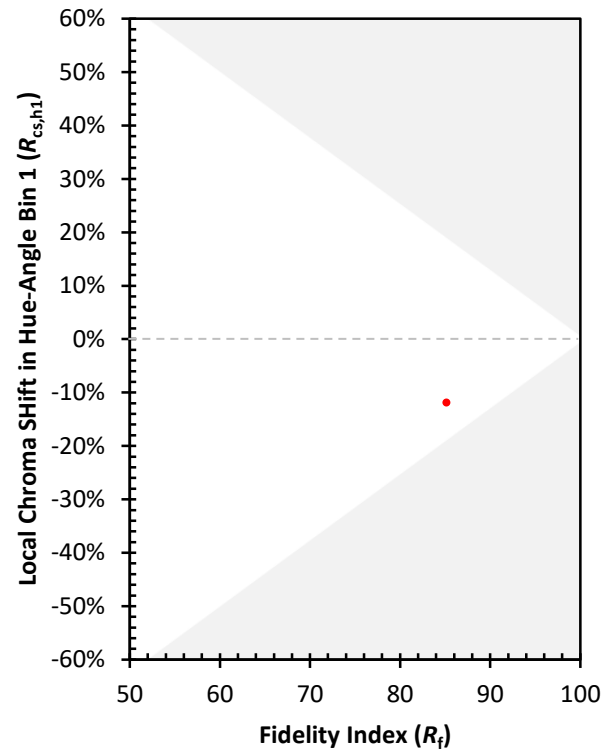
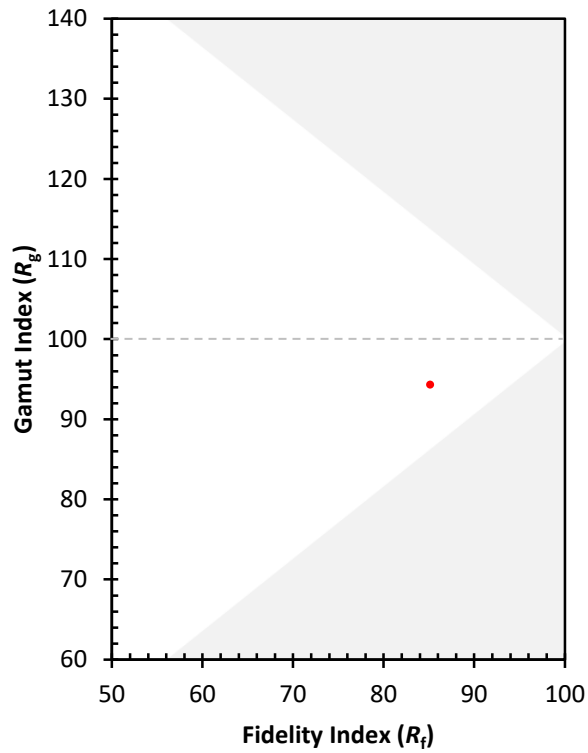
CES01 = 86	CES26 = 85	CES51 = 93	CES76 = 82
CES02 = 63	CES27 = 94	CES52 = 93	CES77 = 85
CES03 = 31	CES28 = 95	CES53 = 89	CES78 = 82
CES04 = 70	CES29 = 90	CES54 = 90	CES79 = 91
CES05 = 49	CES30 = 96	CES55 = 89	CES80 = 90
CES06 = 51	CES31 = 91	CES56 = 86	CES81 = 72
CES07 = 42	CES32 = 85	CES57 = 85	CES82 = 96
CES08 = 41	CES33 = 95	CES58 = 86	CES83 = 95
CES09 = 29	CES34 = 92	CES59 = 91	CES84 = 92
CES10 = 76	CES35 = 96	CES60 = 92	CES85 = 77
CES11 = 59	CES36 = 87	CES61 = 88	CES86 = 68
CES12 = 65	CES37 = 96	CES62 = 90	CES87 = 84
CES13 = 43	CES38 = 94	CES63 = 88	CES88 = 87
CES14 = 74	CES39 = 98	CES64 = 81	CES89 = 75
CES15 = 71	CES40 = 96	CES65 = 79	CES90 = 88
CES16 = 47	CES41 = 97	CES66 = 80	CES91 = 79
CES17 = 50	CES42 = 98	CES67 = 78	CES92 = 65
CES18 = 56	CES43 = 92	CES68 = 82	CES93 = 78
CES19 = 72	CES44 = 99	CES69 = 87	CES94 = 61
CES20 = 66	CES45 = 93	CES70 = 80	CES95 = 74
CES21 = 87	CES46 = 90	CES71 = 77	CES96 = 83
CES22 = 79	CES47 = 95	CES72 = 92	CES97 = 88
CES23 = 92	CES48 = 84	CES73 = 75	CES98 = 84
CES24 = 91	CES49 = 91	CES74 = 92	CES99 = 75
CES25 = 72	CES50 = 94	CES75 = 80	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)