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: P543199

Luminaire Tested: **TT-D9-735-U-DL-UPL**

Issue Date: 5/10/2022

Report Generated By 670246001

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Peachtree City, GA 30269

Scaled Data Report

Test Information

Test Method:	LM-79-08
Report Number:	P543199
	REPORT IS FROM IESNA LM-79-08 TEST DATA - UPLIGHT (G2-2002-677-2) AND
Test Lab:	INNOVATION CENTER
Issue Date:	5/10/2022
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	McGRAW-EDISON
Catalog Number:	TT-D9-735-U-DL-UPL
Description:	TOPTIER LED PARKING GARAGE LUMINAIRE WITH UPLIGHT
	3500K, 70 CRI LEDS AND DRIVE LANE DISTRIBUTION
Light Source:	-
Ballast/Driver:	ELECTRONIC DRIVER

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	18768.7 lumens
Efficiency:	N/A
Efficacy:	100.9 lumens/watt
Luminous Opening:	Vertical Cylinder (Dia: 1.12' x H: 0.1')
IES Classification:	Type IV - Short
BUG Rating:	B3 - U4 - G5

Input Watts (W):	186
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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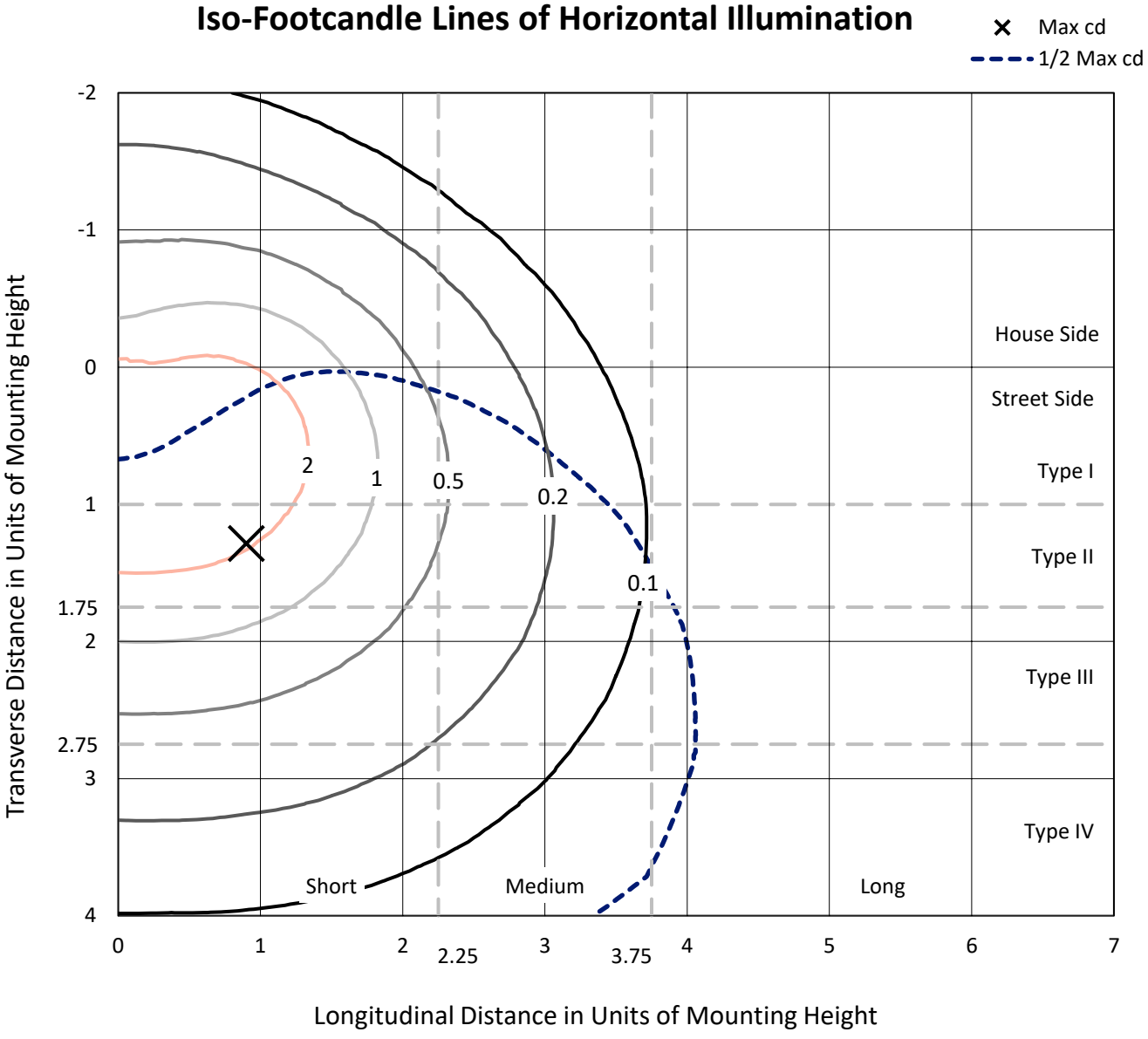
Iso-Footcandle Lines of Horizontal Illumination



Based on 25 foot mounting height. Maximum calculated value = 4 fc
Type IV - Short - N/A

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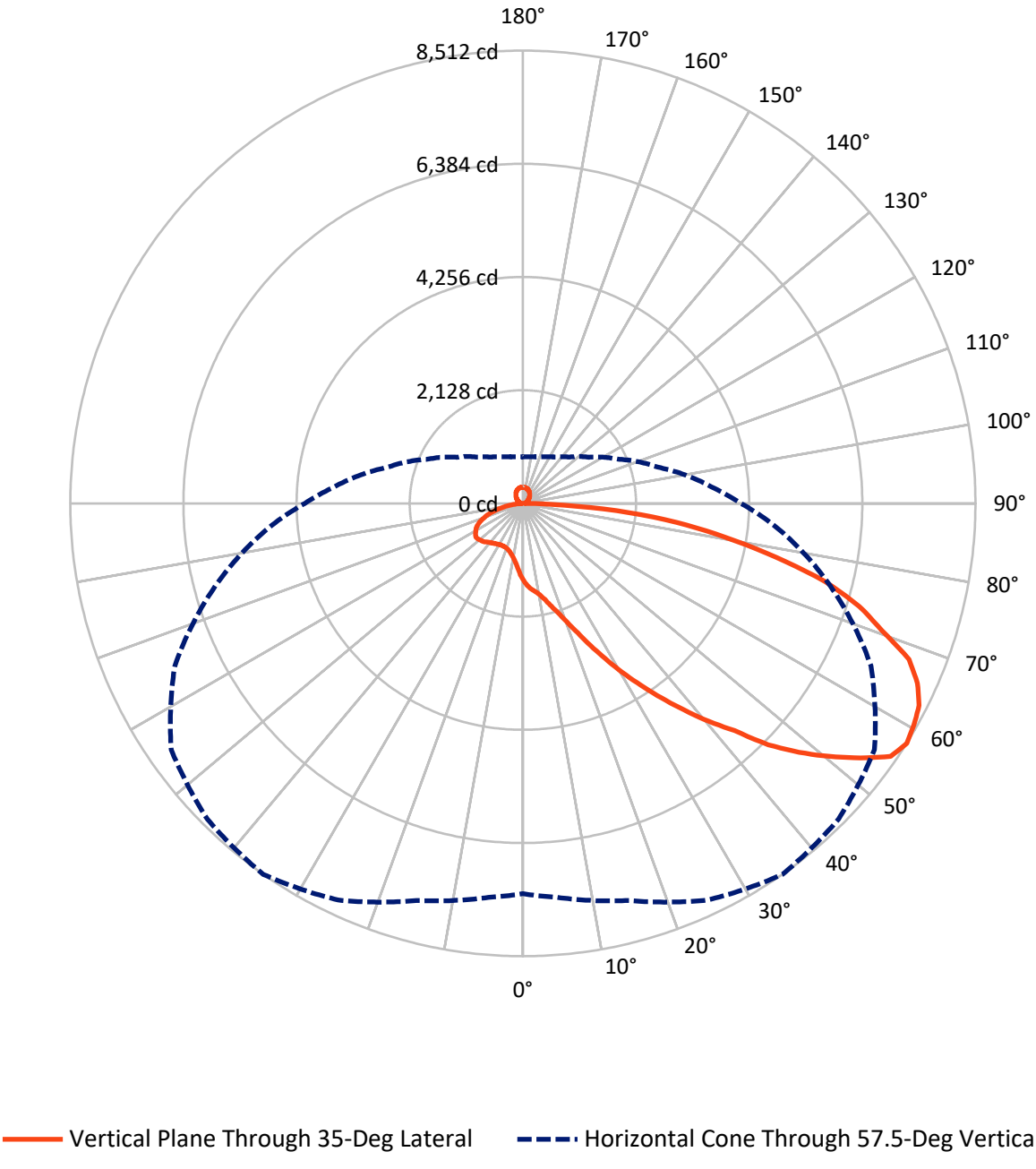
Luminous Intensity Polar Plot



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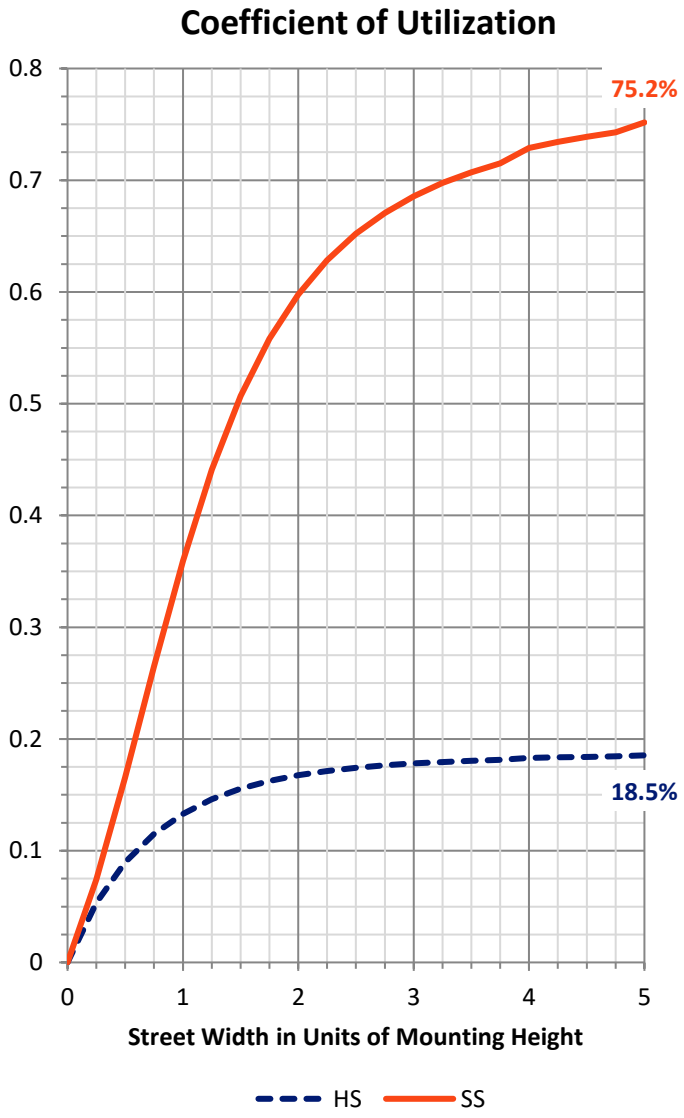
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	3513.7	415.9	3929.6
	% Fixture	18.7	2.2	20.9
Street Side	Lumens	14423.3	415.9	14839.1
	% Fixture	76.8	2.2	79.1
Total	Lumens	17937.0	831.7	18768.7
	% Fixture	95.6	4.4	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	134.2	0.7
10°-20°	423.1	2.3
20°-30°	894.7	4.8
30°-40°	1676.3	8.9
40°-50°	2790.0	14.9
50°-60°	3937.7	21.0
60°-70°	4142.8	22.1
70°-80°	3034.9	16.2
80°-90°	903.3	4.8
90°-100°	42.6	0.2
100°-110°	66.0	0.4
110°-120°	91.9	0.5
120°-130°	119.0	0.6
130°-140°	138.7	0.7
140°-150°	140.5	0.7
150°-160°	121.9	0.6
160°-170°	82.2	0.4
170°-180°	28.9	0.2
0°-90°	17937.0	95.6
0°-180°	18768.7	100.0



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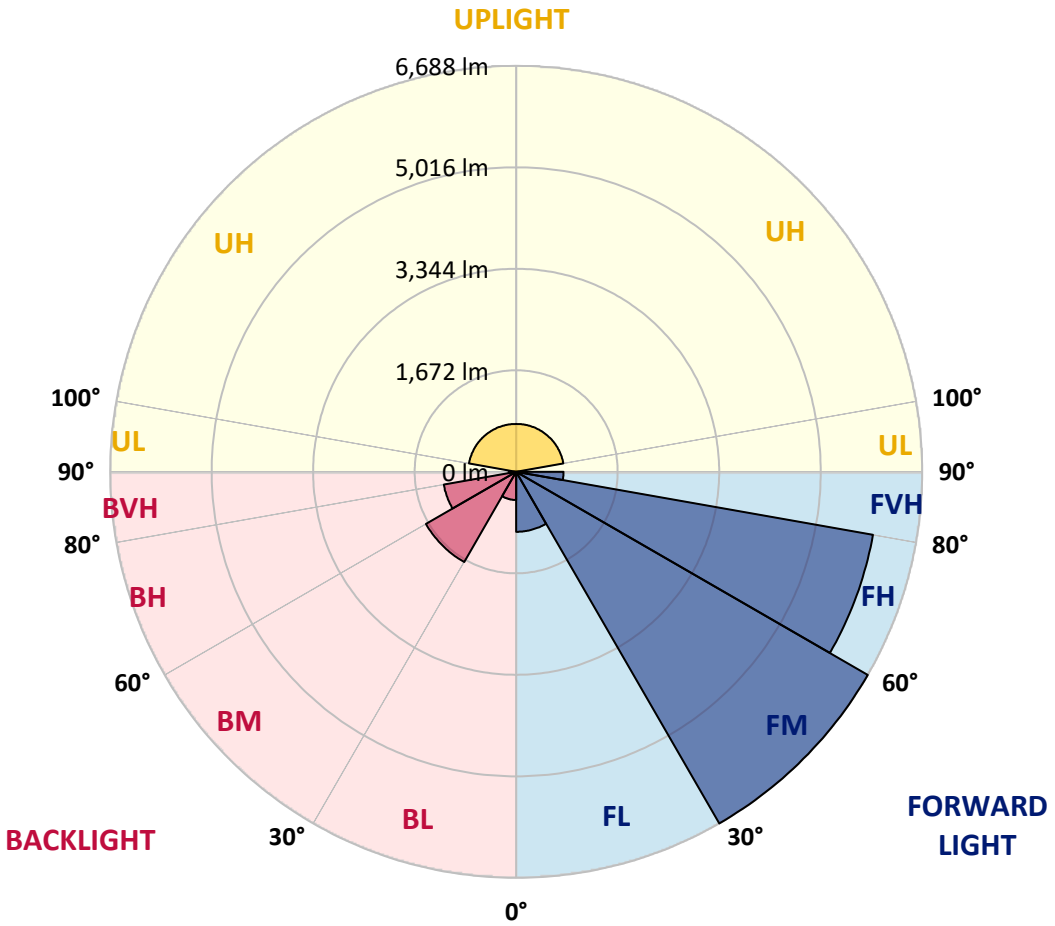
LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	988.0	5.3			
FM	(30°-60°)	6688.0	35.6			
FH	(60°-80°)	5967.3	31.8			G3/7500
FVH	(80°-90°)	780.0	4.2			G5
BL	(0°-30°)	464.0	2.5	B1/500		
BM	(30°-60°)	1716.0	9.1	B2/2500		
BH	(60°-80°)	1210.4	6.4	B3/2500		G3/2500
BVH	(80°-90°)	123.3	0.7			G2/225
UL	(90°-100°)	42.6	0.2		U2/50	
UH	(100°-180°)	789.1	4.2		U4/1000	

BUG Rating: B3-U4-G5
Type IV Short



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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	1447.3	1447.3	1447.3	1447.3	1447.3	1447.3	1447.3	1447.3	1447.3	1447.3	1447.3
2.5°	1575.7	1568.0	1561.3	1550.3	1542.5	1540.3	1525.9	1508.2	1483.8	1462.8	1451.7
5°	1658.8	1657.7	1654.4	1641.1	1616.7	1582.4	1550.3	1513.7	1473.9	1434.0	1415.2
7.5°	1737.4	1729.7	1725.2	1706.4	1671.0	1633.3	1584.6	1530.3	1472.8	1416.3	1387.5
10°	1836.0	1824.9	1817.1	1780.6	1744.1	1690.9	1626.7	1556.9	1488.3	1417.4	1383.1
12.5°	1962.2	1953.3	1921.2	1903.5	1857.0	1796.1	1715.3	1631.1	1542.5	1451.7	1407.4
15°	2097.3	2099.5	2087.3	2041.9	2004.3	1931.2	1844.8	1739.6	1620.0	1510.4	1455.0
17.5°	2277.8	2274.5	2251.2	2221.3	2163.7	2089.5	1983.2	1871.4	1731.9	1587.9	1524.8
20°	2490.4	2479.3	2458.3	2417.3	2383.0	2295.5	2174.8	2035.3	1869.2	1698.7	1613.4
22.5°	2760.6	2736.2	2722.9	2686.4	2644.3	2562.4	2433.9	2249.0	2054.1	1842.6	1733.0
25°	3025.2	3038.5	3031.9	3010.8	2957.7	2856.9	2720.7	2517.0	2250.1	2003.2	1879.1
27.5°	3357.4	3363.0	3365.2	3356.3	3304.3	3212.4	3074.0	2804.9	2507.0	2200.3	2036.4
30°	3702.9	3690.7	3706.2	3710.7	3685.2	3578.9	3409.5	3114.9	2758.4	2391.8	2208.0
32.5°	4046.2	4059.5	4091.6	4071.7	4076.1	3955.4	3770.5	3423.9	3026.3	2594.5	2400.7
35°	4416.1	4433.8	4455.9	4493.6	4491.3	4395.0	4128.1	3780.4	3316.5	2828.1	2576.8
37.5°	4794.8	4790.3	4823.5	4909.9	4926.5	4834.6	4555.6	4154.7	3621.0	3064.0	2783.8
40°	5153.5	5194.5	5258.7	5317.4	5388.3	5257.6	4986.3	4532.3	3952.1	3308.7	2978.7
42.5°	5572.1	5588.7	5683.9	5815.7	5834.5	5733.8	5438.1	4967.5	4281.0	3541.3	3191.3
45°	6016.1	6038.3	6128.0	6318.5	6472.4	6407.0	6006.2	5447.0	4688.5	3858.0	3426.1
47.5°	6399.3	6464.6	6608.6	6828.9	6992.8	6958.5	6574.2	5917.6	5078.2	4123.7	3653.1
50°	6740.3	6819.0	7015.0	7332.8	7478.9	7433.5	7059.3	6382.7	5362.8	4354.0	3818.1
52.5°	7085.8	7195.5	7374.8	7722.6	7950.7	7968.4	7550.9	6738.1	5692.8	4595.4	3998.6
55°	7273.0	7352.7	7652.8	8074.7	8396.9	8405.8	7934.1	7071.4	5920.9	4701.7	4083.8
57.5°	7338.3	7434.6	7727.0	8226.4	8512.1	8393.6	8072.5	7222.0	5985.1	4740.5	4101.6
60°	7247.5	7343.8	7677.2	8209.8	8451.2	8508.8	8011.6	7220.9	5953.0	4690.7	4047.3
62.5°	7117.9	7240.9	7564.2	8083.5	8362.6	8394.7	7932.9	7139.0	5905.4	4605.4	3967.6
65°	6789.1	6863.3	7336.1	7723.7	8154.4	8115.7	7752.4	6853.3	5737.1	4385.0	3772.7
67.5°	6461.3	6538.8	6886.5	7418.0	7835.5	7793.4	7435.8	6576.5	5413.8	4180.2	3568.9
70°	5908.7	5958.6	6438.0	6851.1	7163.3	7318.4	6856.6	6114.7	5074.9	3836.9	3258.9
72.5°	5324.1	5402.7	5746.0	6264.2	6617.4	6567.6	6336.2	5546.6	4522.4	3438.3	2937.8
75°	4576.6	4651.9	5031.7	5532.2	5875.5	5835.7	5572.1	4871.2	4019.6	2975.4	2543.5
77.5°	3870.1	3846.9	4182.4	4562.2	4874.5	4966.4	4669.6	4119.3	3315.4	2445.0	2070.7
80°	2973.2	3061.8	3272.2	3625.4	3861.3	3913.3	3684.1	3260.0	2648.7	1913.5	1587.9
82.5°	2094.0	2140.5	2397.4	2620.0	2915.6	2896.8	2738.4	2367.5	1923.4	1343.2	1094.0
85°	1142.8	1152.7	1385.3	1541.4	1769.5	1797.2	1685.4	1431.8	1100.7	764.1	563.6
87.5°	200.4	197.1	285.7	418.6	531.5	571.4	475.0	372.1	150.6	89.7	46.5
90°	30.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1
92.5°	34.8	34.2	34.2	33.8	33.8	33.8	33.8	33.8	33.8	33.8	33.8
95°	39.4	39.4	39.4	38.5	38.5	38.5	38.5	38.5	38.5	38.5	38.5
97.5°	44.6	44.6	44.6	44.2	44.2	44.2	44.2	44.2	44.2	44.2	44.2
100°	49.8	49.8	49.8	49.8	49.8	49.8	49.8	49.8	49.8	49.8	49.8
102.5°	55.9	55.9	55.9	55.9	55.9	55.9	55.9	56.4	55.9	55.9	55.9
105°	62.0	62.0	62.0	62.0	62.0	62.0	62.0	62.9	62.0	62.0	62.0
107.5°	68.6	68.6	69.0	69.0	69.0	69.0	69.0	69.5	69.0	69.0	69.0
110°	75.1	75.1	76.1	76.1	76.1	76.1	76.1	76.1	76.1	76.1	76.1

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CANDELA DISTRIBUTION (continued):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
112.5°	83.1	83.1	84.0	84.0	*84.0*	84.0	84.6	84.6	84.0	84.0	84.0
115°	91.1	91.1	92.0	92.0	*92.0*	92.0	93.0	93.0	92.0	92.0	92.0
117.5°	100.5	100.5	101.0	101.4	*101.4*	101.4	102.4	102.4	101.4	101.4	101.4
120°	109.9	109.9	109.9	110.8	*110.8*	110.8	111.8	111.8	110.8	110.8	110.8
122.5°	120.7	120.7	121.2	121.6	*121.6*	121.6	122.6	122.6	122.1	122.1	121.6
125°	131.5	131.5	132.4	132.4	*132.4*	132.4	133.4	133.4	133.4	133.4	132.4
127.5°	143.2	143.2	144.2	144.2	*144.2*	144.2	145.1	145.1	145.1	145.1	144.2
130°	155.0	155.0	155.9	155.9	*155.9*	155.9	156.8	156.8	156.8	156.8	155.9
132.5°	167.2	167.2	167.6	167.6	*167.6*	168.1	168.6	168.6	168.6	168.6	168.1
135°	179.4	179.4	179.4	179.4	*179.4*	180.3	180.3	180.3	180.3	180.3	180.3
137.5°	191.2	190.6	191.2	190.6	*191.2*	191.6	191.6	191.6	191.6	191.6	191.6
140°	202.9	201.9	202.9	201.9	*202.9*	202.9	202.9	202.9	202.9	202.9	202.9
142.5°	213.7	213.2	213.7	212.7	*213.7*	213.7	213.7	213.7	213.7	213.7	213.7
145°	224.5	224.5	224.5	223.5	*224.5*	224.5	224.5	224.5	224.5	224.5	224.5
147.5°	235.8	235.3	235.8	234.8	*235.8*	235.8	235.8	235.8	235.8	235.8	235.8
150°	247.0	246.1	247.0	246.1	*247.0*	247.0	247.0	247.0	247.0	247.0	247.0
152.5°	256.0	255.5	256.4	255.5	*256.0*	256.0	256.4	256.0	256.0	256.0	256.0
155°	264.9	264.9	265.8	264.9	*264.9*	264.9	265.8	264.9	264.9	264.9	264.9
157.5°	272.4	272.4	273.3	272.4	*272.4*	272.4	273.3	272.4	272.4	272.4	272.4
160°	279.9	279.9	280.8	279.9	*279.9*	279.9	280.8	279.9	279.9	279.9	279.9
162.5°	286.0	286.0	286.9	286.0	*286.0*	286.0	286.9	286.0	286.0	286.0	286.0
165°	292.1	292.1	293.0	292.1	*292.1*	292.1	293.0	292.1	292.1	292.1	292.1
167.5°	295.8	295.8	296.8	295.8	*295.8*	295.8	296.8	295.8	295.8	295.8	295.8
170°	299.6	299.6	300.5	299.6	*299.6*	299.6	300.5	299.6	299.6	299.6	299.6
172.5°	302.0	302.0	302.8	302.0	*302.4*	302.0	302.8	302.0	302.0	302.0	302.0
175°	304.3	304.3	305.2	304.3	*305.2*	304.3	305.2	304.3	304.3	304.3	304.3
177.5°	305.2	305.2	305.7	305.2	*305.7*	305.2	305.7	305.2	305.2	305.2	305.2
180°	306.2	306.2	306.2	306.2	*306.2*	306.2	306.2	306.2	306.2	306.2	306.2

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CANDELA DISTRIBUTION (continued):

	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	1447.3	1447.3	1447.3	1447.3	1447.3	1447.3	1447.3	1447.3	1447.3	1447.3
2.5°	1439.5	1417.4	1396.3	1376.4	1357.6	1342.1	1335.4	1329.9	1328.8	1318.8
5°	1391.9	1356.5	1317.7	1282.3	1250.2	1215.9	1188.2	1179.3	1178.2	1183.7
7.5°	1360.9	1306.7	1253.5	1211.4	1163.8	1118.4	1077.4	1052.0	1045.3	1043.1
10°	1349.8	1283.4	1219.2	1154.9	1101.8	1046.4	996.6	965.6	947.9	943.4
12.5°	1364.2	1280.1	1200.4	1125.1	1053.1	992.2	935.7	896.9	877.0	870.4
15°	1403.0	1294.5	1193.7	1102.9	1024.3	947.9	892.5	842.7	819.4	816.1
17.5°	1453.9	1326.6	1198.1	1091.8	998.8	918.0	853.8	801.7	772.9	768.5
20°	1527.0	1367.6	1219.2	1092.9	987.7	896.9	825.0	769.6	738.6	735.3
22.5°	1630.0	1432.9	1253.5	1107.3	987.7	884.8	807.2	749.7	717.6	714.2
25°	1747.4	1508.2	1300.0	1127.3	991.1	882.5	797.3	736.4	704.3	700.9
27.5°	1882.5	1600.1	1349.8	1152.7	1003.2	884.8	794.0	733.1	702.1	697.6
30°	2034.2	1690.9	1404.1	1180.4	1018.7	889.2	795.1	731.9	702.1	697.6
32.5°	2185.9	1790.6	1465.0	1217.0	1036.5	901.4	801.7	739.7	708.7	705.4
35°	2345.3	1900.2	1532.6	1254.6	1061.9	918.0	812.8	748.6	717.6	714.2
37.5°	2510.3	2010.9	1602.3	1301.1	1088.5	934.6	828.3	764.1	734.2	730.8
40°	2682.0	2125.0	1676.5	1348.7	1114.0	956.7	847.1	784.0	753.0	749.7
42.5°	2830.3	2228.0	1745.2	1389.7	1147.2	977.8	871.5	805.0	776.2	772.9
45°	3039.6	2345.3	1816.0	1440.6	1187.1	1015.4	900.3	838.3	811.7	805.0
47.5°	3214.6	2464.9	1888.0	1489.4	1220.3	1040.9	927.9	864.8	837.1	832.7
50°	3357.4	2540.2	1944.5	1514.8	1238.0	1057.5	950.1	885.9	861.5	853.8
52.5°	3508.0	2625.5	1974.4	1544.7	1266.8	1080.8	965.6	910.2	883.7	875.9
55°	3556.8	2629.9	1996.5	1550.3	1262.4	1086.3	975.6	911.3	890.3	882.5
57.5°	*3560.1*	*2628.8*	*1966.6*	*1512.6*	*1231.4*	*1061.9*	*965.6*	*904.7*	*880.3*	*873.7*
60°	3498.1	2563.5	1906.8	1467.2	1198.1	1027.6	937.9	879.2	860.4	853.8
62.5°	3420.6	2503.7	1832.6	1405.2	1150.5	993.3	905.8	860.4	834.9	827.2
65°	3224.6	2346.4	1719.7	1321.1	1081.9	941.2	854.9	810.6	790.6	785.1
67.5°	3050.7	2178.1	1606.7	1233.6	1004.4	877.0	798.4	759.6	744.1	740.8
70°	2768.3	1995.4	1431.8	1097.4	904.7	781.8	723.1	694.3	675.5	668.8
72.5°	2481.5	1751.8	1262.4	966.7	784.0	703.2	644.5	613.5	603.5	598.0
75°	2107.3	1472.8	1064.1	819.4	673.3	588.0	547.0	523.8	511.6	510.5
77.5°	1724.1	1179.3	857.1	648.9	532.6	473.9	445.1	423.0	420.8	425.2
80°	1321.1	890.3	636.7	486.1	394.2	357.7	342.2	327.8	325.6	322.2
82.5°	878.1	590.2	403.1	307.8	264.7	243.6	239.2	229.2	227.0	224.8
85°	428.5	283.5	194.9	152.8	140.6	130.7	129.6	134.0	132.9	129.6
87.5°	44.3	36.5	35.4	27.7	25.5	23.3	23.3	21.0	25.5	18.8
90°	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	30.1
92.5°	33.8	33.8	33.8	33.8	33.8	33.8	33.8	34.2	34.2	34.8
95°	38.5	38.5	38.5	38.5	38.5	38.5	38.5	39.4	39.4	39.4
97.5°	44.2	44.2	44.2	44.2	44.2	44.2	44.2	44.6	44.6	44.6
100°	49.8	49.8	49.8	49.8	49.8	49.8	49.8	49.8	49.8	49.8
102.5°	55.9	55.9	56.4	55.9	55.9	55.9	55.9	55.9	55.9	55.9
105°	62.0	62.0	62.9	62.0	62.0	62.0	62.0	62.0	62.0	62.0
107.5°	69.0	69.0	69.5	69.0	69.0	69.0	69.0	69.0	68.6	68.6
110°	76.1	76.1	76.1	76.1	76.1	76.1	76.1	76.1	75.1	75.1

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

REPORT NUMBER: P543199
CATALOG NUMBER: TT-D9-735-U-DL-UPL

CANDELA DISTRIBUTION (continued):

	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
112.5°	84.0	84.0	84.6	84.6	84.0	84.0	84.0	84.0	83.1	83.1
115°	92.0	92.0	93.0	93.0	92.0	92.0	92.0	92.0	91.1	91.1
117.5°	101.4	101.4	102.4	102.4	101.4	101.4	101.4	101.0	100.5	100.5
120°	110.8	110.8	111.8	111.8	110.8	110.8	110.8	109.9	109.9	109.9
122.5°	122.1	122.1	122.6	122.6	121.6	121.6	121.6	121.2	120.7	120.7
125°	133.4	133.4	133.4	133.4	132.4	132.4	132.4	132.4	131.5	131.5
127.5°	145.1	145.1	145.1	145.1	144.2	144.2	144.2	144.2	143.2	143.2
130°	156.8	156.8	156.8	156.8	155.9	155.9	155.9	155.9	155.0	155.0
132.5°	168.6	168.6	168.6	168.6	168.1	167.6	167.6	167.6	167.2	167.2
135°	180.3	180.3	180.3	180.3	180.3	179.4	179.4	179.4	179.4	179.4
137.5°	191.6	191.6	191.6	191.6	191.6	191.2	190.6	191.2	190.6	191.2
140°	202.9	202.9	202.9	202.9	202.9	202.9	201.9	202.9	201.9	202.9
142.5°	213.7	213.7	213.7	213.7	213.7	213.7	212.7	213.7	213.2	213.7
145°	224.5	224.5	224.5	224.5	224.5	224.5	223.5	224.5	224.5	224.5
147.5°	235.8	235.8	235.8	235.8	235.8	235.8	234.8	235.8	235.3	235.8
150°	247.0	247.0	247.0	247.0	247.0	247.0	246.1	247.0	246.1	247.0
152.5°	256.0	256.0	256.0	256.4	256.0	256.0	255.5	256.4	255.5	256.0
155°	264.9	264.9	264.9	265.8	264.9	264.9	264.9	265.8	264.9	264.9
157.5°	272.4	272.4	272.4	273.3	272.4	272.4	272.4	273.3	272.4	272.4
160°	279.9	279.9	279.9	280.8	279.9	279.9	279.9	280.8	279.9	279.9
162.5°	286.0	286.0	286.0	286.9	286.0	286.0	286.0	286.9	286.0	286.0
165°	292.1	292.1	292.1	293.0	292.1	292.1	292.1	293.0	292.1	292.1
167.5°	295.8	295.8	295.8	296.8	295.8	295.8	295.8	296.8	295.8	295.8
170°	299.6	299.6	299.6	300.5	299.6	299.6	299.6	300.5	299.6	299.6
172.5°	302.0	302.0	302.0	302.8	302.0	302.4	302.0	302.8	302.0	302.0
175°	304.3	304.3	304.3	305.2	304.3	305.2	304.3	305.2	304.3	304.3
177.5°	305.2	305.2	305.2	305.7	305.2	305.7	305.2	305.7	305.2	305.2
180°	306.2	306.2	306.2	306.2	306.2	306.2	306.2	306.2	306.2	306.2

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

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-xx-735 and TTN-xx-735

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

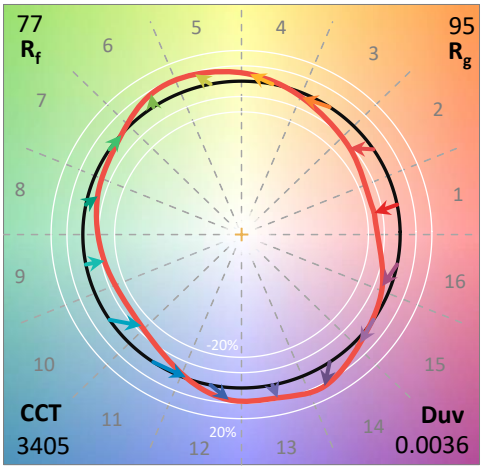
Test Information

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
CIE u':	0.2365
CIE v':	0.5180
Duv:	0.0036
CIE x:	0.4148
CIE y:	0.4038
CIE z:	0.1814
Peak Wavelength (nm):	596
Dominant Wavelength (nm):	579
Purity:	45.70672
Rf:	76.6
Rg:	95.4

CRI (Ra):	73.9
R1:	71.3
R2:	80.3
R3:	87.8
R4:	73.2
R5:	69.8
R6:	71.8
R7:	82.8
R8:	54.1
R9:	-18.0
R10:	53.1
R11:	68.6
R12:	42.6
R13:	72.5
R14:	92.7
R15:	64.3



Test Conditions

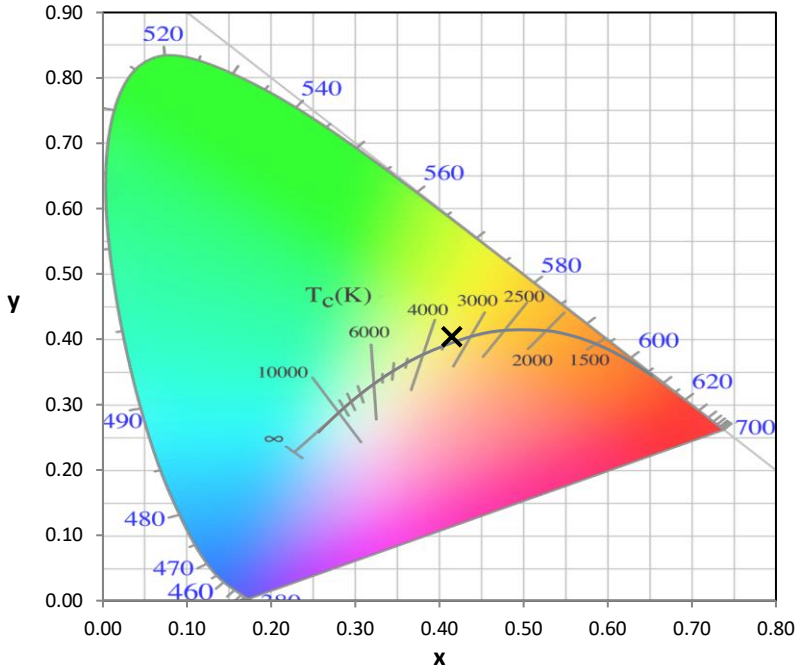
Stabilization Time:	38M
Operation Time:	1H 38M
Sphere Temperature (°C):	24.9

REPORT NUMBER: SP1-2411-284-1

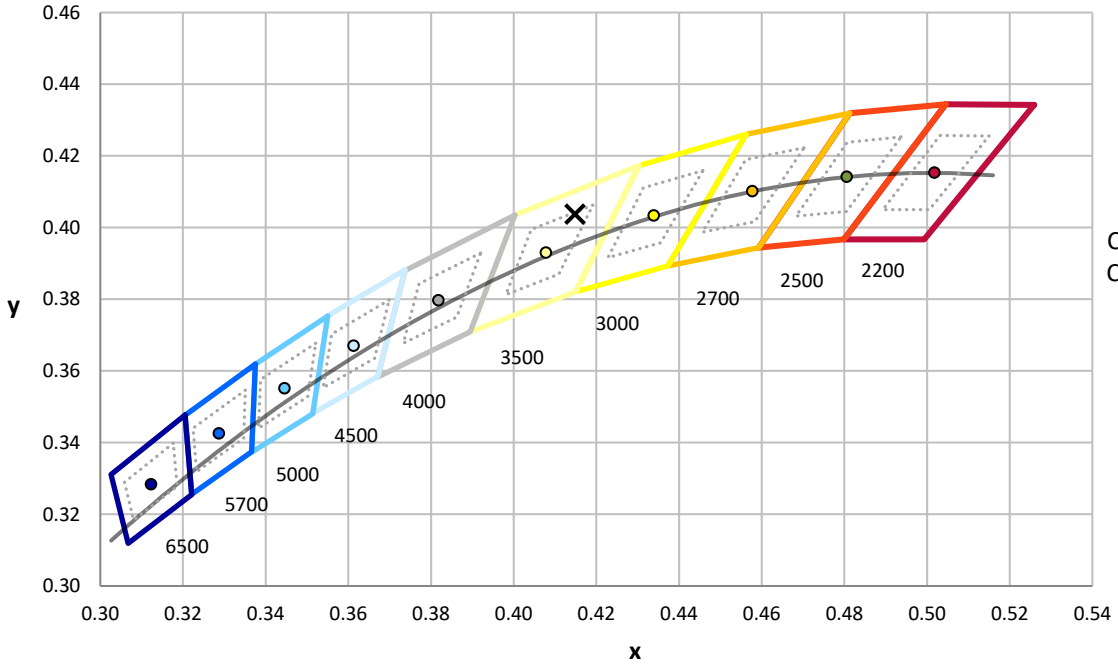
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/22/2024	10/22/2025
DC Power Source	IN0208	10/22/2024	10/22/2025
Sphere Thermometer	IN0085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

REPORT NUMBER: SP1-2411-284-1

CIE 1931 Chromaticity Diagram



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

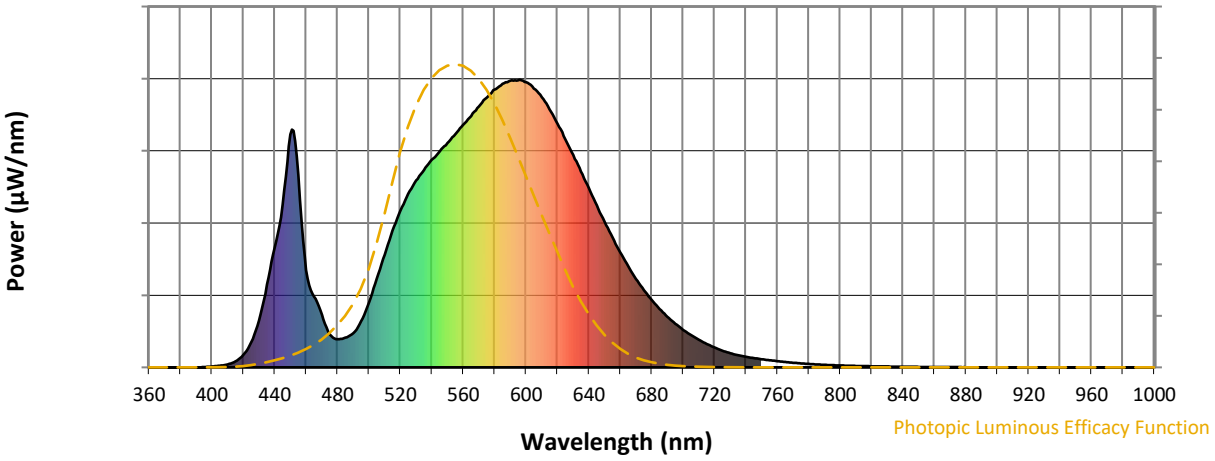


CCT = 3405K
CIE x = 0.4148
CIE y = 0.4038
Duv = 0.0036

Point lies inside the ANSI 3500K 4-step quadrangle

REPORT NUMBER: SP1-2411-284-1

Photopic Flux vs. Wavelength

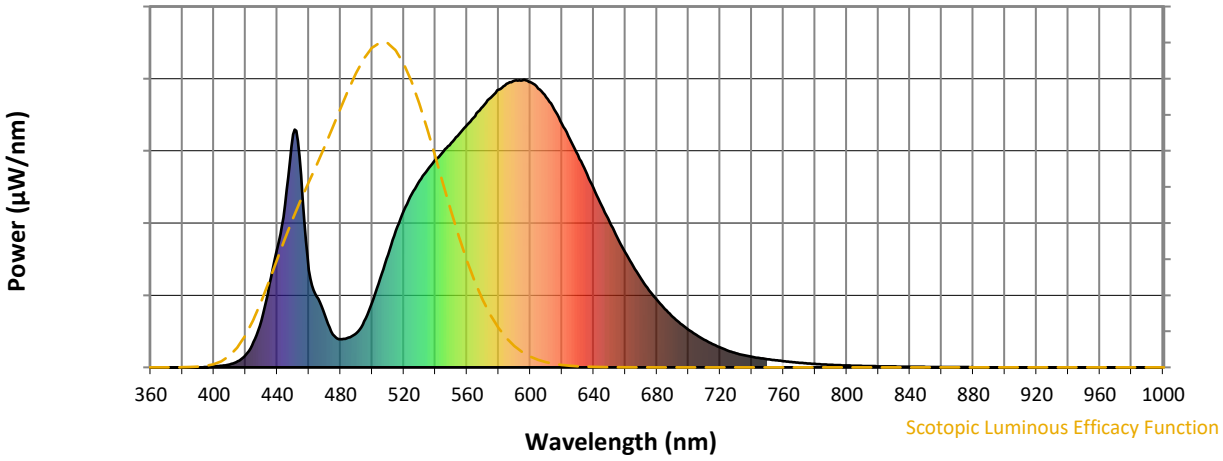


Photopic Lumens: NR

λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/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

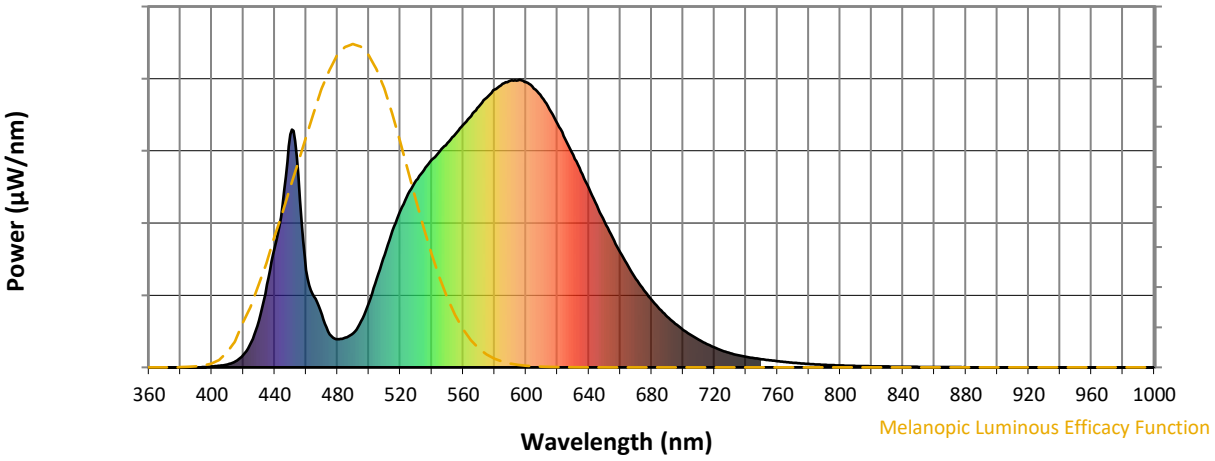


Scotopic Lumens: NR **S/P: 1.33**

λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/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

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR **M/P: 2.47**

λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/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			

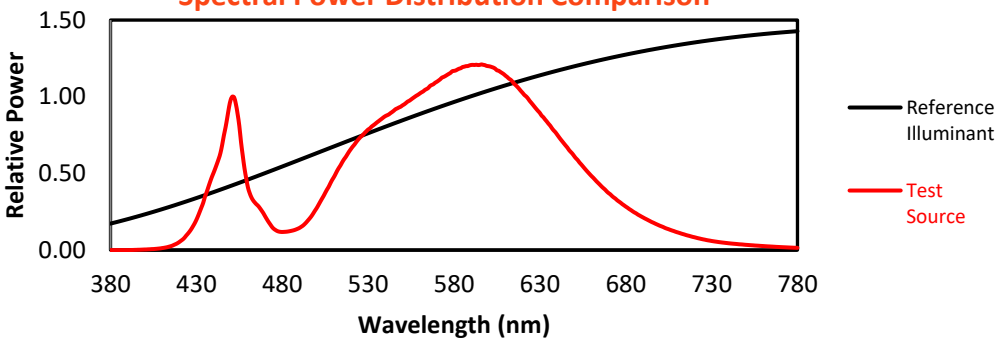
REPORT NUMBER: SP1-2411-284-1

TM-30-18

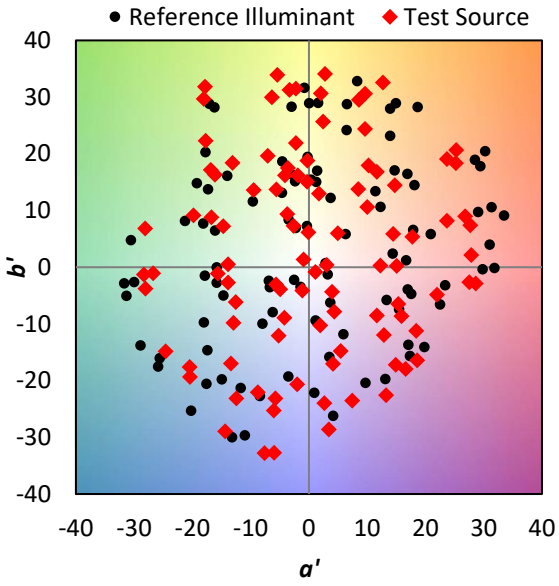
Summary

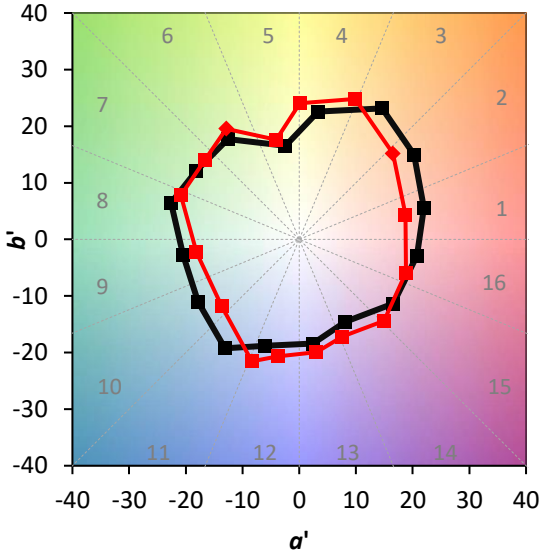
R_f = 76.6
R_g = 95.4
CIE R_a = 73.9
R_9 = -18.0

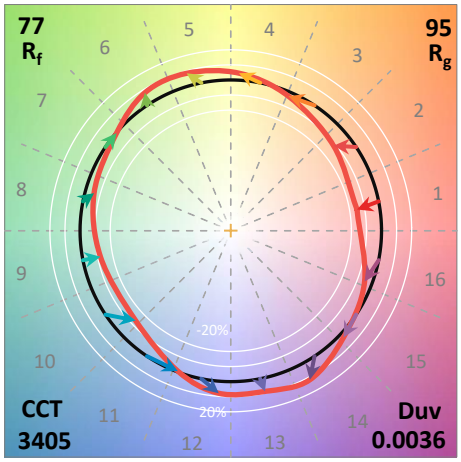
Spectral Power Distribution Comparison

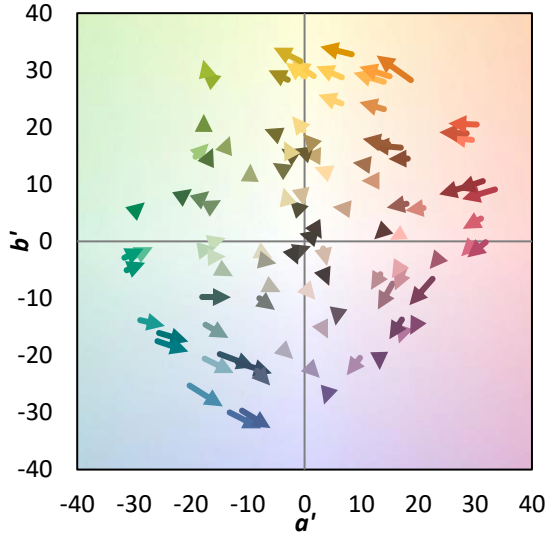


Color Vector Graphics







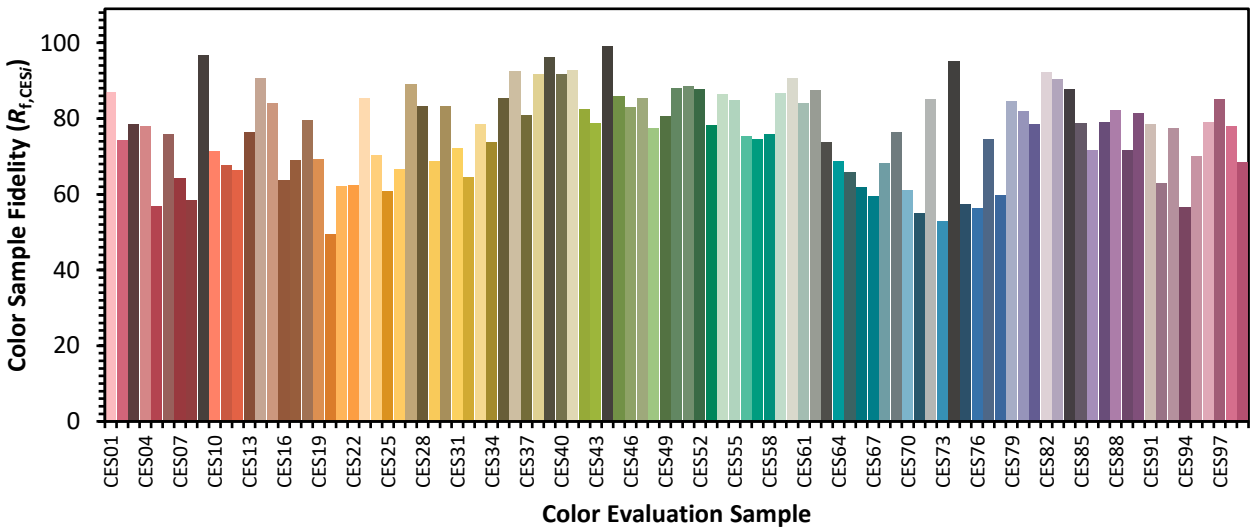


REPORT NUMBER: SP1-2411-284-1

TM-30-18

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

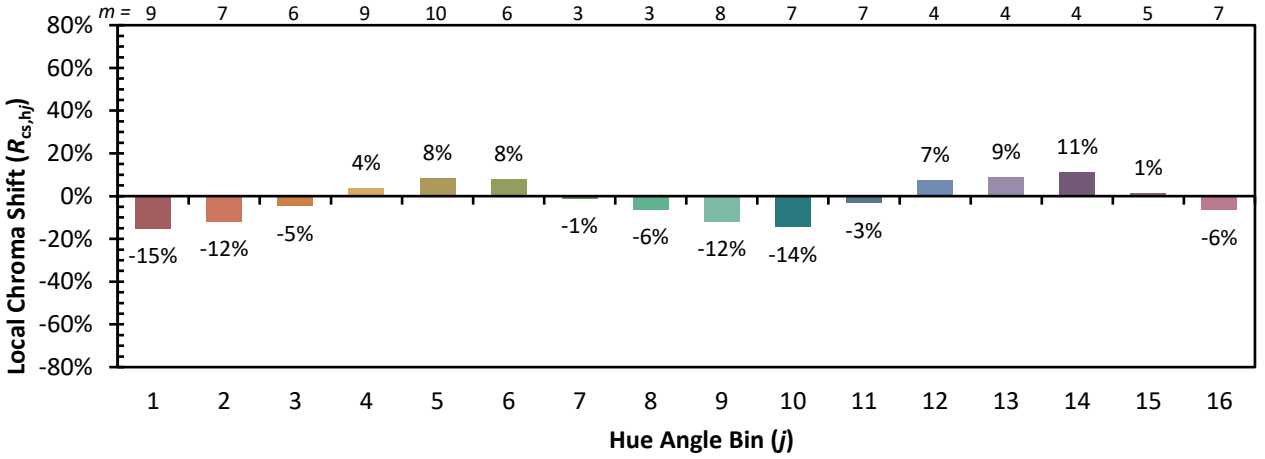
CES01 = 86	CES26 = 67	CES51 = 88	CES76 = 56
CES02 = 62	CES27 = 89	CES52 = 88	CES77 = 75
CES03 = 31	CES28 = 83	CES53 = 78	CES78 = 60
CES04 = 70	CES29 = 69	CES54 = 86	CES79 = 85
CES05 = 48	CES30 = 83	CES55 = 85	CES80 = 82
CES06 = 51	CES31 = 72	CES56 = 75	CES81 = 78
CES07 = 41	CES32 = 65	CES57 = 75	CES82 = 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	

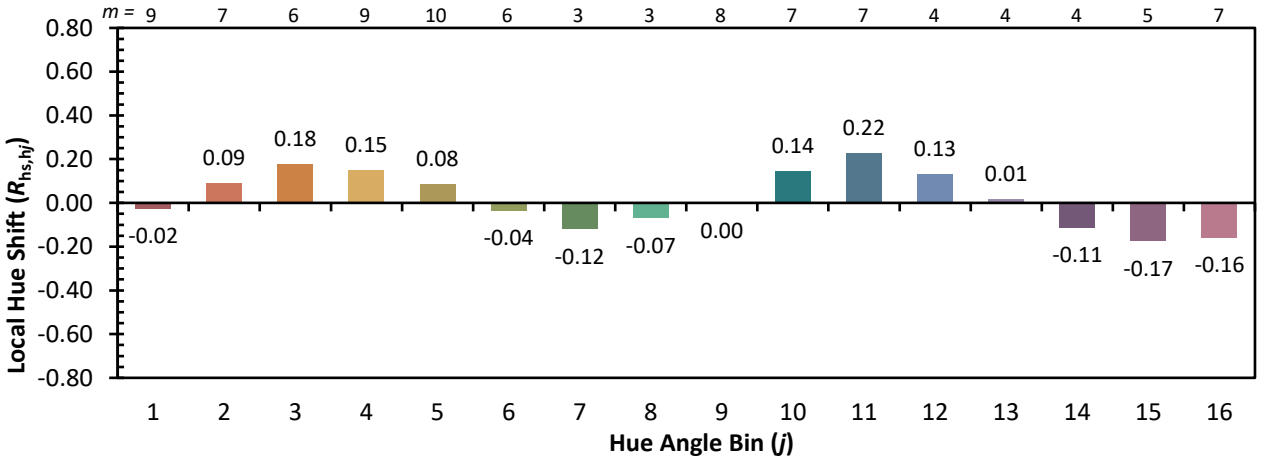


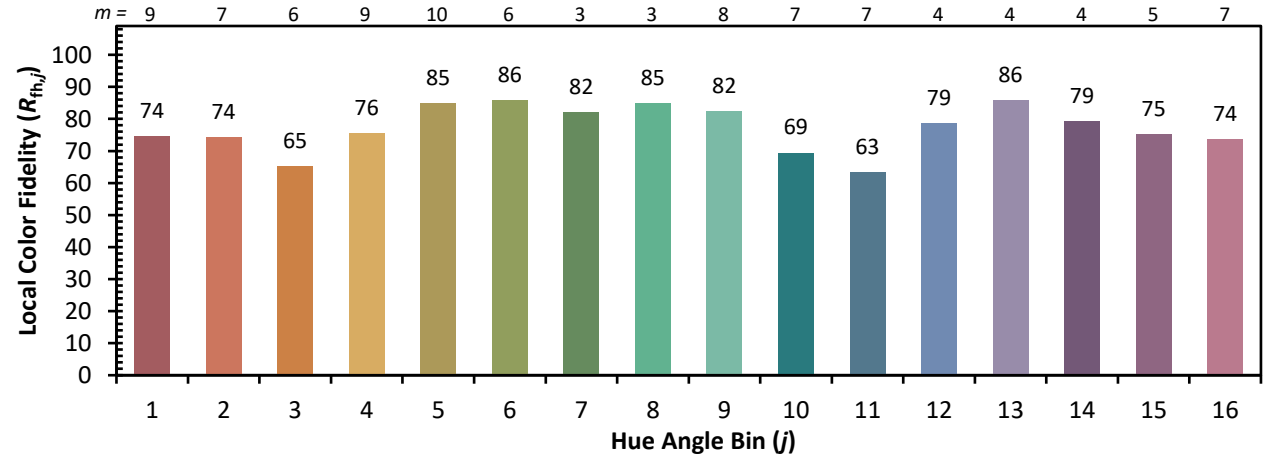
REPORT NUMBER: SP1-2411-284-1

TM-30-18

Color Rendition by Hue-Angle Bin







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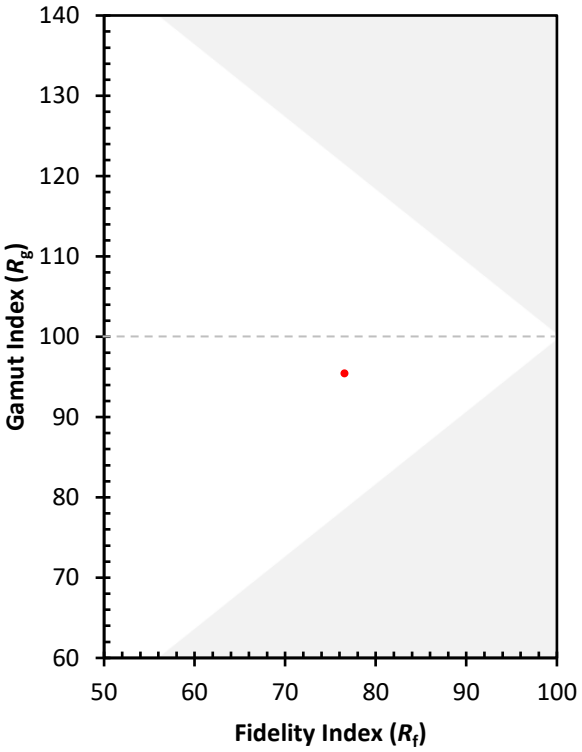
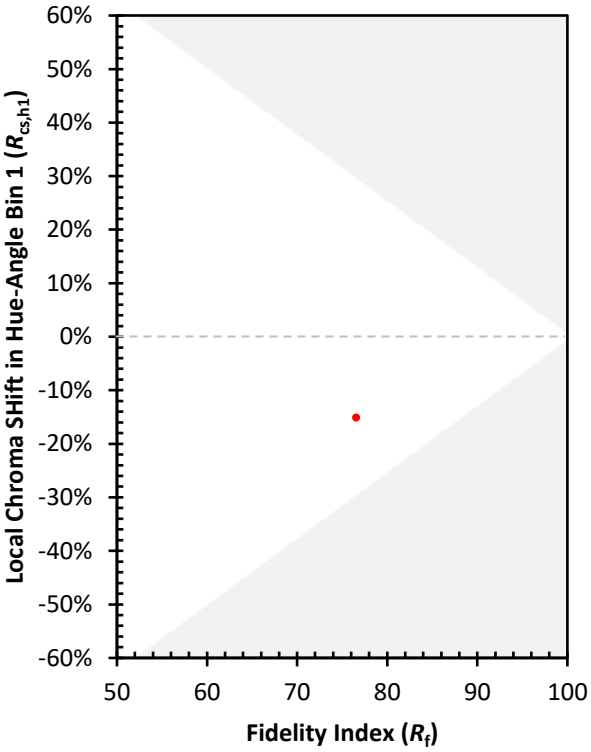
Measure Comparisons





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