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: P821237

Luminaire Tested: **TT-D4-735-24VDC-DL-UPL**

Issue Date: 7/23/2020

Report Generated By 670245763

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Peachtree City, GA 30269

Scaled Data Report

Test Information

Test Method:	LM-79-08
Report Number:	P821237
	REPORT IS FROM IESNA LM-79-08 TEST DATA - UPLIGHT (G2-2002-677-2) AND
Test Lab:	INNOVATION CENTER
Issue Date:	7/23/2020
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	McGRAW-EDISON
Catalog Number:	TT-D4-735-24VDC-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:	6803.7 lumens
Efficiency:	N/A
Efficacy:	119.4 lumens/watt
Luminous Opening:	Vertical Cylinder (Dia: 1.12' x H: 0.1')
IES Classification:	Type IV - Short
BUG Rating:	B2 - U4 - G3

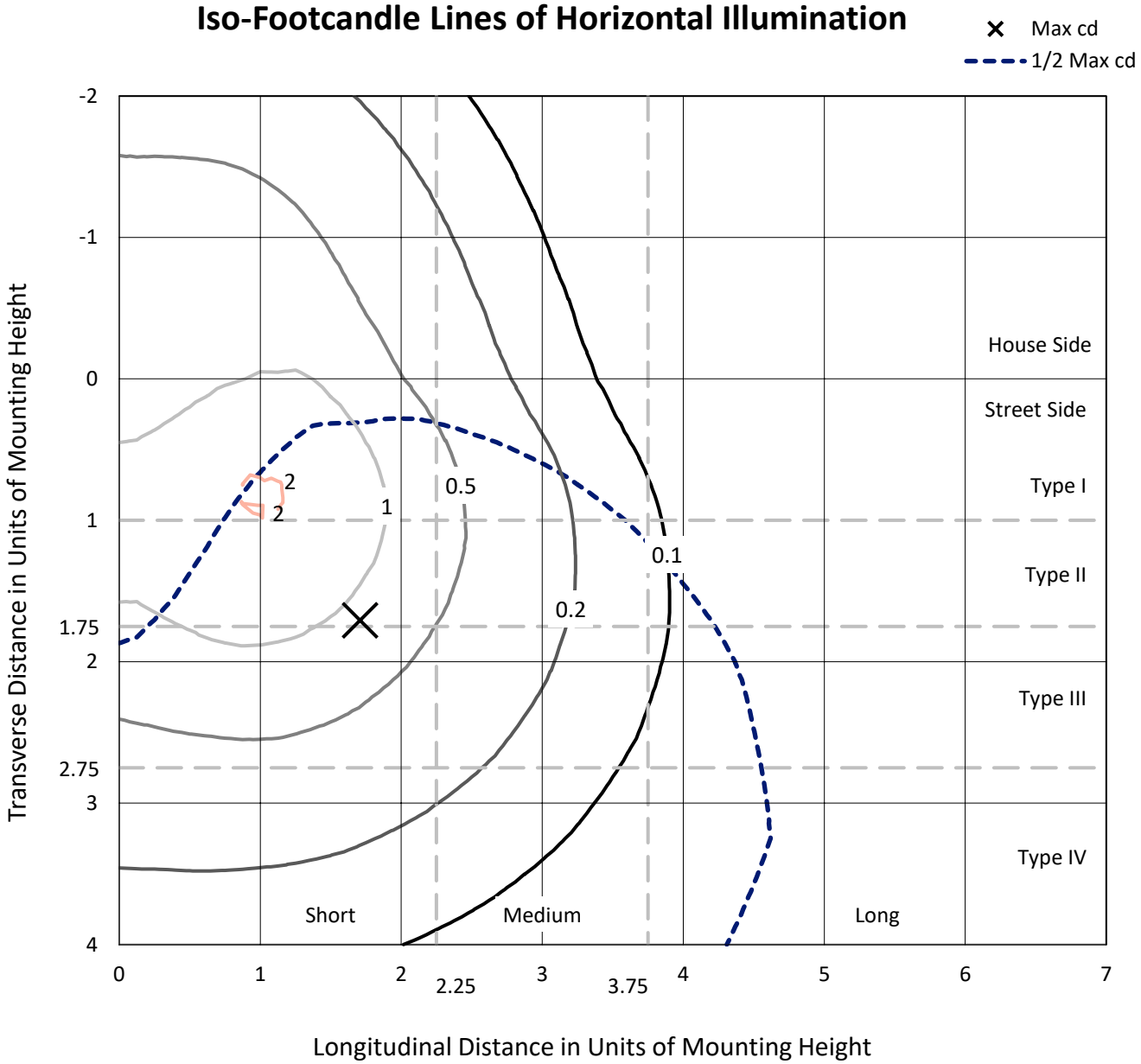
Input Watts (W):	57
Input Voltage (V):	NR
Input Current (Ain):	NR
Voltage Rise (V):	NR
Power Factor:	NR
Total Harmonic Distortion (THDi):	NR
Frequency (hertz):	60
Stabilization Time:	NR
Operation Time:	NR
Ambient Temperature (°C):	NR
Test Distance:	25 FT

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Iso-Footcandle Lines of Horizontal Illumination



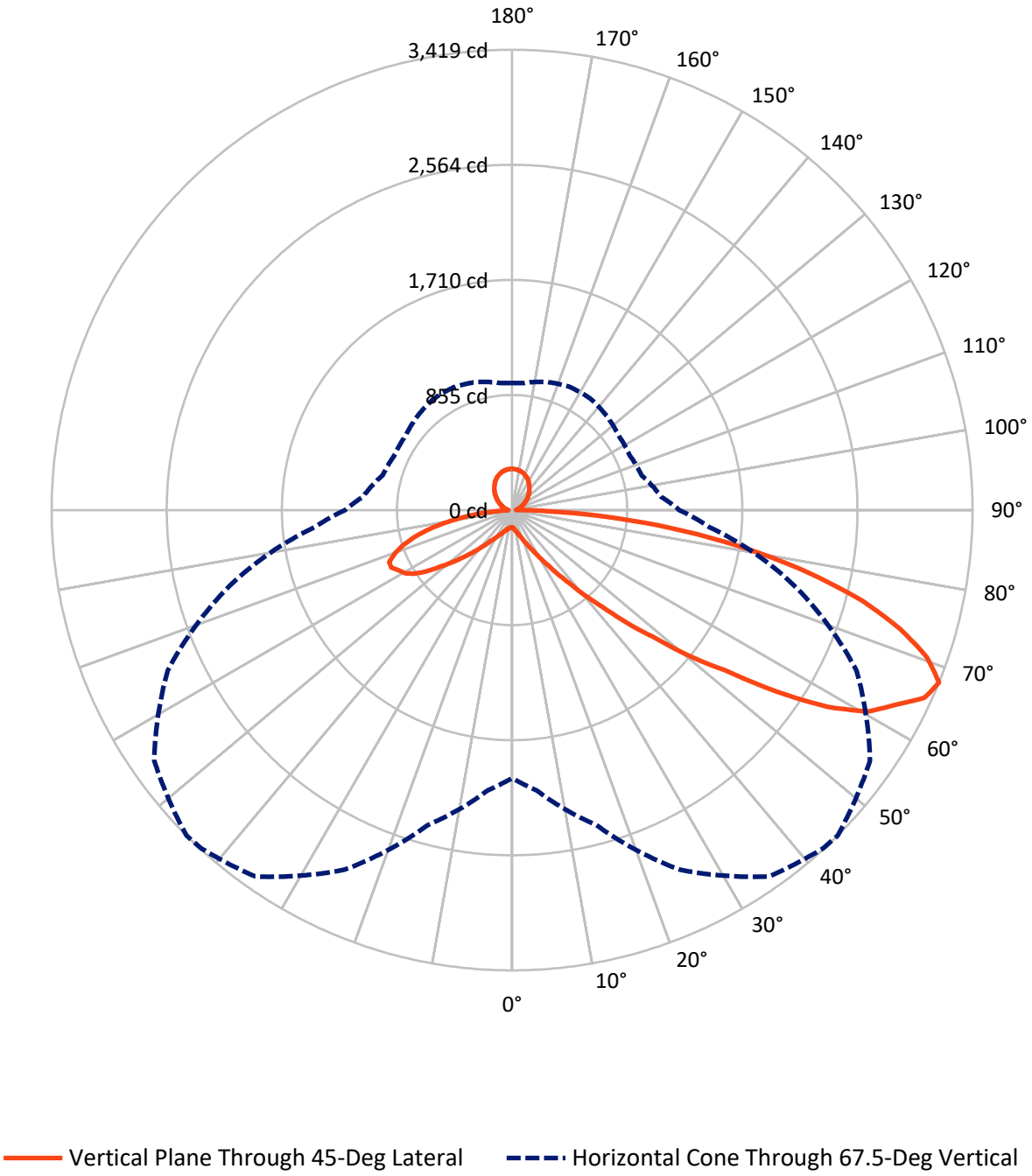
Based on 15 foot mounting height. Maximum calculated value = 2 fc
Type IV - Short - N/A

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Luminous Intensity Polar Plot



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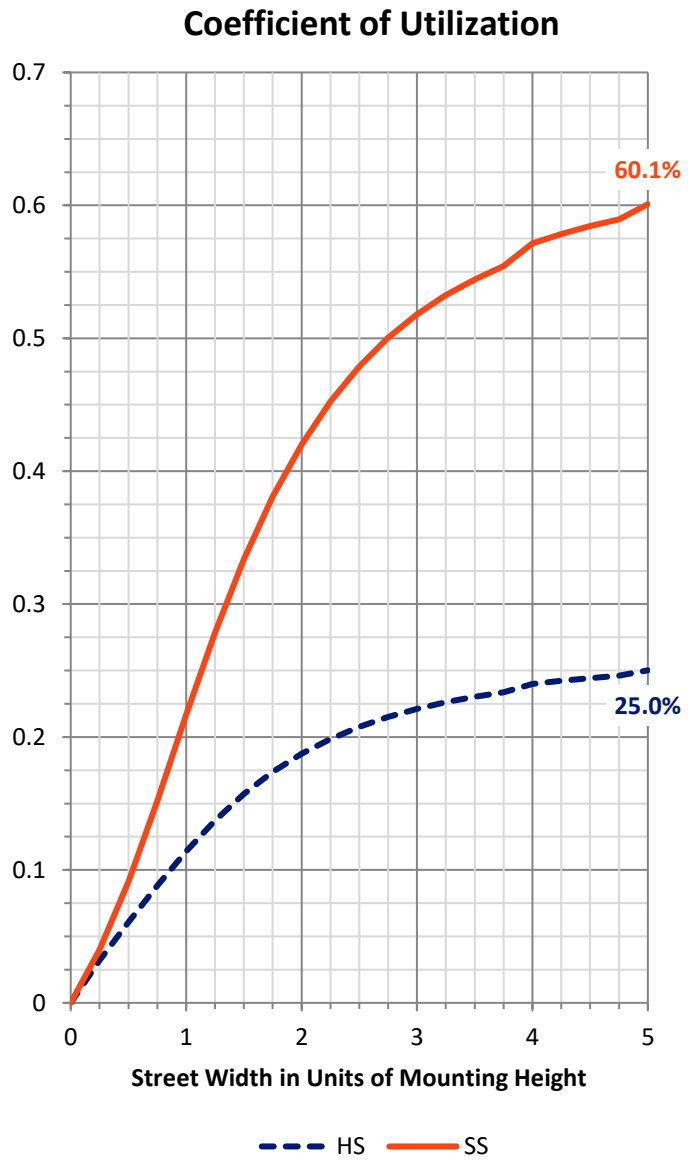
REPORT NUMBER: P821237
CATALOG NUMBER: TT-D4-735-24VDC-DL-UPL

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	1741.1	415.9	2156.9
	% Fixture	25.6	6.1	31.7
Street Side	Lumens	4230.9	415.9	4646.8
	% Fixture	62.2	6.1	68.3
Total	Lumens	5972.0	831.7	6803.7
	% Fixture	87.8	12.2	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	13.3	0.2
10°-20°	49.5	0.7
20°-30°	117.1	1.7
30°-40°	265.0	3.9
40°-50°	590.7	8.7
50°-60°	1187.5	17.5
60°-70°	1744.2	25.6
70°-80°	1533.7	22.5
80°-90°	470.9	6.9
90°-100°	42.6	0.6
100°-110°	66.0	1.0
110°-120°	91.9	1.4
120°-130°	119.0	1.7
130°-140°	138.7	2.0
140°-150°	140.5	2.1
150°-160°	121.9	1.8
160°-170°	82.2	1.2
170°-180°	28.9	0.4
0°-90°	5972.0	87.8
0°-180°	6803.7	100.0



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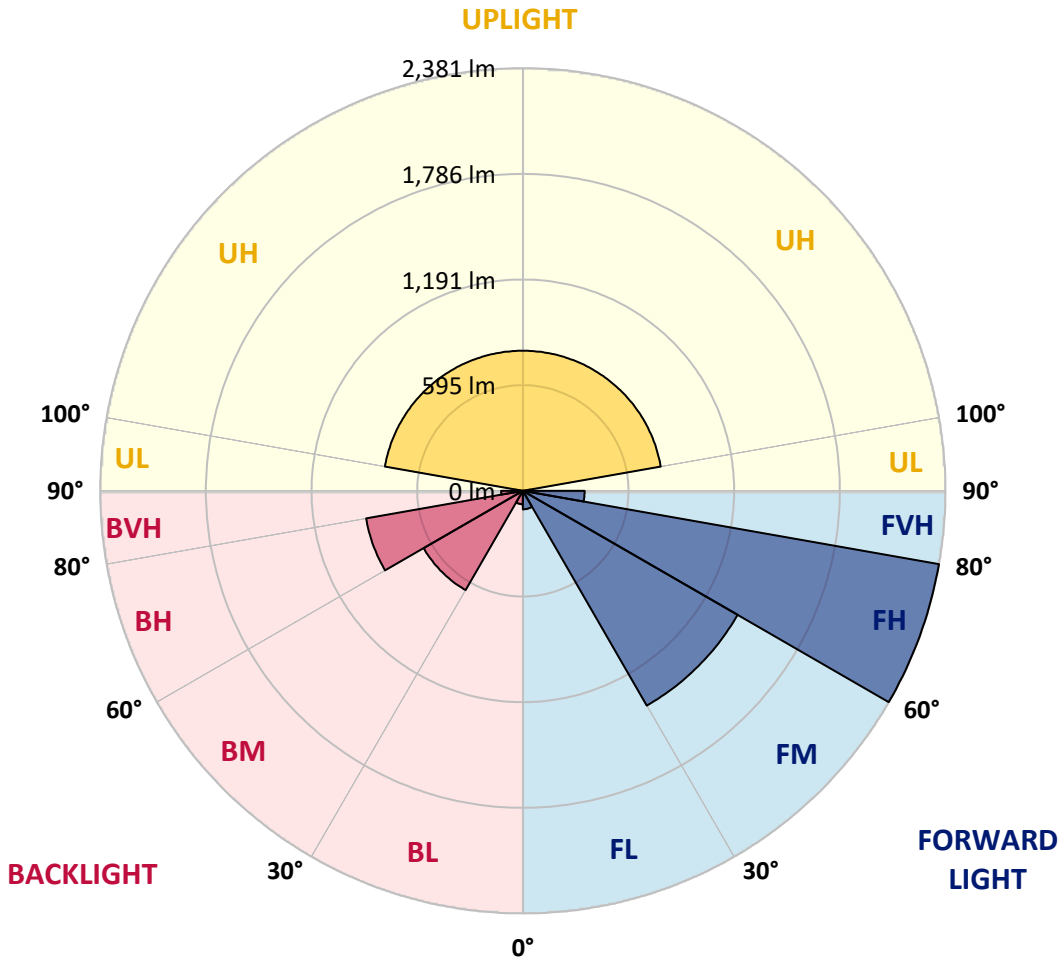
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	104.2	1.5			
FM	(30°-60°)	1397.6	20.5			
FH	(60°-80°)	2381.1	35.0			G2/5000
FVH	(80°-90°)	348.0	5.1			G3/500
BL	(0°-30°)	75.7	1.1	B0/110		
BM	(30°-60°)	645.6	9.5	B1/1000		
BH	(60°-80°)	896.8	13.2	B2/1000		G2/1000
BVH	(80°-90°)	122.9	1.8			G2/225
UL	(90°-100°)	42.6	0.6		U2/50	
UH	(100°-180°)	789.1	11.6		U4/1000	

BUG Rating: B2-U4-G3
Type IV Short



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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	42.5°	45°	55°	65°	75°	85°
0°	129.5	129.5	129.5	129.5	129.5	129.5	129.5	129.5	129.5	129.5	129.5
2.5°	135.0	133.9	133.9	133.9	132.8	132.8	132.8	132.8	131.7	131.7	131.7
5°	142.8	141.7	142.8	140.6	139.5	139.5	138.4	138.4	137.3	136.1	135.0
7.5°	154.0	152.9	152.9	150.7	149.5	148.4	148.4	146.2	145.1	142.8	140.6
10°	166.3	166.3	165.2	164.0	161.8	159.6	159.6	156.2	155.1	151.8	148.4
12.5°	180.8	180.8	180.8	178.6	176.3	175.2	173.0	170.7	167.4	161.8	158.5
15°	198.6	198.6	198.6	196.4	194.2	191.9	190.8	186.4	180.8	175.2	168.5
17.5°	221.0	218.7	218.7	216.5	214.3	213.1	210.9	206.5	198.6	191.9	183.0
20°	245.5	244.4	243.3	243.3	241.0	238.8	237.7	231.0	222.1	209.8	198.6
22.5°	273.4	272.3	272.3	274.5	273.4	270.1	270.1	260.0	247.7	233.2	216.5
25°	308.0	306.9	309.1	313.6	313.6	311.4	308.0	298.0	280.1	260.0	239.9
27.5°	345.9	344.8	349.3	357.1	359.3	356.0	353.8	342.6	322.5	295.7	266.7
30°	391.7	392.8	405.1	414.0	419.6	417.4	416.3	404.0	371.6	340.4	302.4
32.5°	447.5	444.2	459.8	474.3	484.3	489.9	486.6	472.1	444.2	395.1	347.1
35°	506.6	507.8	526.7	547.9	571.4	573.6	580.3	565.8	527.8	469.8	402.9
37.5°	583.6	574.7	599.3	639.4	667.3	691.9	687.4	678.5	633.9	556.9	465.4
40°	652.8	650.6	685.2	741.0	792.3	828.0	832.5	821.3	762.2	652.8	532.3
42.5°	732.1	738.8	786.8	863.8	941.9	993.2	980.9	975.3	906.2	766.7	623.8
45°	812.4	834.7	896.1	1007.7	1099.2	1172.9	1194.1	1175.1	1090.3	946.3	739.9
47.5°	909.5	939.6	1015.5	1166.2	1315.7	1401.6	1406.1	1463.0	1334.7	1119.3	860.4
50°	1037.8	1051.2	1157.3	1341.4	1546.7	1667.2	1701.8	1703.0	1574.6	1293.4	996.6
52.5°	1163.9	1174.0	1313.5	1551.2	1830.2	1967.4	1975.3	2018.8	1843.6	1574.6	1191.8
55°	1315.7	1311.3	1503.2	1788.9	2118.1	2317.9	2375.9	2435.0	2211.8	1796.7	1303.4
57.5°	1463.0	1456.3	1687.3	2062.3	2512.0	2710.7	2758.7	2716.2	2384.8	1889.3	1358.1
60°	1599.2	1622.6	1903.8	2364.7	2816.7	3006.4	3038.8	2923.8	2496.4	1960.7	1392.7
62.5°	1740.9	1787.8	2128.1	2616.9	3049.9	3186.1	3188.3	3053.3	2682.8	2099.1	1505.4
65°	1873.7	1948.5	2302.2	2832.3	3212.9	3349.0	3364.6	3243.0	2865.8	2219.6	1524.4
67.5°	1990.9	2090.2	2422.8	2948.4	3323.3	3411.5	3419.3	3244.1	2822.3	2170.5	1472.0
70°	2085.7	2166.1	2497.5	2950.6	3246.3	3270.9	3265.3	3078.9	2701.7	2073.5	1383.8
72.5°	2122.6	2188.4	2461.8	2812.2	3019.8	3014.2	3009.7	2837.9	2503.1	1911.6	1256.6
75°	2070.1	2089.1	2266.5	2516.5	2648.2	2679.4	2683.9	2528.8	2196.2	1671.7	1078.0
77.5°	1853.6	1843.6	1979.7	2144.9	2244.2	2266.5	2262.1	2132.6	1841.3	1389.4	903.9
80°	1469.7	1490.9	1575.7	1685.1	1784.4	1809.0	1793.3	1695.1	1432.9	1083.6	694.1
82.5°	1027.8	1053.5	1124.9	1207.5	1282.2	1282.2	1296.7	1201.9	1015.5	777.8	485.4
85°	554.6	540.1	618.2	712.0	765.5	775.6	781.2	749.9	628.3	469.8	287.9
87.5°	91.5	98.2	121.6	186.4	212.0	245.5	261.1	204.2	123.9	79.2	58.0
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	55.9	56.4	55.9	55.9
105°	62.0	62.0	62.0	62.0	62.0	62.0	62.0	62.0	62.9	62.0	62.0
107.5°	68.6	68.6	69.0	69.0	69.0	69.0	69.0	69.0	69.5	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°	42.5°	45°	55°	65°	75°	85°
112.5°	83.1	83.1	84.0	84.0	84.0	84.0	*84.0*	84.6	84.6	84.0	84.0
115°	91.1	91.1	92.0	92.0	92.0	92.0	*92.0*	93.0	93.0	92.0	92.0
117.5°	100.5	100.5	101.0	101.4	101.4	101.4	*101.4*	102.4	102.4	101.4	101.4
120°	109.9	109.9	109.9	110.8	110.8	110.8	*110.8*	111.8	111.8	110.8	110.8
122.5°	120.7	120.7	121.2	121.6	121.6	121.6	*121.6*	122.6	122.6	122.1	122.1
125°	131.5	131.5	132.4	132.4	132.4	132.4	*132.4*	133.4	133.4	133.4	133.4
127.5°	143.2	143.2	144.2	144.2	144.2	144.2	*144.2*	145.1	145.1	145.1	145.1
130°	155.0	155.0	155.9	155.9	155.9	155.9	*155.9*	156.8	156.8	156.8	156.8
132.5°	167.2	167.2	167.6	167.6	167.6	168.0	*168.1*	168.6	168.6	168.6	168.6
135°	179.4	179.4	179.4	179.4	179.4	180.1	*180.3*	180.3	180.3	180.3	180.3
137.5°	191.2	190.6	191.2	190.6	191.2	191.5	*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	*256.0*	256.4	256.0	256.0	256.0
155°	264.9	264.9	265.8	264.9	264.9	264.9	*264.9*	265.8	264.9	264.9	264.9
157.5°	272.4	272.4	273.3	272.4	272.4	272.4	*272.4*	273.3	272.4	272.4	272.4
160°	279.9	279.9	280.8	279.9	279.9	279.9	*279.9*	280.8	279.9	279.9	279.9
162.5°	286.0	286.0	286.9	286.0	286.0	286.0	*286.0*	286.9	286.0	286.0	286.0
165°	292.1	292.1	293.0	292.1	292.1	292.1	*292.1*	293.0	292.1	292.1	292.1
167.5°	295.8	295.8	296.8	295.8	295.8	295.8	*295.8*	296.8	295.8	295.8	295.8
170°	299.6	299.6	300.5	299.6	299.6	299.6	*299.6*	300.5	299.6	299.6	299.6
172.5°	302.0	302.0	302.8	302.0	302.4	302.1	*302.0*	302.8	302.0	302.0	302.0
175°	304.3	304.3	305.2	304.3	305.2	304.6	*304.3*	305.2	304.3	304.3	304.3
177.5°	305.2	305.2	305.7	305.2	305.7	305.4	*305.2*	305.7	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):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	129.5	129.5	129.5	129.5	129.5	129.5	129.5	129.5	129.5	129.5	129.5
2.5°	131.7	130.6	129.5	128.3	128.3	127.2	127.2	127.2	128.3	128.3	128.3
5°	135.0	133.9	132.8	131.7	129.5	129.5	129.5	129.5	129.5	129.5	129.5
7.5°	140.6	138.4	137.3	135.0	132.8	132.8	131.7	131.7	131.7	132.8	131.7
10°	147.3	145.1	142.8	139.5	138.4	137.3	136.1	136.1	137.3	137.3	136.1
12.5°	155.1	154.0	149.5	146.2	144.0	142.8	141.7	142.8	141.7	142.8	142.8
15°	166.3	162.9	157.4	154.0	150.7	149.5	148.4	149.5	149.5	150.7	149.5
17.5°	178.6	174.1	168.5	162.9	158.5	157.4	157.4	157.4	158.5	159.6	158.5
20°	193.1	187.5	179.7	173.0	168.5	167.4	167.4	168.5	169.6	170.7	170.7
22.5°	207.6	203.1	191.9	183.0	180.8	179.7	178.6	180.8	183.0	184.1	185.2
25°	229.9	221.0	207.6	197.5	193.1	193.1	194.2	196.4	197.5	199.8	198.6
27.5°	253.3	243.3	226.5	213.1	209.8	208.7	210.9	213.1	217.6	217.6	216.5
30°	285.7	268.9	247.7	235.5	226.5	227.7	231.0	234.4	238.8	241.0	241.0
32.5°	322.5	304.7	275.6	256.7	252.2	253.3	254.4	260.0	264.5	268.9	265.6
35°	370.5	348.2	312.5	291.3	280.1	279.0	283.5	290.1	294.6	296.8	296.8
37.5°	422.9	393.9	349.3	331.4	318.0	316.9	318.0	323.6	329.2	331.4	335.9
40°	486.6	450.8	398.4	369.4	359.3	357.1	361.6	369.4	369.4	372.7	373.8
42.5°	564.7	518.9	460.9	422.9	410.7	410.7	409.6	416.3	416.3	416.3	414.0
45°	664.0	612.7	536.8	497.7	476.5	465.4	468.7	464.2	463.1	466.5	456.4
47.5°	760.0	695.2	606.0	563.6	542.4	535.7	523.4	520.0	514.5	514.5	500.0
50°	871.6	791.2	705.3	645.0	624.9	606.0	595.9	580.3	563.6	560.2	554.6
52.5°	1057.9	957.5	822.5	757.7	706.4	687.4	664.0	643.9	623.8	608.2	617.1
55°	1133.8	1031.1	902.8	840.3	804.6	786.8	743.2	716.4	686.3	664.0	676.3
57.5°	1171.8	1060.2	940.8	893.9	883.8	867.1	834.7	789.0	754.4	726.5	728.7
60°	1193.0	1075.8	960.8	918.4	912.9	924.0	907.3	876.0	822.5	794.6	791.2
62.5°	1274.4	1151.7	1017.8	957.5	945.2	953.0	957.5	938.5	893.9	857.1	847.0
65°	1291.2	1160.6	1028.9	989.9	991.0	993.2	996.6	976.5	954.1	908.4	899.5
67.5°	*1240.9*	*1112.6*	*995.4*	*963.1*	*965.3*	*991.0*	*1011.1*	*1009.9*	*985.4*	*946.3*	*943.0*
70°	1165.1	1040.1	931.8	902.8	908.4	931.8	975.3	997.7	993.2	967.5	973.1
72.5°	1046.8	935.2	840.3	818.0	831.4	853.7	895.0	935.2	958.6	964.2	976.5
75°	908.4	819.1	729.8	716.4	726.5	752.2	790.1	837.0	888.3	916.2	924.0
77.5°	749.9	668.5	602.6	593.7	608.2	631.6	669.6	706.4	764.4	813.5	824.7
80°	587.0	516.7	469.8	462.0	470.9	491.0	520.0	550.2	606.0	643.9	649.5
82.5°	407.3	364.9	334.8	330.3	335.9	343.7	367.2	395.1	426.3	456.4	459.8
85°	236.6	209.8	202.0	195.3	207.6	207.6	213.1	228.8	244.4	246.6	253.3
87.5°	43.5	41.3	42.4	31.2	39.1	27.9	27.9	35.7	26.8	31.2	25.7
90°	29.1	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	33.8	34.2	34.2	34.8
95°	38.5	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	44.2	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	49.8
102.5°	55.9	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	62.0	62.9	62.0	62.0	62.0	62.0	62.0	62.0	62.0
107.5°	69.0	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	76.1	75.1	75.1

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

Scaled Data Report

REPORT NUMBER: P821237
CATALOG NUMBER: TT-D4-735-24VDC-DL-UPL

CANDELA DISTRIBUTION (continued):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
112.5°	84.0	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	92.0	93.0	93.0	92.0	92.0	92.0	92.0	91.1	91.1
117.5°	101.4	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	110.8	111.8	111.8	110.8	110.8	110.8	109.9	109.9	109.9
122.5°	121.6	122.1	122.1	122.6	122.6	121.6	121.6	121.6	121.2	120.7	120.7
125°	132.4	133.4	133.4	133.4	133.4	132.4	132.4	132.4	132.4	131.5	131.5
127.5°	144.2	145.1	145.1	145.1	145.1	144.2	144.2	144.2	144.2	143.2	143.2
130°	155.9	156.8	156.8	156.8	156.8	155.9	155.9	155.9	155.9	155.0	155.0
132.5°	168.1	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	180.3	179.4	179.4	179.4	179.4	179.4
137.5°	191.6	191.6	191.6	191.6	191.6	191.6	191.2	190.6	191.2	190.6	191.2
140°	202.9	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	213.7	212.7	213.7	213.2	213.7
145°	224.5	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	235.8	234.8	235.8	235.3	235.8
150°	247.0	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	256.0	256.4	256.0	256.0	255.5	256.4	255.5	256.0
155°	264.9	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	272.4	273.3	272.4	272.4	272.4	273.3	272.4	272.4
160°	279.9	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	286.0	286.9	286.0	286.0	286.0	286.9	286.0	286.0
165°	292.1	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	295.8	296.8	295.8	295.8	295.8	296.8	295.8	295.8
170°	299.6	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	302.0	302.8	302.0	302.4	302.0	302.8	302.0	302.0
175°	304.3	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	305.2	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	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

Streetworks

Report Number: SP1-2407-176-4

Test Date: 09/24/2024

Luminaire Tested: MEM2-HTN-VA-30-735-U-WQ

Data in this report applies to families of products including MEM2-HTN-VA-30-735-U-WQ

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

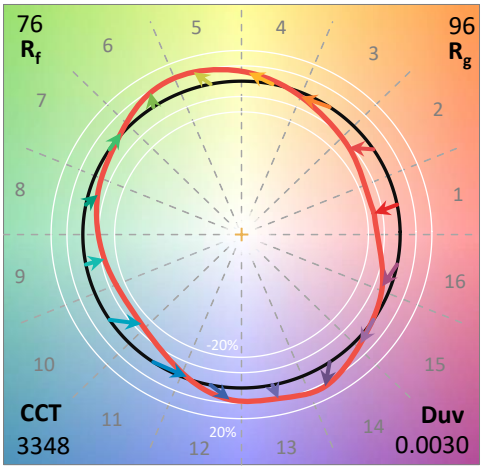
Test Information

Test Method:	LM-79-2019
Report Number:	SP1-2407-176-4
Test Lab:	COOPER LIGHTING SOLUTIONS
Photometer:	SP1 - 76IN SPHERE
Measurement Geometry:	4π
Issue Date:	09/27/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS
Product Line:	Streetworks
Catalog Number:	**MEM2-HTN-VA-30-735-U-WQ**
Description:	EPIC MODERN VISUAL COMFORT 30W WAVESTREAM WIDE

Spectral Parameters

CCT (K):	3348	CRI (Ra):	73.4		
CIE u':	0.2384	R1:	70.8	R9:	-19.2
CIE v':	0.5184	R2:	79.9	R10:	52.5
Duv:	0.0030	R3:	87.6	R11:	68.0
CIE x:	0.4177	R4:	72.6	R12:	42.6
CIE y:	0.4036	R5:	69.3	R13:	72.0
CIE z:	0.1787	R6:	71.3	R14:	92.6
Peak Wavelength (nm):	593	R7:	82.1	R15:	63.8
Dominant Wavelength (nm):	580	R8:	53.3		
Purity:	46.5223				

Rf:	75.8
Rg:	95.8



Test Conditions

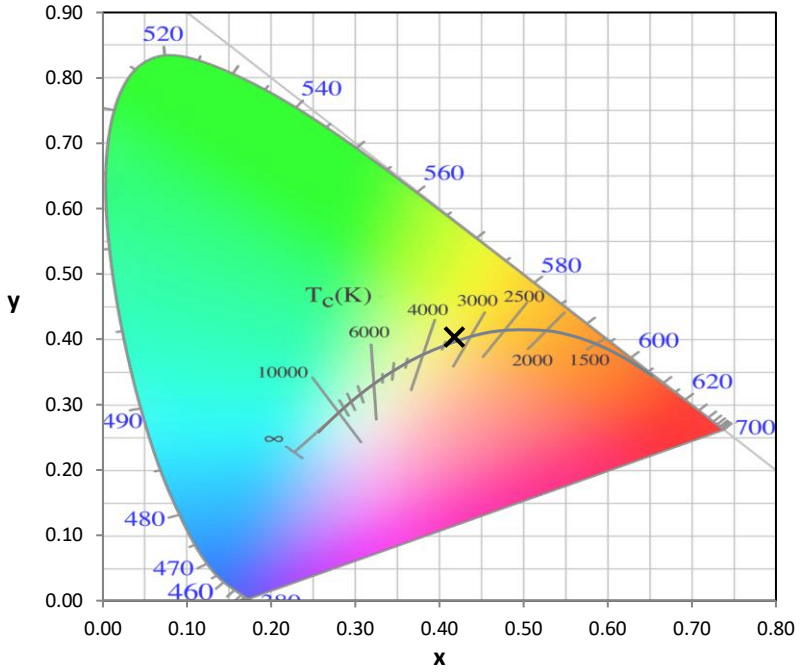
Stabilization Time:	30M
Operation Time:	1H 30M
Sphere Temperature (°C):	25.2

REPORT NUMBER: SP1-2407-176-4

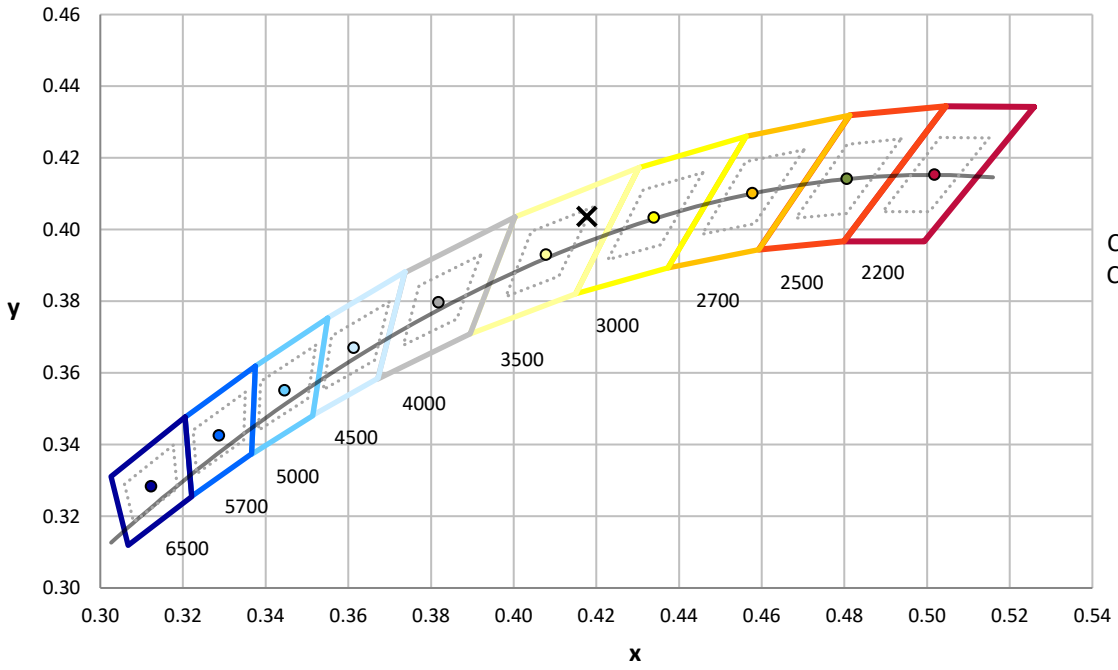
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085	10/24/2023	10/24/2024
Room Thermometer	IN0046	10/24/2023	10/24/2024

REPORT NUMBER: SP1-2407-176-4

CIE 1931 Chromaticity Diagram



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

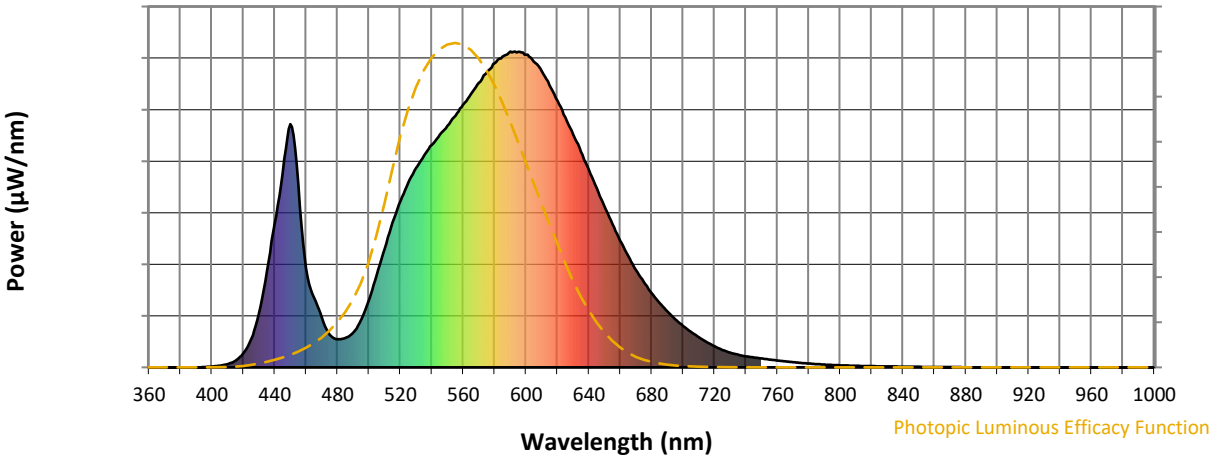


CCT = 3348K
CIE x = 0.4177
CIE y = 0.4036
Duv = 0.0030

Point lies inside the ANSI 3500K 4-step quadrangle

REPORT NUMBER: SP1-2407-176-4

Photopic Flux vs. Wavelength

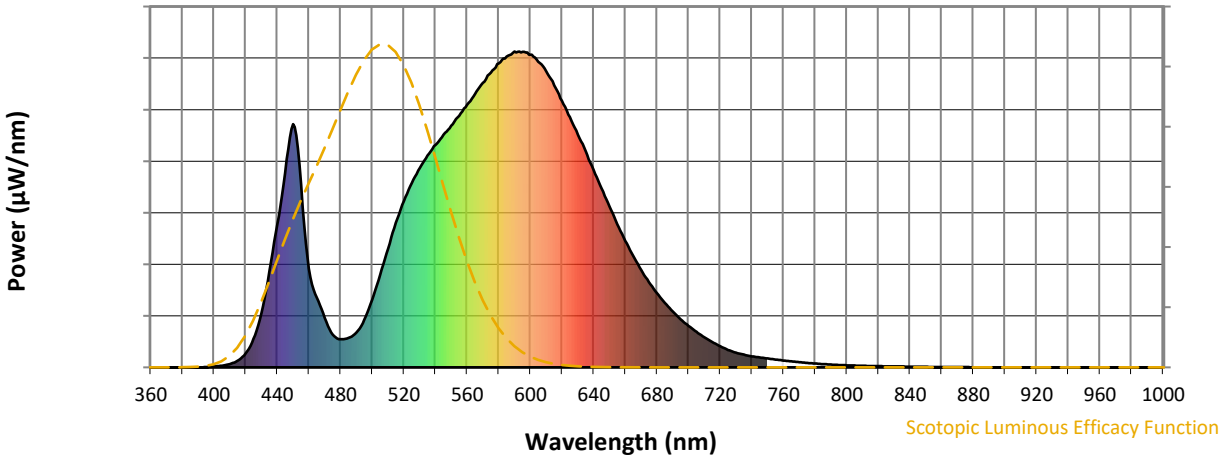


Photopic Lumens: NR

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	110	NR	620	844	NR	750	28	NR	880	0	NR
365	0	NR	495	150	NR	625	792	NR	755	25	NR	885	0	NR
370	0	NR	500	214	NR	630	737	NR	760	22	NR	890	0	NR
375	0	NR	505	293	NR	635	683	NR	765	19	NR	895	0	NR
380	0	NR	510	376	NR	640	625	NR	770	16	NR	900	0	NR
385	0	NR	515	458	NR	645	566	NR	775	14	NR	905	0	NR
390	0	NR	520	526	NR	650	509	NR	780	12	NR	910	0	NR
395	1	NR	525	584	NR	655	453	NR	785	10	NR	915	0	NR
400	3	NR	530	631	NR	660	401	NR	790	9	NR	920	0	NR
405	5	NR	535	671	NR	665	353	NR	795	8	NR	925	0	NR
410	10	NR	540	704	NR	670	308	NR	800	7	NR	930	0	NR
415	21	NR	545	737	NR	675	269	NR	805	6	NR	935	0	NR
420	44	NR	550	766	NR	680	235	NR	810	5	NR	940	0	NR
425	90	NR	555	797	NR	685	204	NR	815	4	NR	945	0	NR
430	171	NR	560	832	NR	690	177	NR	820	4	NR	950	0	NR
435	305	NR	565	866	NR	695	152	NR	825	3	NR	955	0	NR
440	455	NR	570	901	NR	700	131	NR	830	3	NR	960	0	NR
445	615	NR	575	933	NR	705	112	NR	835	3	NR	965	0	NR
450	771	NR	580	963	NR	710	96	NR	840	2	NR	970	0	NR
455	579	NR	585	984	NR	715	80	NR	845	2	NR	975	0	NR
460	313	NR	590	1000	NR	720	67	NR	850	2	NR	980	0	NR
465	221	NR	595	999	NR	725	55	NR	855	1	NR	985	0	NR
470	156	NR	600	990	NR	730	46	NR	860	1	NR	990	0	NR
475	103	NR	605	968	NR	735	40	NR	865	1	NR	995	0	NR
480	89	NR	610	937	NR	740	35	NR	870	1	NR	1000	0	NR
485	93	NR	615	893	NR	745	31	NR	875	1	NR			

REPORT NUMBER: SP1-2407-176-4

Scotopic Flux vs. Wavelength

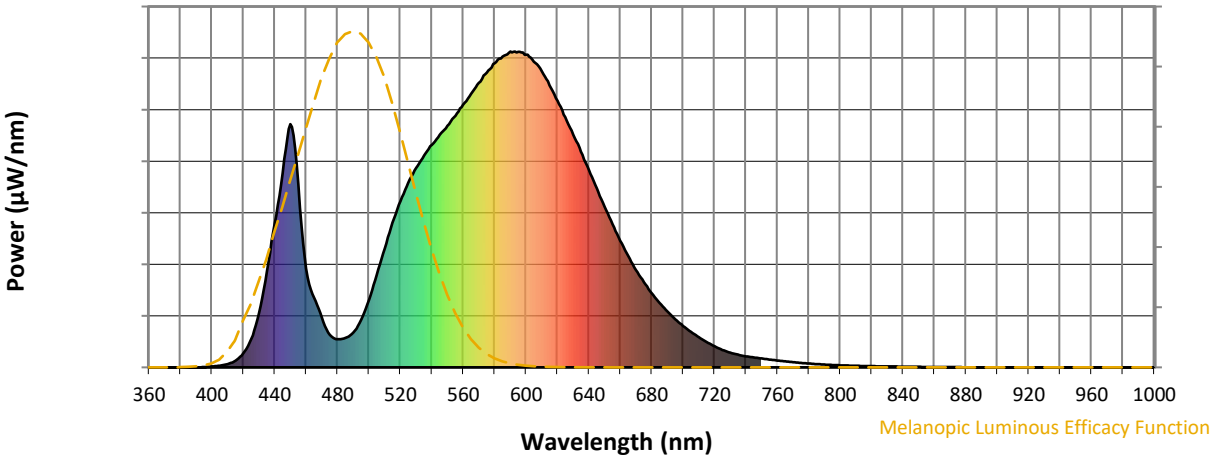


Scotopic Lumens: NR **S/P: 1.31**

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	110	NR	620	844	NR	750	28	NR	880	0	NR
365	0	NR	495	150	NR	625	792	NR	755	25	NR	885	0	NR
370	0	NR	500	214	NR	630	737	NR	760	22	NR	890	0	NR
375	0	NR	505	293	NR	635	683	NR	765	19	NR	895	0	NR
380	0	NR	510	376	NR	640	625	NR	770	16	NR	900	0	NR
385	0	NR	515	458	NR	645	566	NR	775	14	NR	905	0	NR
390	0	NR	520	526	NR	650	509	NR	780	12	NR	910	0	NR
395	1	NR	525	584	NR	655	453	NR	785	10	NR	915	0	NR
400	3	NR	530	631	NR	660	401	NR	790	9	NR	920	0	NR
405	5	NR	535	671	NR	665	353	NR	795	8	NR	925	0	NR
410	10	NR	540	704	NR	670	308	NR	800	7	NR	930	0	NR
415	21	NR	545	737	NR	675	269	NR	805	6	NR	935	0	NR
420	44	NR	550	766	NR	680	235	NR	810	5	NR	940	0	NR
425	90	NR	555	797	NR	685	204	NR	815	4	NR	945	0	NR
430	171	NR	560	832	NR	690	177	NR	820	4	NR	950	0	NR
435	305	NR	565	866	NR	695	152	NR	825	3	NR	955	0	NR
440	455	NR	570	901	NR	700	131	NR	830	3	NR	960	0	NR
445	615	NR	575	933	NR	705	112	NR	835	3	NR	965	0	NR
450	771	NR	580	963	NR	710	96	NR	840	2	NR	970	0	NR
455	579	NR	585	984	NR	715	80	NR	845	2	NR	975	0	NR
460	313	NR	590	1000	NR	720	67	NR	850	2	NR	980	0	NR
465	221	NR	595	999	NR	725	55	NR	855	1	NR	985	0	NR
470	156	NR	600	990	NR	730	46	NR	860	1	NR	990	0	NR
475	103	NR	605	968	NR	735	40	NR	865	1	NR	995	0	NR
480	89	NR	610	937	NR	740	35	NR	870	1	NR	1000	0	NR
485	93	NR	615	893	NR	745	31	NR	875	1	NR			

REPORT NUMBER: SP1-2407-176-4

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR **M/P: 2.4**

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	110	NR	620	844	NR	750	28	NR	880	0	NR
365	0	NR	495	150	NR	625	792	NR	755	25	NR	885	0	NR
370	0	NR	500	214	NR	630	737	NR	760	22	NR	890	0	NR
375	0	NR	505	293	NR	635	683	NR	765	19	NR	895	0	NR
380	0	NR	510	376	NR	640	625	NR	770	16	NR	900	0	NR
385	0	NR	515	458	NR	645	566	NR	775	14	NR	905	0	NR
390	0	NR	520	526	NR	650	509	NR	780	12	NR	910	0	NR
395	1	NR	525	584	NR	655	453	NR	785	10	NR	915	0	NR
400	3	NR	530	631	NR	660	401	NR	790	9	NR	920	0	NR
405	5	NR	535	671	NR	665	353	NR	795	8	NR	925	0	NR
410	10	NR	540	704	NR	670	308	NR	800	7	NR	930	0	NR
415	21	NR	545	737	NR	675	269	NR	805	6	NR	935	0	NR
420	44	NR	550	766	NR	680	235	NR	810	5	NR	940	0	NR
425	90	NR	555	797	NR	685	204	NR	815	4	NR	945	0	NR
430	171	NR	560	832	NR	690	177	NR	820	4	NR	950	0	NR
435	305	NR	565	866	NR	695	152	NR	825	3	NR	955	0	NR
440	455	NR	570	901	NR	700	131	NR	830	3	NR	960	0	NR
445	615	NR	575	933	NR	705	112	NR	835	3	NR	965	0	NR
450	771	NR	580	963	NR	710	96	NR	840	2	NR	970	0	NR
455	579	NR	585	984	NR	715	80	NR	845	2	NR	975	0	NR
460	313	NR	590	1000	NR	720	67	NR	850	2	NR	980	0	NR
465	221	NR	595	999	NR	725	55	NR	855	1	NR	985	0	NR
470	156	NR	600	990	NR	730	46	NR	860	1	NR	990	0	NR
475	103	NR	605	968	NR	735	40	NR	865	1	NR	995	0	NR
480	89	NR	610	937	NR	740	35	NR	870	1	NR	1000	0	NR
485	93	NR	615	893	NR	745	31	NR	875	1	NR			

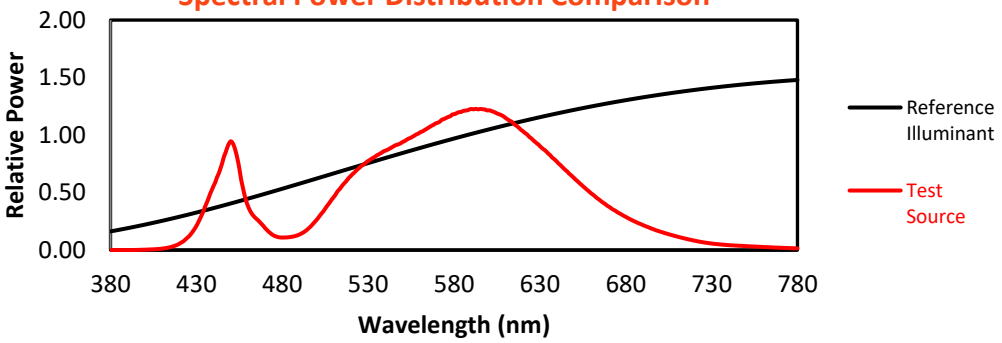
REPORT NUMBER: SP1-2407-176-4

TM-30-18

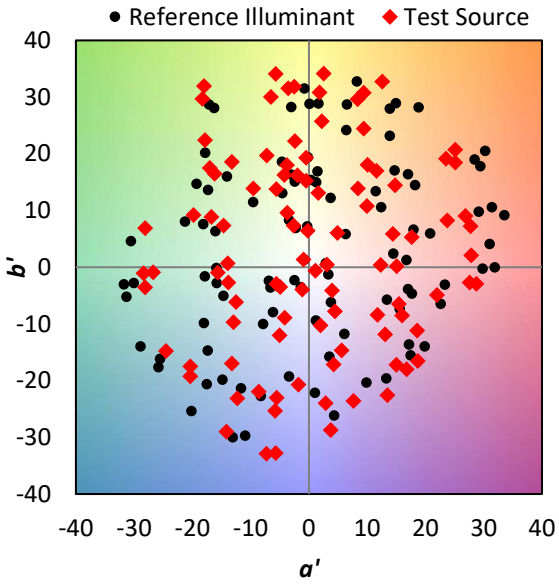
Summary

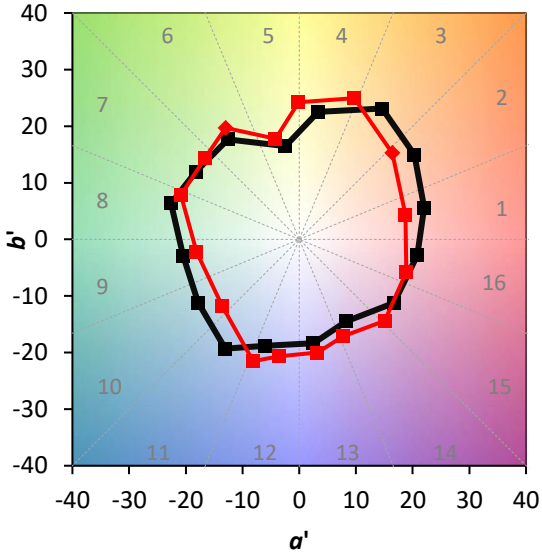
R_f = 75.8
R_g = 95.8
CIE R_a = 73.4
R_9 = -19.2

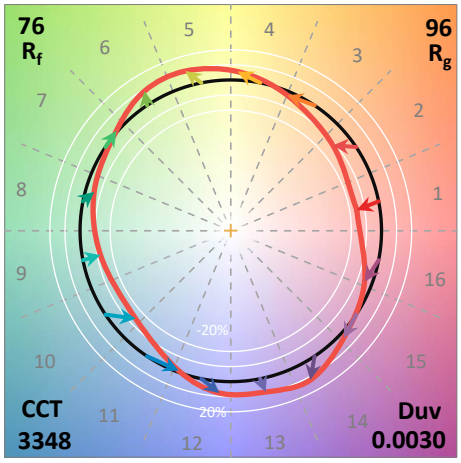
Spectral Power Distribution Comparison

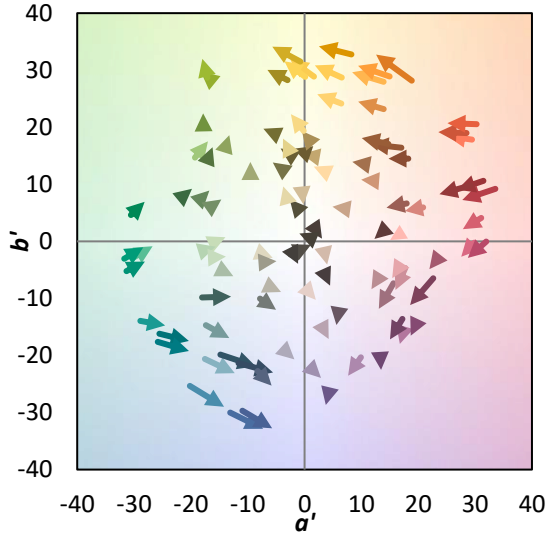


Color Vector Graphics







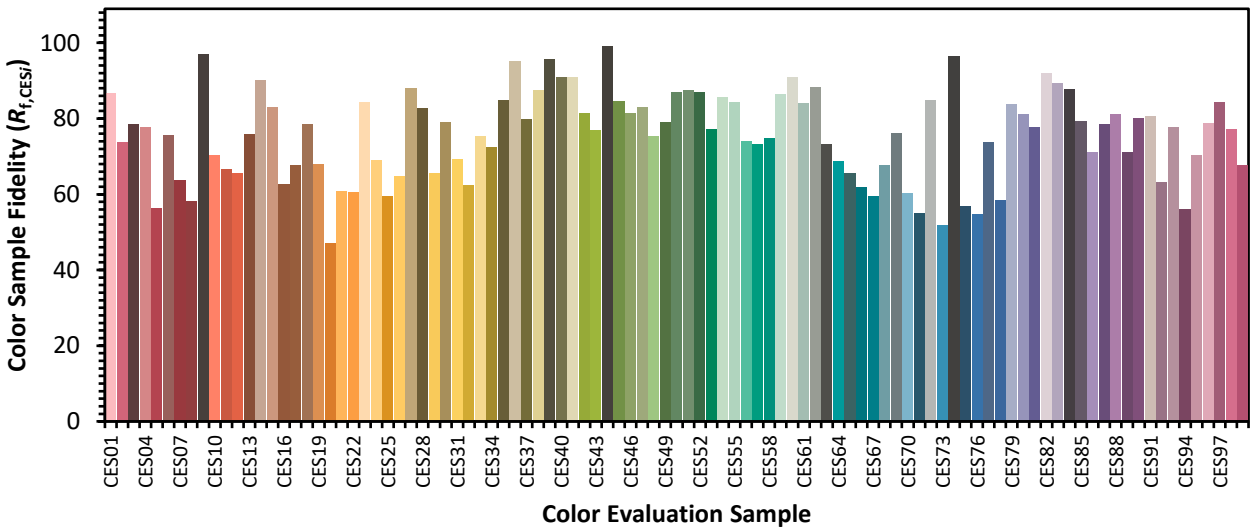


REPORT NUMBER: SP1-2407-176-4

TM-30-18

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

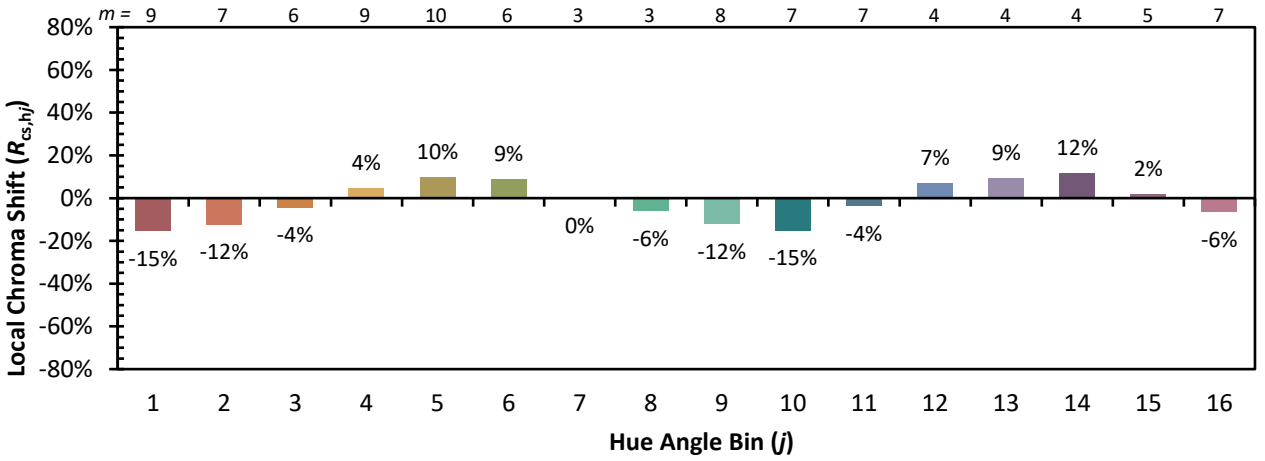
CES01 = 86	CES26 = 65	CES51 = 88	CES76 = 55
CES02 = 62	CES27 = 88	CES52 = 87	CES77 = 74
CES03 = 31	CES28 = 83	CES53 = 77	CES78 = 58
CES04 = 70	CES29 = 66	CES54 = 86	CES79 = 84
CES05 = 48	CES30 = 79	CES55 = 84	CES80 = 81
CES06 = 51	CES31 = 69	CES56 = 74	CES81 = 78
CES07 = 41	CES32 = 62	CES57 = 73	CES82 = 92
CES08 = 40	CES33 = 75	CES58 = 75	CES83 = 89
CES09 = 29	CES34 = 73	CES59 = 87	CES84 = 88
CES10 = 75	CES35 = 85	CES60 = 91	CES85 = 79
CES11 = 58	CES36 = 95	CES61 = 84	CES86 = 71
CES12 = 64	CES37 = 80	CES62 = 88	CES87 = 79
CES13 = 43	CES38 = 88	CES63 = 73	CES88 = 81
CES14 = 74	CES39 = 96	CES64 = 69	CES89 = 71
CES15 = 71	CES40 = 91	CES65 = 66	CES90 = 80
CES16 = 47	CES41 = 91	CES66 = 62	CES91 = 81
CES17 = 50	CES42 = 81	CES67 = 60	CES92 = 63
CES18 = 56	CES43 = 77	CES68 = 68	CES93 = 78
CES19 = 72	CES44 = 99	CES69 = 76	CES94 = 56
CES20 = 65	CES45 = 85	CES70 = 60	CES95 = 70
CES21 = 87	CES46 = 82	CES71 = 55	CES96 = 79
CES22 = 79	CES47 = 83	CES72 = 85	CES97 = 84
CES23 = 92	CES48 = 75	CES73 = 52	CES98 = 77
CES24 = 91	CES49 = 79	CES74 = 96	CES99 = 68
CES25 = 72	CES50 = 87	CES75 = 57	

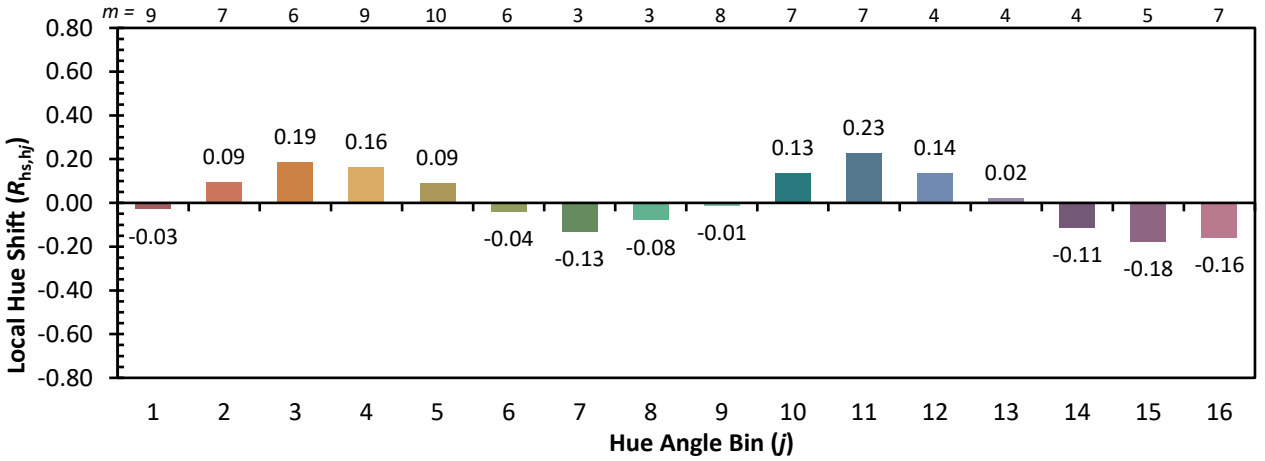


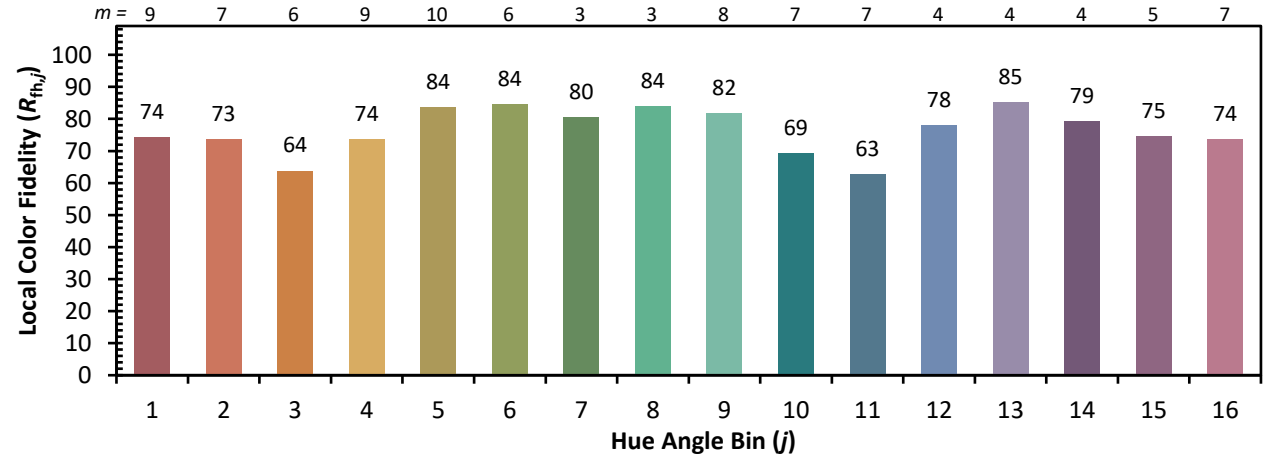
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Color Rendition by Hue-Angle Bin



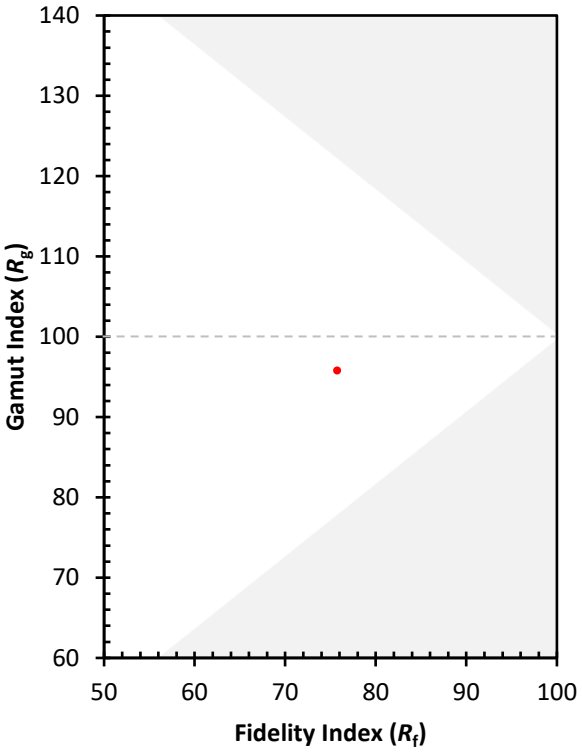


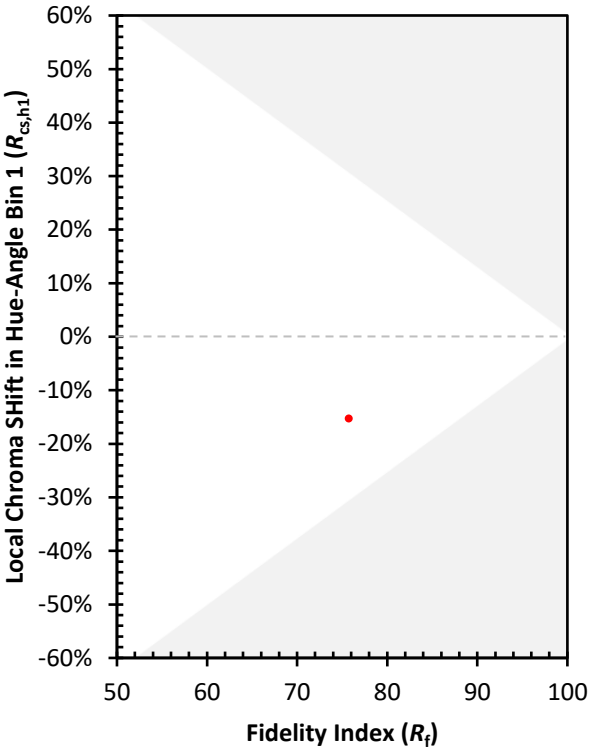


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Measure Comparisons





(END OF REPORT)