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: P821163

Luminaire Tested: **TT-D4-830-24VDC-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:	P821163
	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-D4-830-24VDC-DL-UPL
Description:	TOPTIER LED PARKING GARAGE LUMINAIRE WITH UPLIGHT
	3000K, 80 CRI LEDS AND DRIVE LANE DISTRIBUTION
Light Source:	-
Ballast/Driver:	ELECTRONIC DRIVER

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	6457.7 lumens
Efficiency:	N/A
Efficacy:	113.3 lumens/watt
Luminous Opening:	Vertical Cylinder (Dia: 1.12' x H: 0.1')
IES Classification:	Type IV - Short
BUG Rating:	B2 - U4 - G3

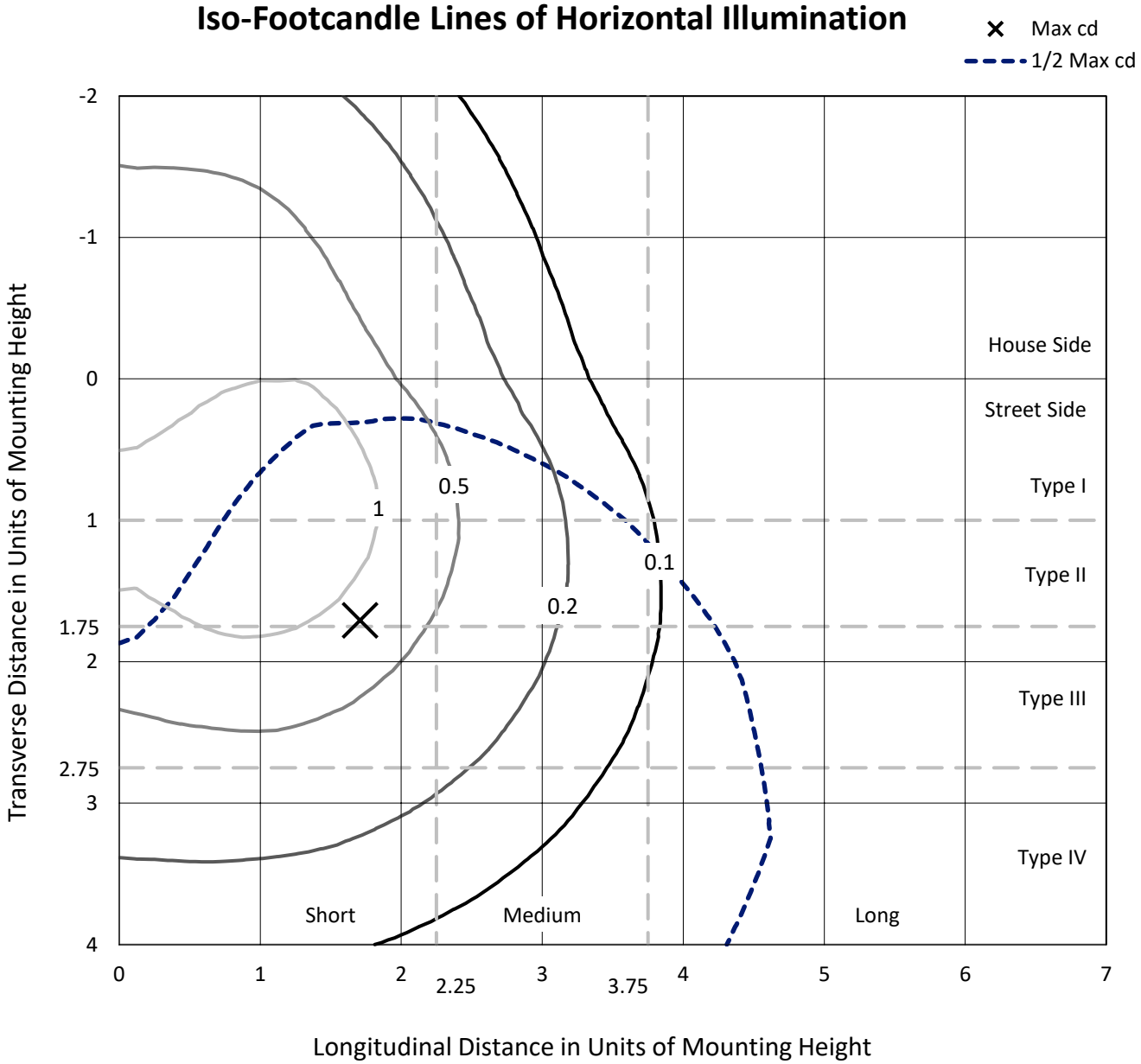
Input Watts (W):	57
Input Voltage (V):	NR
Input Current (Ain):	NR
Voltage Rise (V):	NR
Power Factor:	NR
Total Harmonic Distortion (THDi):	NR
Frequency (hertz):	60
Stabilization Time:	NR
Operation Time:	NR
Ambient Temperature (°C):	NR
Test Distance:	25 FT

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Iso-Footcandle Lines of Horizontal Illumination



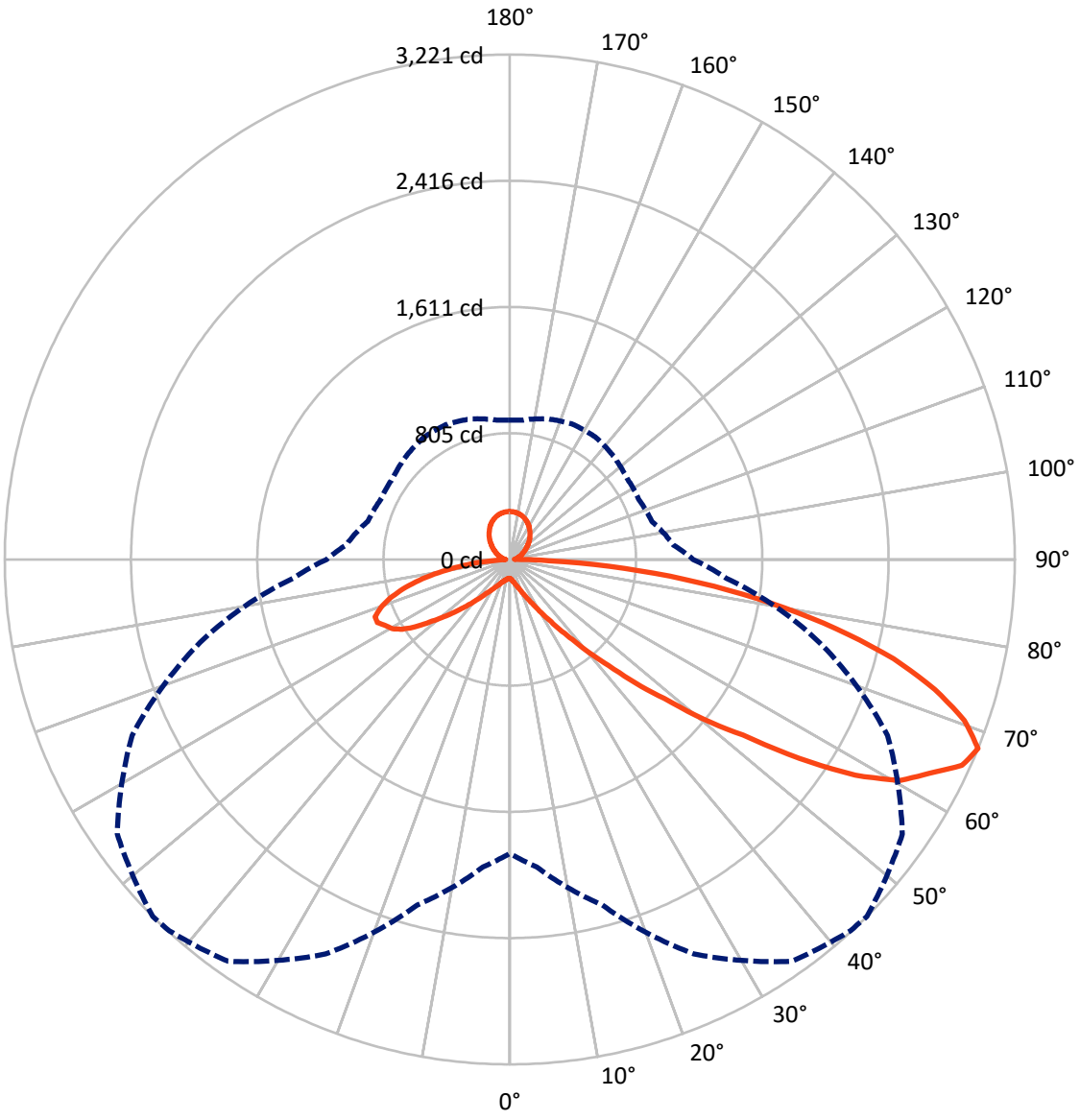
Based on 15 foot mounting height. Maximum calculated value = 1.9 fc
Type IV - Short - N/A

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Luminous Intensity Polar Plot



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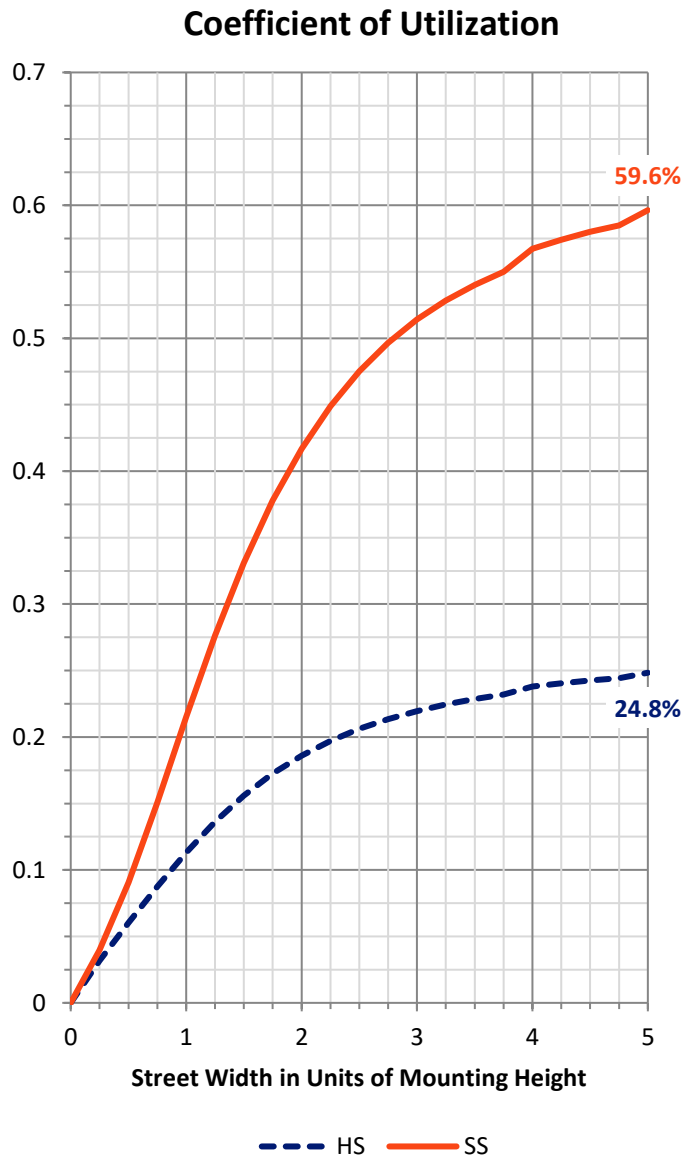
REPORT NUMBER: P821163
CATALOG NUMBER: TT-D4-830-24VDC-DL-UPL

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	1640.2	415.9	2056.1
	% Fixture	25.4	6.4	31.8
Street Side	Lumens	3985.7	415.9	4401.6
	% Fixture	61.7	6.4	68.2
Total	Lumens	5626.0	831.7	6457.7
	% Fixture	87.1	12.9	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	12.5	0.2
10°-20°	46.6	0.7
20°-30°	110.3	1.7
30°-40°	249.6	3.9
40°-50°	556.5	8.6
50°-60°	1118.7	17.3
60°-70°	1643.1	25.4
70°-80°	1444.8	22.4
80°-90°	443.8	6.9
90°-100°	42.6	0.7
100°-110°	66.0	1.0
110°-120°	91.9	1.4
120°-130°	119.0	1.8
130°-140°	138.7	2.1
140°-150°	140.5	2.2
150°-160°	121.9	1.9
160°-170°	82.2	1.3
170°-180°	28.9	0.4
0°-90°	5626.0	87.1
0°-180°	6457.7	100.0



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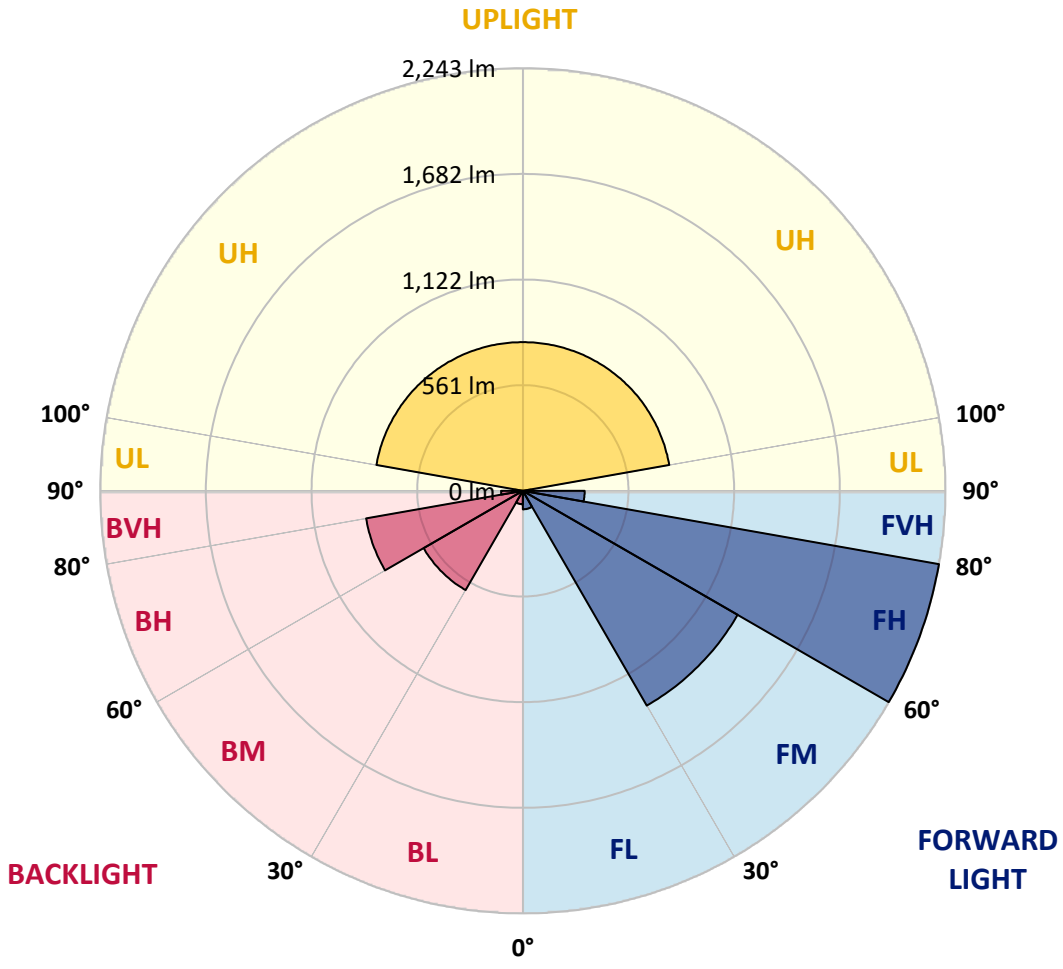
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	98.2	1.5			
FM	(30°-60°)	1316.6	20.4			
FH	(60°-80°)	2243.1	34.7			G2/5000
FVH	(80°-90°)	327.9	5.1			G3/500
BL	(0°-30°)	71.3	1.1	B0/110		
BM	(30°-60°)	608.2	9.4	B1/1000		
BH	(60°-80°)	844.8	13.1	B2/1000		G2/1000
BVH	(80°-90°)	115.9	1.8			G2/225
UL	(90°-100°)	42.6	0.7		U2/50	
UH	(100°-180°)	789.1	12.2		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°	121.9	121.9	121.9	121.9	121.9	121.9	*121.9*	121.9	121.9	121.9	121.9
2.5°	127.2	126.2	126.2	126.2	125.1	125.1	*125.1*	125.1	124.0	124.0	124.0
5°	134.6	133.5	134.6	132.5	131.4	131.4	*130.4*	130.4	129.3	128.3	127.2
7.5°	145.1	144.0	144.0	141.9	140.9	139.8	*139.8*	137.7	136.7	134.6	132.5
10°	156.6	156.6	155.6	154.5	152.4	150.3	*150.3*	147.2	146.1	143.0	139.8
12.5°	170.3	170.3	170.3	168.2	166.1	165.0	*162.9*	160.8	157.7	152.4	149.3
15°	187.1	187.1	187.1	185.0	182.9	180.8	*179.8*	175.6	170.3	165.0	158.7
17.5°	208.1	206.0	206.0	203.9	201.8	200.8	*198.7*	194.5	187.1	180.8	172.4
20°	231.3	230.2	229.2	229.2	227.1	225.0	*223.9*	217.6	209.2	197.6	187.1
22.5°	257.6	256.5	256.5	258.6	257.6	254.4	*254.4*	244.9	233.4	219.7	203.9
25°	290.1	289.1	291.2	295.4	295.4	293.3	*290.1*	280.7	263.9	244.9	226.0
27.5°	325.9	324.8	329.0	336.4	338.5	335.4	*333.2*	322.7	303.8	278.6	251.3
30°	369.0	370.0	381.6	390.0	395.3	393.2	*392.1*	380.6	350.1	320.6	284.9
32.5°	421.6	418.4	433.1	446.8	456.2	461.5	*458.4*	444.7	418.4	372.1	326.9
35°	477.3	478.3	496.2	516.2	538.2	540.3	*546.7*	533.0	497.2	442.6	379.5
37.5°	549.8	541.4	564.5	602.4	628.7	651.8	*647.6*	639.2	597.1	524.6	438.4
40°	615.0	612.9	645.5	698.0	746.4	780.0	*784.2*	773.7	718.0	615.0	501.5
42.5°	689.6	695.9	741.1	813.7	887.3	935.6	*924.1*	918.8	853.6	722.2	587.7
45°	765.3	786.3	844.2	949.3	1035.5	1104.9	*1124.9*	1107.0	1027.1	891.5	697.0
47.5°	856.8	885.2	956.6	1098.6	1239.4	1320.4	*1324.6*	1378.2	1257.3	1054.4	810.5
50°	977.7	990.3	1090.2	1263.6	1457.0	1570.6	*1603.2*	1604.2	1483.3	1218.4	938.8
52.5°	1096.5	1105.9	1237.3	1461.3	1724.1	1853.4	*1860.7*	1901.7	1736.7	1483.3	1122.7
55°	1239.4	1235.2	1416.0	1685.2	1995.3	2183.5	*2238.1*	2293.9	2083.6	1692.5	1227.9
57.5°	1378.2	1371.9	1589.5	1942.7	2366.4	2553.5	*2598.7*	2558.8	2246.5	1779.8	1279.4
60°	1506.5	1528.5	1793.5	2227.6	2653.4	2832.1	*2862.6*	2754.3	2351.7	1847.1	1312.0
62.5°	1640.0	1684.1	2004.8	2465.2	2873.1	3001.4	*3003.5*	2876.3	2527.2	1977.4	1418.2
65°	1765.1	1835.5	2168.8	2668.1	3026.6	3154.8	*3169.6*	3055.0	2699.6	2091.0	1436.0
67.5°	*1875.5*	*1969.0*	*2282.3*	*2777.4*	*3130.7*	*3213.7*	*3221.1*	*3056.0*	*2658.6*	*2044.7*	*1386.6*
70°	1964.8	2040.5	2352.7	2779.5	3058.1	3081.2	*3076.0*	2900.4	2545.1	1953.2	1303.6
72.5°	1999.5	2061.5	2319.1	2649.2	2844.7	2839.5	*2835.3*	2673.4	2358.0	1800.8	1183.7
75°	1950.1	1968.0	2135.1	2370.6	2494.6	2524.1	*2528.3*	2382.2	2068.9	1574.8	1015.5
77.5°	1746.1	1736.7	1864.9	2020.5	2114.1	2135.1	*2130.9*	2009.0	1734.6	1308.8	851.5
80°	1384.5	1404.5	1484.4	1587.4	1681.0	1704.1	*1689.4*	1596.9	1349.8	1020.8	653.9
82.5°	968.2	992.4	1059.7	1137.5	1207.9	1207.9	*1221.6*	1132.2	956.6	732.7	457.3
85°	522.5	508.8	582.4	670.7	721.2	730.6	*735.9*	706.4	591.9	442.6	271.2
87.5°	86.2	92.5	114.6	175.6	199.7	231.3	*246.0*	192.4	116.7	74.6	54.7
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°	121.9	121.9	121.9	121.9	121.9	121.9	121.9	121.9	121.9	121.9	121.9
2.5°	124.0	123.0	121.9	120.9	120.9	119.8	119.8	119.8	120.9	120.9	120.9
5°	127.2	126.2	125.1	124.0	121.9	121.9	121.9	121.9	121.9	121.9	121.9
7.5°	132.5	130.4	129.3	127.2	125.1	125.1	124.0	124.0	124.0	125.1	124.0
10°	138.8	136.7	134.6	131.4	130.4	129.3	128.3	128.3	129.3	129.3	128.3
12.5°	146.1	145.1	140.9	137.7	135.6	134.6	133.5	134.6	133.5	134.6	134.6
15°	156.6	153.5	148.2	145.1	141.9	140.9	139.8	140.9	140.9	141.9	140.9
17.5°	168.2	164.0	158.7	153.5	149.3	148.2	148.2	148.2	149.3	150.3	149.3
20°	181.9	176.6	169.3	162.9	158.7	157.7	157.7	158.7	159.8	160.8	160.8
22.5°	195.5	191.3	180.8	172.4	170.3	169.3	168.2	170.3	172.4	173.5	174.5
25°	216.6	208.1	195.5	186.1	181.9	181.9	182.9	185.0	186.1	188.2	187.1
27.5°	238.6	229.2	213.4	200.8	197.6	196.6	198.7	200.8	205.0	205.0	203.9
30°	269.1	253.4	233.4	221.8	213.4	214.5	217.6	220.8	225.0	227.1	227.1
32.5°	303.8	287.0	259.7	241.8	237.6	238.6	239.7	244.9	249.1	253.4	250.2
35°	349.0	328.0	294.4	274.4	263.9	262.8	267.0	273.3	277.5	279.6	279.6
37.5°	398.4	371.1	329.0	312.2	299.6	298.6	299.6	304.9	310.1	312.2	316.4
40°	458.4	424.7	375.3	348.0	338.5	336.4	340.6	348.0	348.0	351.1	352.2
42.5°	531.9	488.8	434.2	398.4	386.9	386.9	385.8	392.1	392.1	392.1	390.0
45°	625.5	577.1	505.7	468.9	448.9	438.4	441.5	437.3	436.3	439.4	430.0
47.5°	715.9	654.9	570.8	530.9	510.9	504.6	493.0	489.9	484.6	484.6	471.0
50°	821.0	745.3	664.4	607.6	588.7	570.8	561.4	546.7	530.9	527.7	522.5
52.5°	996.6	902.0	774.8	713.8	665.4	647.6	625.5	606.6	587.7	572.9	581.3
55°	1068.1	971.4	850.5	791.6	758.0	741.1	700.1	674.9	646.5	625.5	637.1
57.5°	1103.8	998.7	886.2	842.1	832.6	816.8	786.3	743.2	710.7	684.4	686.5
60°	1123.8	1013.4	905.1	865.2	859.9	870.4	854.7	825.2	774.8	748.5	745.3
62.5°	1200.5	1084.9	958.8	902.0	890.4	897.8	902.0	884.1	842.1	807.4	797.9
65°	1216.3	1093.3	969.3	932.5	933.5	935.6	938.8	919.9	898.8	855.7	847.3
67.5°	*1169.0*	*1048.1*	*937.7*	*907.2*	*909.3*	*933.5*	*952.4*	*951.4*	*928.3*	*891.5*	*888.3*
70°	1097.5	979.8	877.8	850.5	855.7	877.8	918.8	939.8	935.6	911.4	916.7
72.5°	986.1	881.0	791.6	770.6	783.2	804.2	843.1	881.0	903.0	908.3	919.9
75°	855.7	771.6	687.5	674.9	684.4	708.6	744.3	788.4	836.8	863.1	870.4
77.5°	706.4	629.7	567.7	559.3	572.9	595.0	630.8	665.4	720.1	766.4	776.9
80°	553.0	486.7	442.6	435.2	443.6	462.6	489.9	518.3	570.8	606.6	611.8
82.5°	383.7	343.8	315.4	311.2	316.4	323.8	345.9	372.1	401.6	430.0	433.1
85°	222.9	197.6	190.3	184.0	195.5	195.5	200.8	215.5	230.2	232.3	238.6
87.5°	41.0	38.9	39.9	29.4	36.8	26.3	26.3	33.6	25.2	29.4	24.2
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: P821163
CATALOG NUMBER: TT-D4-830-24VDC-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: SP1-2407-176-7

Test Date: 09/27/2024

Luminaire Tested: MEM2-HTN-VA-30-830-U-WQ

Data in this report applies to families of products including MEM2-HTN-VA-30-830-U-WQ

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

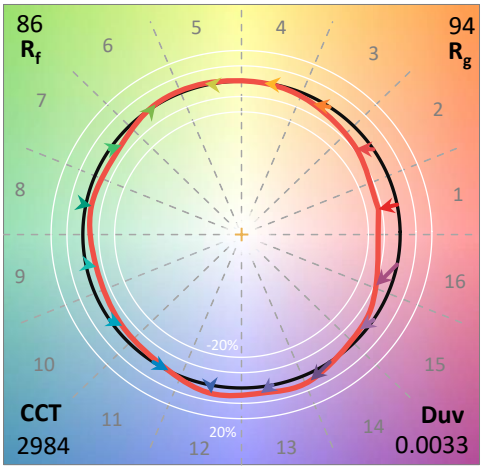
Test Information

Test Method:	LM-79-2019
Report Number:	SP1-2407-176-7
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-30-830-U-WQ**
Description:	EPIC MODERN VISUAL COMFORT 30W WAVESTREAM WIDE

Spectral Parameters

CCT (K):	2984	CRI (Ra):	81.8		
CIE u':	0.2500	R1:	79.4	R9:	-1.1
CIE v':	0.5264	R2:	89.9	R10:	78.4
Duv:	0.0033	R3:	96.6	R11:	80.8
CIE x:	0.4431	R4:	80.6	R12:	72.8
CIE y:	0.4147	R5:	80.1	R13:	81.7
CIE z:	0.1422	R6:	88.9	R14:	98.5
Peak Wavelength (nm):	601	R7:	82.6	R15:	70.2
Dominant Wavelength (nm):	581	R8:	56.0		
Purity:	57.4798				

Rf:	85.8
Rg:	94.1



Test Conditions

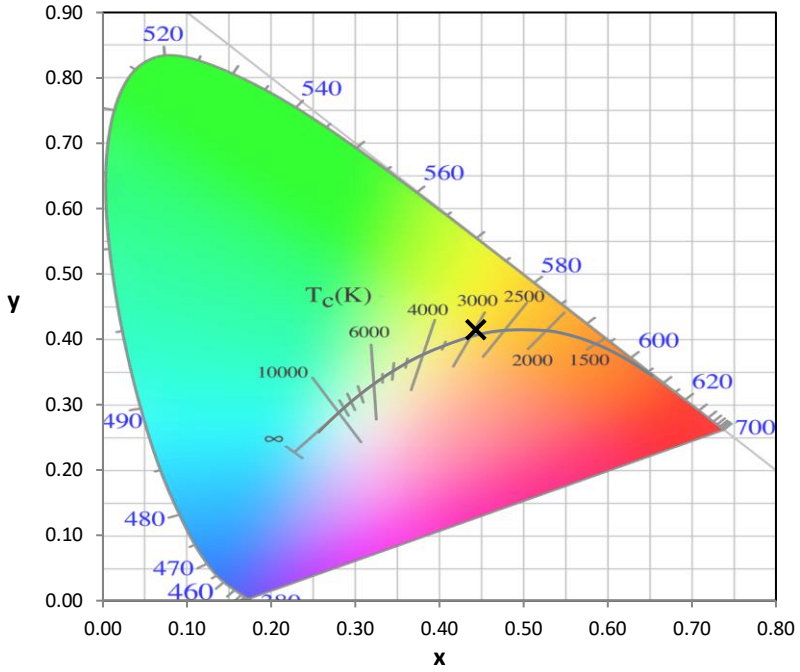
Stabilization Time:	29M
Operation Time:	1H 29M
Sphere Temperature (°C):	25.2

REPORT NUMBER: SP1-2407-176-7

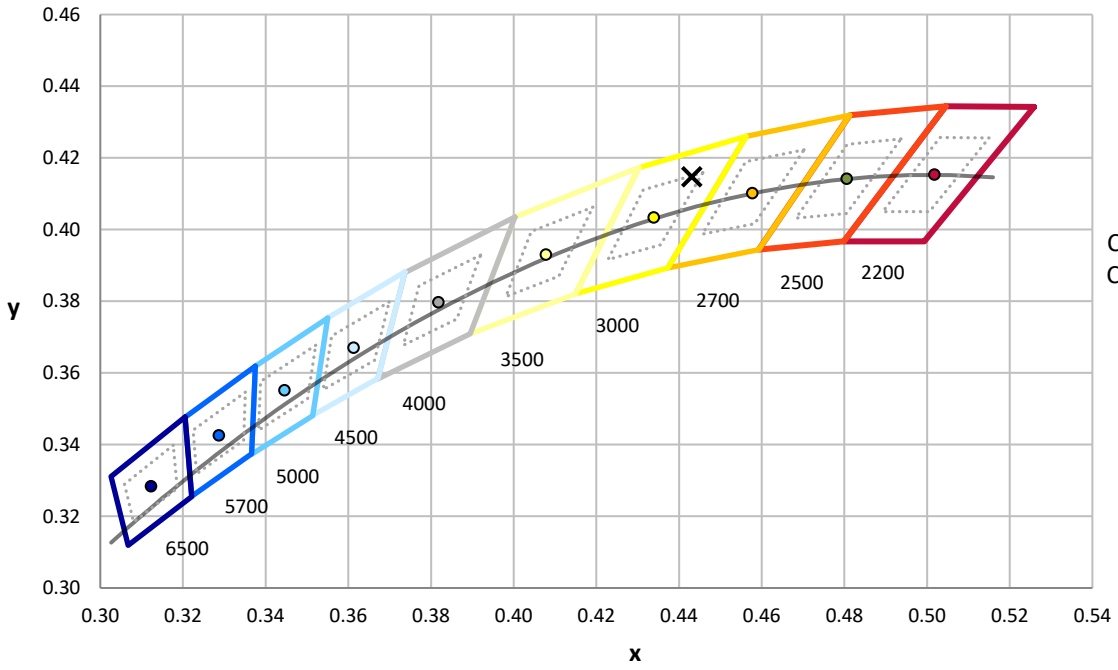
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085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

REPORT NUMBER: SP1-2407-176-7

CIE 1931 Chromaticity Diagram



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

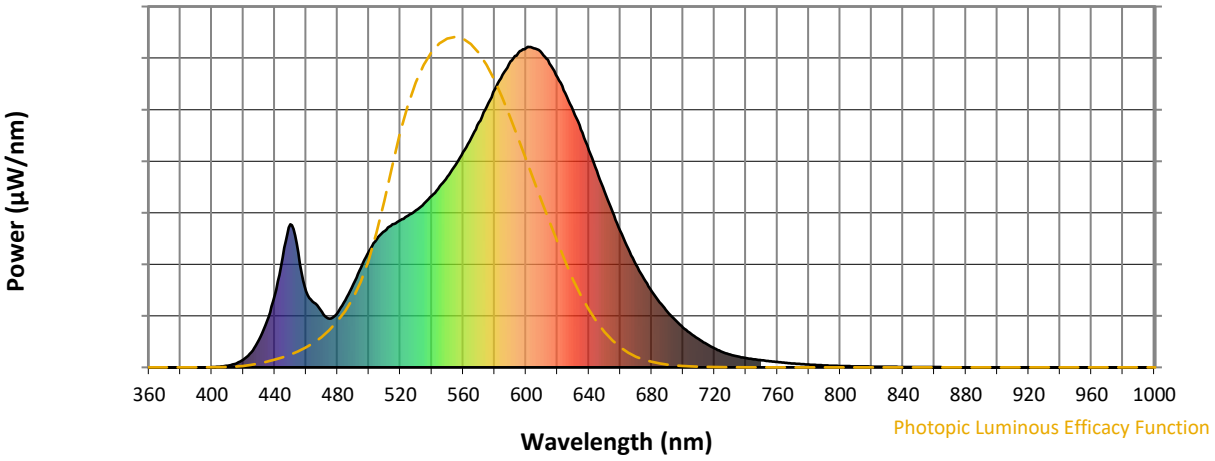


CCT = 2984K
CIE x = 0.4431
CIE y = 0.4147
Duv = 0.0033

Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2407-176-7

Photopic Flux vs. Wavelength

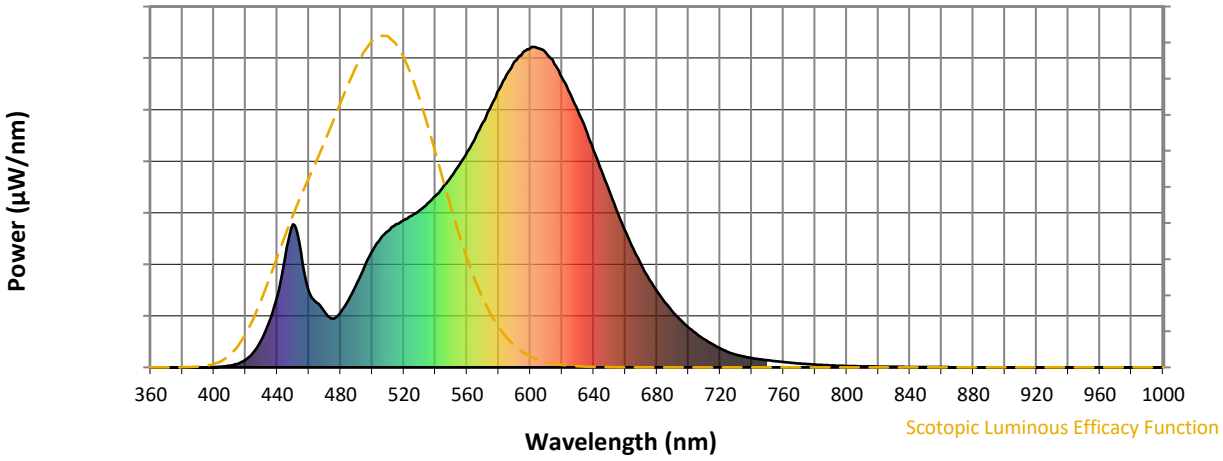


Photopic Lumens: NR

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	260	NR	620	905	NR	750	22	NR	880	0	NR
365	0	NR	495	312	NR	625	856	NR	755	19	NR	885	0	NR
370	0	NR	500	362	NR	630	801	NR	760	17	NR	890	0	NR
375	0	NR	505	399	NR	635	742	NR	765	14	NR	895	0	NR
380	0	NR	510	425	NR	640	677	NR	770	12	NR	900	0	NR
385	0	NR	515	446	NR	645	613	NR	775	10	NR	905	0	NR
390	0	NR	520	459	NR	650	549	NR	780	9	NR	910	0	NR
395	0	NR	525	473	NR	655	485	NR	785	7	NR	915	0	NR
400	1	NR	530	490	NR	660	425	NR	790	6	NR	920	0	NR
405	2	NR	535	511	NR	665	371	NR	795	5	NR	925	0	NR
410	5	NR	540	535	NR	670	321	NR	800	4	NR	930	0	NR
415	11	NR	545	565	NR	675	276	NR	805	4	NR	935	0	NR
420	24	NR	550	595	NR	680	238	NR	810	3	NR	940	0	NR
425	47	NR	555	631	NR	685	203	NR	815	3	NR	945	0	NR
430	86	NR	560	672	NR	690	174	NR	820	2	NR	950	0	NR
435	144	NR	565	715	NR	695	148	NR	825	2	NR	955	0	NR
440	224	NR	570	763	NR	700	124	NR	830	2	NR	960	0	NR
445	342	NR	575	814	NR	705	105	NR	835	2	NR	965	0	NR
450	446	NR	580	866	NR	710	88	NR	840	1	NR	970	0	NR
455	357	NR	585	912	NR	715	73	NR	845	1	NR	975	0	NR
460	237	NR	590	954	NR	720	59	NR	850	1	NR	980	0	NR
465	202	NR	595	981	NR	725	48	NR	855	1	NR	985	0	NR
470	172	NR	600	996	NR	730	40	NR	860	1	NR	990	0	NR
475	152	NR	605	996	NR	735	34	NR	865	1	NR	995	0	NR
480	171	NR	610	980	NR	740	29	NR	870	0	NR	1000	0	NR
485	210	NR	615	947	NR	745	25	NR	875	0	NR			

REPORT NUMBER: SP1-2407-176-7

Scotopic Flux vs. Wavelength

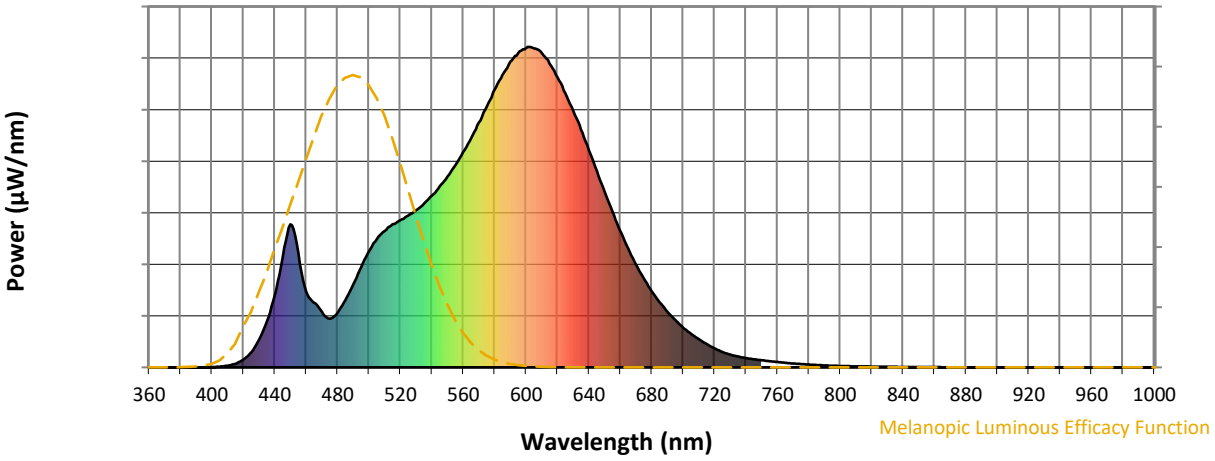


Scotopic Lumens: NR **S/P: 1.32**

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	260	NR	620	905	NR	750	22	NR	880	0	NR
365	0	NR	495	312	NR	625	856	NR	755	19	NR	885	0	NR
370	0	NR	500	362	NR	630	801	NR	760	17	NR	890	0	NR
375	0	NR	505	399	NR	635	742	NR	765	14	NR	895	0	NR
380	0	NR	510	425	NR	640	677	NR	770	12	NR	900	0	NR
385	0	NR	515	446	NR	645	613	NR	775	10	NR	905	0	NR
390	0	NR	520	459	NR	650	549	NR	780	9	NR	910	0	NR
395	0	NR	525	473	NR	655	485	NR	785	7	NR	915	0	NR
400	1	NR	530	490	NR	660	425	NR	790	6	NR	920	0	NR
405	2	NR	535	511	NR	665	371	NR	795	5	NR	925	0	NR
410	5	NR	540	535	NR	670	321	NR	800	4	NR	930	0	NR
415	11	NR	545	565	NR	675	276	NR	805	4	NR	935	0	NR
420	24	NR	550	595	NR	680	238	NR	810	3	NR	940	0	NR
425	47	NR	555	631	NR	685	203	NR	815	3	NR	945	0	NR
430	86	NR	560	672	NR	690	174	NR	820	2	NR	950	0	NR
435	144	NR	565	715	NR	695	148	NR	825	2	NR	955	0	NR
440	224	NR	570	763	NR	700	124	NR	830	2	NR	960	0	NR
445	342	NR	575	814	NR	705	105	NR	835	2	NR	965	0	NR
450	446	NR	580	866	NR	710	88	NR	840	1	NR	970	0	NR
455	357	NR	585	912	NR	715	73	NR	845	1	NR	975	0	NR
460	237	NR	590	954	NR	720	59	NR	850	1	NR	980	0	NR
465	202	NR	595	981	NR	725	48	NR	855	1	NR	985	0	NR
470	172	NR	600	996	NR	730	40	NR	860	1	NR	990	0	NR
475	152	NR	605	996	NR	735	34	NR	865	1	NR	995	0	NR
480	171	NR	610	980	NR	740	29	NR	870	0	NR	1000	0	NR
485	210	NR	615	947	NR	745	25	NR	875	0	NR			

REPORT NUMBER: SP1-2407-176-7

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR **M/P: 2.51**

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	260	NR	620	905	NR	750	22	NR	880	0	NR
365	0	NR	495	312	NR	625	856	NR	755	19	NR	885	0	NR
370	0	NR	500	362	NR	630	801	NR	760	17	NR	890	0	NR
375	0	NR	505	399	NR	635	742	NR	765	14	NR	895	0	NR
380	0	NR	510	425	NR	640	677	NR	770	12	NR	900	0	NR
385	0	NR	515	446	NR	645	613	NR	775	10	NR	905	0	NR
390	0	NR	520	459	NR	650	549	NR	780	9	NR	910	0	NR
395	0	NR	525	473	NR	655	485	NR	785	7	NR	915	0	NR
400	1	NR	530	490	NR	660	425	NR	790	6	NR	920	0	NR
405	2	NR	535	511	NR	665	371	NR	795	5	NR	925	0	NR
410	5	NR	540	535	NR	670	321	NR	800	4	NR	930	0	NR
415	11	NR	545	565	NR	675	276	NR	805	4	NR	935	0	NR
420	24	NR	550	595	NR	680	238	NR	810	3	NR	940	0	NR
425	47	NR	555	631	NR	685	203	NR	815	3	NR	945	0	NR
430	86	NR	560	672	NR	690	174	NR	820	2	NR	950	0	NR
435	144	NR	565	715	NR	695	148	NR	825	2	NR	955	0	NR
440	224	NR	570	763	NR	700	124	NR	830	2	NR	960	0	NR
445	342	NR	575	814	NR	705	105	NR	835	2	NR	965	0	NR
450	446	NR	580	866	NR	710	88	NR	840	1	NR	970	0	NR
455	357	NR	585	912	NR	715	73	NR	845	1	NR	975	0	NR
460	237	NR	590	954	NR	720	59	NR	850	1	NR	980	0	NR
465	202	NR	595	981	NR	725	48	NR	855	1	NR	985	0	NR
470	172	NR	600	996	NR	730	40	NR	860	1	NR	990	0	NR
475	152	NR	605	996	NR	735	34	NR	865	1	NR	995	0	NR
480	171	NR	610	980	NR	740	29	NR	870	0	NR	1000	0	NR
485	210	NR	615	947	NR	745	25	NR	875	0	NR			

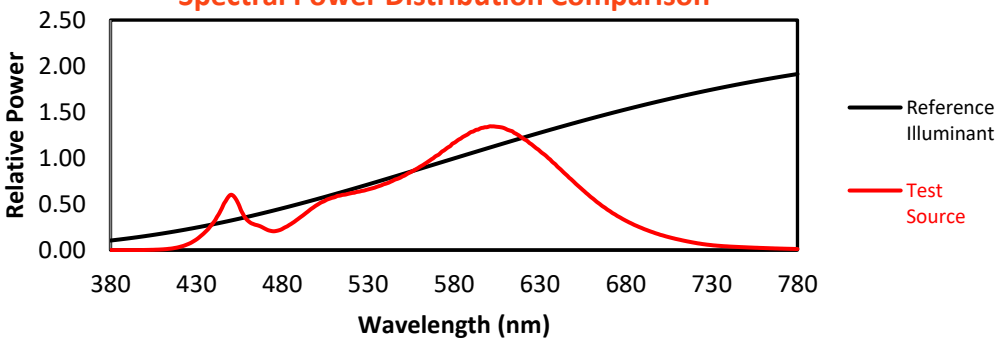
REPORT NUMBER: SP1-2407-176-7

TM-30-18

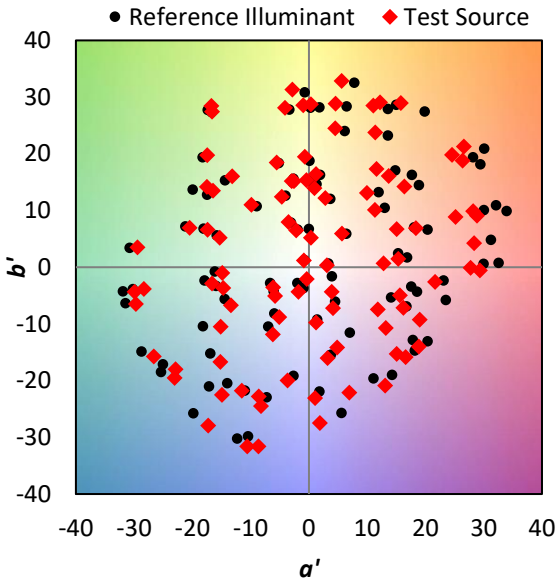
Summary

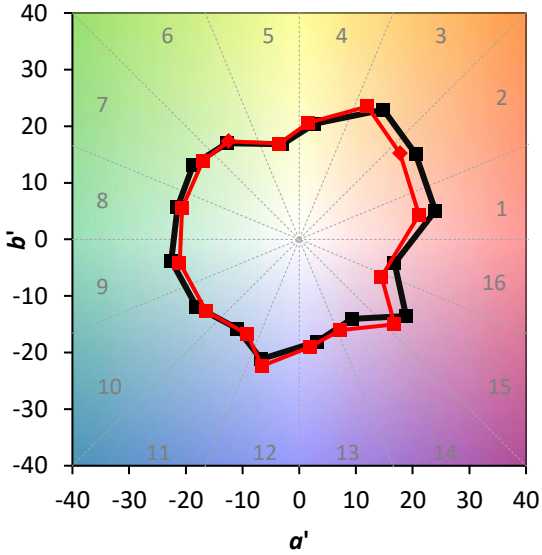
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R_g = 94.1
CIE R_a = 81.8
R_9 = -1.1

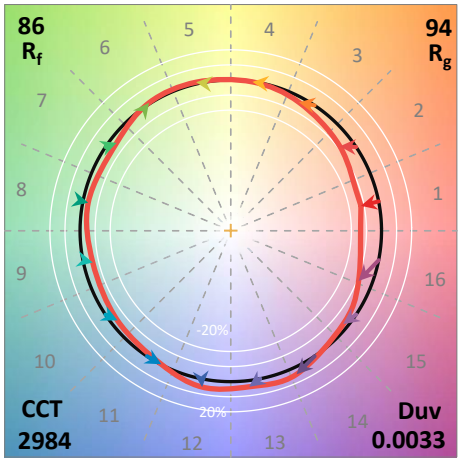
Spectral Power Distribution Comparison

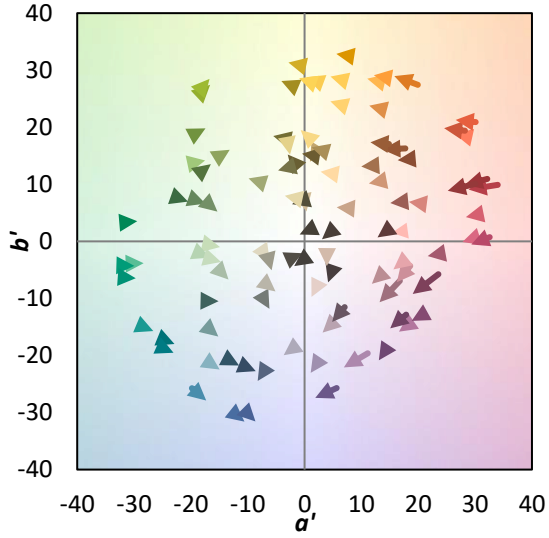


Color Vector Graphics







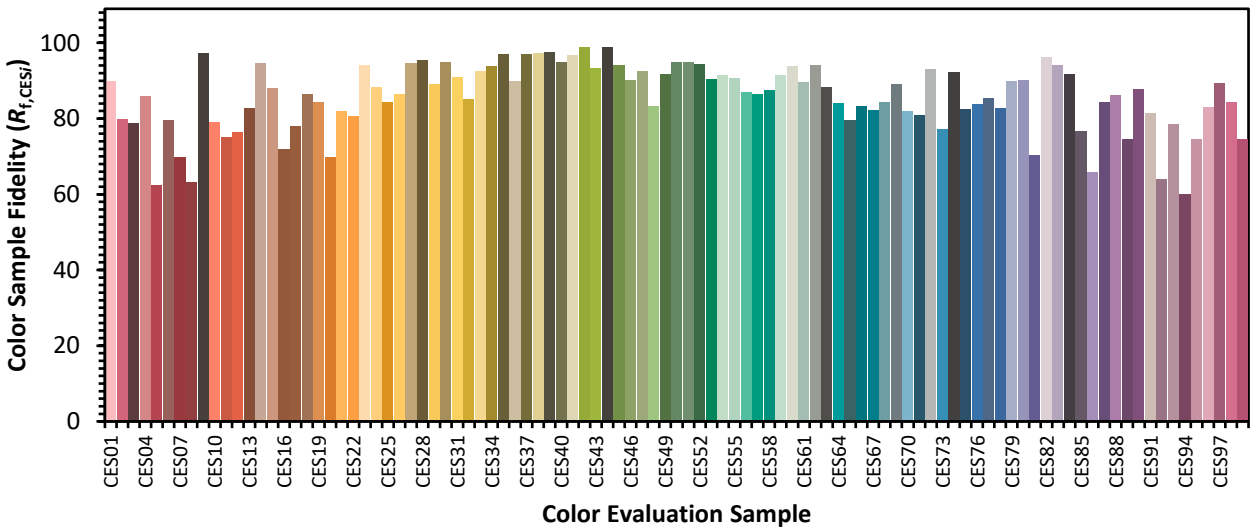


REPORT NUMBER: SP1-2407-176-7

TM-30-18

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

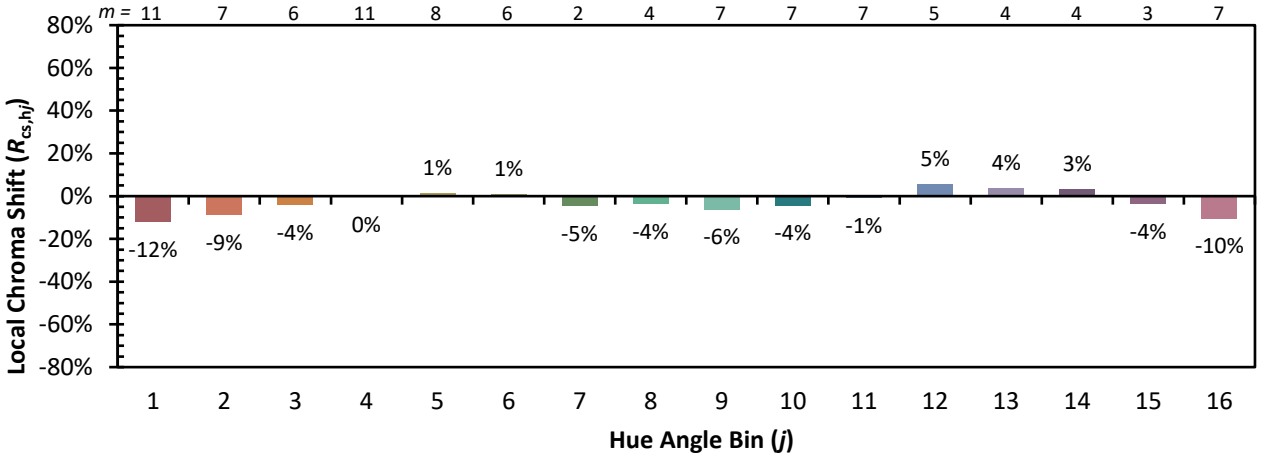
CES01 = 86	CES26 = 86	CES51 = 95	CES76 = 84
CES02 = 63	CES27 = 95	CES52 = 94	CES77 = 86
CES03 = 31	CES28 = 95	CES53 = 90	CES78 = 83
CES04 = 70	CES29 = 89	CES54 = 91	CES79 = 90
CES05 = 50	CES30 = 95	CES55 = 91	CES80 = 90
CES06 = 51	CES31 = 91	CES56 = 87	CES81 = 70
CES07 = 42	CES32 = 85	CES57 = 86	CES82 = 96
CES08 = 41	CES33 = 93	CES58 = 87	CES83 = 94
CES09 = 29	CES34 = 94	CES59 = 92	CES84 = 92
CES10 = 76	CES35 = 97	CES60 = 94	CES85 = 77
CES11 = 59	CES36 = 90	CES61 = 90	CES86 = 66
CES12 = 65	CES37 = 97	CES62 = 94	CES87 = 84
CES13 = 43	CES38 = 97	CES63 = 88	CES88 = 86
CES14 = 74	CES39 = 98	CES64 = 84	CES89 = 75
CES15 = 72	CES40 = 95	CES65 = 80	CES90 = 88
CES16 = 47	CES41 = 97	CES66 = 83	CES91 = 81
CES17 = 50	CES42 = 99	CES67 = 82	CES92 = 64
CES18 = 56	CES43 = 93	CES68 = 84	CES93 = 79
CES19 = 72	CES44 = 99	CES69 = 89	CES94 = 60
CES20 = 67	CES45 = 94	CES70 = 82	CES95 = 74
CES21 = 87	CES46 = 90	CES71 = 81	CES96 = 83
CES22 = 79	CES47 = 93	CES72 = 93	CES97 = 89
CES23 = 92	CES48 = 83	CES73 = 77	CES98 = 84
CES24 = 91	CES49 = 92	CES74 = 92	CES99 = 75
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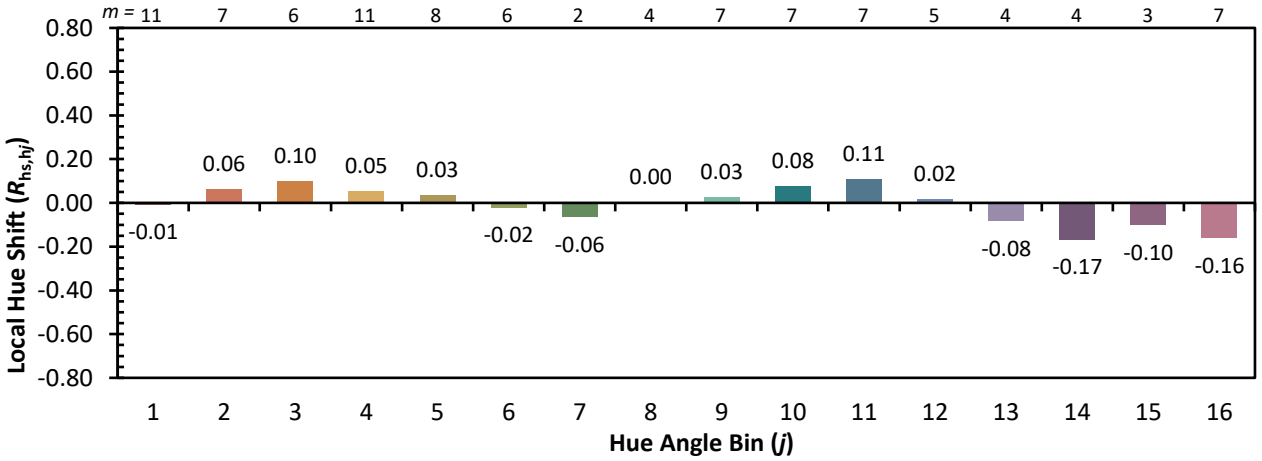


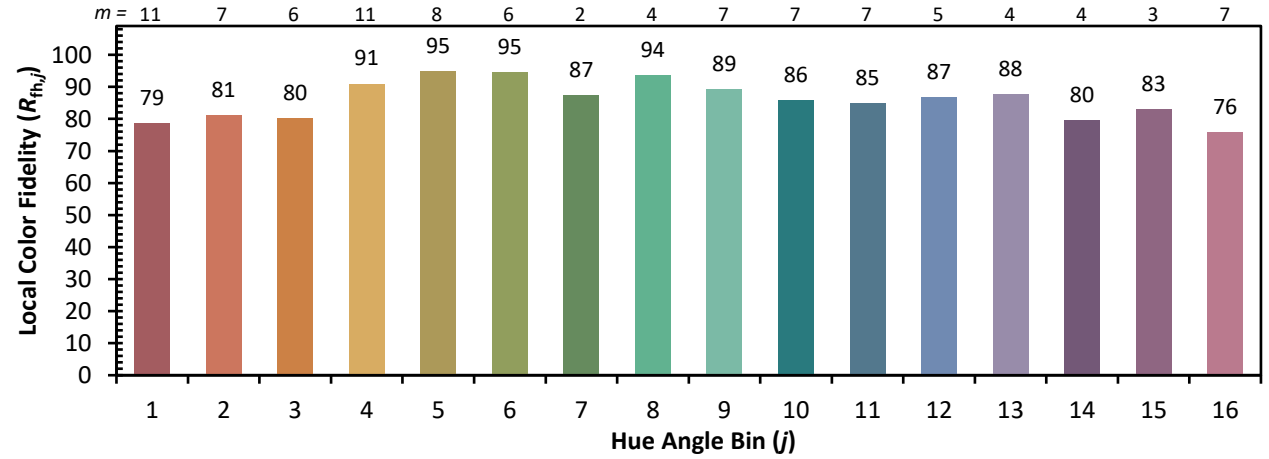
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Color Rendition by Hue-Angle Bin



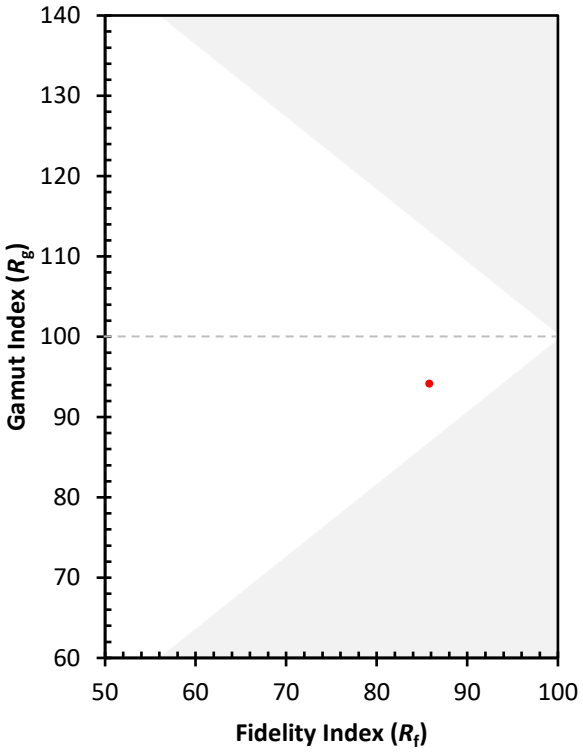


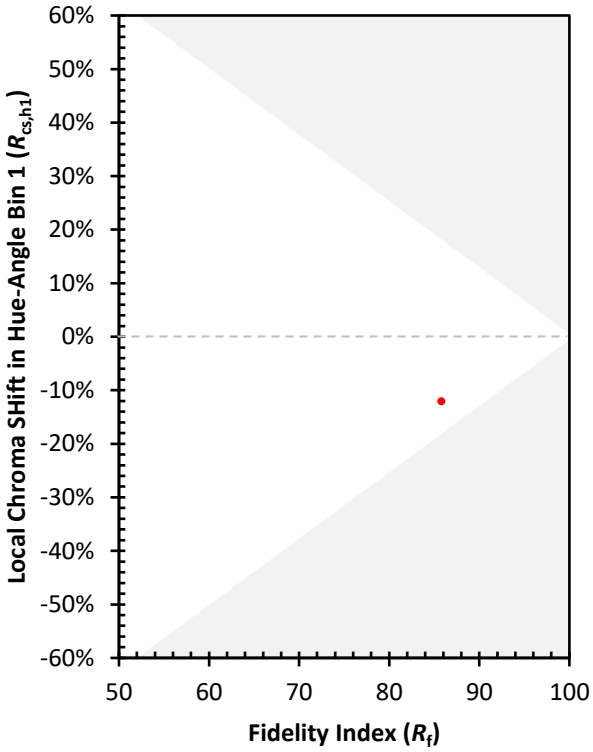


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Measure Comparisons





(END OF REPORT)