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: P821114

Luminaire Tested: **TT-D1-830-24VDC-CQ-HSS**

Issue Date: 12/2/2020

Report Generated By 670245763

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Peachtree City, GA 30269

Scaled Data Report

Test Information

Test Method:	LM-79-08
Report Number:	P821114
	TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2010-017-3)
Test Lab:	INNOVATION CENTER
Issue Date:	12/2/2020
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	McGRAW-EDISON
Catalog Number:	TT-D1-830-24VDC-CQ-HSS
Description:	TOPTIER LED PARKING GARAGE LUMINAIRE
	3000K, 80 CRI LEDS AND CONCENTRATED DISTRIBUTION WITH HOUSE SIDE SHIELD
Light Source:	-
Ballast/Driver:	ELECTRONIC DRIVER

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	2884.8 lumens
Efficiency:	N/A
Efficacy:	103.0 lumens/watt
Luminous Opening:	Circular (Dia: 1.12' x H: 0')
IES Classification:	Type IV - Short
BUG Rating:	B1 - U1 - G1

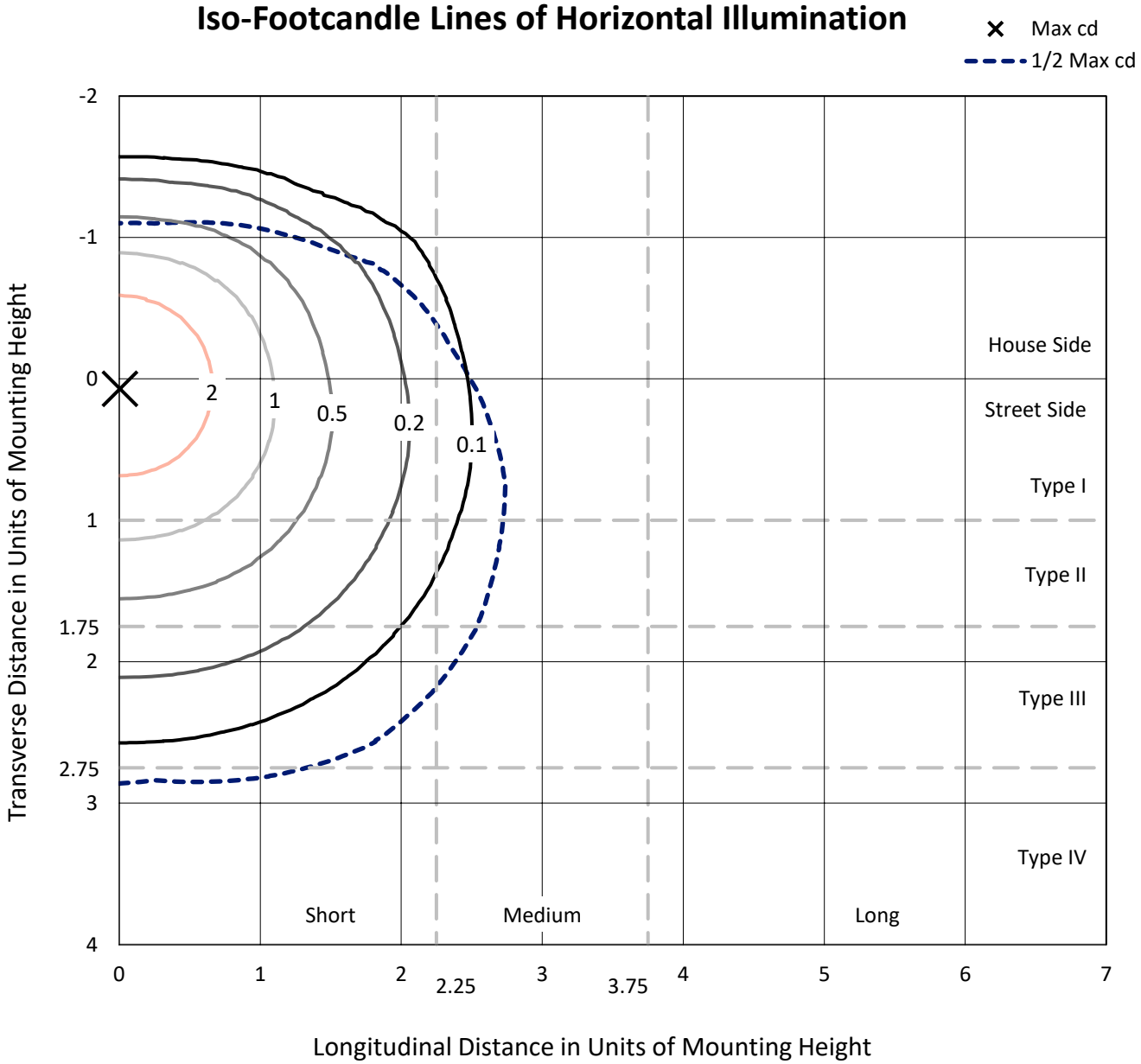
Input Watts (W):	28
Input Voltage (V):	NR
Input Current (Ain):	NR
Voltage Rise (V):	NR
Power Factor:	NR
Total Harmonic Distortion (THDi):	NR
Frequency (hertz):	60
Stabilization Time:	NR
Operation Time:	NR
Ambient Temperature (°C):	NR
Test Distance:	25 FT

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Iso-Footcandle Lines of Horizontal Illumination



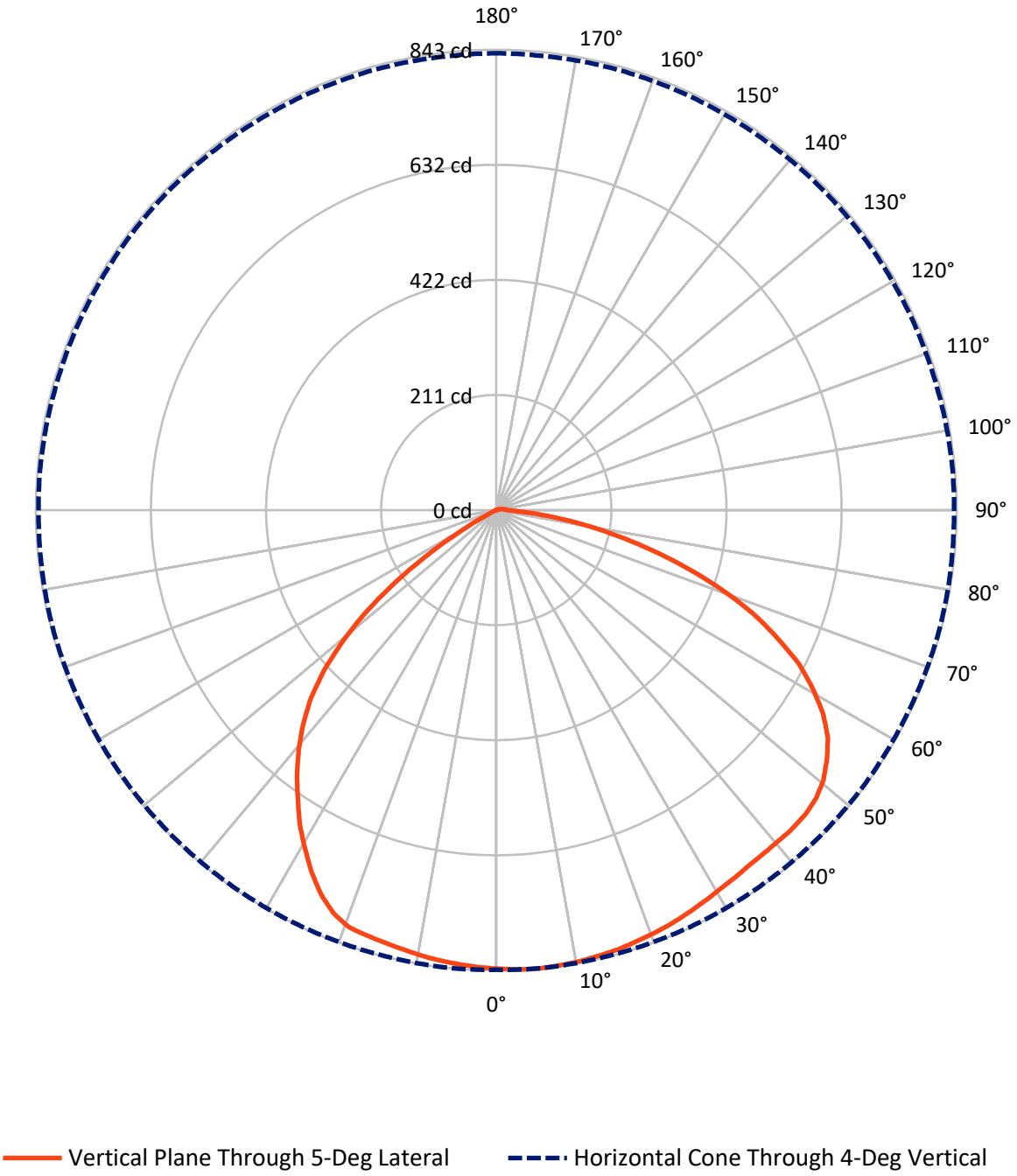
Based on 15 foot mounting height. Maximum calculated value = 3.7 fc
Type IV - Short - N/A

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Luminous Intensity Polar Plot



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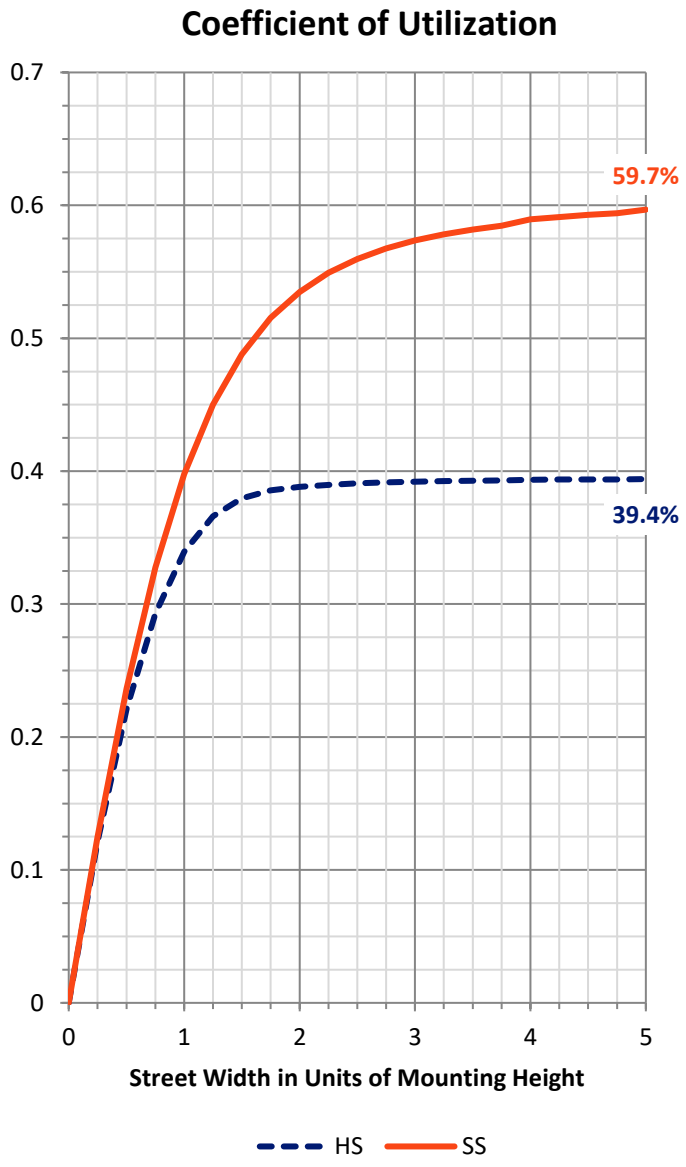
REPORT NUMBER: P821114
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FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	1143.3	1.4	1144.7
	% Fixture	39.6	0.0	39.7
Street Side	Lumens	1732.2	8.0	1740.2
	% Fixture	60.0	0.3	60.3
Total	Lumens	2875.5	9.3	2884.8
	% Fixture	99.7	0.3	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	79.9	2.8
10°-20°	233.9	8.1
20°-30°	368.5	12.8
30°-40°	469.0	16.3
40°-50°	541.7	18.8
50°-60°	530.4	18.4
60°-70°	395.0	13.7
70°-80°	214.0	7.4
80°-90°	43.4	1.5
90°-100°	5.5	0.2
100°-110°	2.1	0.1
110°-120°	0.6	0.0
120°-130°	0.4	0.0
130°-140°	0.3	0.0
140°-150°	0.2	0.0
150°-160°	0.1	0.0
160°-170°	0.1	0.0
170°-180°	0.0	0.0
0°-90°	2875.5	99.7
0°-180°	2884.8	100.0



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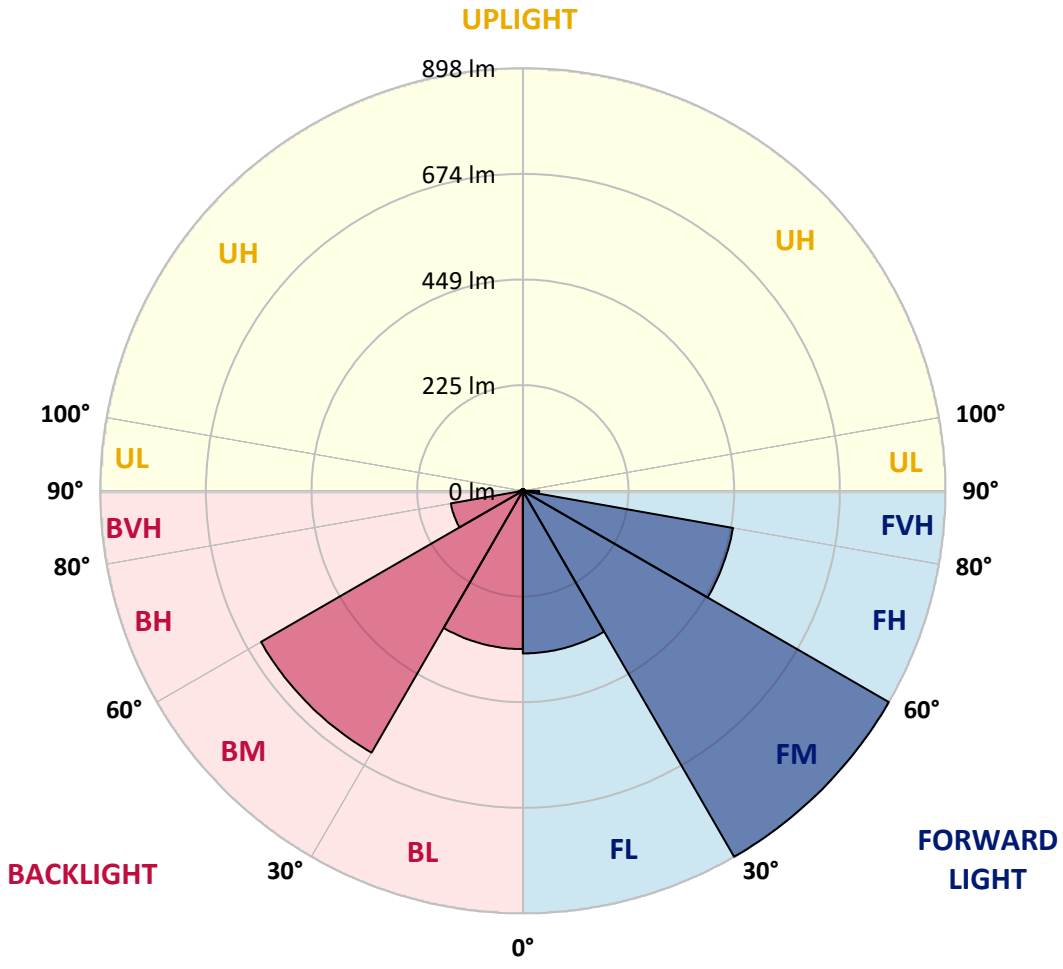
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	345.7	12.0			
FM	(30°-60°)	898.3	31.1			
FH	(60°-80°)	453.6	15.7			G0/660
FVH	(80°-90°)	34.6	1.2			G1/100
BL	(0°-30°)	336.5	11.7	B1/500		
BM	(30°-60°)	642.7	22.3	B1/1000		
BH	(60°-80°)	155.4	5.4	B1/500		G1/500
BVH	(80°-90°)	8.7	0.3			G0/10
UL	(90°-100°)	5.5	0.2		U1/10	
UH	(100°-180°)	3.9	0.1		U1/10	

BUG Rating: B1-U1-G1
Type IV Short



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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	840.3	840.3	840.3	840.3	840.3	840.3	840.3	840.3	840.3	840.3	840.3
2.5°	841.4	842.4	841.9	841.9	840.8	841.4	840.8	840.8	840.3	839.7	839.7
4°	841.9	843.0	841.9	841.9	841.4	841.4	840.8	839.7	840.3	838.6	838.1
5°	842.4	843.0	842.4	842.4	841.4	840.8	839.7	839.7	839.2	838.1	838.1
7.5°	841.4	841.9	841.9	841.4	840.3	839.2	838.6	838.1	837.6	835.9	835.9
10°	839.2	840.3	839.2	839.2	838.6	837.6	835.9	835.4	833.8	832.7	832.1
12.5°	837.0	837.6	837.0	837.0	835.9	834.3	833.8	832.7	830.5	828.9	828.9
15°	833.8	834.9	834.3	833.8	833.2	831.6	830.0	828.3	826.7	825.1	825.1
17.5°	830.0	830.5	831.1	830.5	829.4	828.3	826.7	824.5	822.9	821.3	820.7
20°	825.6	826.7	826.7	826.7	825.6	824.5	822.4	820.2	819.1	817.0	816.4
22.5°	821.3	822.4	821.8	822.4	821.8	820.2	818.0	815.9	813.7	812.1	811.0
25°	817.0	817.0	817.0	817.0	817.0	814.8	812.6	809.9	807.7	805.0	805.0
27.5°	811.5	811.5	812.1	812.1	811.5	809.9	807.2	803.9	800.7	798.0	796.9
30°	806.6	806.1	807.2	808.3	807.7	806.1	802.8	799.0	794.2	790.4	787.1
32.5°	800.7	802.3	803.4	805.6	806.1	803.9	800.1	795.3	790.4	783.3	777.4
35°	798.5	798.5	801.2	804.5	805.6	804.5	799.0	793.6	786.6	776.3	769.2
37.5°	796.3	796.9	801.2	806.1	807.7	807.7	801.8	794.7	784.9	770.3	761.6
40°	795.3	796.3	801.8	808.8	813.2	812.6	805.6	796.9	784.9	766.0	755.1
42.5°	794.2	796.3	802.3	812.1	818.6	818.0	810.4	799.0	783.9	760.5	748.1
45°	792.5	794.2	802.3	814.8	823.5	825.1	816.4	801.8	783.9	755.7	739.4
47.5°	787.7	788.2	799.0	813.7	826.7	828.9	820.2	802.8	781.7	747.5	728.5
50°	774.6	776.3	788.7	808.3	823.5	826.7	819.1	800.1	776.3	734.0	711.2
52.5°	757.8	757.8	773.0	794.7	813.2	818.6	811.5	790.4	762.7	713.9	687.8
55°	732.9	736.7	752.4	775.2	795.3	802.8	793.1	772.5	740.5	688.4	659.6
57.5°	704.7	705.7	722.0	749.1	769.8	774.6	766.5	742.1	711.2	658.0	623.8
60°	664.0	666.1	686.8	710.6	732.9	739.4	729.1	704.7	672.1	619.0	584.2
62.5°	619.0	622.2	640.7	665.1	686.2	696.5	684.0	658.6	626.5	572.3	541.9
65°	564.7	565.8	585.9	613.5	634.7	638.5	627.6	602.7	570.7	518.6	491.5
67.5°	502.3	507.7	527.3	547.9	566.3	570.7	563.1	534.3	508.8	462.7	436.1
70°	442.1	439.4	455.7	476.3	493.1	496.9	488.2	461.6	437.8	394.4	373.8
72.5°	369.4	367.2	384.6	400.3	416.6	414.4	405.8	384.6	364.0	327.1	308.1
75°	296.2	294.0	307.6	321.1	329.3	330.4	324.4	308.7	286.4	257.7	243.0
77.5°	224.6	226.7	232.7	244.1	251.7	255.0	244.7	228.9	214.8	192.6	181.7
80°	160.0	160.6	162.7	170.9	176.3	176.3	171.4	158.9	143.2	127.5	122.1
82.5°	100.9	103.1	103.1	111.2	111.2	106.9	104.7	96.6	88.4	75.9	68.4
85°	55.3	54.2	57.5	58.0	57.5	54.2	51.0	46.1	40.7	32.0	28.8
87.5°	24.4	23.9	23.9	23.9	23.3	21.2	17.9	14.1	9.8	6.0	4.3
90°	19.0	19.0	18.4	17.4	15.7	14.1	11.4	8.7	5.4	2.2	1.1
92.5°	17.4	17.4	16.8	16.3	14.6	13.0	10.3	7.6	4.9	2.2	1.1
95°	15.2	14.6	14.6	13.6	12.5	10.8	9.2	6.5	4.3	1.6	1.1
97.5°	12.5	11.9	11.9	11.4	10.3	8.7	7.6	5.4	3.8	1.6	1.1
100°	9.2	9.8	9.2	8.7	8.1	7.1	6.0	4.3	2.7	1.1	1.1
102.5°	7.1	7.1	6.5	6.5	6.0	5.4	4.3	3.3	2.2	1.1	0.5
105°	4.9	4.9	4.9	4.3	4.3	3.8	3.3	2.2	1.6	1.1	0.5
107.5°	2.7	2.7	2.7	2.7	2.7	2.7	2.2	1.6	1.1	0.5	0.5

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CANDELA DISTRIBUTION (continued):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
110°	1.6	*1.6*	1.6	1.6	1.6	1.6	1.1	1.1	0.5	0.5	0.5
112.5°	0.5	*0.5*	1.1	1.1	1.1	1.1	1.1	0.5	0.5	0.5	0.5
115°	0.5	*0.5*	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
117.5°	0.0	*0.0*	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120°	0.0	*0.0*	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
122.5°	0.0	*0.0*	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
125°	0.0	*0.0*	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
127.5°	0.0	*0.0*	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
130°	0.0	*0.0*	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
132.5°	0.0	*0.0*	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5
135°	0.0	*0.0*	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5
137.5°	0.0	*0.0*	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5
140°	0.0	*0.0*	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5
142.5°	0.0	*0.0*	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5
145°	0.5	*0.5*	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5
147.5°	0.5	*0.5*	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5
150°	0.5	*0.0*	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5
152.5°	0.0	*0.0*	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5
155°	0.0	*0.0*	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5
157.5°	0.0	*0.0*	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5
160°	0.0	*0.0*	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5
162.5°	0.0	*0.0*	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5
165°	0.0	*0.0*	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5
167.5°	0.0	*0.0*	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5
170°	0.0	*0.0*	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5
172.5°	0.0	*0.0*	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5
175°	0.0	*0.0*	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5
177.5°	0.0	*0.0*	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5
180°	0.5	*0.5*	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

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CANDELA DISTRIBUTION (continued):

	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	840.3	840.3	840.3	840.3	840.3	840.3	840.3	840.3	840.3	840.3
2.5°	839.2	837.6	838.6	838.1	838.6	837.6	837.6	837.6	838.1	837.0
4°	*838.6*	*837.6*	*837.6*	*837.6*	*837.6*	*836.5*	*836.5*	*836.5*	*835.9*	*836.5*
5°	837.6	837.0	836.5	835.9	836.5	835.4	834.9	834.9	834.9	835.4
7.5°	835.4	833.8	833.8	832.1	832.7	832.1	831.6	832.1	831.6	831.6
10°	831.6	830.5	830.0	828.9	828.9	827.8	827.3	827.3	827.3	826.7
12.5°	827.8	826.7	826.2	825.1	824.5	823.5	822.9	823.5	822.4	822.4
15°	823.5	822.4	821.8	821.8	820.7	819.7	819.1	818.0	818.0	818.0
17.5°	819.7	818.6	819.1	818.0	817.5	816.4	816.4	814.2	814.2	813.7
20°	815.9	814.8	814.8	814.2	814.2	813.2	811.5	810.4	809.9	809.9
22.5°	811.0	809.4	806.6	802.8	800.7	799.0	798.5	796.9	796.3	795.3
25°	803.4	799.0	793.1	786.6	780.1	776.8	775.7	773.6	773.6	773.6
27.5°	794.2	786.0	777.9	768.1	758.4	751.9	747.5	745.3	744.3	744.3
30°	782.2	771.9	760.5	748.1	737.2	725.3	717.7	713.3	711.2	711.7
32.5°	771.4	758.4	745.3	729.6	715.0	700.9	687.8	681.3	678.6	677.5
35°	760.5	745.9	730.2	713.3	694.4	673.7	656.4	646.6	641.2	641.7
37.5°	752.4	735.0	717.7	697.1	675.4	650.4	628.2	612.4	605.9	607.0
40°	743.7	724.2	705.2	681.3	655.8	626.0	597.3	576.1	568.5	566.9
42.5°	735.6	712.8	691.1	665.6	633.6	600.0	564.7	539.8	528.4	526.7
45°	725.3	699.8	676.5	647.2	611.9	570.1	528.9	496.4	484.4	479.5
47.5°	711.7	683.5	657.5	623.8	585.3	538.1	486.6	446.4	431.3	427.5
50°	691.6	659.1	632.5	594.5	547.9	495.8	438.3	388.9	368.9	366.2
52.5°	665.1	632.0	602.1	558.7	501.8	440.5	375.4	324.4	301.1	299.4
55°	633.1	597.3	564.7	515.9	449.2	378.1	310.3	245.7	223.0	220.2
57.5°	595.6	558.7	523.5	463.3	386.2	307.0	228.4	166.5	144.8	139.4
60°	554.4	516.4	476.8	403.6	301.6	217.5	138.3	88.4	72.1	66.7
62.5°	514.3	473.0	431.3	332.5	206.7	124.2	62.9	25.5	16.3	15.7
65°	467.1	428.0	385.1	268.0	130.7	55.9	18.4	0.5	0.0	0.0
67.5°	412.3	379.2	341.2	239.8	115.5	48.8	15.7	0.5	0.0	0.0
70°	353.7	327.6	294.0	206.1	99.3	41.2	13.6	0.0	0.0	0.0
72.5°	291.8	269.6	244.7	171.4	82.5	34.2	10.8	0.0	0.0	0.0
75°	228.9	214.8	192.6	135.6	64.0	26.0	8.1	0.0	0.0	0.0
77.5°	169.8	158.4	142.1	99.8	48.3	19.0	6.0	0.0	0.0	0.0
80°	114.5	105.8	96.6	67.8	32.5	12.5	3.8	0.0	0.0	0.0
82.5°	66.7	60.2	54.2	38.5	17.9	7.1	1.6	0.0	0.0	0.0
85°	27.1	25.0	23.9	16.3	7.1	2.2	0.5	0.0	0.0	0.0
87.5°	3.3	2.7	2.7	1.6	0.5	0.0	0.0	0.0	0.0	0.0
90°	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
92.5°	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
95°	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0
97.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.0
100°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
102.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
105°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
107.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

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

Scaled Data Report

REPORT NUMBER: P821114
CATALOG NUMBER: TT-D1-830-24VDC-CQ-HSS

CANDELA DISTRIBUTION (continued):

	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
110°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
112.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
115°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
117.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
122.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
125°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
127.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
130°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
132.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
135°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
137.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.0
140°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.0
142.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0
145°	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0
147.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.5
150°	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
152.5°	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
155°	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
157.5°	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
160°	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
162.5°	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
165°	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
167.5°	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
170°	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
172.5°	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
175°	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
177.5°	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
180°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

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

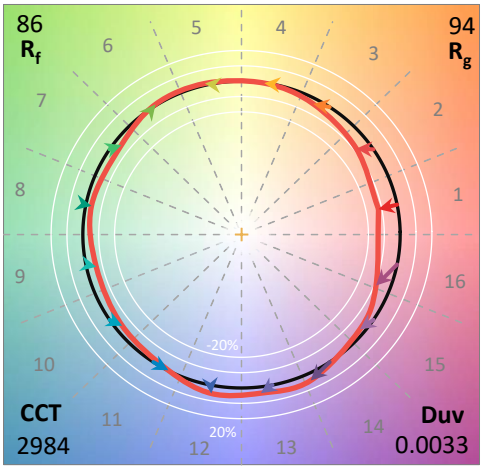
Test Information

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

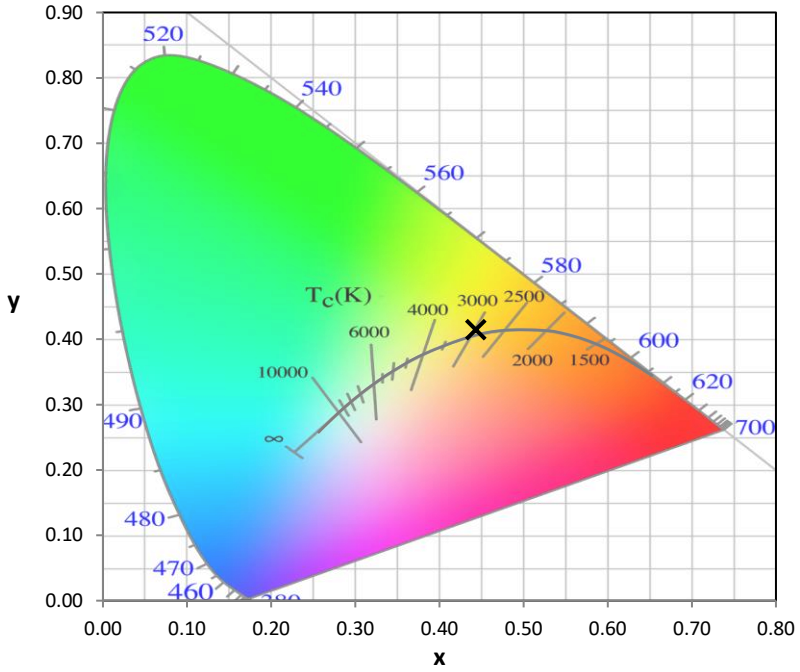
Stabilization Time:	29M
Operation Time:	1H 29M
Sphere Temperature (°C):	25.2

REPORT NUMBER: SP1-2407-176-7

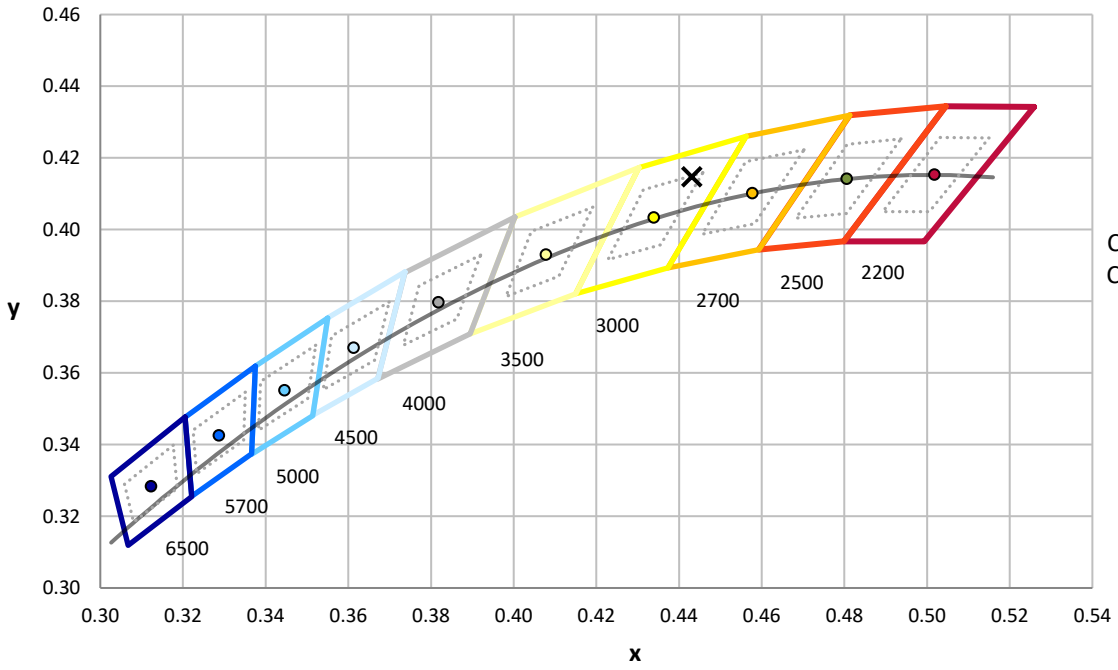
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085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

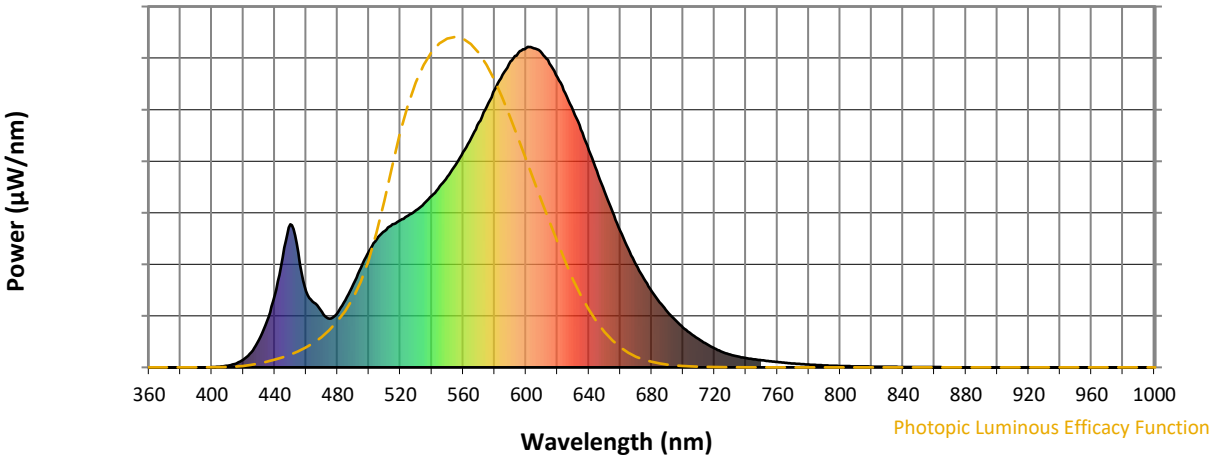


CCT = 2984K
CIE x = 0.4431
CIE y = 0.4147
Duv = 0.0033

Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2407-176-7

Photopic Flux vs. Wavelength

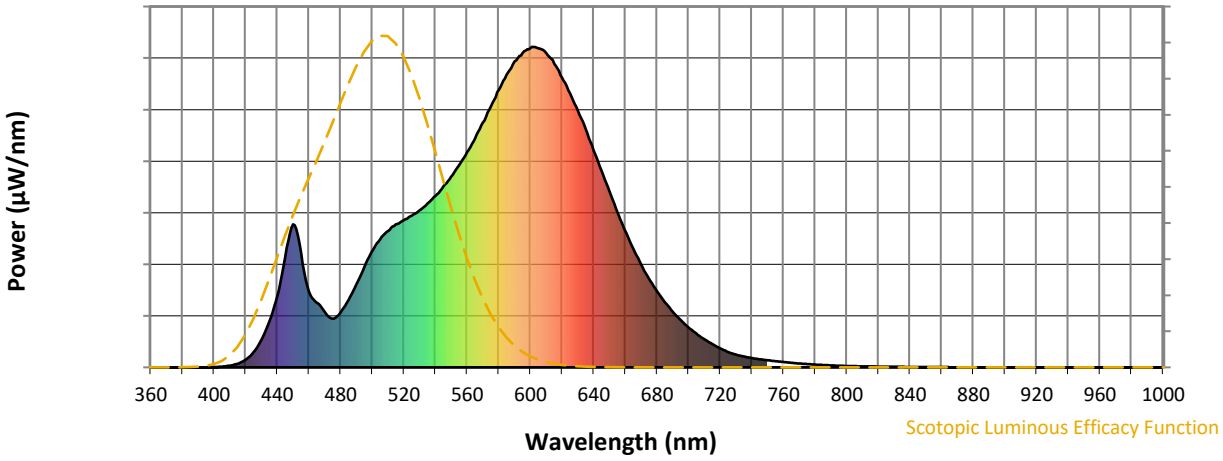


Photopic Lumens: NR

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

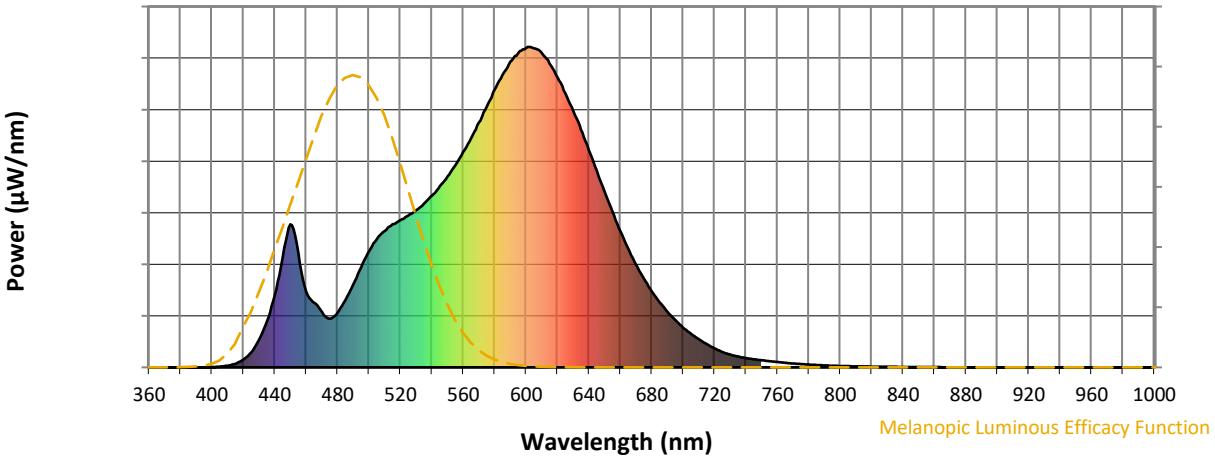


Scotopic Lumens: NR **S/P: 1.32**

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			

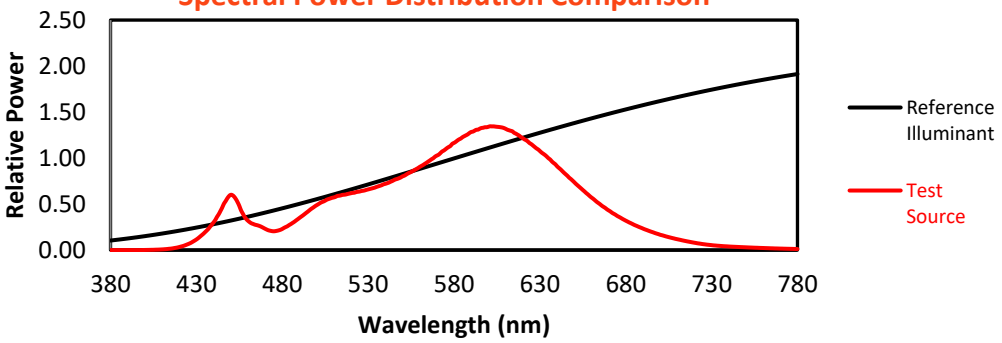
REPORT NUMBER: SP1-2407-176-7

TM-30-18

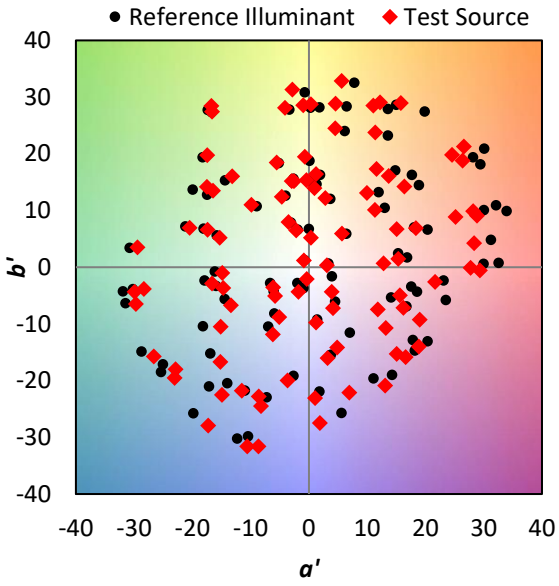
Summary

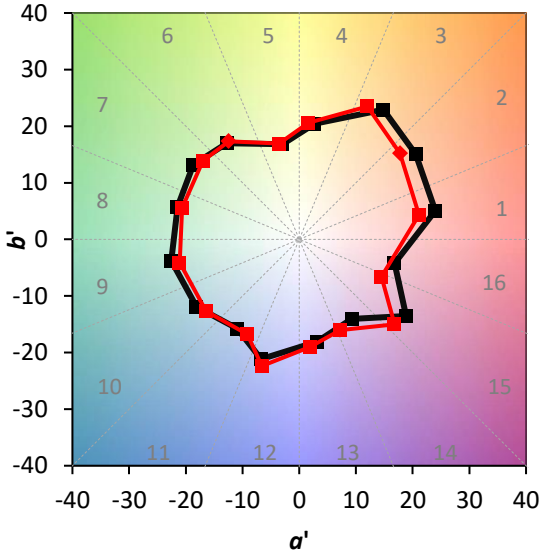
R_f = 85.8
R_g = 94.1
CIE R_a = 81.8
R_9 = -1.1

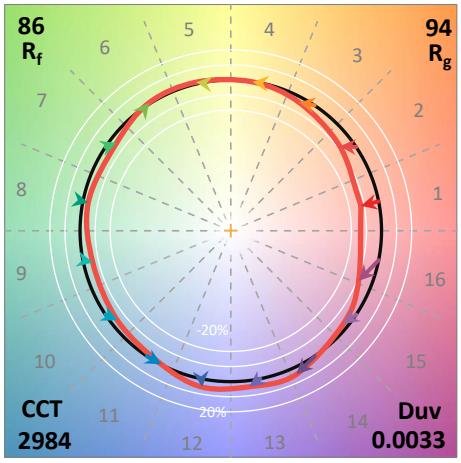
Spectral Power Distribution Comparison

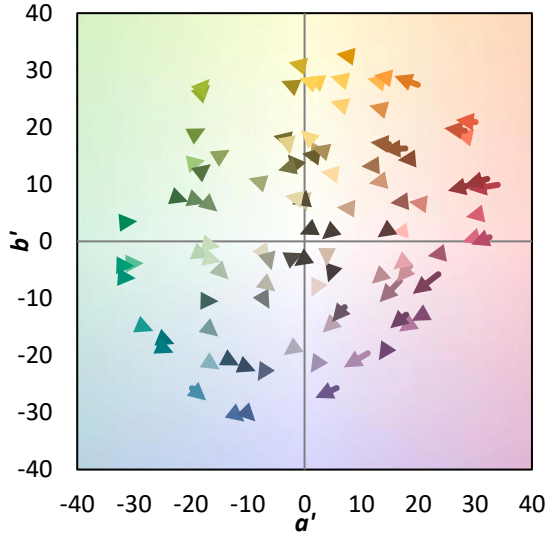


Color Vector Graphics







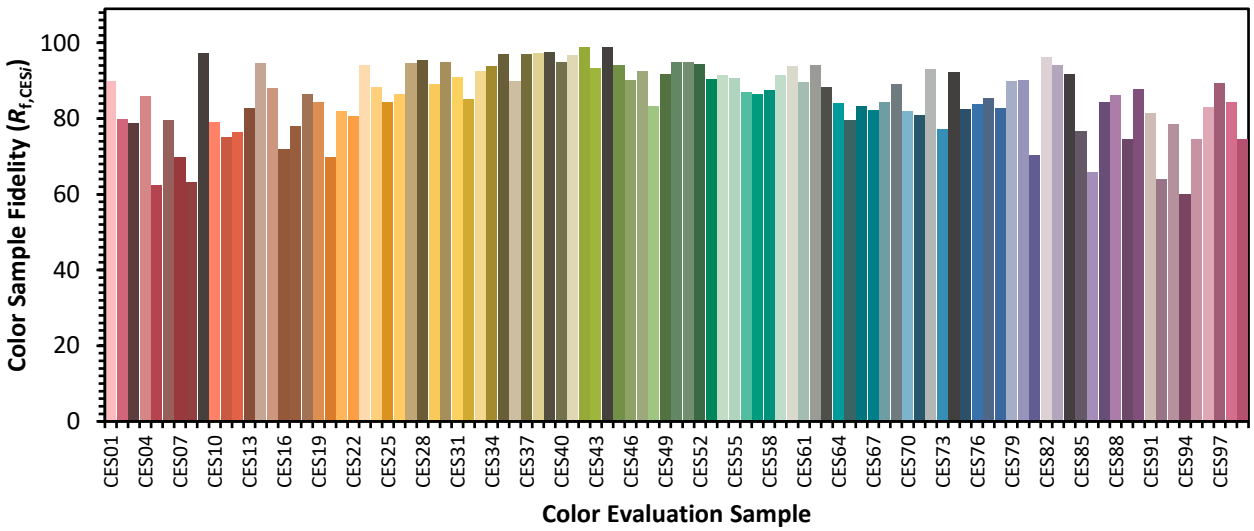


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TM-30-18

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

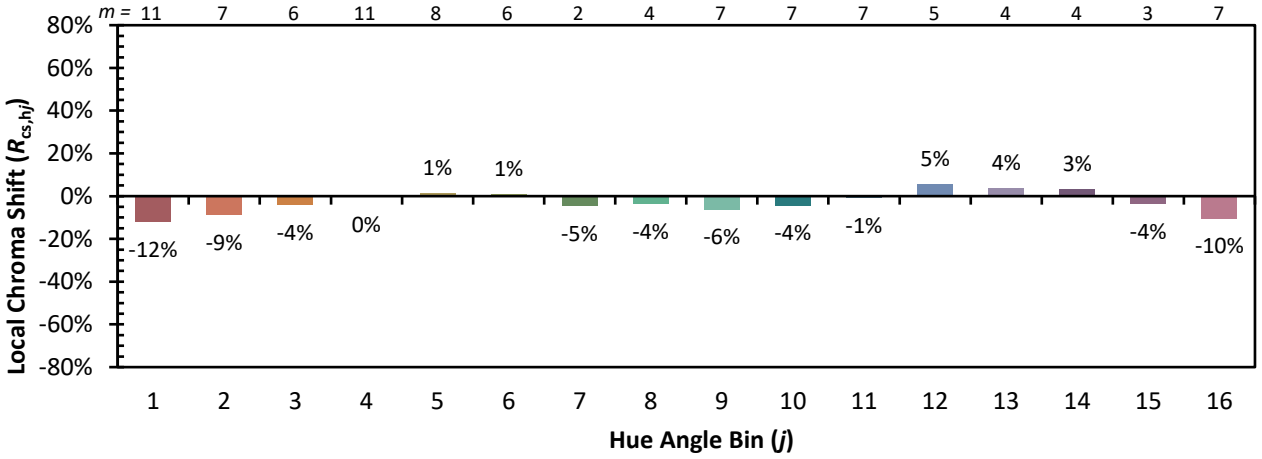
CES01 = 86	CES26 = 86	CES51 = 95	CES76 = 84
CES02 = 63	CES27 = 95	CES52 = 94	CES77 = 86
CES03 = 31	CES28 = 95	CES53 = 90	CES78 = 83
CES04 = 70	CES29 = 89	CES54 = 91	CES79 = 90
CES05 = 50	CES30 = 95	CES55 = 91	CES80 = 90
CES06 = 51	CES31 = 91	CES56 = 87	CES81 = 70
CES07 = 42	CES32 = 85	CES57 = 86	CES82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

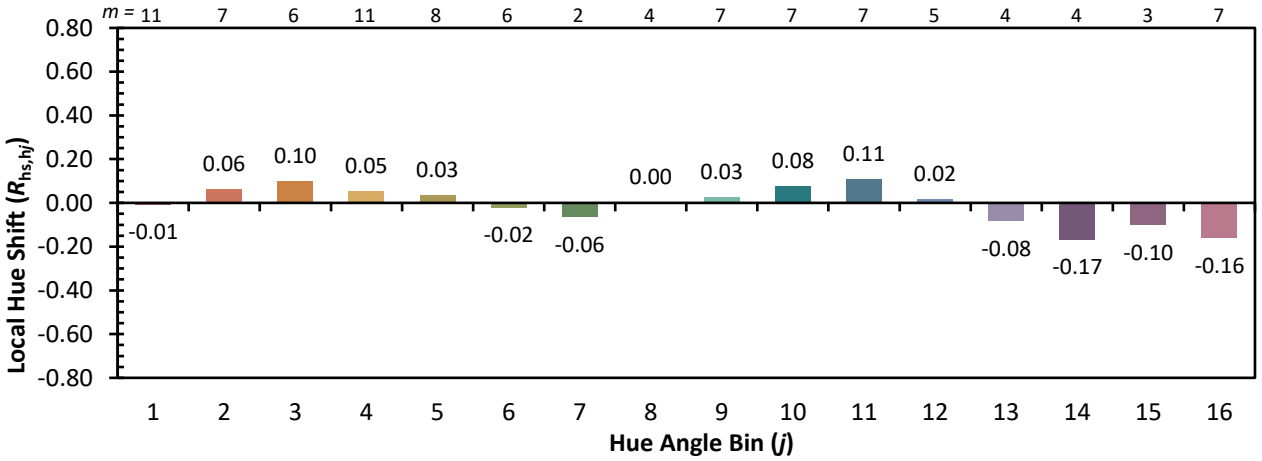


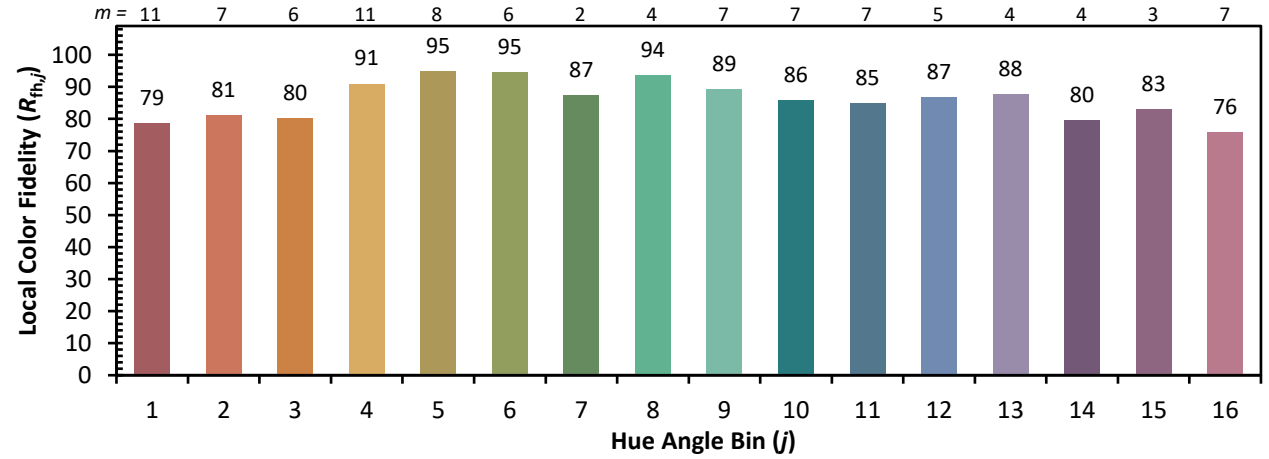
REPORT NUMBER: SP1-2407-176-7

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Color Rendition by Hue-Angle Bin



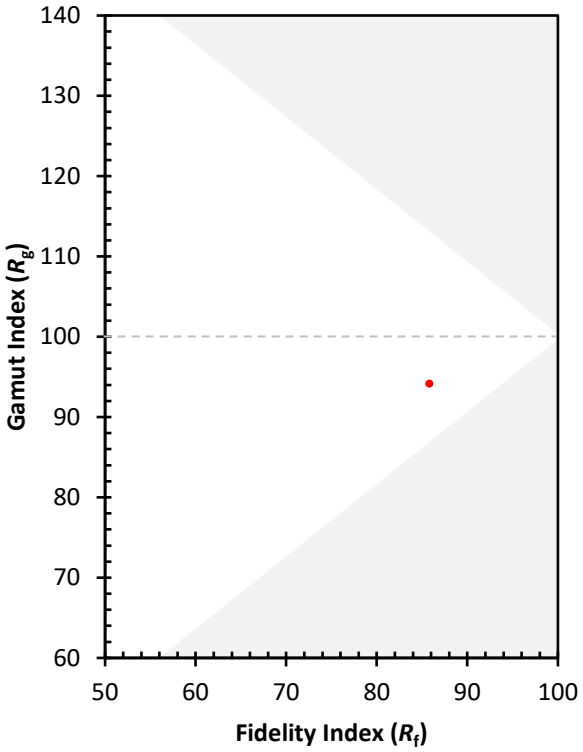


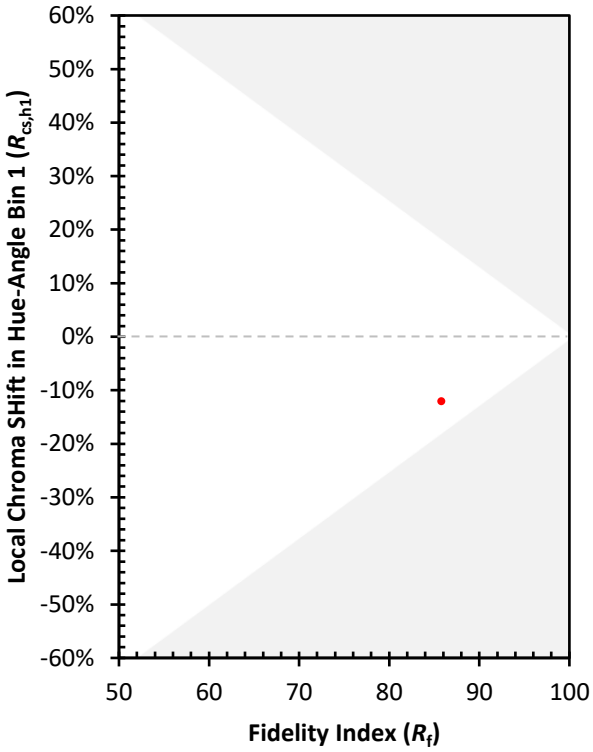


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Measure Comparisons





(END OF REPORT)