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: P821459

Luminaire Tested: **TT-D5-830-12VDC-DL-UPL**

Issue Date: 5/10/2022

Report Generated By 670245763

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1121 Highway 74 South
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Scaled Data Report

Test Information

Test Method:	LM-79-08
Report Number:	P821459
	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-D5-830-12VDC-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:	7372.7 lumens
Efficiency:	N/A
Efficacy:	101.0 lumens/watt
Luminous Opening:	Vertical Cylinder (Dia: 1.12' x H: 0.1')
IES Classification:	Type IV - Short
BUG Rating:	B1 - U4 - G3

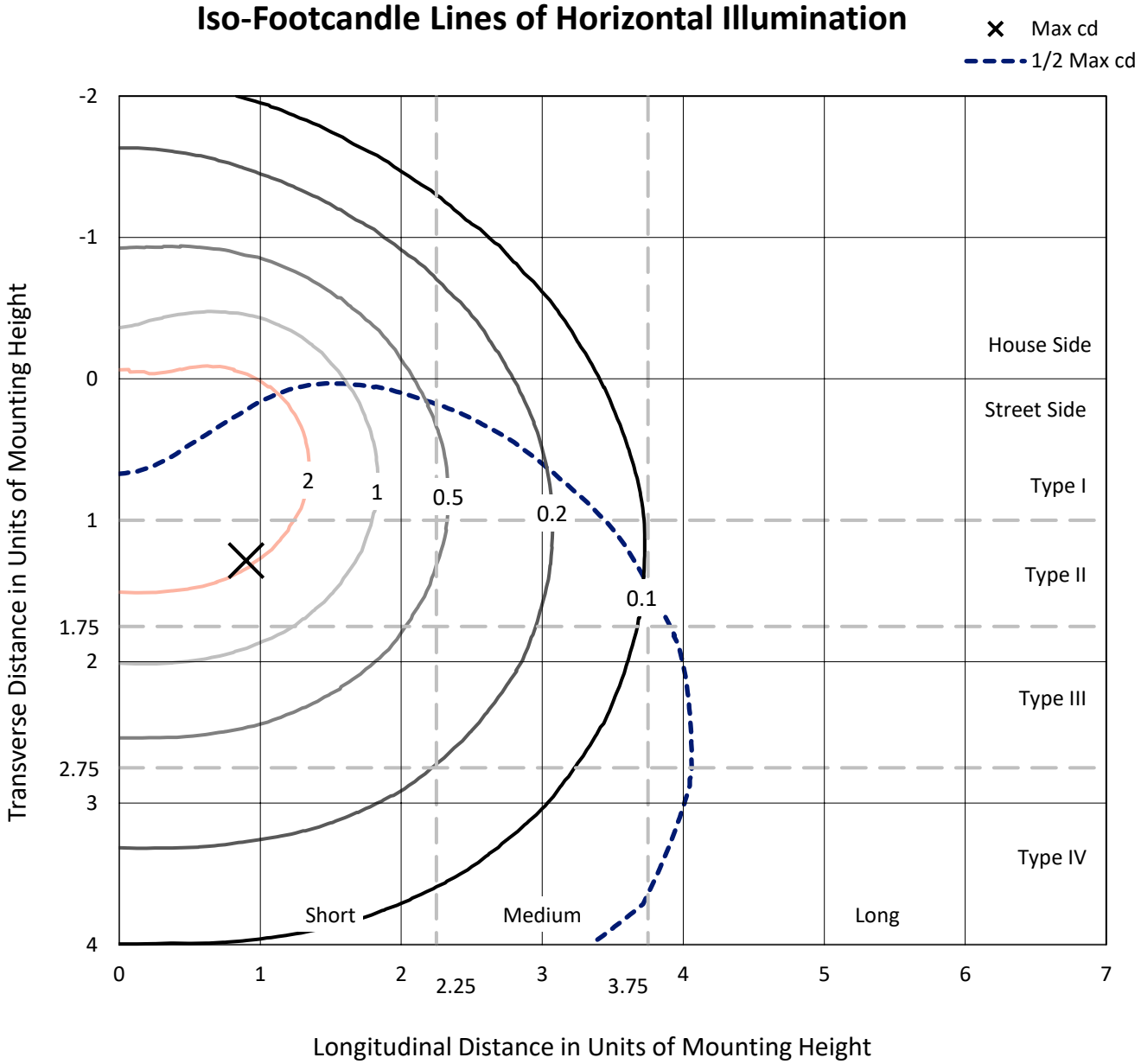
Input Watts (W):	73
Input Voltage (V):	NR
Input Current (Ain):	NR
Voltage Rise (V):	NR
Power Factor:	NR
Total Harmonic Distortion (THDi):	NR
Frequency (hertz):	60
Stabilization Time:	NR
Operation Time:	NR
Ambient Temperature (°C):	NR
Test Distance:	25 FT

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Iso-Footcandle Lines of Horizontal Illumination



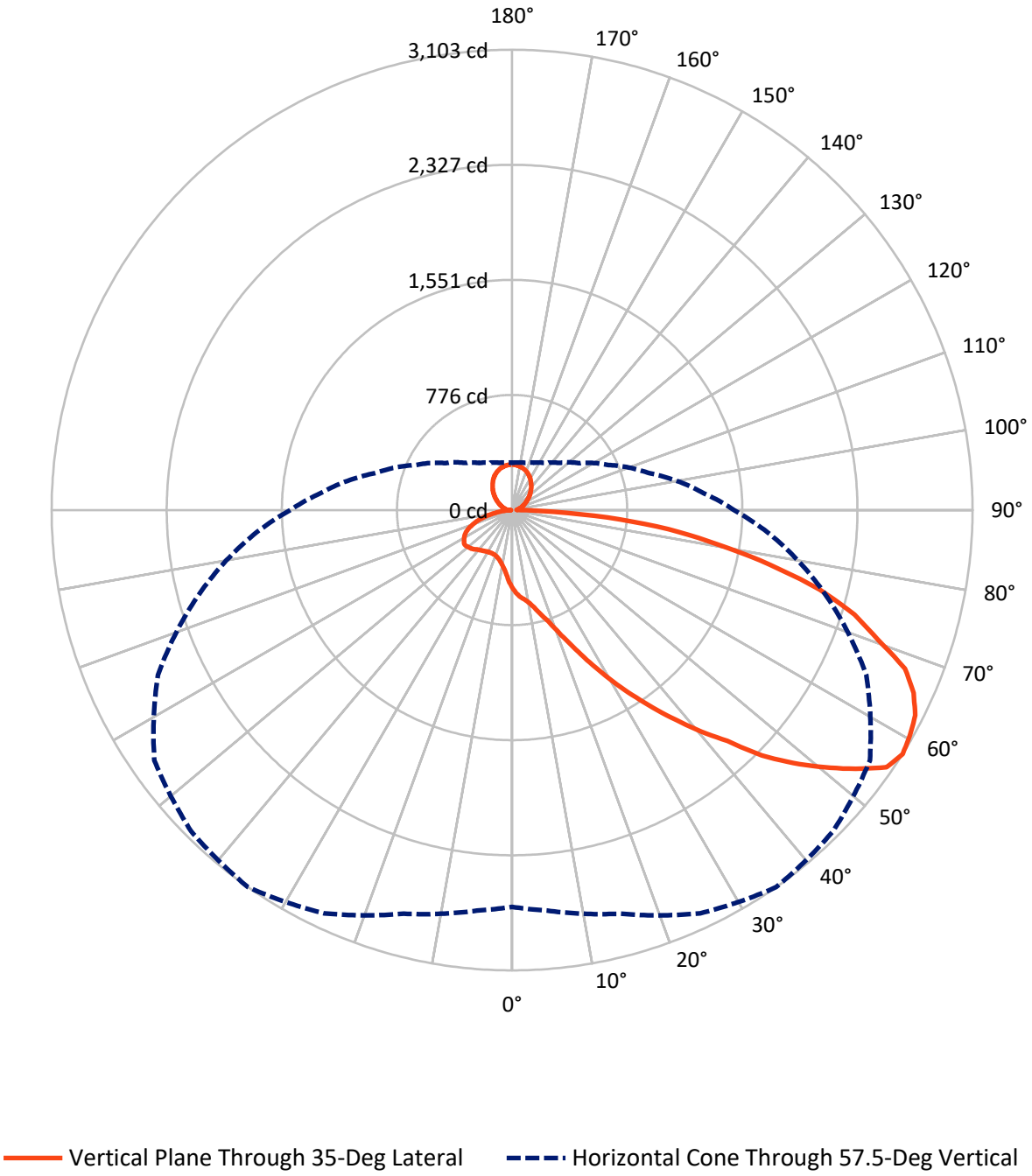
Based on 15 foot mounting height. Maximum calculated value = 4 fc
Type IV - Short - N/A

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Luminous Intensity Polar Plot



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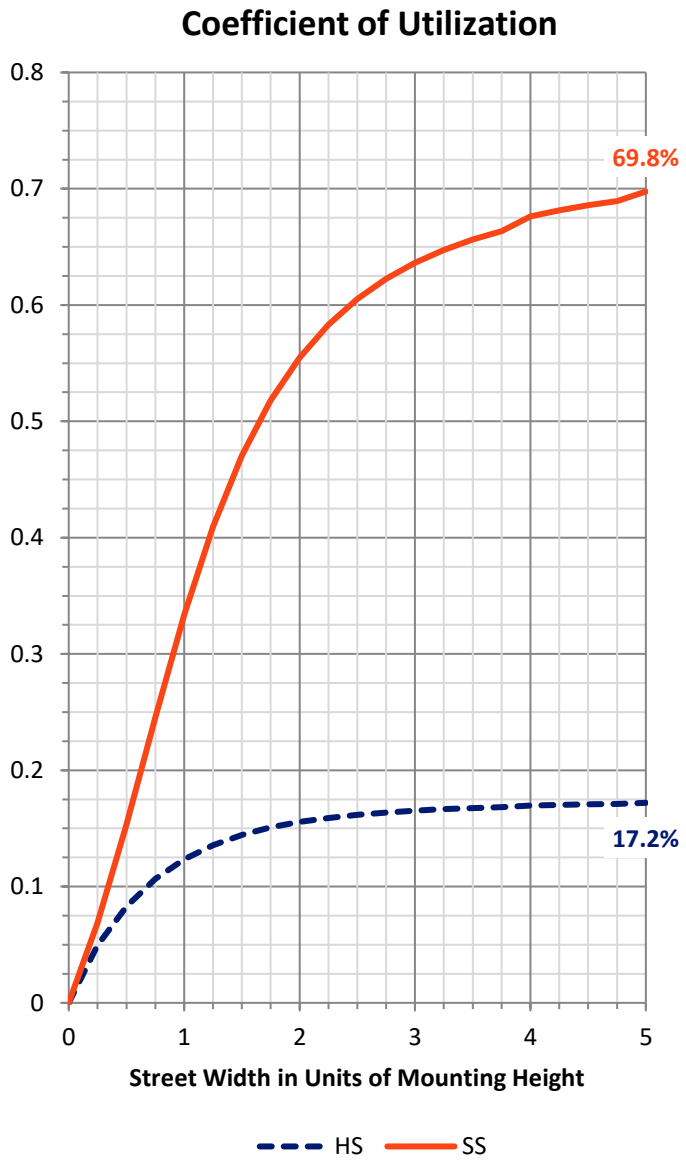
REPORT NUMBER: P821459
CATALOG NUMBER: TT-D5-830-12VDC-DL-UPL

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	1282.1	415.9	1698.0
	% Fixture	17.4	5.6	23.0
Street Side	Lumens	5258.9	415.9	5674.8
	% Fixture	71.3	5.6	77.0
Total	Lumens	6541.0	831.7	7372.7
	% Fixture	88.7	11.3	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	48.9	0.7
10°-20°	154.2	2.1
20°-30°	326.1	4.4
30°-40°	611.0	8.3
40°-50°	1017.0	13.8
50°-60°	1435.4	19.5
60°-70°	1510.2	20.5
70°-80°	1106.3	15.0
80°-90°	331.8	4.5
90°-100°	42.6	0.6
100°-110°	66.0	0.9
110°-120°	91.9	1.2
120°-130°	119.0	1.6
130°-140°	138.7	1.9
140°-150°	140.5	1.9
150°-160°	121.9	1.7
160°-170°	82.2	1.1
170°-180°	28.9	0.4
0°-90°	6541.0	88.7
0°-180°	7372.7	100.0



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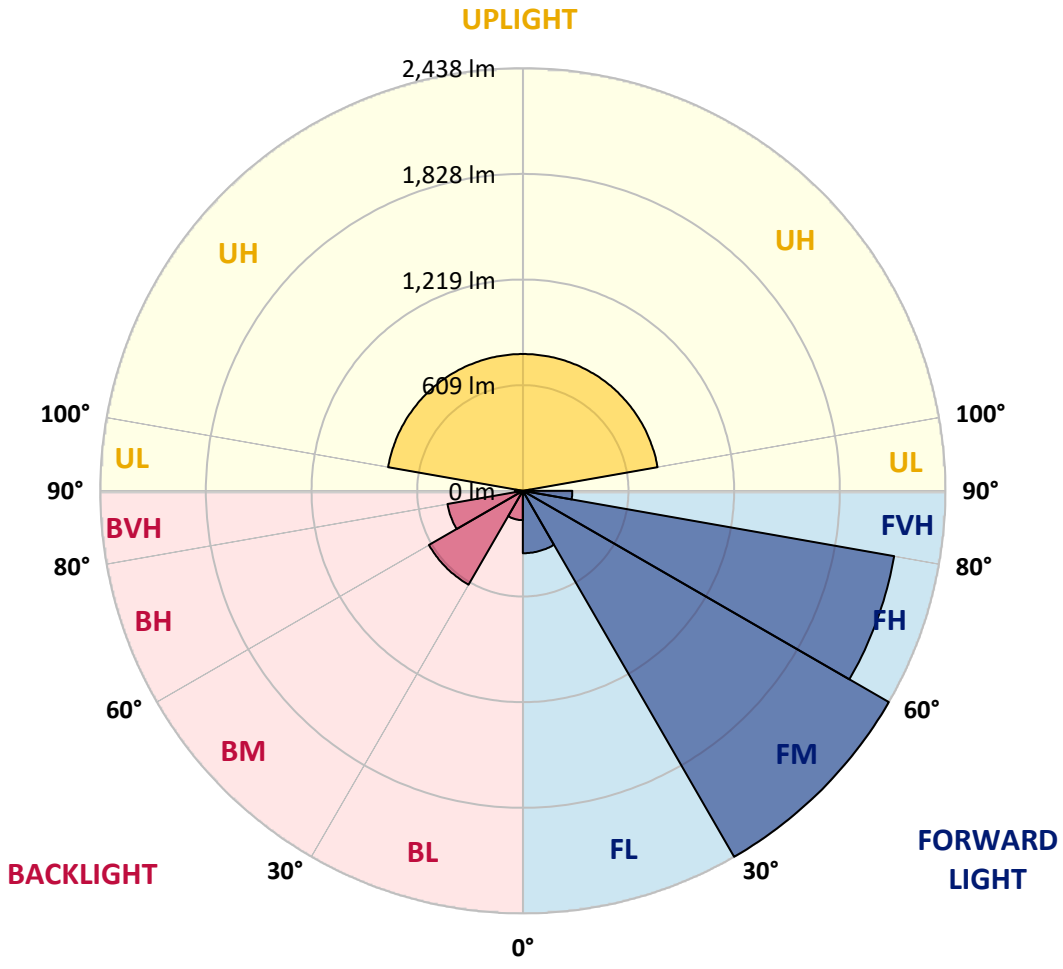
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	360.2	4.9			
FM	(30°-60°)	2437.9	33.1			
FH	(60°-80°)	2175.2	29.5			G2/5000
FVH	(80°-90°)	285.6	3.9			G3/500
BL	(0°-30°)	169.1	2.3	B1/500		
BM	(30°-60°)	625.5	8.5	B1/1000		
BH	(60°-80°)	441.2	6.0	B1/500		G1/500
BVH	(80°-90°)	46.2	0.6			G1/100
UL	(90°-100°)	42.6	0.6		U2/50	
UH	(100°-180°)	789.1	10.7		U4/1000	

BUG Rating: B1-U4-G3
Type IV Short



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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	527.6	527.6	527.6	527.6	527.6	527.6	527.6	527.6	527.6	527.6	527.6
2.5°	574.4	571.6	569.1	565.1	562.3	561.5	556.2	549.8	540.9	533.2	529.2
5°	604.7	604.3	603.1	598.2	589.3	576.8	565.1	551.8	537.3	522.7	515.9
7.5°	633.3	630.5	628.9	622.0	609.1	595.4	577.6	557.8	536.9	516.3	505.8
10°	669.3	665.2	662.4	649.1	635.7	616.4	593.0	567.5	542.5	516.7	504.2
12.5°	715.3	712.0	700.3	693.9	676.9	654.7	625.3	594.6	562.3	529.2	513.0
15°	764.5	765.3	760.9	744.3	730.6	704.0	672.5	634.1	590.5	550.6	530.4
17.5°	830.3	829.1	820.6	809.7	788.7	761.7	722.9	682.2	631.3	578.8	555.8
20°	907.8	903.8	896.1	881.2	868.7	836.8	792.8	741.9	681.4	619.2	588.1
22.5°	1006.3	997.4	992.6	979.3	963.9	934.0	887.2	819.8	748.8	671.7	631.7
25°	1102.8	1107.6	1105.2	1097.5	1078.1	1041.4	991.8	917.5	820.2	730.2	685.0
27.5°	1223.9	1225.9	1226.7	1223.5	1204.5	1171.0	1120.5	1022.4	913.9	802.1	742.3
30°	1349.8	1345.4	1351.0	1352.6	1343.3	1304.6	1242.8	1135.5	1005.5	871.9	804.9
32.5°	1474.9	1479.8	1491.5	1484.2	1485.8	1441.8	1374.4	1248.1	1103.2	945.8	875.1
35°	1609.8	1616.2	1624.3	1638.0	1637.2	1602.1	1504.8	1378.1	1208.9	1030.9	939.3
37.5°	1747.8	1746.2	1758.3	1789.8	1795.8	1762.3	1660.6	1514.5	1319.9	1116.9	1014.8
40°	1878.6	1893.5	1916.9	1938.3	1964.2	1916.5	1817.6	1652.1	1440.6	1206.1	1085.8
42.5°	2031.2	2037.2	2071.9	2120.0	2126.8	2090.1	1982.3	1810.8	1560.5	1290.9	1163.3
45°	2193.0	2201.1	2233.8	2303.2	2359.3	2335.5	2189.4	1985.6	1709.1	1406.3	1248.9
47.5°	2332.7	2356.5	2409.0	2489.3	2549.0	2536.5	2396.5	2157.1	1851.1	1503.2	1331.6
50°	2457.0	2485.7	2557.1	2673.0	2726.2	2709.7	2573.3	2326.6	1954.9	1587.1	1391.8
52.5°	2583.0	2622.9	2688.3	2815.1	2898.2	2904.7	2752.5	2456.2	2075.2	1675.1	1457.6
55°	2651.2	2680.2	2789.6	2943.4	3060.9	3064.1	2892.1	2577.7	2158.3	1713.9	1488.7
57.5°	2675.0	2710.1	2816.7	2998.7	3102.9	3059.7	2942.6	2632.6	2181.7	1728.0	1495.1
60°	2641.9	2677.0	2798.5	2992.7	3080.7	3101.6	2920.4	2632.2	2170.0	1709.9	1475.3
62.5°	2594.7	2639.5	2757.3	2946.6	3048.4	3060.1	2891.7	2602.3	2152.7	1678.8	1446.3
65°	2474.8	2501.8	2674.2	2815.5	2972.5	2958.3	2825.9	2498.2	2091.3	1598.5	1375.2
67.5°	2355.3	2383.6	2510.3	2704.0	2856.2	2840.9	2710.5	2397.3	1973.4	1523.8	1301.0
70°	2153.9	2172.0	2346.8	2497.4	2611.2	2667.7	2499.4	2229.0	1849.9	1398.6	1187.9
72.5°	1940.7	1969.4	2094.5	2283.4	2412.2	2394.0	2309.7	2021.9	1648.5	1253.3	1070.9
75°	1668.3	1695.7	1834.2	2016.6	2141.8	2127.2	2031.2	1775.7	1465.2	1084.6	927.2
77.5°	1410.8	1402.3	1524.6	1663.0	1776.9	1810.4	1702.2	1501.6	1208.5	891.3	754.8
80°	1083.8	1116.1	1192.8	1321.5	1407.5	1426.5	1342.9	1188.3	965.5	697.5	578.8
82.5°	763.3	780.3	873.9	955.0	1062.8	1055.9	998.2	863.0	701.1	489.6	398.8
85°	416.6	420.2	505.0	561.9	645.0	655.1	614.4	521.9	401.2	278.5	205.5
87.5°	73.1	71.8	104.1	152.6	193.8	208.3	173.2	135.6	54.9	32.7	17.0
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	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°	527.6	527.6	527.6	527.6	527.6	527.6	527.6	527.6	527.6	527.6
2.5°	524.7	516.7	509.0	501.7	494.9	489.2	486.8	484.8	484.4	480.7
5°	507.4	494.5	480.3	467.4	455.7	443.2	433.1	429.9	429.5	431.5
7.5°	496.1	476.3	456.9	441.6	424.2	407.7	392.8	383.5	381.0	380.2
10°	492.0	467.8	444.4	421.0	401.6	381.4	363.3	352.0	345.5	343.9
12.5°	497.3	466.6	437.6	410.1	383.9	361.7	341.1	327.0	319.7	317.3
15°	511.4	471.9	435.1	402.0	373.4	345.5	325.3	307.2	298.7	297.5
17.5°	530.0	483.6	436.7	398.0	364.1	334.6	311.2	292.2	281.7	280.1
20°	556.6	498.5	444.4	398.4	360.1	327.0	300.7	280.5	269.2	268.0
22.5°	594.2	522.3	456.9	403.6	360.1	322.5	294.3	273.3	261.6	260.4
25°	637.0	549.8	473.9	410.9	361.3	321.7	290.6	268.4	256.7	255.5
27.5°	686.2	583.3	492.0	420.2	365.7	322.5	289.4	267.2	255.9	254.3
30°	741.5	616.4	511.8	430.3	371.4	324.1	289.8	266.8	255.9	254.3
32.5°	796.8	652.7	534.0	443.6	377.8	328.6	292.2	269.6	258.3	257.1
35°	854.9	692.7	558.7	457.3	387.1	334.6	296.3	272.9	261.6	260.4
37.5°	915.1	733.0	584.1	474.3	396.8	340.7	301.9	278.5	267.6	266.4
40°	977.6	774.6	611.1	491.6	406.1	348.8	308.8	285.8	274.5	273.3
42.5°	1031.7	812.1	636.2	506.6	418.2	356.4	317.7	293.5	283.0	281.7
45°	1108.0	854.9	662.0	525.1	432.7	370.1	328.2	305.6	295.9	293.5
47.5°	1171.8	898.5	688.2	542.9	444.8	379.4	338.3	315.3	305.2	303.5
50°	1223.9	926.0	708.8	552.2	451.3	385.5	346.3	322.9	314.0	311.2
52.5°	1278.8	957.1	719.7	563.1	461.8	394.0	352.0	331.8	322.1	319.3
55°	1296.5	958.7	727.8	565.1	460.2	396.0	355.6	332.2	324.5	321.7
57.5°	*1297.7*	*958.3*	*716.9*	*551.4*	*448.9*	*387.1*	*352.0*	*329.8*	*320.9*	*318.5*
60°	1275.1	934.4	695.1	534.8	436.7	374.6	341.9	320.5	313.6	311.2
62.5°	1246.9	912.7	668.0	512.2	419.4	362.1	330.2	313.6	304.4	301.5
65°	1175.4	855.3	626.9	481.6	394.4	343.1	311.6	295.5	288.2	286.2
67.5°	1112.1	794.0	585.7	449.7	366.1	319.7	291.0	276.9	271.3	270.0
70°	1009.1	727.4	521.9	400.0	329.8	285.0	263.6	253.1	246.2	243.8
72.5°	904.6	638.6	460.2	352.4	285.8	256.3	234.9	223.6	220.0	218.0
75°	768.1	536.9	387.9	298.7	245.4	214.3	199.4	190.9	186.5	186.1
77.5°	628.5	429.9	312.4	236.5	194.2	172.8	162.3	154.2	153.4	155.0
80°	481.6	324.5	232.1	177.2	143.7	130.4	124.7	119.5	118.7	117.5
82.5°	320.1	215.1	146.9	112.2	96.5	88.8	87.2	83.6	82.7	81.9
85°	156.2	103.3	71.0	55.7	51.3	47.6	47.2	48.8	48.4	47.2
87.5°	16.1	13.3	12.9	10.1	9.3	8.5	8.5	7.7	9.3	6.9
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: P821459
CATALOG NUMBER: TT-D5-830-12VDC-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

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

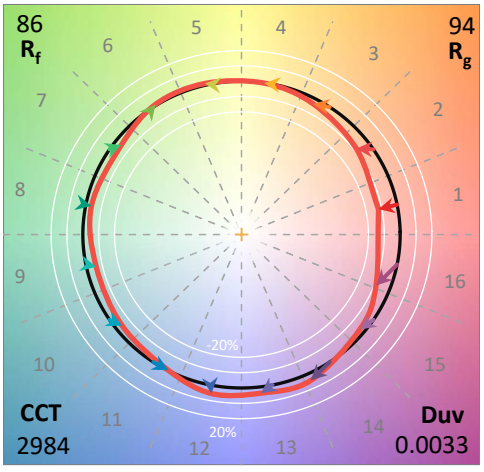
Test Information

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

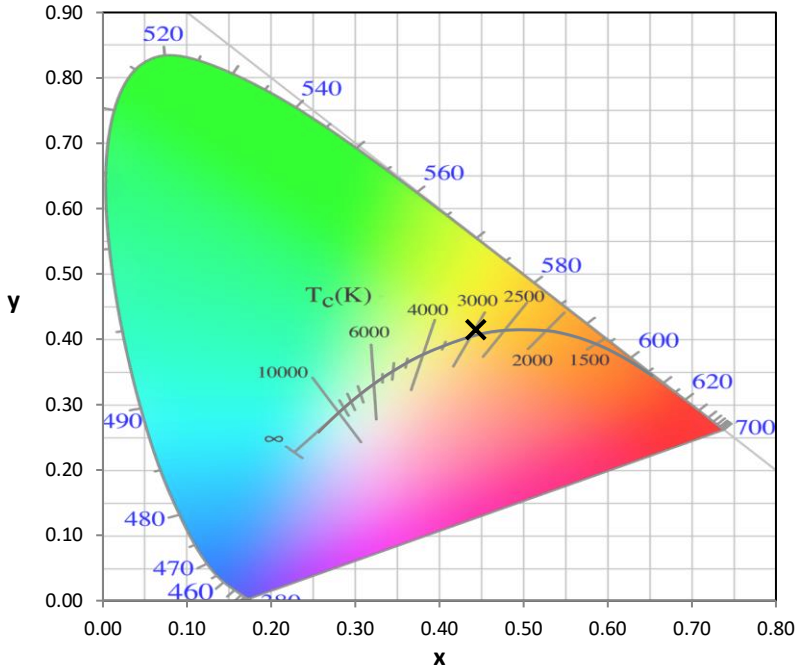
Stabilization Time:	29M
Operation Time:	1H 29M
Sphere Temperature (°C):	25.2

REPORT NUMBER: SP1-2407-176-7

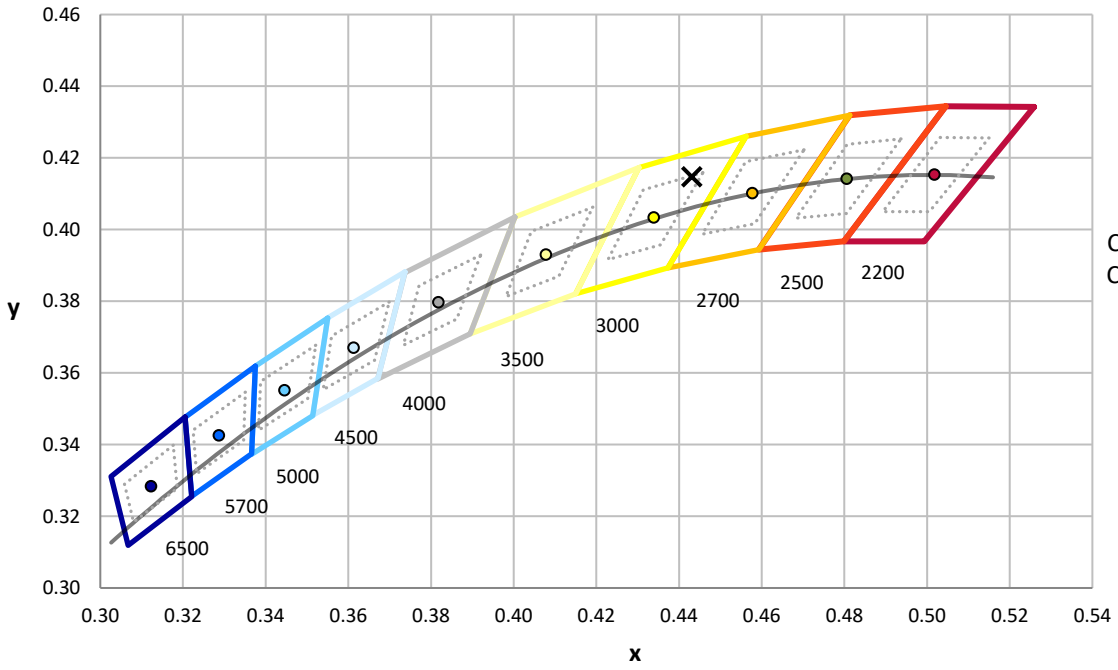
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085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

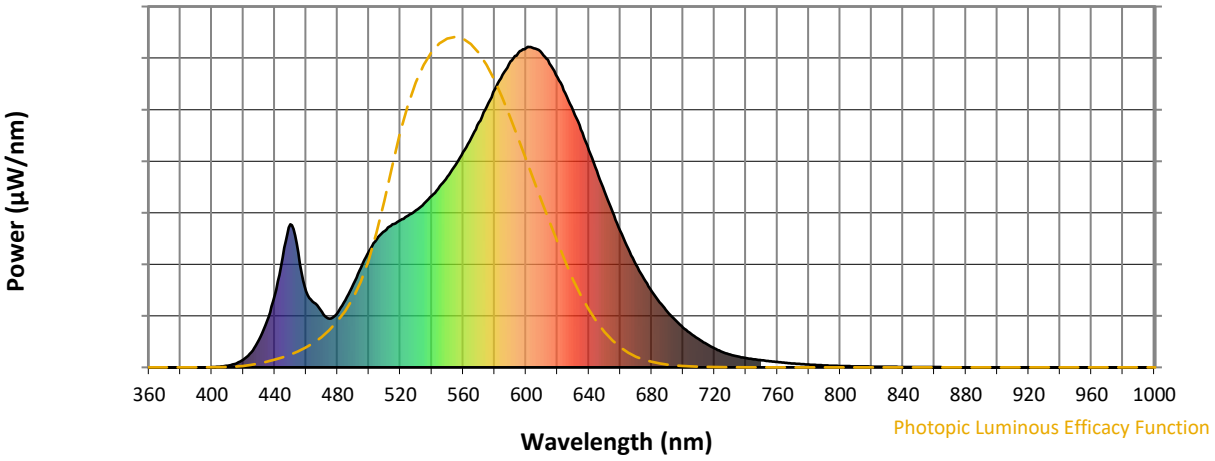


CCT = 2984K
CIE x = 0.4431
CIE y = 0.4147
Duv = 0.0033

Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2407-176-7

Photopic Flux vs. Wavelength

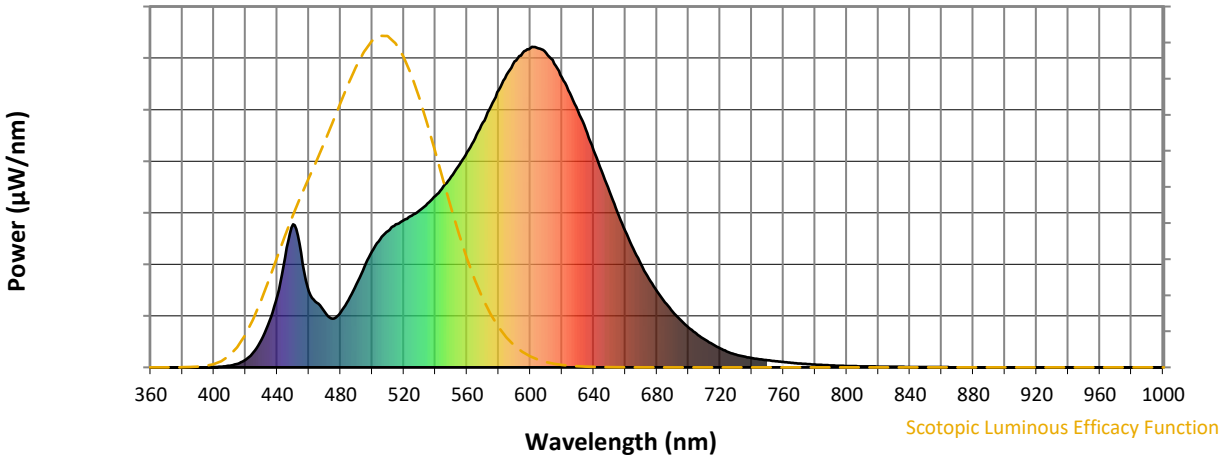


Photopic Lumens: NR

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

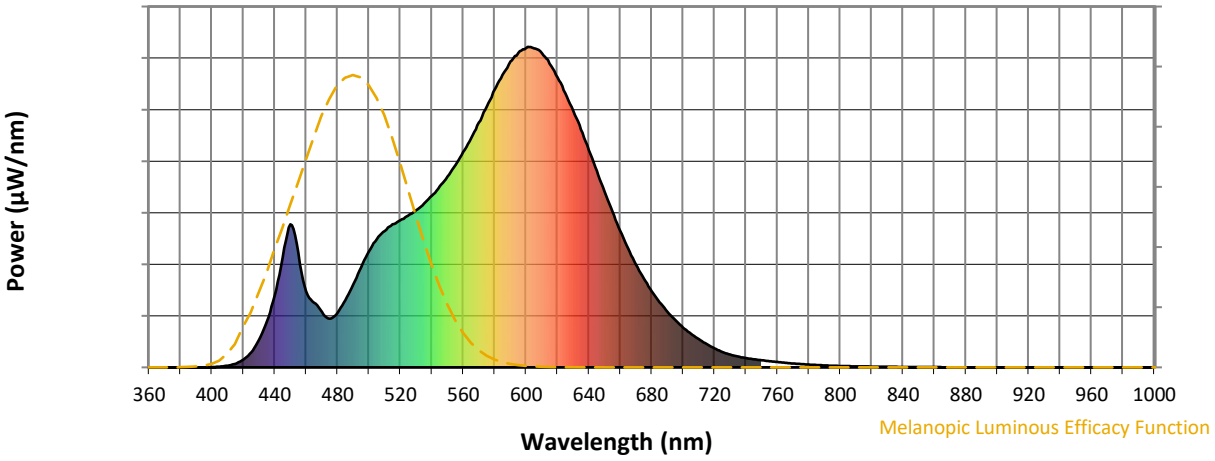


Scotopic Lumens: NR **S/P: 1.32**

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			

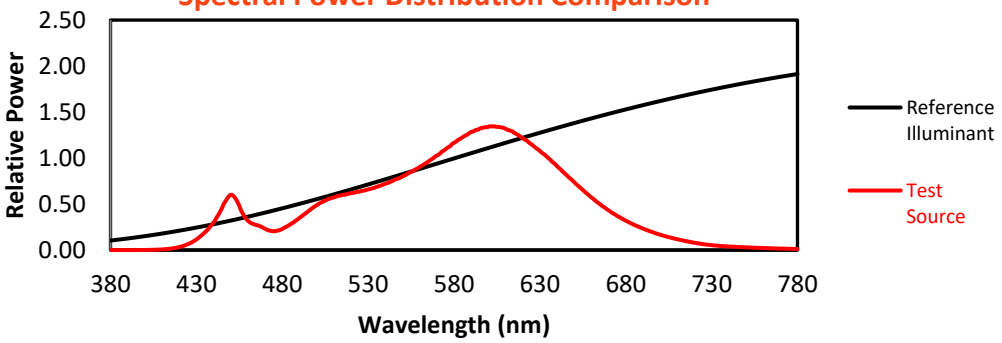
REPORT NUMBER: SP1-2407-176-7

TM-30-18

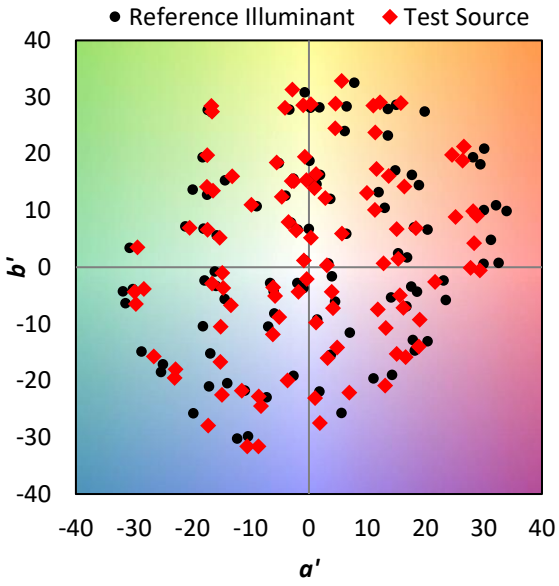
Summary

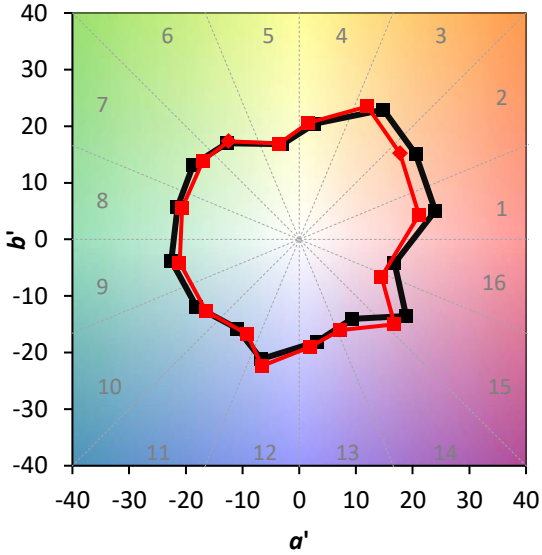
R_f = 85.8
R_g = 94.1
CIE R_a = 81.8
R_9 = -1.1

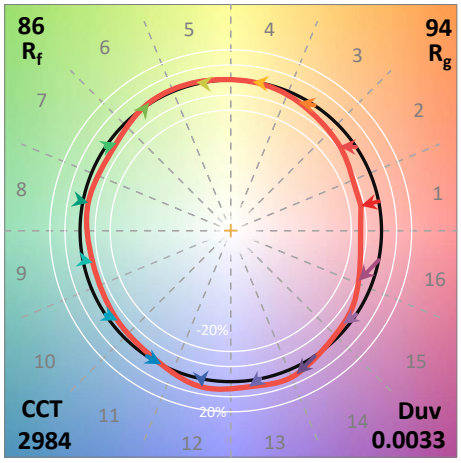
Spectral Power Distribution Comparison

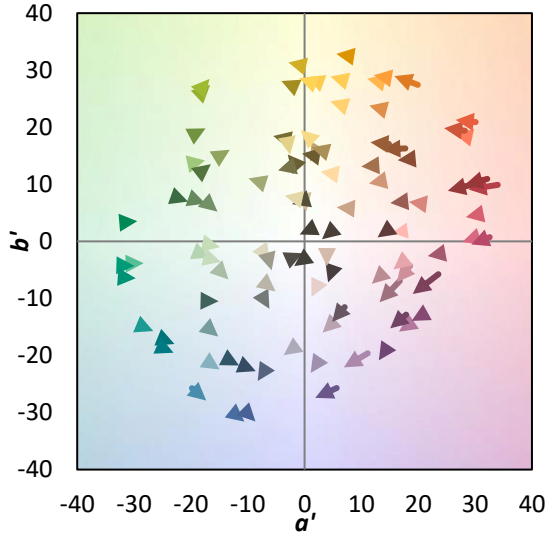


Color Vector Graphics







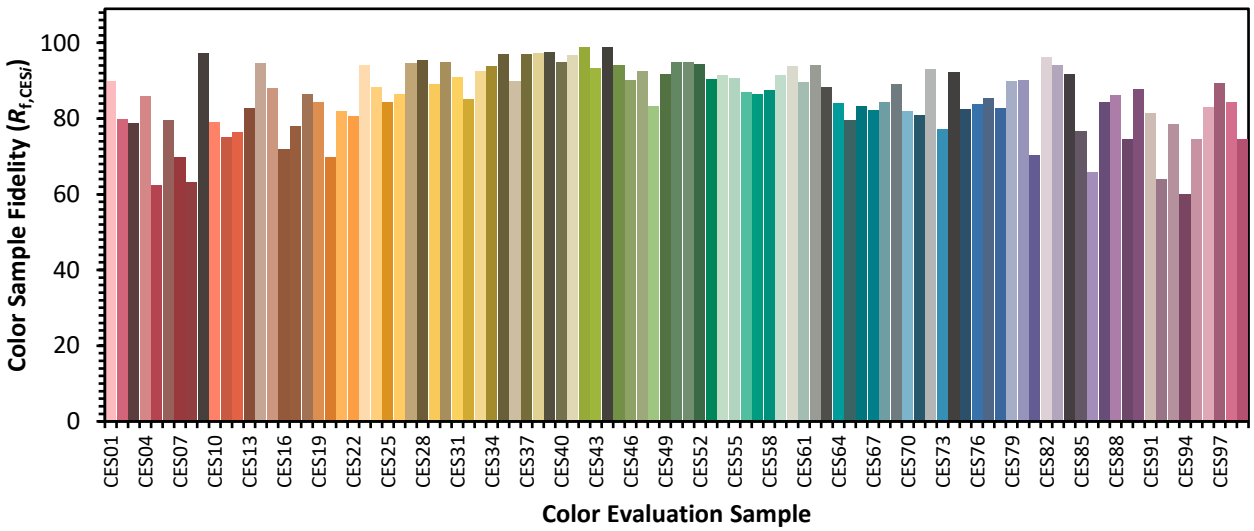


REPORT NUMBER: SP1-2407-176-7

TM-30-18

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

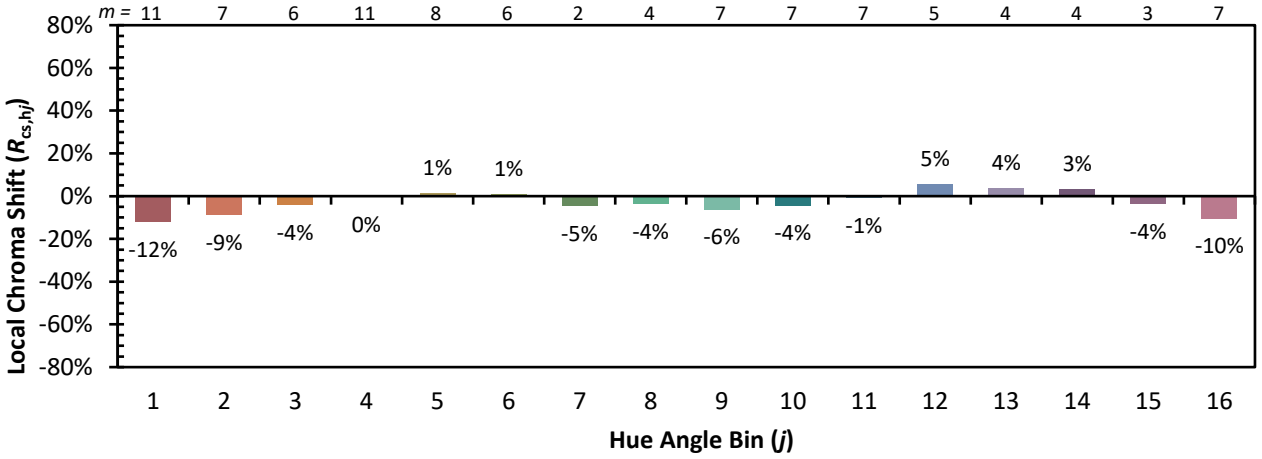
CES01 = 86	CES26 = 86	CES51 = 95	CES76 = 84
CES02 = 63	CES27 = 95	CES52 = 94	CES77 = 86
CES03 = 31	CES28 = 95	CES53 = 90	CES78 = 83
CES04 = 70	CES29 = 89	CES54 = 91	CES79 = 90
CES05 = 50	CES30 = 95	CES55 = 91	CES80 = 90
CES06 = 51	CES31 = 91	CES56 = 87	CES81 = 70
CES07 = 42	CES32 = 85	CES57 = 86	CES82 = 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
CES25 = 72	CES50 = 95	CES75 = 83	

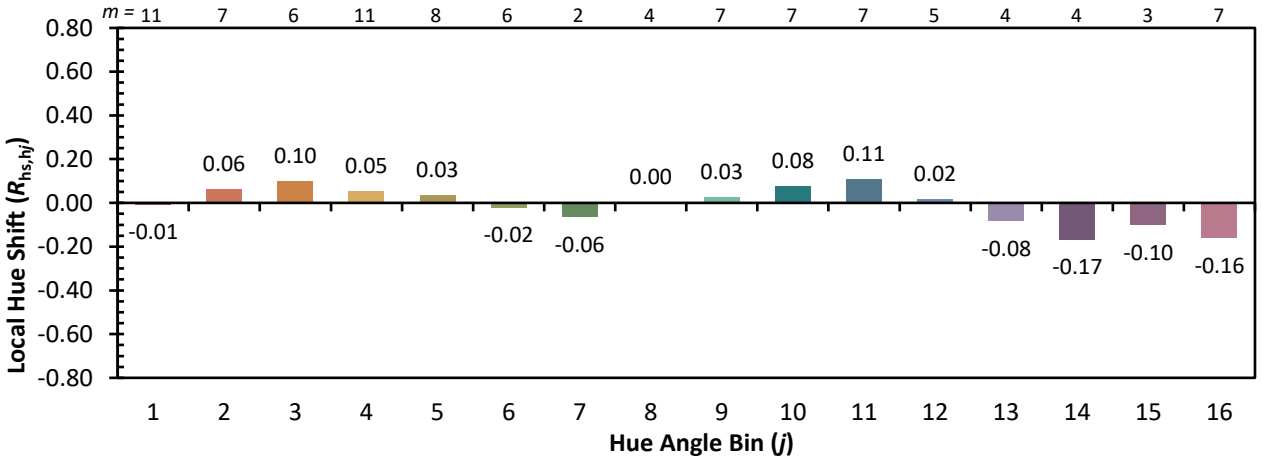


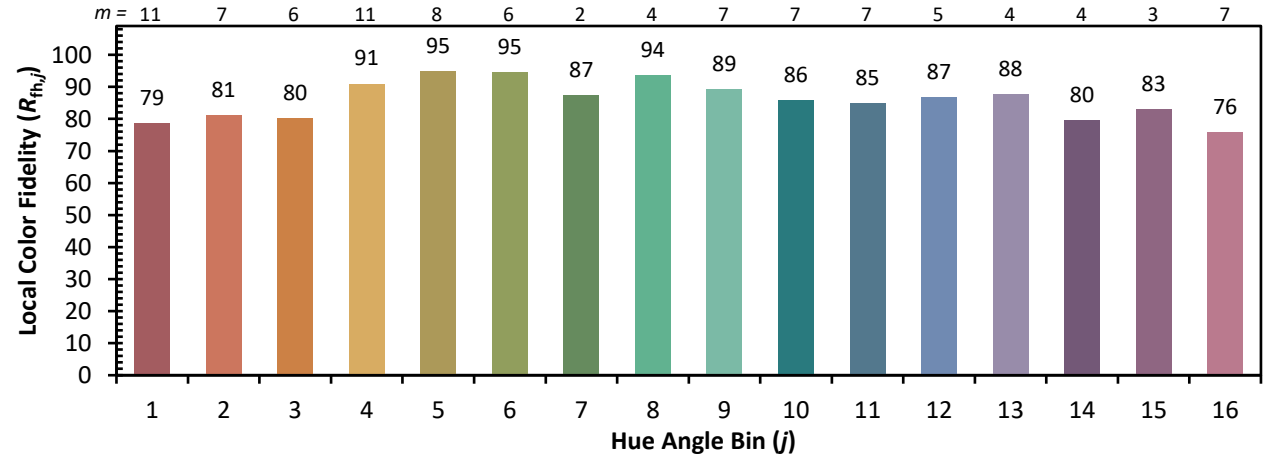
REPORT NUMBER: SP1-2407-176-7

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Color Rendition by Hue-Angle Bin



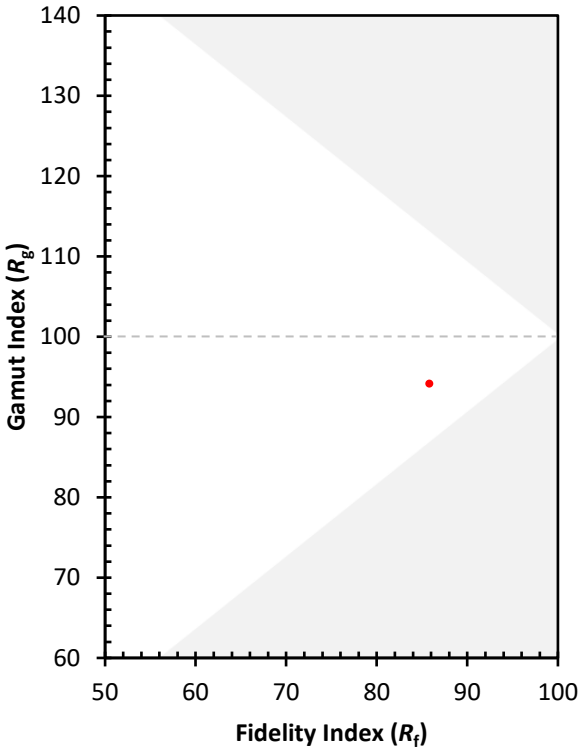


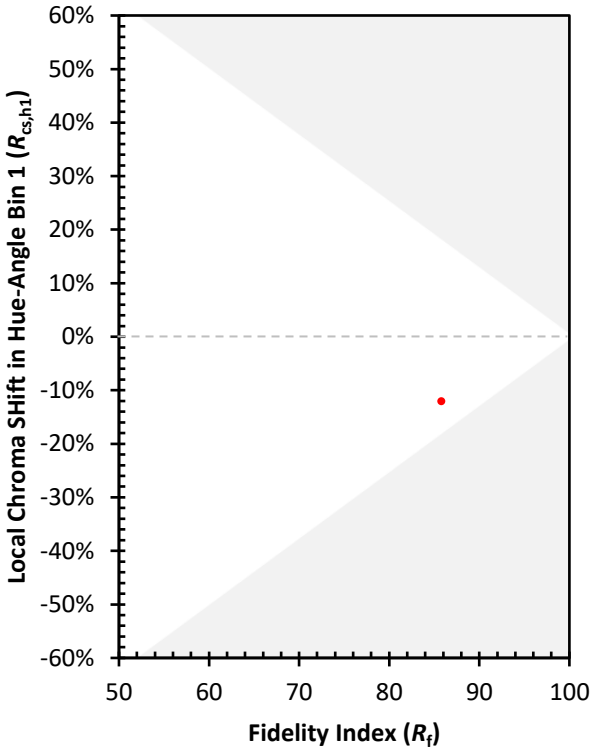


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Measure Comparisons





(END OF REPORT)