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: P821120

Luminaire Tested: **TT-D1-830-24VDC-MQ-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:	P821120
	TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2010-017-1)
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-MQ-HSS
Description:	TOPTIER LED PARKING GARAGE LUMINAIRE
	3000K, 80 CRI LEDS AND MEDIUM DISTRIBUTION WITH HOUSE SIDE SHIELD
Light Source:	-
Ballast/Driver:	ELECTRONIC DRIVER

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	3069.9 lumens
Efficiency:	N/A
Efficacy:	109.6 lumens/watt
Luminous Opening:	Circular (Dia: 1.12' x H: 0')
IES Classification:	Type IV - Short
BUG Rating:	B1 - U1 - G2

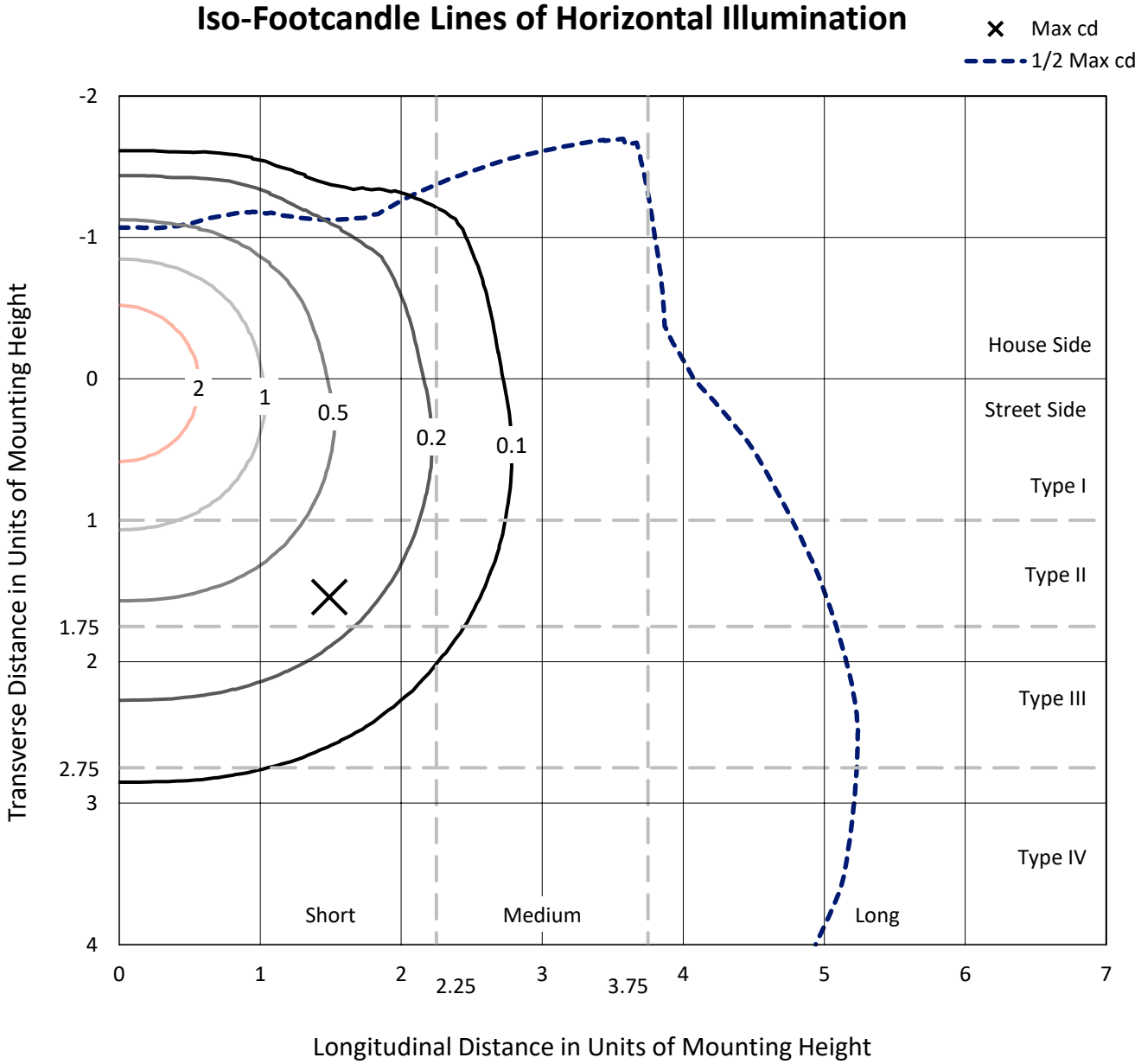
Input Watts (W):	28
Input Voltage (V):	NR
Input Current (Ain):	NR
Voltage Rise (V):	NR
Power Factor:	NR
Total Harmonic Distortion (THDi):	NR
Frequency (hertz):	60
Stabilization Time:	NR
Operation Time:	NR
Ambient Temperature (°C):	NR
Test Distance:	25 FT

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Iso-Footcandle Lines of Horizontal Illumination



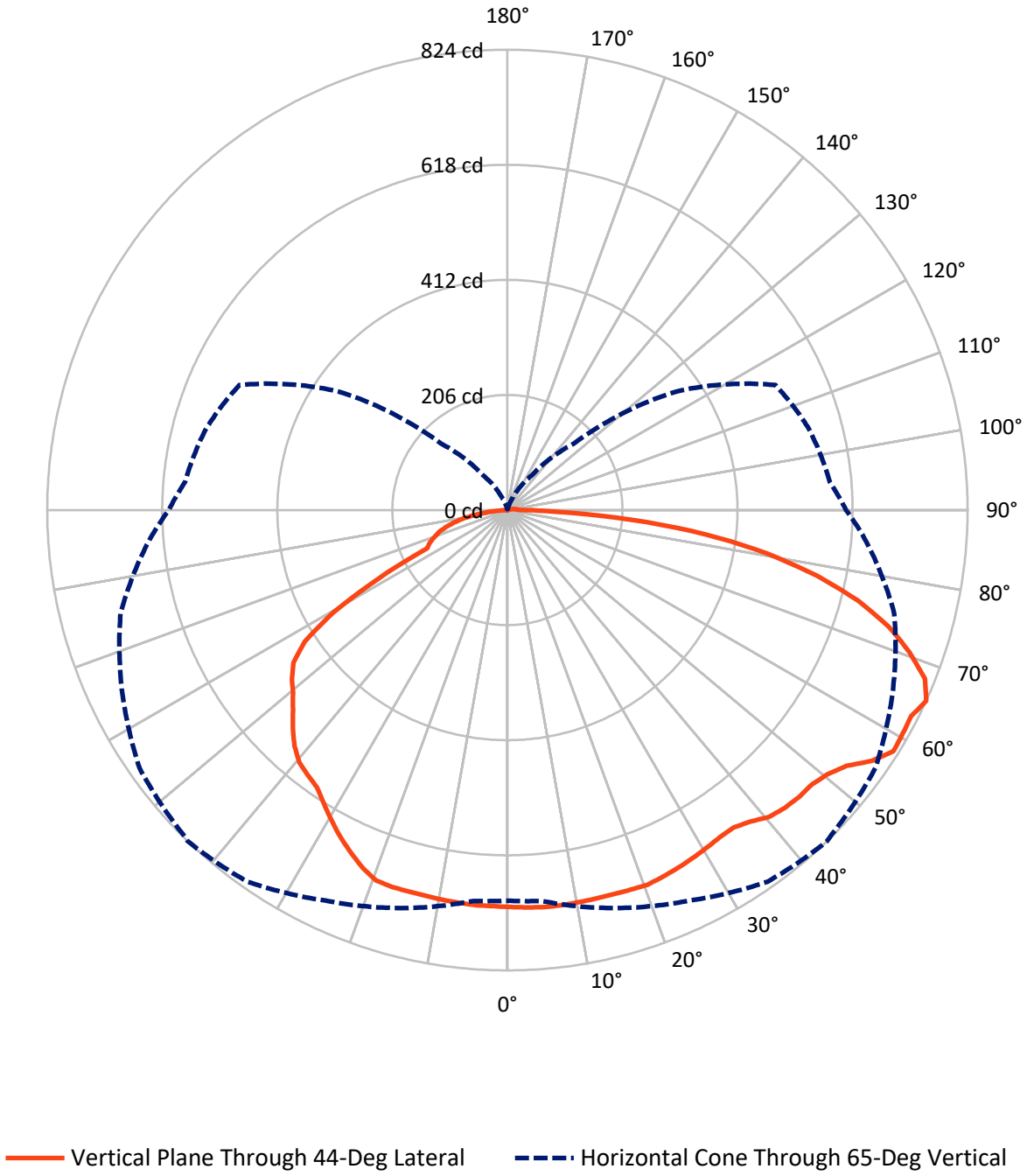
Based on 15 foot mounting height. Maximum calculated value = 3.2 fc
Type IV - Short - N/A

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Luminous Intensity Polar Plot



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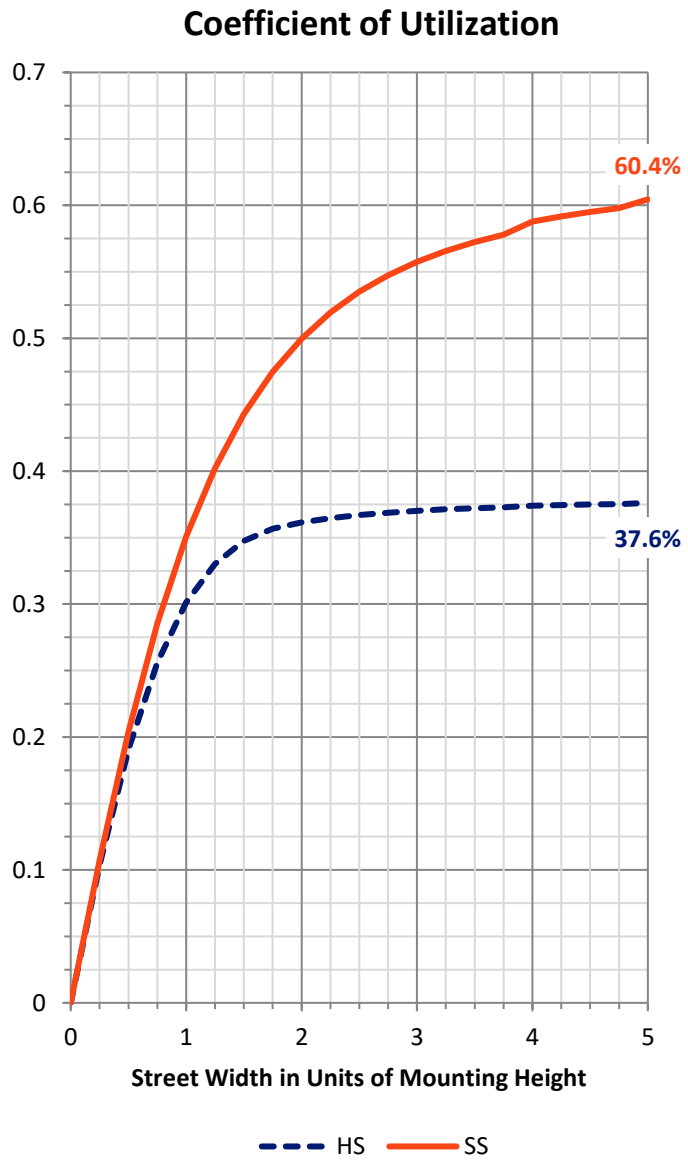
REPORT NUMBER: P821120
CATALOG NUMBER: TT-D1-830-24VDC-MQ-HSS

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	1162.4	0.7	1163.2
	% Fixture	37.9	0.0	37.9
Street Side	Lumens	1896.3	10.3	1906.7
	% Fixture	61.8	0.3	62.1
Total	Lumens	3058.8	11.1	3069.9
	% Fixture	99.6	0.4	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	67.9	2.2
10°-20°	200.9	6.5
20°-30°	319.7	10.4
30°-40°	409.6	13.3
40°-50°	485.3	15.8
50°-60°	531.5	17.3
60°-70°	505.2	16.5
70°-80°	402.2	13.1
80°-90°	136.6	4.5
90°-100°	7.2	0.2
100°-110°	2.4	0.1
110°-120°	0.5	0.0
120°-130°	0.3	0.0
130°-140°	0.2	0.0
140°-150°	0.2	0.0
150°-160°	0.2	0.0
160°-170°	0.1	0.0
170°-180°	0.0	0.0
0°-90°	3058.8	99.6
0°-180°	3069.9	100.0



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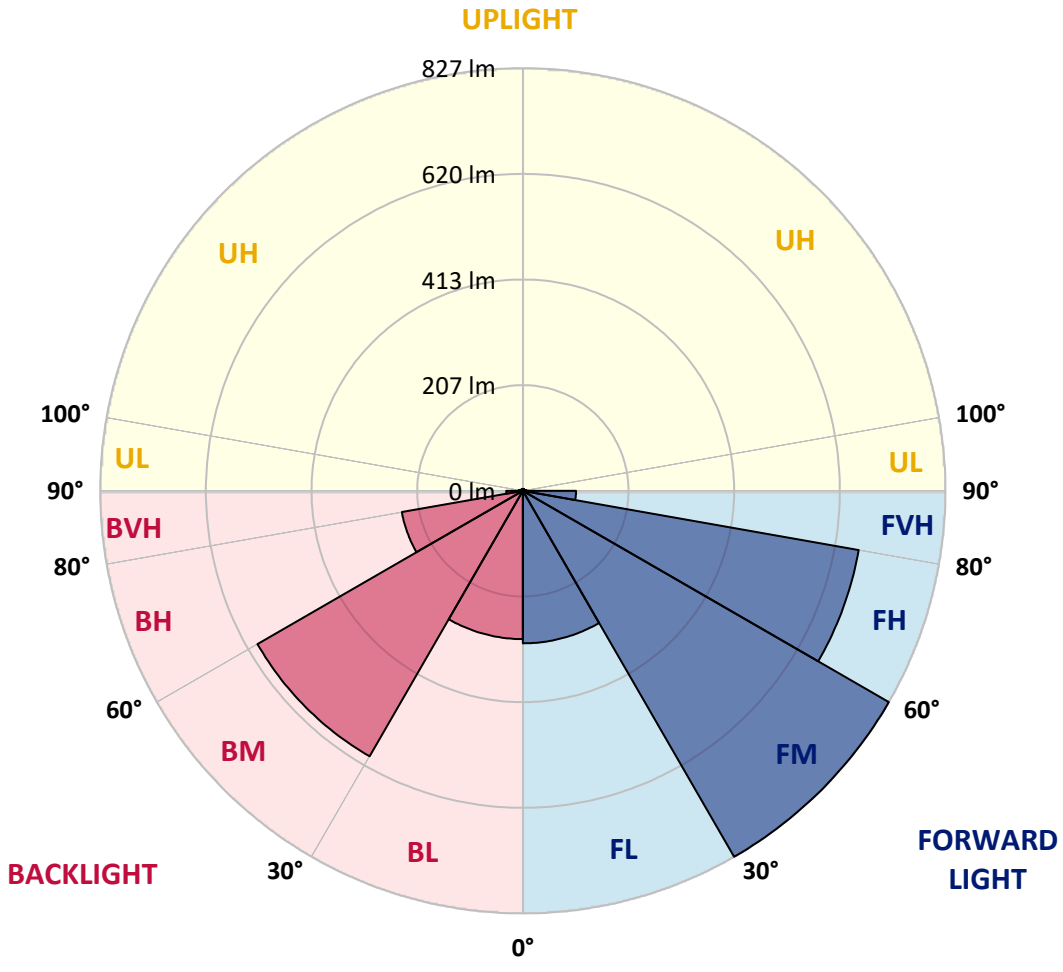
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	298.4	9.7			
FM	(30°-60°)	826.7	26.9			
FH	(60°-80°)	667.1	21.7			G1/1800
FVH	(80°-90°)	104.1	3.4			G2/225
BL	(0°-30°)	290.1	9.4	B1/500		
BM	(30°-60°)	599.6	19.5	B1/1000		
BH	(60°-80°)	240.2	7.8	B1/500		G1/500
BVH	(80°-90°)	32.6	1.1			G1/100
UL	(90°-100°)	7.2	0.2		U1/10	
UH	(100°-180°)	3.9	0.1		U1/10	

BUG Rating: B1-U1-G2
Type IV Short



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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	44°	45°	55°	65°	75°	85°
0°	710.7	710.7	710.7	710.7	710.7	710.7	710.7	710.7	710.7	710.7	710.7
2.5°	713.4	712.9	712.9	712.9	712.9	712.3	712.9	711.8	712.3	710.7	710.7
5°	715.0	713.9	714.5	714.5	714.5	713.9	714.5	712.9	713.4	711.2	710.7
7.5°	715.6	715.0	715.0	715.0	715.0	713.9	714.5	713.4	712.9	711.2	710.1
10°	715.6	715.0	715.0	715.0	714.5	713.4	713.9	712.3	712.3	710.1	709.1
12.5°	715.6	715.0	715.6	714.5	714.5	713.4	713.4	711.8	711.8	709.1	708.0
15°	715.0	714.5	714.5	715.0	714.5	713.4	713.4	711.8	711.2	708.0	706.9
17.5°	714.5	713.9	714.5	715.0	715.6	714.5	715.0	712.3	711.2	708.0	706.3
20°	715.0	714.5	715.0	716.1	716.1	716.1	716.1	713.4	711.2	708.0	705.3
22.5°	713.4	713.4	713.4	713.4	714.5	712.9	712.9	711.2	708.5	705.8	703.1
25°	709.6	709.6	710.1	710.7	710.7	709.6	709.1	707.4	705.3	702.0	698.7
27.5°	705.3	705.3	705.8	705.8	706.9	705.8	705.3	703.1	700.9	697.1	693.3
30°	700.4	700.4	700.4	701.5	702.0	702.0	701.5	698.7	696.0	691.7	686.8
32.5°	695.0	695.0	696.6	697.7	698.2	698.2	698.2	695.0	691.7	686.3	679.2
35°	690.6	690.6	692.8	696.6	698.7	697.7	697.1	695.0	690.1	684.1	672.7
37.5°	693.3	693.3	698.2	703.6	708.5	707.4	707.4	703.6	697.1	687.4	673.3
40°	699.8	700.4	708.0	715.0	721.0	722.1	722.1	717.7	708.0	695.5	676.0
42.5°	701.5	702.5	710.1	720.4	725.9	728.6	728.6	722.6	712.3	697.7	674.9
45°	701.5	702.0	710.7	721.5	730.2	732.4	732.4	725.9	712.9	698.7	671.1
47.5°	701.5	700.9	708.5	723.7	732.4	734.0	734.0	727.0	714.5	696.6	665.7
50°	699.8	702.5	713.9	725.9	741.1	743.2	742.7	735.1	717.7	699.3	661.3
52.5°	703.6	703.1	718.3	742.1	755.7	760.6	761.1	751.4	733.5	706.9	658.6
55°	719.4	719.9	734.6	762.2	782.8	792.1	791.0	778.5	753.0	722.1	666.2
57.5°	724.8	730.2	751.4	775.2	806.7	814.8	814.8	799.7	768.7	734.0	671.6
60°	713.9	716.1	742.1	782.8	811.6	813.2	813.8	802.9	770.4	727.5	660.8
62.5°	711.2	715.6	735.6	781.2	799.7	811.6	811.0	796.4	768.7	722.6	657.0
65°	699.3	702.5	737.8	771.4	812.1	824.1	821.4	804.5	761.7	717.2	645.0
67.5°	674.9	678.1	710.7	757.9	794.8	806.2	808.9	789.3	744.9	691.7	619.5
70°	634.2	639.1	672.2	718.3	757.3	763.8	762.8	750.8	706.3	649.4	582.1
72.5°	577.2	584.8	626.6	670.5	704.2	713.9	709.6	696.0	659.7	598.4	531.1
75°	517.0	524.1	557.2	606.5	641.8	648.3	645.0	628.8	591.9	531.7	470.9
77.5°	451.4	457.3	485.5	536.0	562.0	567.5	569.1	547.4	512.7	458.4	404.2
80°	362.9	365.6	403.6	436.7	459.5	470.4	469.3	453.0	418.3	373.2	319.0
82.5°	268.0	270.2	299.5	327.7	348.3	358.1	352.6	336.4	308.7	270.2	228.9
85°	164.4	160.6	184.5	205.6	218.1	224.6	219.2	210.0	185.5	155.2	126.4
87.5°	59.1	55.9	66.7	70.0	84.1	81.9	86.8	70.0	56.4	40.1	28.2
90°	26.0	26.0	25.5	24.4	22.2	20.1	19.5	16.3	11.9	7.6	2.7
92.5°	23.9	23.9	23.3	22.2	20.1	17.9	17.9	14.6	10.9	7.1	2.7
95°	20.1	20.1	19.5	18.4	16.8	15.2	15.2	11.9	9.2	6.0	2.2
97.5°	15.7	15.7	15.2	14.6	13.0	11.9	11.9	9.8	7.1	4.3	1.6
100°	11.9	11.9	11.4	10.9	10.3	9.2	8.7	7.1	5.4	3.3	1.1
102.5°	8.7	8.7	8.7	8.1	7.1	6.5	6.5	5.4	3.8	2.7	1.1
105°	6.0	6.0	6.0	5.4	4.9	4.3	4.3	3.8	2.7	1.6	0.5
107.5°	3.8	3.8	3.8	3.8	3.3	2.7	2.7	2.2	1.6	1.1	0.5
110°	2.2	1.6	2.2	2.2	2.2	1.6	1.6	1.1	1.1	0.5	0.5

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CANDELA DISTRIBUTION (continued):

	0°	5°	15°	25°	35°	44°	45°	55°	65°	75°	85°
112.5°	1.1	1.1	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	1.1	1.1	*0.5*	0.5	0.5	0.5	0.5	0.5
117.5°	0.0	0.5	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	0.5	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	0.5	0.5	0.0	0.0	*0.5*	0.5	0.5	0.5	0.5	0.5
142.5°	0.5	0.5	0.5	0.5	0.5	*0.5*	0.5	0.5	0.5	0.5	0.5
145°	0.5	0.5	0.5	0.5	0.5	*0.5*	0.5	0.5	0.5	0.5	0.5
147.5°	0.5	0.5	0.0	0.0	0.5	*0.5*	0.5	0.5	0.5	0.5	0.5
150°	0.5	0.5	0.5	0.0	0.0	*0.5*	0.5	0.5	0.5	0.5	0.5
152.5°	0.5	0.5	0.5	0.5	0.5	*0.5*	0.5	0.5	0.5	0.5	0.5
155°	0.5	0.5	0.5	0.5	0.5	*0.5*	0.5	0.5	0.5	0.5	0.5
157.5°	0.5	0.5	0.5	0.0	0.5	*0.5*	0.5	0.5	0.5	0.5	0.5
160°	0.5	0.5	0.5	0.5	0.5	*0.5*	0.5	0.5	0.5	0.5	0.5
162.5°	0.5	0.5	0.5	0.5	0.5	*0.5*	0.5	0.5	0.5	0.5	0.5
165°	0.5	0.5	0.5	0.5	0.5	*0.5*	0.5	0.5	0.5	0.5	0.5
167.5°	0.5	0.5	0.5	0.5	0.5	*0.5*	0.5	0.5	0.5	0.5	0.5
170°	0.5	0.5	0.5	0.5	0.5	*0.5*	0.5	0.5	0.5	0.5	0.5
172.5°	0.5	0.5	0.5	0.5	0.5	*0.5*	0.5	0.5	0.5	0.5	0.5
175°	0.5	0.5	0.5	0.5	0.5	*0.5*	0.5	0.5	0.5	0.5	0.5
177.5°	0.5	0.5	0.5	0.5	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):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	710.7	710.7	710.7	710.7	710.7	710.7	710.7	710.7	710.7	710.7	710.7
2.5°	710.7	710.1	709.6	710.1	709.6	709.6	709.1	709.1	708.5	708.5	708.0
5°	710.7	710.1	709.6	710.1	709.1	709.6	709.6	709.1	708.5	708.0	707.4
7.5°	710.1	710.1	709.1	709.6	708.5	708.5	708.0	708.0	707.4	707.4	706.9
10°	709.1	708.5	708.5	708.5	707.4	707.4	706.9	706.3	706.3	705.8	705.3
12.5°	708.0	707.4	706.9	706.9	706.3	705.8	705.3	705.3	704.7	704.2	703.6
15°	706.3	705.8	705.8	705.8	705.3	705.3	704.7	704.2	703.1	702.5	702.0
17.5°	705.8	705.3	705.8	705.8	705.3	705.8	704.7	703.6	702.5	702.0	701.5
20°	705.3	705.3	705.3	704.7	704.2	703.6	703.1	702.5	702.0	701.5	700.9
22.5°	702.5	702.0	700.9	697.7	693.9	691.2	690.6	691.7	691.7	691.7	690.1
25°	697.7	696.0	691.7	685.7	679.2	674.9	672.2	672.2	671.6	670.5	670.0
27.5°	691.7	688.4	680.8	673.3	664.0	658.6	652.1	648.3	646.7	646.1	645.0
30°	683.6	678.7	668.9	659.1	647.8	640.2	629.9	623.3	619.5	617.9	616.8
32.5°	673.8	668.9	657.5	645.6	632.0	621.2	608.2	597.8	590.8	587.5	585.9
35°	667.3	660.2	647.2	633.1	619.5	603.8	588.1	574.0	563.1	559.3	557.2
37.5°	664.6	658.1	644.0	629.9	614.7	595.7	577.2	557.2	542.5	536.0	533.8
40°	666.2	658.1	642.3	627.1	609.2	588.1	563.7	538.7	519.7	510.5	508.3
42.5°	662.4	653.2	634.7	618.5	596.2	572.3	542.5	513.8	488.3	480.7	477.4
45°	655.9	644.5	624.4	603.8	580.5	551.2	520.3	483.4	453.0	443.8	441.1
47.5°	649.4	633.6	609.8	590.8	562.6	528.4	492.1	450.8	412.8	403.6	402.0
50°	639.6	625.0	599.5	577.2	548.5	508.9	467.6	416.1	373.2	357.5	353.2
52.5°	635.3	616.3	591.9	574.5	539.8	494.8	442.7	387.3	325.5	306.0	301.6
55°	639.6	615.7	589.7	572.9	532.7	476.9	412.8	342.3	270.7	250.1	244.1
57.5°	632.0	611.4	585.4	566.4	514.3	440.0	369.4	278.8	204.5	177.9	175.8
60°	622.3	593.0	568.5	551.2	475.8	370.5	287.5	198.6	123.1	100.4	96.0
62.5°	618.5	588.1	559.9	538.7	424.2	272.3	175.2	100.4	51.0	35.8	32.6
65°	*606.5*	*579.4*	*559.3*	*529.5*	*370.5*	*168.2*	*75.4*	*29.8*	*2.2*	*1.6*	*1.6*
67.5°	583.7	556.1	542.5	525.1	365.1	160.6	68.4	27.1	1.1	0.0	0.0
70°	544.7	523.0	513.8	504.5	349.4	148.6	62.4	24.4	0.5	0.0	0.0
72.5°	493.1	478.5	476.9	475.8	326.6	137.3	55.9	21.7	0.5	0.0	0.0
75°	441.6	423.7	426.4	432.9	298.4	121.5	48.3	19.0	0.5	0.0	0.0
77.5°	376.5	363.5	370.0	380.8	261.5	103.1	39.6	15.2	0.5	0.0	0.0
80°	296.2	287.5	302.2	311.9	213.7	81.9	29.8	10.9	0.0	0.0	0.0
82.5°	210.5	205.6	219.2	231.7	159.0	58.0	20.6	7.1	0.0	0.0	0.0
85°	113.4	110.7	123.7	137.3	95.5	33.1	10.3	3.3	0.0	0.0	0.0
87.5°	28.2	26.0	26.6	32.0	23.3	7.1	1.6	0.5	0.0	0.0	0.0
90°	0.5	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95°	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
97.5°	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
100°	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
102.5°	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
105°	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
107.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
110°	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0

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

Scaled Data Report

REPORT NUMBER: P821120
CATALOG NUMBER: TT-D1-830-24VDC-MQ-HSS

CANDELA DISTRIBUTION (continued):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
112.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
115°	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
117.5°	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
120°	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
122.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
125°	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
127.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
130°	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
132.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
135°	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
137.5°	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
140°	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
142.5°	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	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	0.0
147.5°	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
150°	0.5	0.5	0.5	0.5	0.5	0.0	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	0.0
155°	0.5	0.5	0.5	0.5	0.5	0.0	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	0.0
160°	0.5	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	0.5	0.0	0.0	0.0	0.0	0.0
165°	0.5	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	0.5	0.0	0.0	0.0	0.0	0.0
170°	0.5	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	0.5	0.0	0.0	0.0	0.0	0.0
175°	0.5	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	0.5	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	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

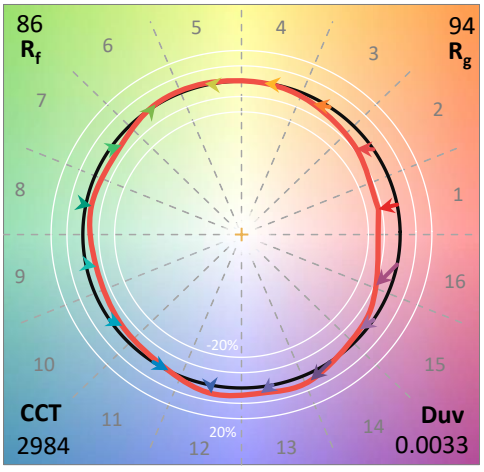
Test Information

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

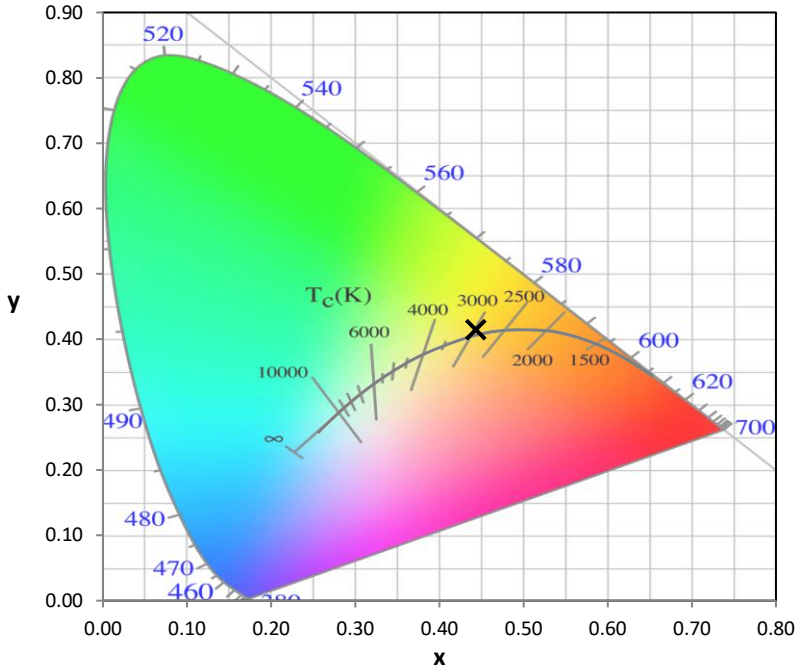
Stabilization Time:	29M
Operation Time:	1H 29M
Sphere Temperature (°C):	25.2

REPORT NUMBER: SP1-2407-176-7

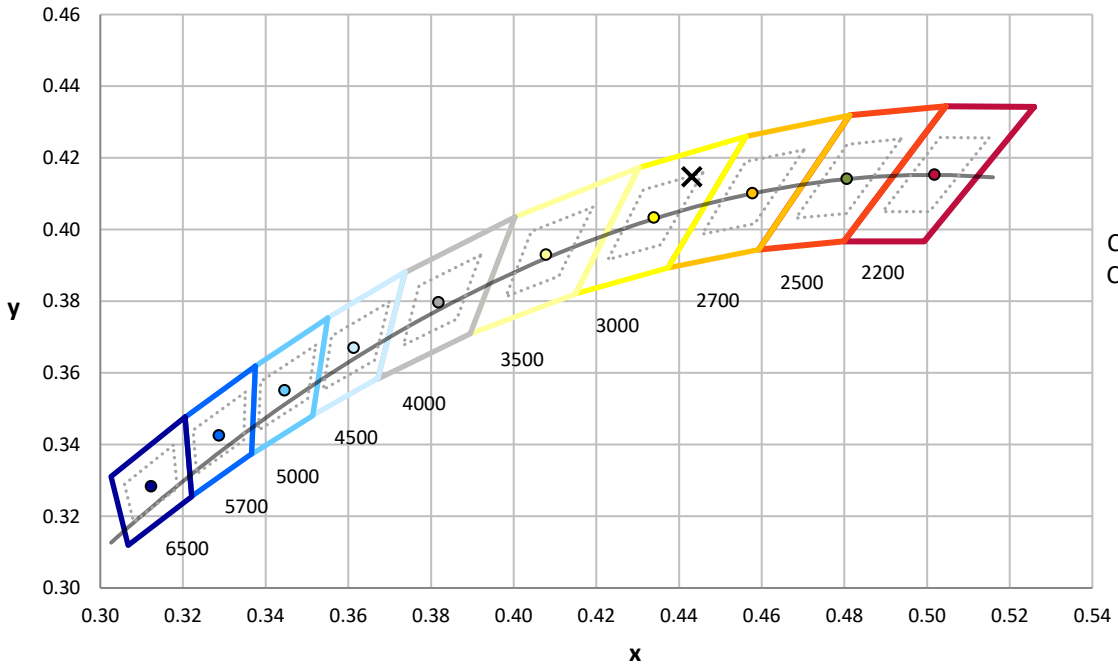
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085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

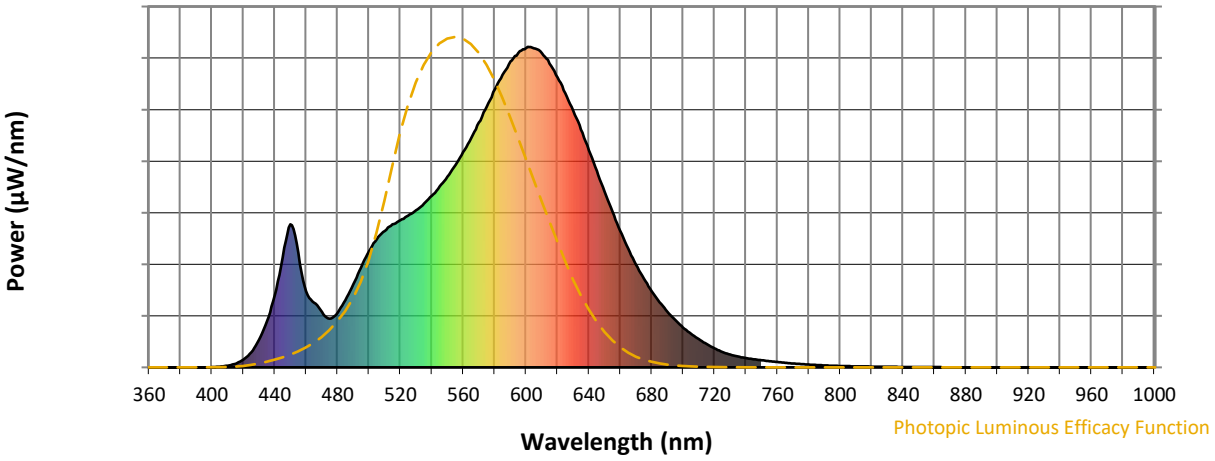


CCT = 2984K
CIE x = 0.4431
CIE y = 0.4147
Duv = 0.0033

Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2407-176-7

Photopic Flux vs. Wavelength

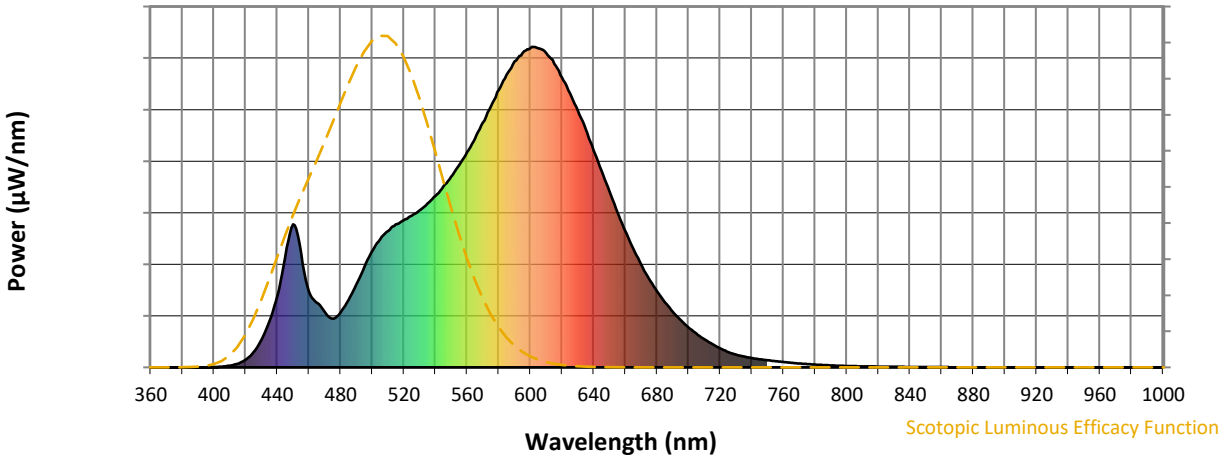


Photopic Lumens: NR

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

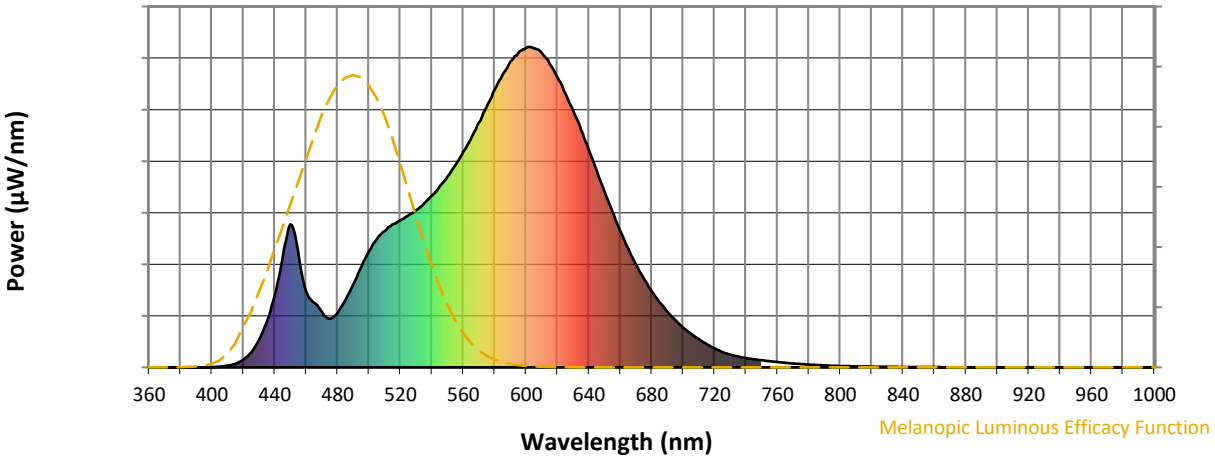


Scotopic Lumens: NR **S/P: 1.32**

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			

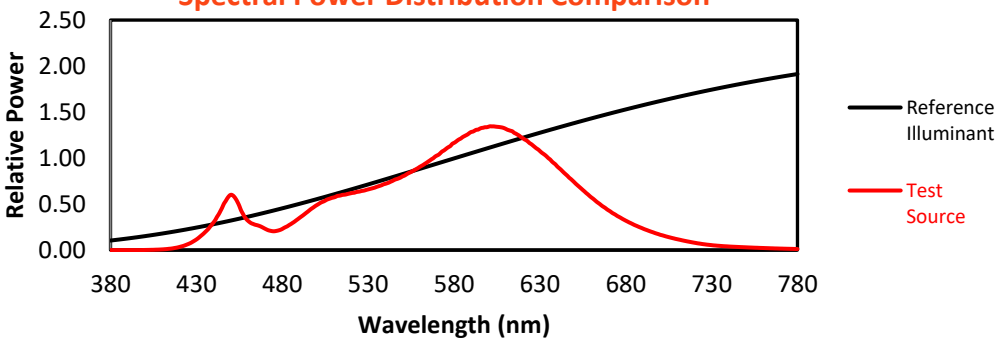
REPORT NUMBER: SP1-2407-176-7

TM-30-18

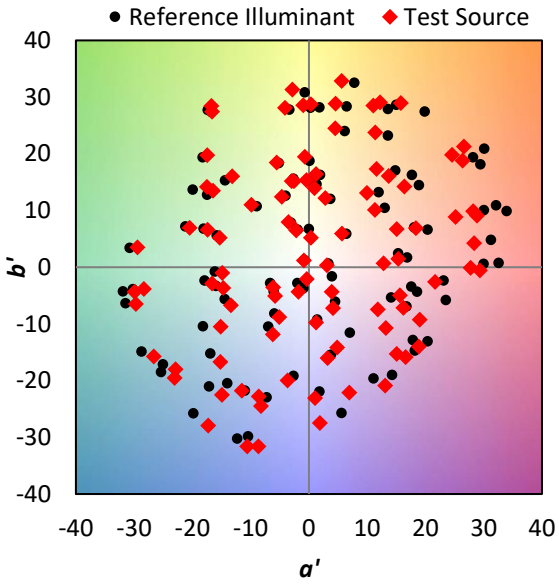
Summary

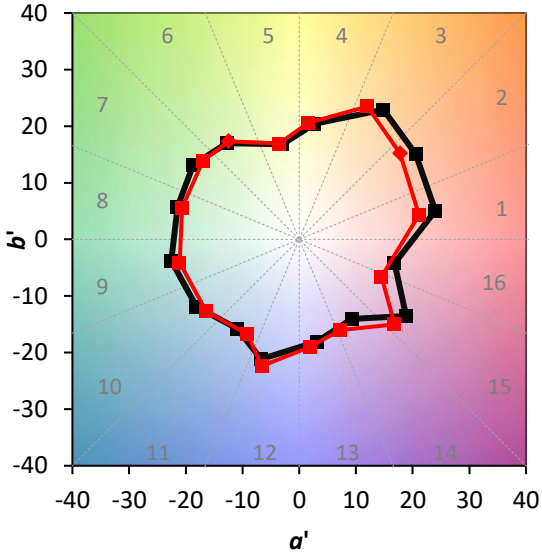
R_f = 85.8
R_g = 94.1
CIE R_a = 81.8
R_9 = -1.1

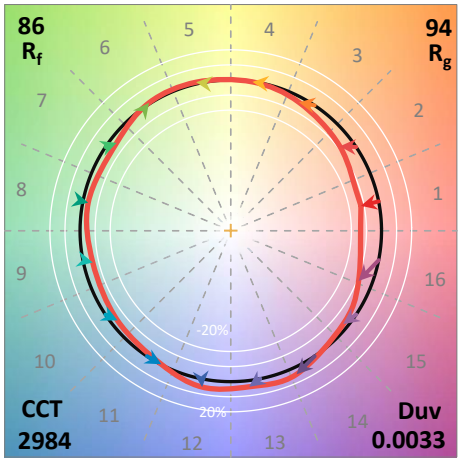
Spectral Power Distribution Comparison

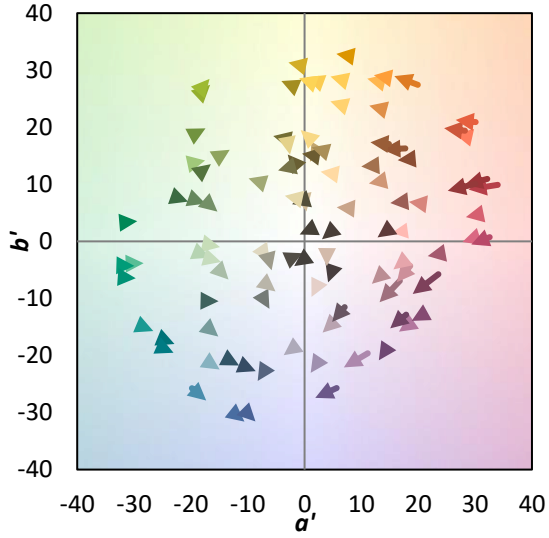


Color Vector Graphics







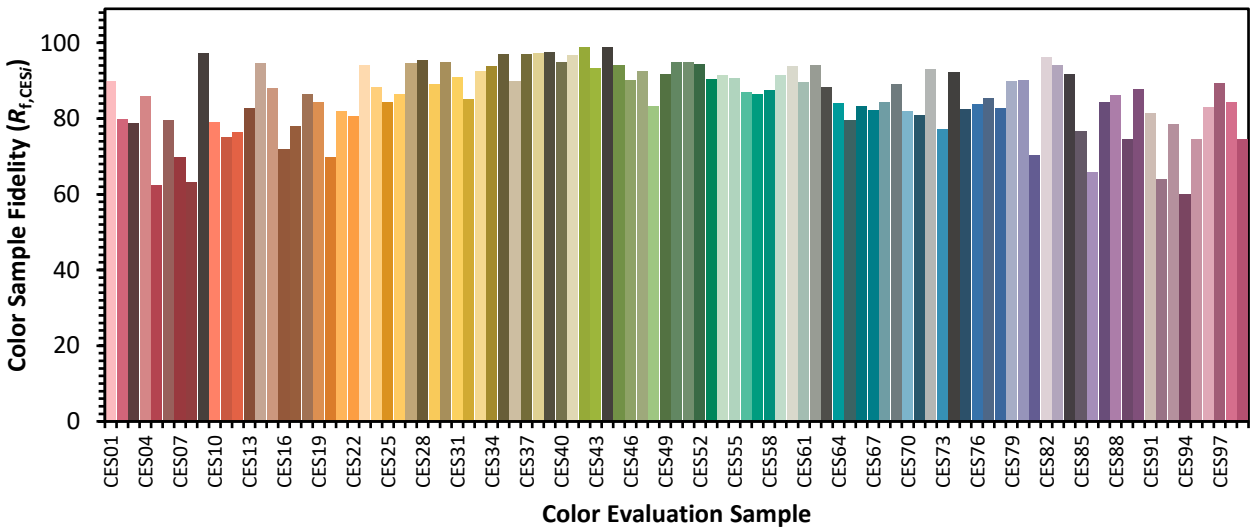


REPORT NUMBER: SP1-2407-176-7

TM-30-18

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

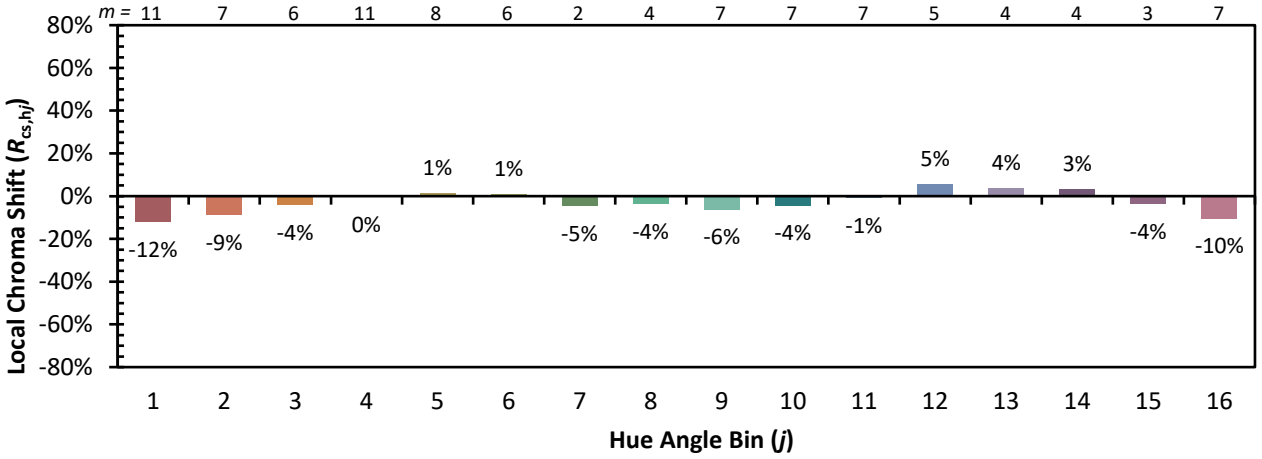
CES01 = 86	CES26 = 86	CES51 = 95	CES76 = 84
CES02 = 63	CES27 = 95	CES52 = 94	CES77 = 86
CES03 = 31	CES28 = 95	CES53 = 90	CES78 = 83
CES04 = 70	CES29 = 89	CES54 = 91	CES79 = 90
CES05 = 50	CES30 = 95	CES55 = 91	CES80 = 90
CES06 = 51	CES31 = 91	CES56 = 87	CES81 = 70
CES07 = 42	CES32 = 85	CES57 = 86	CES82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

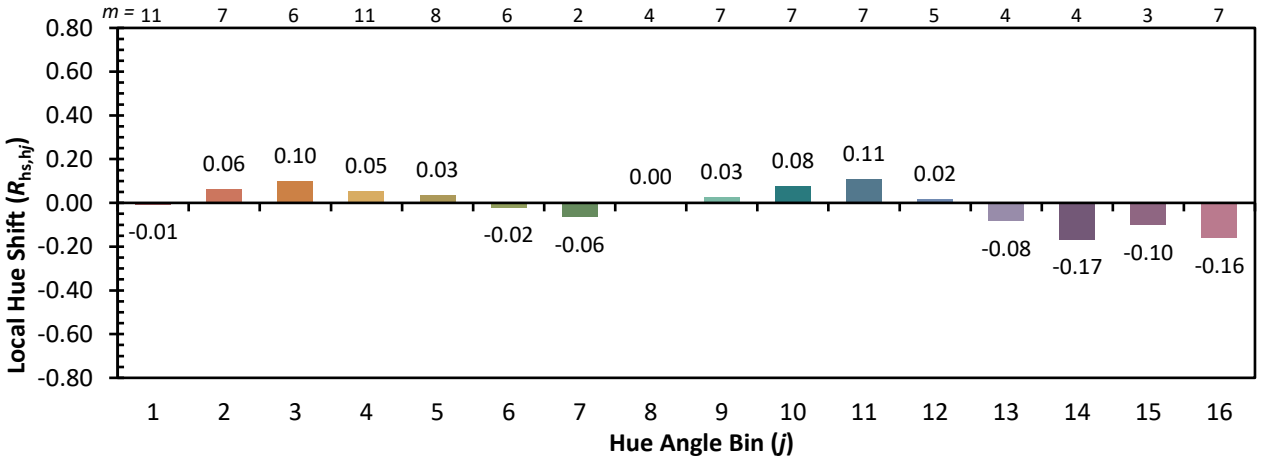


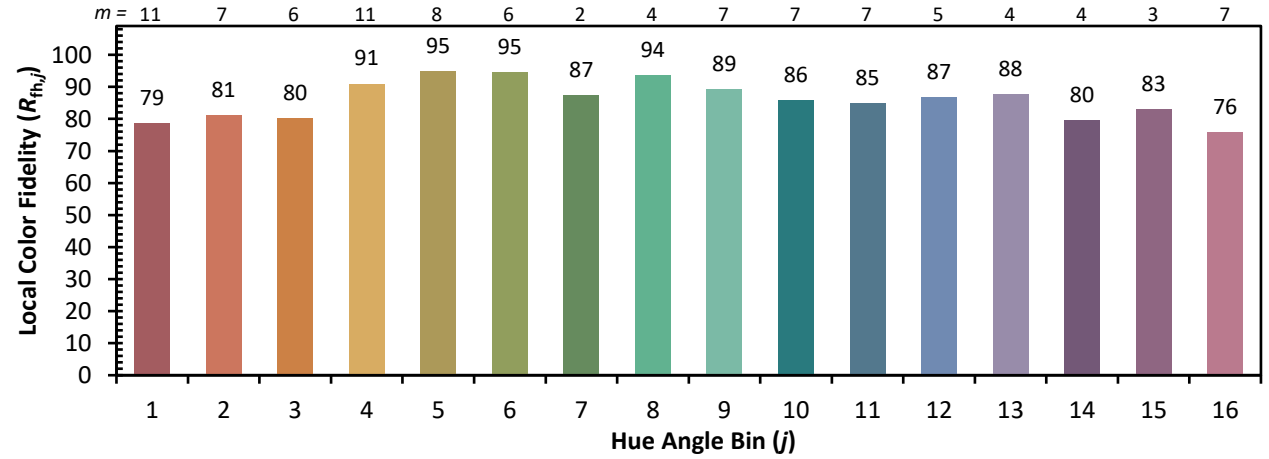
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Color Rendition by Hue-Angle Bin



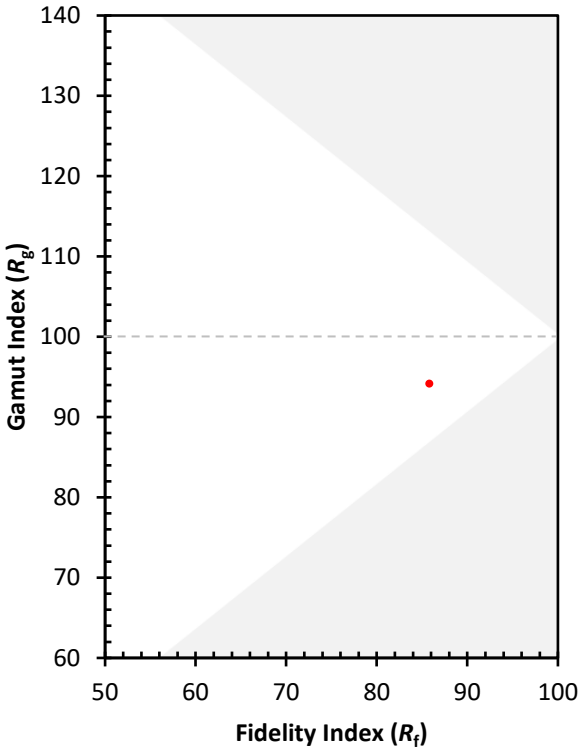


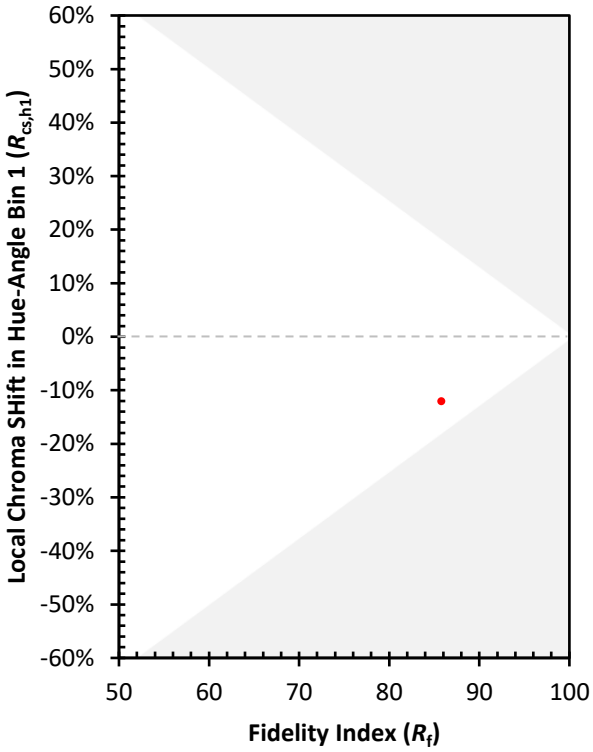


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Measure Comparisons





(END OF REPORT)