

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: P436799

Luminaire Tested: **TT-D3-735-U-T4-PM-HSS**

Issue Date: 12/2/2020

Test Information

Test Method: LM-79-08
Report Number: P436799
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2010-017-4)
Test Lab: INNOVATION CENTER
Issue Date: 12/2/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: MCGRAW-EDISON
Catalog Number: TT-D3-735-U-T4-PM-HSS
Description: TOPTIER LED SITE LUMINAIRE
3500K, 70 CRI LEDS AND DRIVE LANE DISTRIBUTION WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4456.9 lumens
Efficiency: N/A
Efficacy: 91.3 lumens/watt
Luminous Opening: Circular (Dia: 1.12' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B1 - U1 - G3

Input Watts (W): 48.8
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



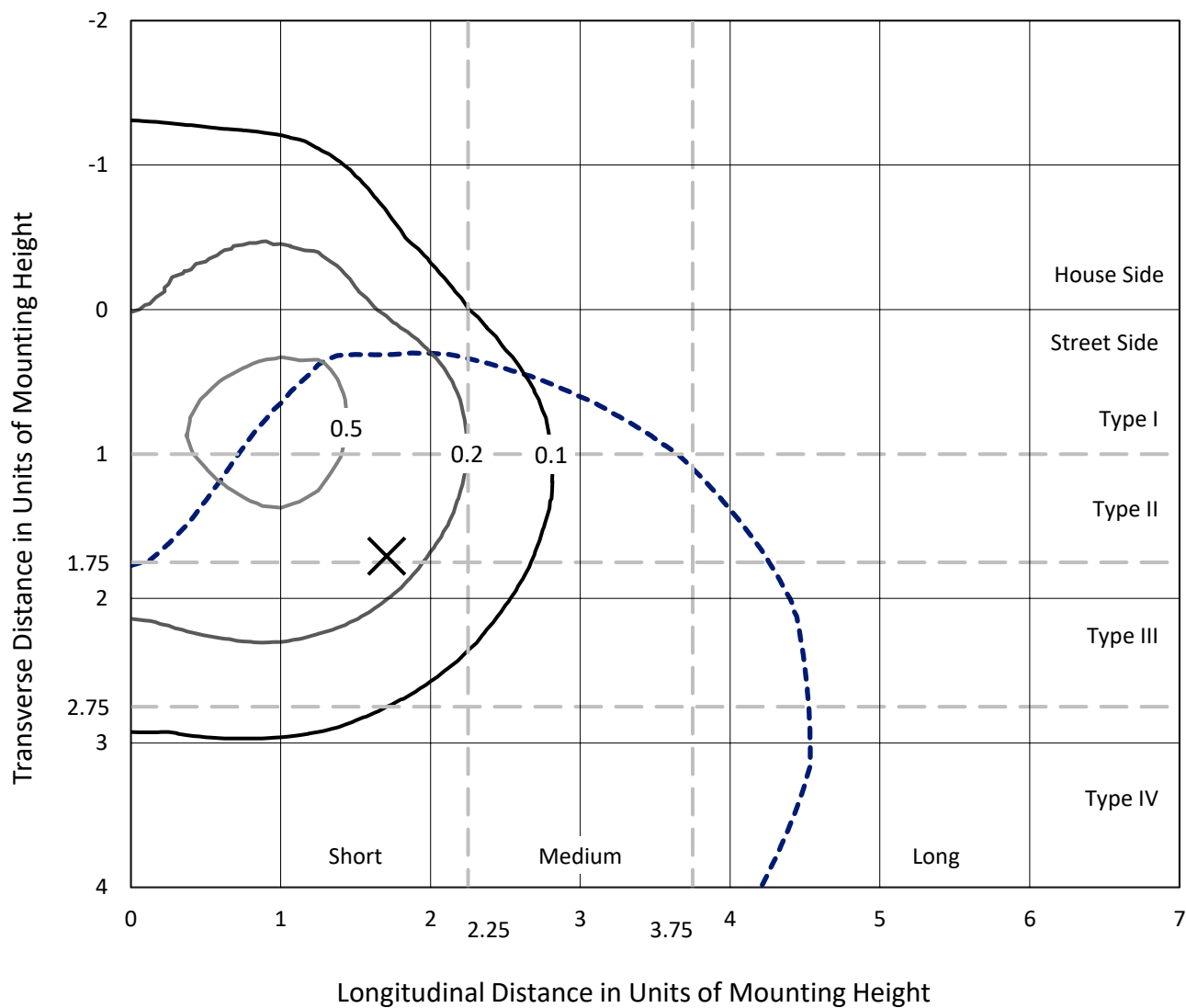
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Iso-Footcandle Lines of Horizontal Illumination

✕ Max cd

--- 1/2 Max cd



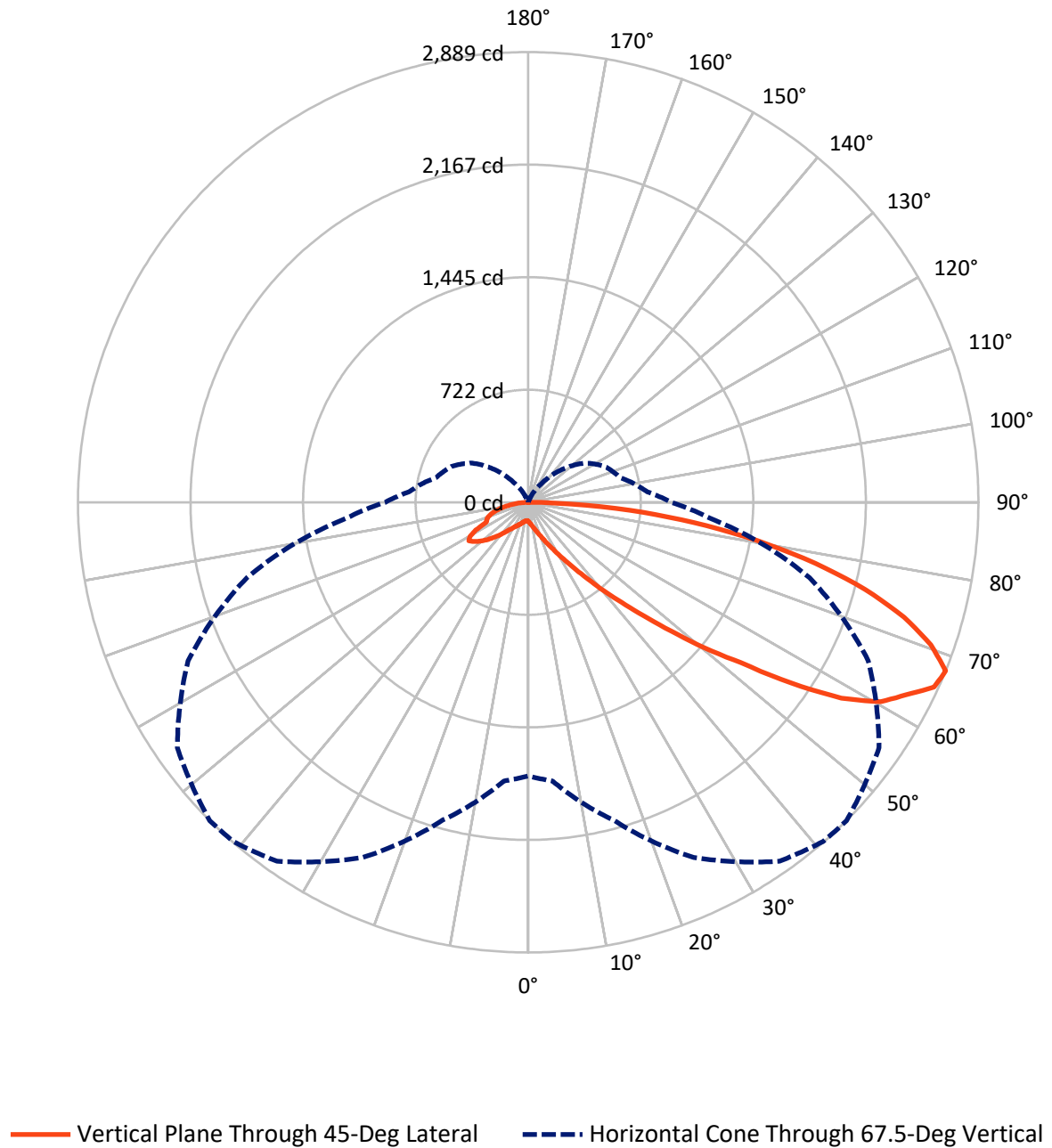
Based on 25 foot mounting height. Maximum calculated value = 0.6 fc

Type IV - Short - N/A

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Luminous Intensity Polar Plot



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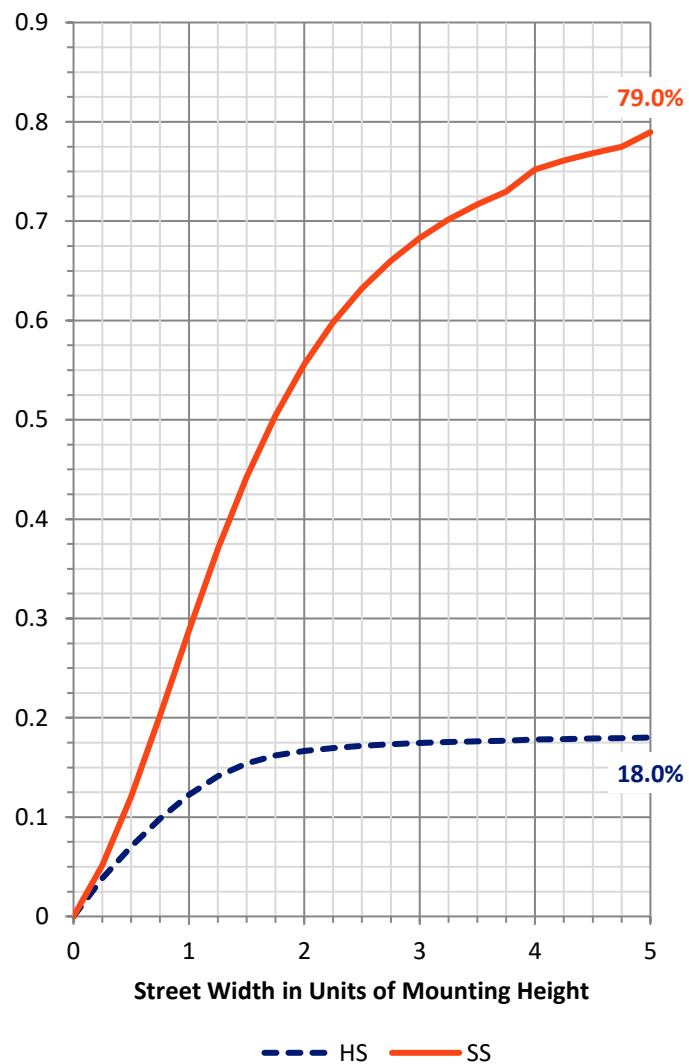
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	809.8	0.9	810.7
	% Fixture	18.2	0.0	18.2
Street Side	Lumens	3636.4	9.9	3646.2
	% Fixture	81.6	0.2	81.8
Total	Lumens	4446.1	10.8	4456.9
	% Fixture	99.8	0.2	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	12.6	0.3
10°-20°	46.9	1.1
20°-30°	108.1	2.4
30°-40°	230.6	5.2
40°-50°	482.7	10.8
50°-60°	915.6	20.5
60°-70°	1246.1	28.0
70°-80°	1071.3	24.0
80°-90°	332.2	7.5
90°-100°	7.0	0.2
100°-110°	2.0	0.0
110°-120°	0.5	0.0
120°-130°	0.4	0.0
130°-140°	0.3	0.0
140°-150°	0.2	0.0
150°-160°	0.1	0.0
160°-170°	0.1	0.0
170°-180°	0.0	0.0
0°-90°	4446.1	99.8
0°-180°	4456.9	100.0

Coefficient of Utilization



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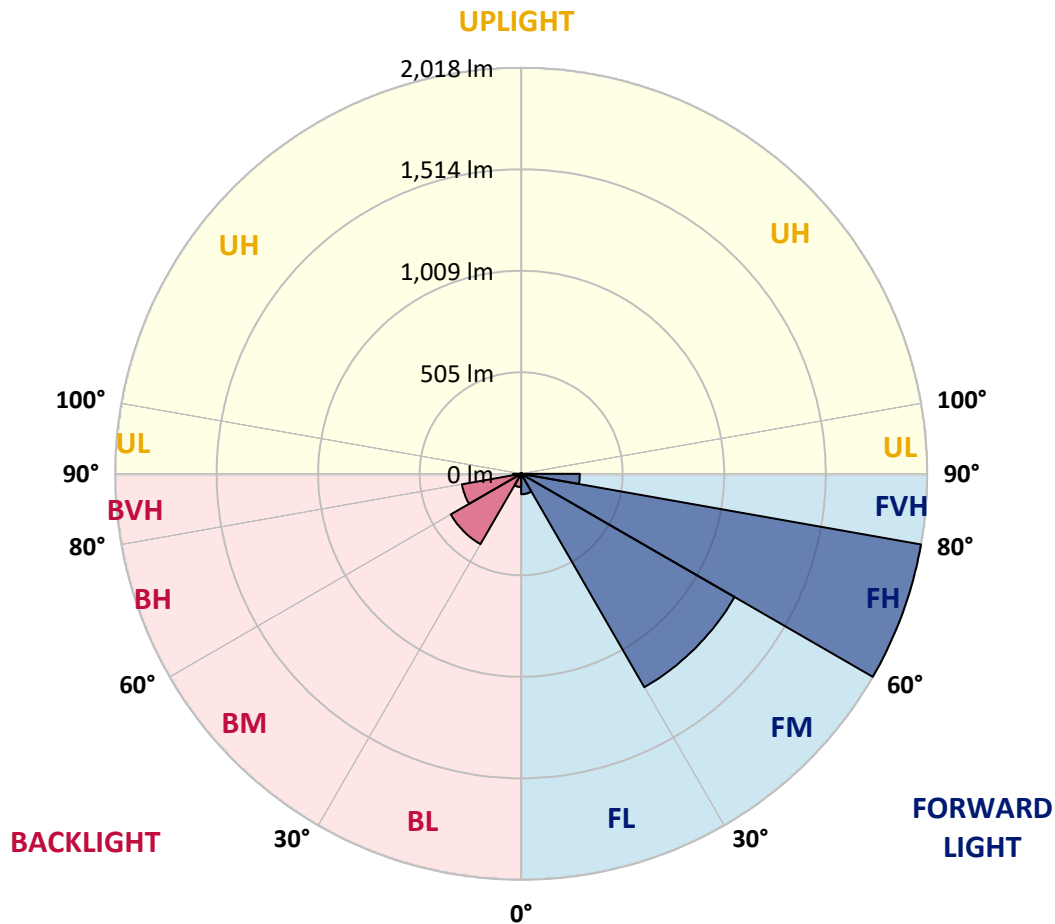
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	101.6	2.3			
FM	(30°-60°)	1224.9	27.5			
FH	(60°-80°)	2018.3	45.3			G2/5000
FVH	(80°-90°)	291.5	6.5			G3/500
BL	(0°-30°)	66.0	1.5	B0/110		
BM	(30°-60°)	403.9	9.1	B1/1000		
BH	(60°-80°)	299.1	6.7	B1/500		G1/500
BVH	(80°-90°)	40.7	0.9			G1/100
UL	(90°-100°)	7.0	0.2		U1/10	
UH	(100°-180°)	3.7	0.1		U1/10	

BUG Rating: B1-U1-G3

Type IV Short



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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	41°	45°	55°	65°	75°	85°
0°	122.0	122.0	122.0	122.0	122.0	122.0	122.0	122.0	122.0	122.0	122.0
2.5°	132.4	131.4	131.4	130.5	130.5	128.6	128.6	127.6	126.7	125.7	123.8
5°	141.8	140.9	140.9	139.9	139.0	137.1	136.1	134.2	132.4	130.5	128.6
7.5°	153.2	152.2	152.2	151.3	149.4	146.5	145.6	142.8	139.9	137.1	134.2
10°	167.3	166.4	166.4	164.5	162.6	159.8	157.9	154.1	151.3	146.5	141.8
12.5°	182.5	181.5	181.5	179.6	175.8	173.9	172.1	167.3	162.6	156.9	151.3
15°	199.5	199.5	199.5	198.5	194.7	191.0	189.1	183.4	177.7	169.2	161.7
17.5°	221.2	220.3	220.3	218.4	213.7	211.8	208.9	202.3	193.8	184.3	174.9
20°	247.7	246.7	244.9	243.9	239.2	237.3	233.5	225.9	214.6	202.3	189.1
22.5°	274.2	274.2	273.2	274.2	270.4	268.5	263.8	253.4	240.1	222.2	206.1
25°	304.4	305.4	307.2	310.1	305.4	303.5	299.7	286.4	270.4	247.7	225.0
27.5°	342.2	342.2	347.0	351.7	347.9	347.0	341.3	327.1	304.4	277.0	250.5
30°	382.9	383.8	391.4	399.9	398.0	398.0	393.3	377.2	349.8	317.6	280.8
32.5°	430.1	433.9	441.5	450.9	457.6	457.6	455.7	438.7	406.5	363.0	317.6
35°	492.5	485.9	500.1	514.3	528.5	531.3	532.2	516.2	479.3	424.5	363.0
37.5°	546.4	545.5	567.2	591.8	615.4	624.9	627.7	612.6	565.3	493.5	412.2
40°	608.8	614.5	643.8	680.7	720.4	736.4	744.0	727.0	668.4	575.7	468.9
42.5°	674.1	691.1	727.9	783.7	844.2	867.9	876.4	860.3	791.3	678.8	540.8
45°	750.6	774.3	823.4	902.8	982.2	1017.2	1036.1	1030.5	959.6	819.6	633.4
47.5°	845.2	862.2	929.3	1036.1	1148.6	1206.3	1232.8	1248.8	1147.7	965.2	714.7
50°	952.0	954.8	1047.5	1182.7	1347.2	1423.7	1470.1	1462.5	1342.4	1132.6	817.7
52.5°	1059.8	1056.9	1177.9	1361.3	1576.9	1677.1	1708.3	1739.5	1621.3	1387.8	983.2
55°	1182.7	1177.0	1329.2	1561.8	1829.3	1961.7	2049.6	2093.1	1906.8	1556.1	1055.0
57.5°	1284.8	1302.7	1493.7	1773.5	2146.9	2313.3	2371.0	2347.4	2063.8	1641.2	1090.0
60°	1414.3	1440.8	1658.2	2050.5	2422.0	2545.9	2598.8	2491.1	2164.0	1705.5	1114.6
62.5°	1536.2	1570.3	1838.8	2275.5	2594.1	2707.6	2720.8	2603.6	2304.8	1832.1	1186.4
65°	1650.6	1689.4	2018.4	2408.8	2744.4	2839.0	2861.6	2769.0	2454.2	1906.8	1214.8
67.5°	1755.6	1796.2	2111.0	2515.6	2811.5	2884.3	2889.1	2748.2	2407.9	1868.1	1169.4
70°	1835.9	1853.9	2155.5	2512.8	2732.1	2760.5	2741.6	2599.8	2299.2	1788.6	1104.2
72.5°	1852.0	1865.2	2094.0	2372.9	2511.9	2538.3	2523.2	2398.4	2128.0	1646.8	998.3
75°	1770.7	1773.5	1928.6	2121.4	2222.6	2254.7	2234.9	2119.5	1870.9	1446.4	859.3
77.5°	1558.0	1563.6	1657.2	1786.8	1871.8	1899.3	1884.1	1778.2	1567.4	1214.8	710.9
80°	1234.7	1246.0	1313.1	1402.9	1480.5	1508.8	1490.9	1405.8	1233.7	954.8	554.9
82.5°	841.4	855.6	917.0	991.7	1059.8	1087.2	1072.1	1018.2	889.6	688.2	396.1
85°	425.4	440.5	503.9	573.8	633.4	662.7	658.0	635.3	547.4	424.5	239.2
87.5°	67.1	73.7	100.2	133.3	170.2	197.6	180.6	178.7	141.8	113.4	57.7
90°	27.4	27.4	26.5	25.5	22.7	20.8	19.9	16.1	12.3	7.6	2.8
92.5°	24.6	24.6	23.6	21.7	19.9	18.9	17.0	14.2	10.4	6.6	2.8
95°	19.9	19.9	18.9	18.0	16.1	15.1	13.2	11.3	8.5	5.7	2.8
97.5°	15.1	15.1	14.2	13.2	12.3	10.4	10.4	8.5	5.7	3.8	1.9
100°	11.3	11.3	10.4	9.5	8.5	7.6	7.6	5.7	3.8	2.8	1.9
102.5°	7.6	7.6	7.6	6.6	5.7	5.7	4.7	3.8	2.8	1.9	1.9
105°	4.7	4.7	4.7	4.7	3.8	2.8	2.8	1.9	1.9	1.9	1.9
107.5°	2.8	2.8	2.8	2.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9
110°	1.9	1.9	1.9	0.9	0.9	0.9	0.9	0.9	0.9	1.9	0.9



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CANDELA DISTRIBUTION (continued):

	0°	5°	15°	25°	35°	41°	45°	55°	65°	75°	85°
112.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
115°	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
117.5°	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9
120°	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9
122.5°	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9
125°	0.0	0.0	0.0	0.9	0.0	0.9	0.9	0.9	0.9	0.9	0.9
127.5°	0.0	0.0	0.0	0.9	0.0	0.0	0.9	0.9	0.9	0.9	0.9
130°	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9
132.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9
135°	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9
137.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9
140°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9
142.5°	0.9	0.9	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9
145°	0.9	0.9	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9
147.5°	0.9	0.9	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9
150°	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9
152.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9
155°	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9
157.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9
160°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9
162.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9
165°	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9
167.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9
170°	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9
172.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9
175°	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9
177.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9
180°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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CANDELA DISTRIBUTION (continued):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	122.0	122.0	122.0	122.0	122.0	122.0	122.0	122.0	122.0	122.0	122.0
2.5°	123.8	122.9	121.0	120.1	118.2	118.2	117.2	116.3	116.3	116.3	116.3
5°	126.7	125.7	123.8	122.0	120.1	118.2	117.2	116.3	116.3	116.3	115.3
7.5°	132.4	130.5	127.6	124.8	122.0	120.1	119.1	118.2	117.2	117.2	117.2
10°	139.0	137.1	132.4	129.5	125.7	122.9	122.0	121.0	120.1	120.1	120.1
12.5°	147.5	144.6	139.0	134.2	130.5	127.6	125.7	124.8	124.8	123.8	124.8
15°	157.9	154.1	146.5	140.9	136.1	133.3	131.4	130.5	130.5	130.5	129.5
17.5°	169.2	164.5	155.0	148.4	142.8	139.9	138.0	137.1	137.1	137.1	137.1
20°	182.5	175.8	165.4	156.9	151.3	147.5	145.6	145.6	144.6	145.6	145.6
22.5°	196.6	189.1	175.8	166.4	158.8	155.0	153.2	153.2	153.2	154.1	155.0
25°	213.7	204.2	188.1	175.8	167.3	163.5	161.7	162.6	162.6	163.5	163.5
27.5°	236.3	222.2	202.3	187.2	177.7	173.0	171.1	172.1	173.0	173.0	173.0
30°	261.9	244.9	217.4	201.4	190.0	184.3	182.5	183.4	184.3	186.2	185.3
32.5°	293.1	272.3	240.1	217.4	205.1	198.5	196.6	195.7	197.6	199.5	199.5
35°	330.9	304.4	266.6	240.1	222.2	213.7	211.8	210.8	211.8	213.7	215.5
37.5°	371.5	339.4	293.1	265.7	245.8	236.3	231.6	227.8	228.8	229.7	232.6
40°	417.9	378.1	323.3	290.2	272.3	260.9	254.3	248.6	250.5	250.5	251.5
42.5°	476.5	426.4	361.1	319.5	300.6	288.3	277.9	271.3	267.5	268.5	264.7
45°	553.0	490.6	408.4	361.1	334.7	315.8	303.5	290.2	280.8	282.7	277.0
47.5°	616.4	541.7	452.8	400.8	372.5	348.8	323.3	304.4	291.2	289.3	285.5
50°	693.9	604.1	503.9	444.3	414.1	378.1	347.9	315.8	294.0	288.3	289.3
52.5°	824.4	713.8	576.7	502.9	450.0	407.5	361.1	316.7	287.4	278.9	281.7
55°	871.6	750.6	614.5	551.2	499.2	433.0	366.8	306.3	268.5	260.9	261.9
57.5°	882.0	750.6	617.3	566.3	522.8	453.8	364.0	282.7	232.6	225.9	225.0
60°	887.7	745.9	606.9	554.9	507.7	433.9	327.1	227.8	178.7	173.9	171.1
62.5°	940.6	785.6	617.3	546.4	479.3	381.0	248.6	145.6	99.3	98.3	96.4
65°	956.7	799.8	630.6	552.1	448.1	295.9	147.5	49.2	10.4	11.3	9.5
67.5°	917.0	767.6	611.7	543.6	438.7	288.3	141.8	41.6	0.0	0.0	0.0
70°	862.2	721.3	578.6	514.3	418.8	277.0	139.0	41.6	0.0	0.0	0.0
72.5°	775.2	655.1	525.6	474.6	384.8	254.3	129.5	39.7	0.0	0.0	0.0
75°	673.1	570.1	460.4	420.7	341.3	223.1	116.3	35.9	0.0	0.0	0.0
77.5°	563.4	475.5	384.8	354.5	288.3	190.0	98.3	30.3	0.0	0.0	0.0
80°	442.4	376.3	303.5	282.7	227.8	151.3	78.5	23.6	0.0	0.0	0.0
82.5°	318.6	273.2	224.1	207.0	167.3	109.7	56.7	16.1	0.0	0.0	0.0
85°	196.6	171.1	144.6	134.2	105.9	68.1	34.0	8.5	0.0	0.0	0.0
87.5°	58.6	56.7	51.1	50.1	35.9	20.8	7.6	0.9	0.0	0.0	0.0
90°	0.9	0.9	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0
92.5°	0.9	0.9	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0
95°	0.9	0.9	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0
97.5°	0.9	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100°	0.9	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
102.5°	0.9	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
105°	0.9	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
107.5°	0.9	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110°	0.9	0.9	0.9	0.9	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°
112.5°	0.9	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
115°	0.9	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
117.5°	0.9	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120°	0.9	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
122.5°	0.9	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
125°	0.9	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
127.5°	0.9	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130°	0.9	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
132.5°	0.9	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
135°	0.9	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
137.5°	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140°	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
142.5°	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
145°	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
147.5°	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150°	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
152.5°	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
155°	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
157.5°	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160°	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
162.5°	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
165°	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
167.5°	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170°	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
172.5°	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175°	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
177.5°	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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

Report Prepared for

Cooper Lighting Solutions

MCGRAW EDISON

Report Number: SP1-2411-284-1

Test Date: 11/15/2024

Luminaire Tested: TTN-D0-735-U-WQ

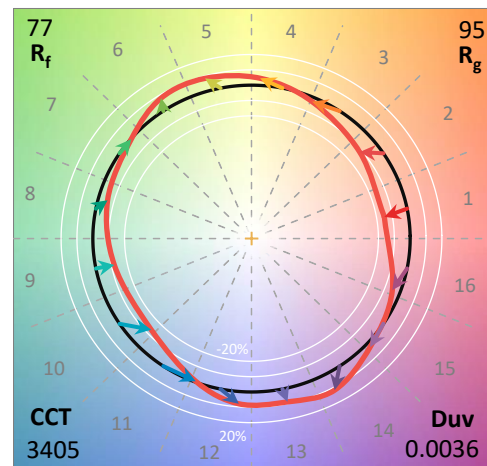
Data in this report applies to families of products including TT-D* and TTN-D*

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2411-284-1
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 11/15/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: MCGRAW EDISON
 Catalog Number: **TTN-D0-735-U-WQ**
 Description: TOPTIER NANO LED PARKING GARAGE LUMINAIRE. 3500K, 70 CRI LEDS AND WIDE DISTRIBUTION

Spectral Parameters

CCT (K):	3405	CRI (Ra):	73.9		
CIE u':	0.2365	R1:	71.3	R9:	-18.0
CIE v':	0.5180	R2:	80.3	R10:	53.1
Duv:	0.0036	R3:	87.8	R11:	68.6
CIE x:	0.4148	R4:	73.2	R12:	42.6
CIE y:	0.4038	R5:	69.8	R13:	72.5
CIE z:	0.1814	R6:	71.8	R14:	92.7
Peak Wavelength (nm):	596	R7:	82.8	R15:	64.3
Dominant Wavelength (nm):	579	R8:	54.1		
Purity:	45.70672				
Rf:	76.6				
Rg:	95.4				



Test Conditions

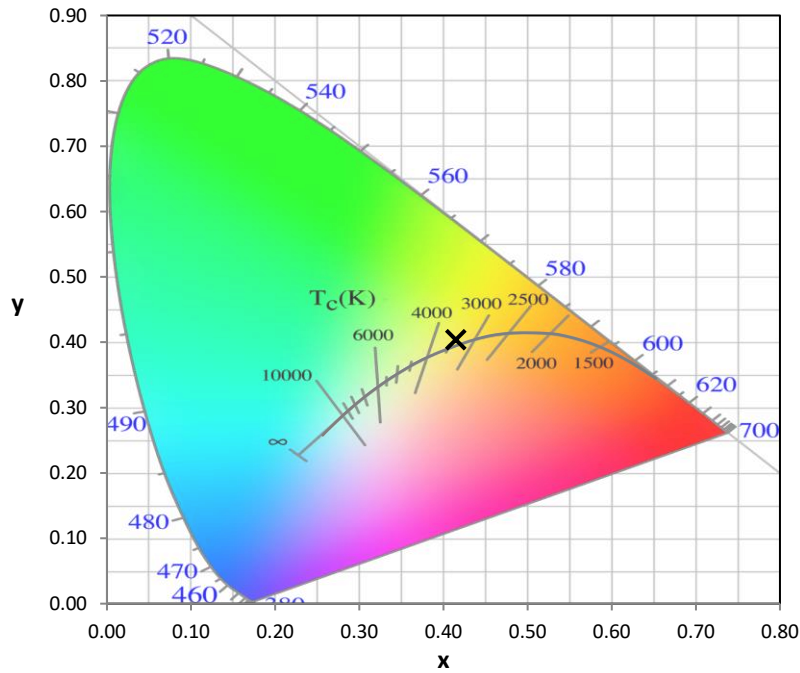
Stabilization Time: 38M
 Operation Time: 1H 38M
 Sphere Temperature (°C): 24.9

REPORT NUMBER: SP1-2411-284-1

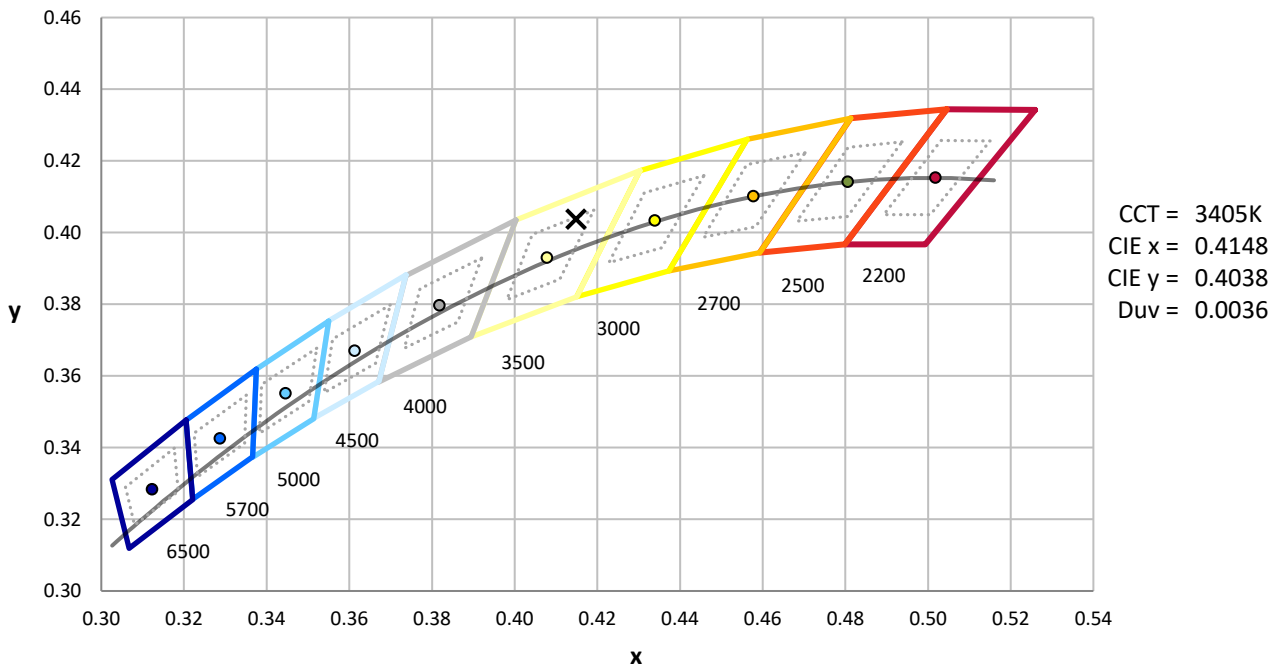
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/22/2024	10/22/2025
DC Power Source	IN0208	10/22/2024	10/22/2025
Sphere Thermometer	IN0085	10/22/2024	10/22/2025
Room Thermometer	IN0046	10/22/2024	10/22/2025

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CIE 1931 Chromaticity Diagram



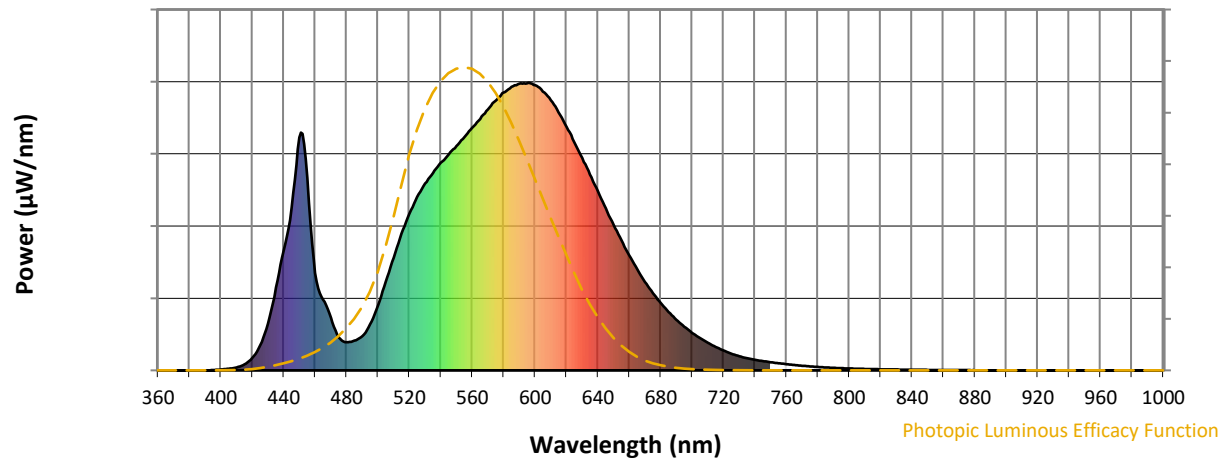
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3500K 4-step quadrangle

REPORT NUMBER: SP1-2411-284-1

Photopic Flux vs. Wavelength

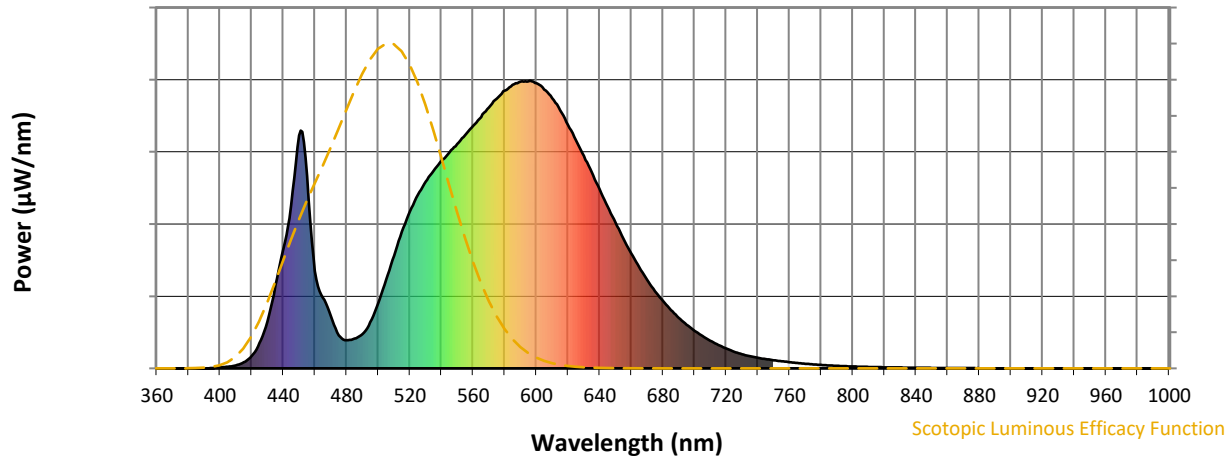


Photopic Lumens: NR

λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)
360	0	NR	490	119	NR	620	846	NR	750	28	NR	880	1	NR
365	0	NR	495	160	NR	625	793	NR	755	25	NR	885	0	NR
370	0	NR	500	225	NR	630	739	NR	760	22	NR	890	0	NR
375	0	NR	505	308	NR	635	681	NR	765	19	NR	895	0	NR
380	0	NR	510	392	NR	640	623	NR	770	16	NR	900	0	NR
385	0	NR	515	474	NR	645	563	NR	775	14	NR	905	0	NR
390	0	NR	520	545	NR	650	506	NR	780	12	NR	910	0	NR
395	1	NR	525	603	NR	655	451	NR	785	10	NR	915	0	NR
400	3	NR	530	649	NR	660	399	NR	790	9	NR	920	0	NR
405	5	NR	535	687	NR	665	352	NR	795	8	NR	925	0	NR
410	11	NR	540	721	NR	670	307	NR	800	6	NR	930	0	NR
415	21	NR	545	751	NR	675	268	NR	805	6	NR	935	0	NR
420	43	NR	550	779	NR	680	234	NR	810	5	NR	940	0	NR
425	88	NR	555	811	NR	685	203	NR	815	4	NR	945	0	NR
430	163	NR	560	843	NR	690	176	NR	820	4	NR	950	0	NR
435	288	NR	565	873	NR	695	152	NR	825	3	NR	955	0	NR
440	416	NR	570	907	NR	700	131	NR	830	3	NR	960	0	NR
445	566	NR	575	938	NR	705	112	NR	835	3	NR	965	0	NR
450	810	NR	580	965	NR	710	96	NR	840	2	NR	970	0	NR
455	669	NR	585	986	NR	715	81	NR	845	2	NR	975	0	NR
460	338	NR	590	997	NR	720	69	NR	850	2	NR	980	0	NR
465	246	NR	595	997	NR	725	58	NR	855	1	NR	985	0	NR
470	182	NR	600	991	NR	730	49	NR	860	1	NR	990	0	NR
475	115	NR	605	968	NR	735	42	NR	865	1	NR	995	0	NR
480	97	NR	610	939	NR	740	37	NR	870	1	NR	1000	0	NR
485	103	NR	615	896	NR	745	32	NR	875	1	NR			

REPORT NUMBER: SP1-2411-284-1

Scotopic Flux vs. Wavelength



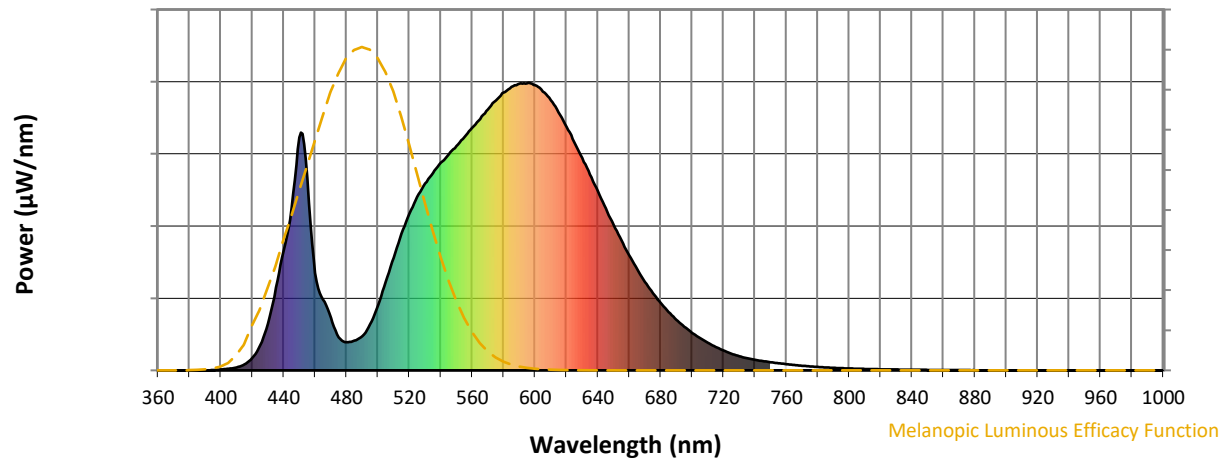
Scotopic Lumens: NR

S/P: 1.33

λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)
360	0	NR	490	119	NR	620	846	NR	750	28	NR	880	1	NR
365	0	NR	495	160	NR	625	793	NR	755	25	NR	885	0	NR
370	0	NR	500	225	NR	630	739	NR	760	22	NR	890	0	NR
375	0	NR	505	308	NR	635	681	NR	765	19	NR	895	0	NR
380	0	NR	510	392	NR	640	623	NR	770	16	NR	900	0	NR
385	0	NR	515	474	NR	645	563	NR	775	14	NR	905	0	NR
390	0	NR	520	545	NR	650	506	NR	780	12	NR	910	0	NR
395	1	NR	525	603	NR	655	451	NR	785	10	NR	915	0	NR
400	3	NR	530	649	NR	660	399	NR	790	9	NR	920	0	NR
405	5	NR	535	687	NR	665	352	NR	795	8	NR	925	0	NR
410	11	NR	540	721	NR	670	307	NR	800	6	NR	930	0	NR
415	21	NR	545	751	NR	675	268	NR	805	6	NR	935	0	NR
420	43	NR	550	779	NR	680	234	NR	810	5	NR	940	0	NR
425	88	NR	555	811	NR	685	203	NR	815	4	NR	945	0	NR
430	163	NR	560	843	NR	690	176	NR	820	4	NR	950	0	NR
435	288	NR	565	873	NR	695	152	NR	825	3	NR	955	0	NR
440	416	NR	570	907	NR	700	131	NR	830	3	NR	960	0	NR
445	566	NR	575	938	NR	705	112	NR	835	3	NR	965	0	NR
450	810	NR	580	965	NR	710	96	NR	840	2	NR	970	0	NR
455	669	NR	585	986	NR	715	81	NR	845	2	NR	975	0	NR
460	338	NR	590	997	NR	720	69	NR	850	2	NR	980	0	NR
465	246	NR	595	997	NR	725	58	NR	855	1	NR	985	0	NR
470	182	NR	600	991	NR	730	49	NR	860	1	NR	990	0	NR
475	115	NR	605	968	NR	735	42	NR	865	1	NR	995	0	NR
480	97	NR	610	939	NR	740	37	NR	870	1	NR	1000	0	NR
485	103	NR	615	896	NR	745	32	NR	875	1	NR			

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Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.47

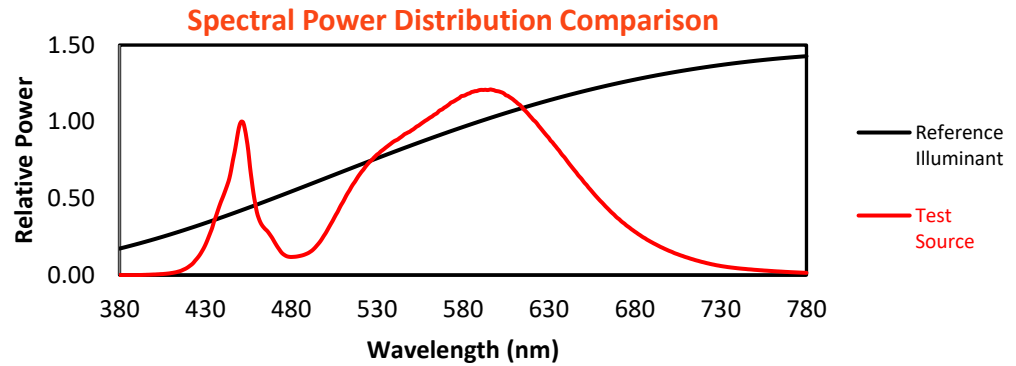
λ (nm)	Power $\text{W}^{\wedge}/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^{\wedge}/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^{\wedge}/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^{\wedge}/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^{\wedge}/\text{nm}$	Lumens (ϕ/nm)
360	0	NR	490	119	NR	620	846	NR	750	28	NR	880	1	NR
365	0	NR	495	160	NR	625	793	NR	755	25	NR	885	0	NR
370	0	NR	500	225	NR	630	739	NR	760	22	NR	890	0	NR
375	0	NR	505	308	NR	635	681	NR	765	19	NR	895	0	NR
380	0	NR	510	392	NR	640	623	NR	770	16	NR	900	0	NR
385	0	NR	515	474	NR	645	563	NR	775	14	NR	905	0	NR
390	0	NR	520	545	NR	650	506	NR	780	12	NR	910	0	NR
395	1	NR	525	603	NR	655	451	NR	785	10	NR	915	0	NR
400	3	NR	530	649	NR	660	399	NR	790	9	NR	920	0	NR
405	5	NR	535	687	NR	665	352	NR	795	8	NR	925	0	NR
410	11	NR	540	721	NR	670	307	NR	800	6	NR	930	0	NR
415	21	NR	545	751	NR	675	268	NR	805	6	NR	935	0	NR
420	43	NR	550	779	NR	680	234	NR	810	5	NR	940	0	NR
425	88	NR	555	811	NR	685	203	NR	815	4	NR	945	0	NR
430	163	NR	560	843	NR	690	176	NR	820	4	NR	950	0	NR
435	288	NR	565	873	NR	695	152	NR	825	3	NR	955	0	NR
440	416	NR	570	907	NR	700	131	NR	830	3	NR	960	0	NR
445	566	NR	575	938	NR	705	112	NR	835	3	NR	965	0	NR
450	810	NR	580	965	NR	710	96	NR	840	2	NR	970	0	NR
455	669	NR	585	986	NR	715	81	NR	845	2	NR	975	0	NR
460	338	NR	590	997	NR	720	69	NR	850	2	NR	980	0	NR
465	246	NR	595	997	NR	725	58	NR	855	1	NR	985	0	NR
470	182	NR	600	991	NR	730	49	NR	860	1	NR	990	0	NR
475	115	NR	605	968	NR	735	42	NR	865	1	NR	995	0	NR
480	97	NR	610	939	NR	740	37	NR	870	1	NR	1000	0	NR
485	103	NR	615	896	NR	745	32	NR	875	1	NR			

REPORT NUMBER: SP1-2411-284-1

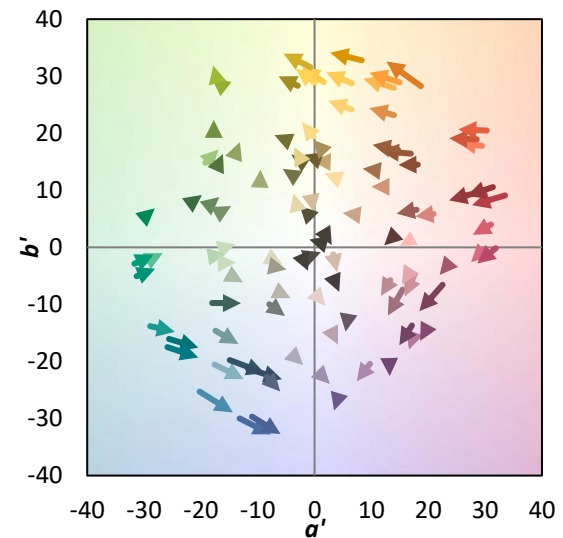
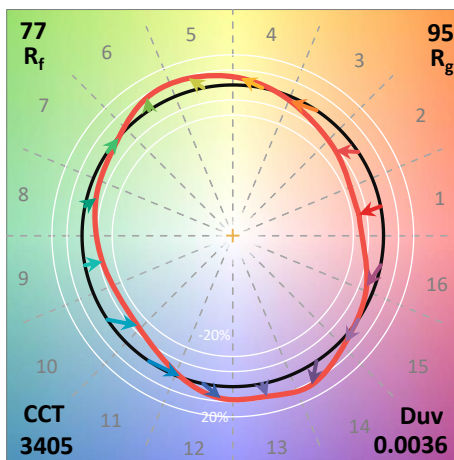
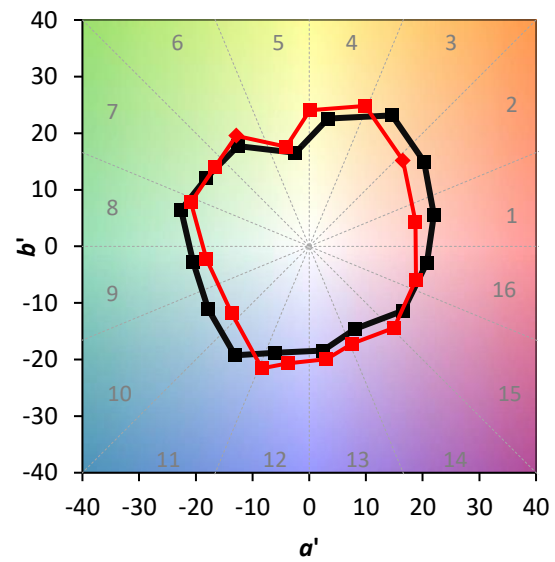
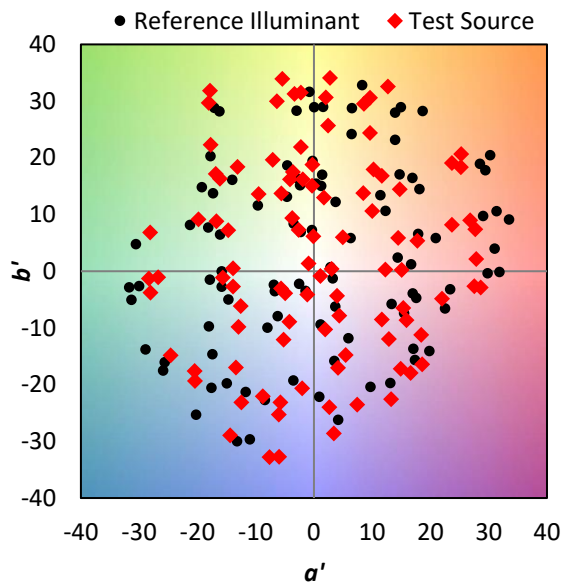
TM-30-18

Summary

$R_f = 76.6$
 $R_g = 95.4$
 $CIE R_a = 73.9$
 $R_g = -18.0$

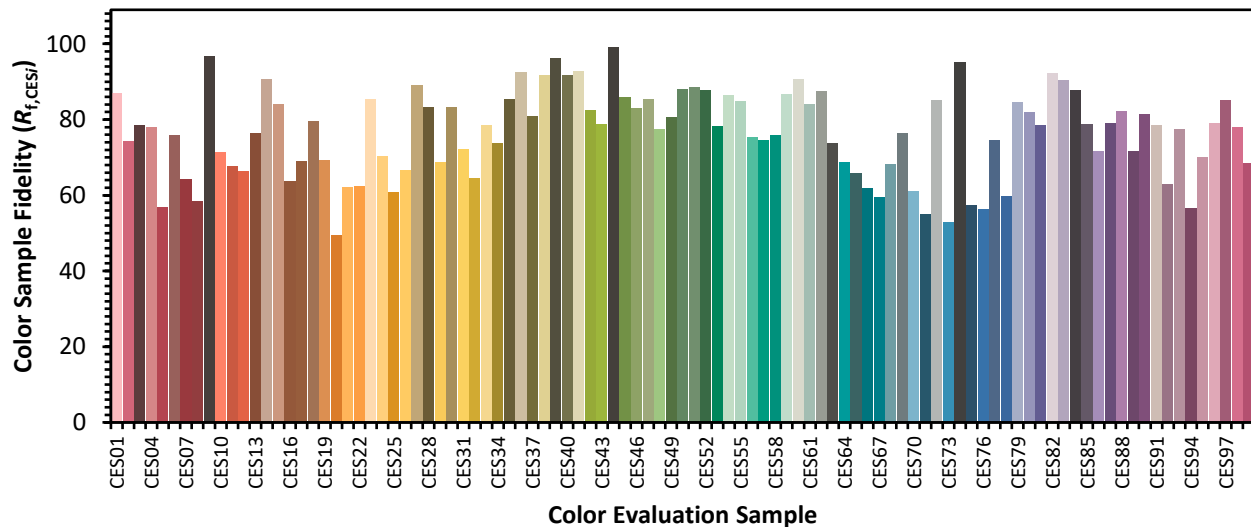


Color Vector Graphics

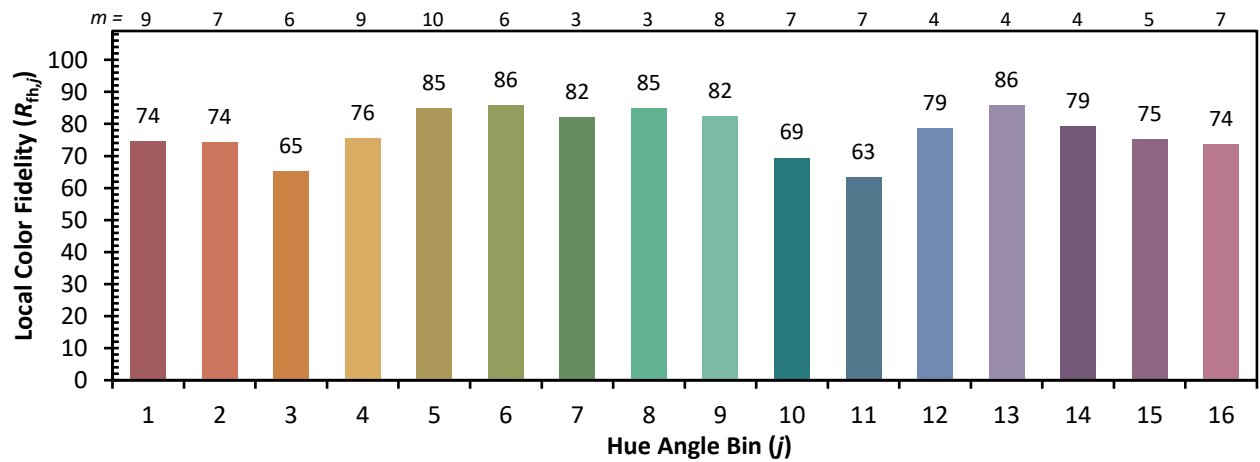
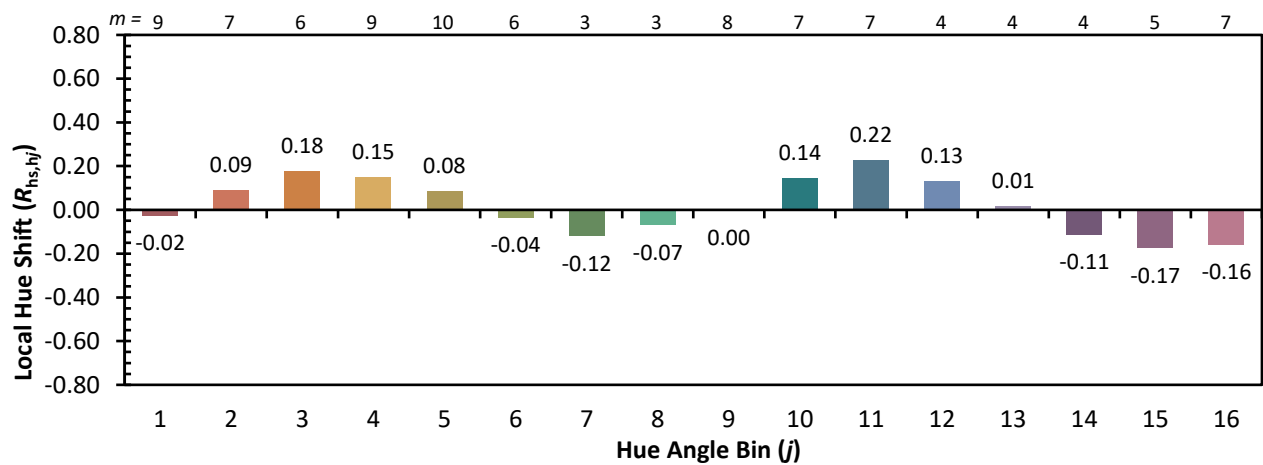
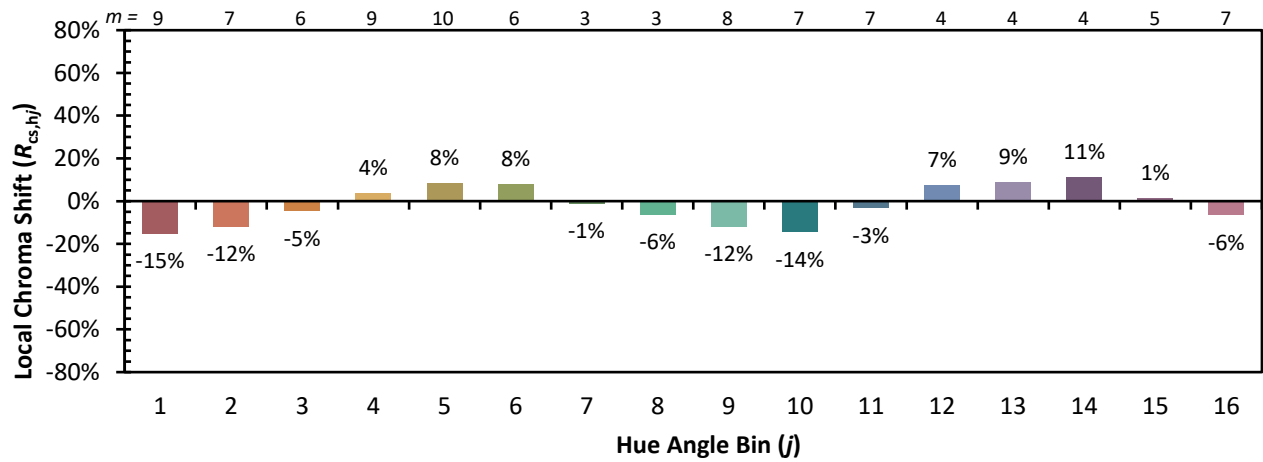


Individual Sample Fidelity Index ($R_{f,i}$)

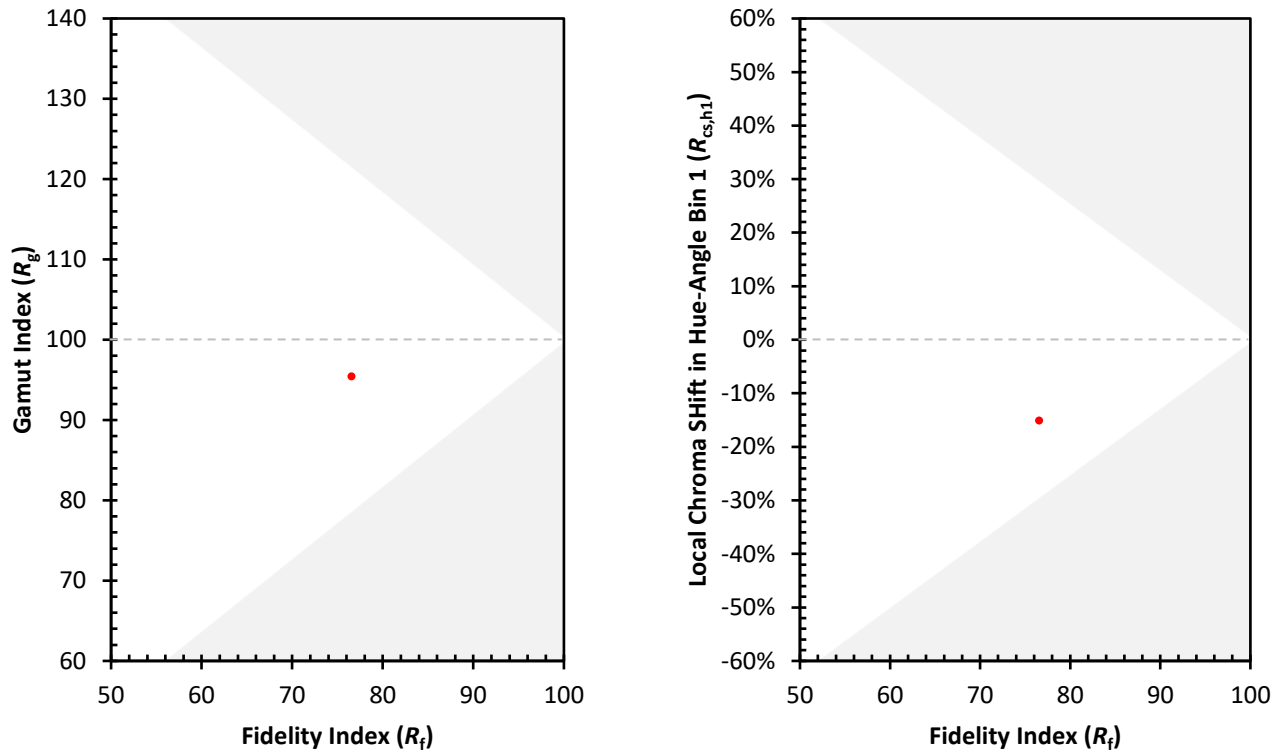
CES01 = 86	CES26 = 67	CES51 = 88	CES76 = 56
CES02 = 62	CES27 = 89	CES52 = 88	CES77 = 75
CES03 = 31	CES28 = 83	CES53 = 78	CES78 = 60
CES04 = 70	CES29 = 69	CES54 = 86	CES79 = 85
CES05 = 48	CES30 = 83	CES55 = 85	CES80 = 82
CES06 = 51	CES31 = 72	CES56 = 75	CES81 = 78
CES07 = 41	CES32 = 65	CES57 = 75	CES82 = 92
CES08 = 40	CES33 = 78	CES58 = 76	CES83 = 90
CES09 = 29	CES34 = 74	CES59 = 87	CES84 = 88
CES10 = 75	CES35 = 86	CES60 = 91	CES85 = 79
CES11 = 58	CES36 = 93	CES61 = 84	CES86 = 72
CES12 = 64	CES37 = 81	CES62 = 88	CES87 = 79
CES13 = 43	CES38 = 92	CES63 = 74	CES88 = 82
CES14 = 74	CES39 = 96	CES64 = 69	CES89 = 72
CES15 = 71	CES40 = 92	CES65 = 66	CES90 = 82
CES16 = 47	CES41 = 93	CES66 = 62	CES91 = 79
CES17 = 50	CES42 = 83	CES67 = 60	CES92 = 63
CES18 = 56	CES43 = 79	CES68 = 68	CES93 = 77
CES19 = 72	CES44 = 99	CES69 = 76	CES94 = 56
CES20 = 65	CES45 = 86	CES70 = 61	CES95 = 70
CES21 = 86	CES46 = 83	CES71 = 55	CES96 = 79
CES22 = 79	CES47 = 85	CES72 = 85	CES97 = 85
CES23 = 92	CES48 = 78	CES73 = 53	CES98 = 78
CES24 = 91	CES49 = 81	CES74 = 95	CES99 = 68
CES25 = 72	CES50 = 88	CES75 = 57	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)