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: STREETWORKS

Report Number: P579541

Luminaire Tested: **CST-CA10-760-750-U-T5N-HSS-HM-EX120**

Issue Date: 11/18/2021

Report Generated By 670246102

Cooper Lighting Solutions Photometric Lab
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Peachtree City, GA 30269

Scaled Data Report

Test Information

Test Method:	LM-79-08
Report Number:	P579541
	TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2110-429-5)
Test Lab:	COOPER LIGHTING SOLUTIONS
Issue Date:	11/18/2021
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	STREETWORKS
Catalog Number:	CST-CA10-760-750-U-T5N-HSS-HM-EX120
Description:	CELESTEON HIGH MAST LUMINAIRE WITH FIELD INSTALLED SHIELD
Light Source:	(10) 5000K CCT, 70 CRI LEDS
Ballast/Driver:	-

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	85216 lumens
Efficiency:	N/A
Efficacy:	111.8 lumens/watt
Luminous Opening:	Circular (Dia: 2.08' x H: 0')
IES Classification:	Type III - Short
BUG Rating:	B5 - U2 - G5

Input Watts (W):	761.9
Input Voltage (V):	120
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:	24 FT

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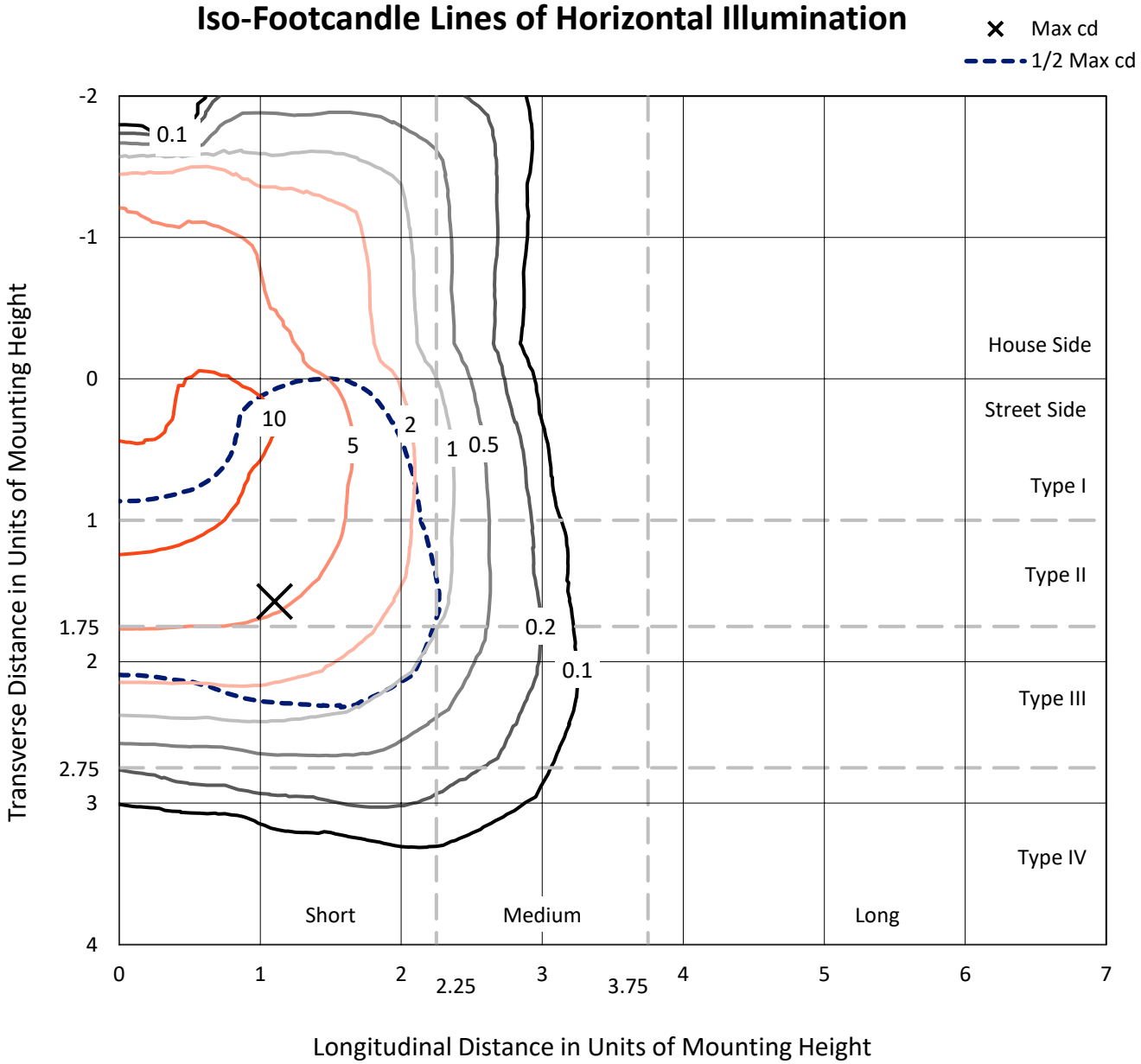
Iso-Footcandle Lines of Horizontal Illumination



Based on 30 foot mounting height. Maximum calculated value = 12.5 fc
Type III - Short - N/A

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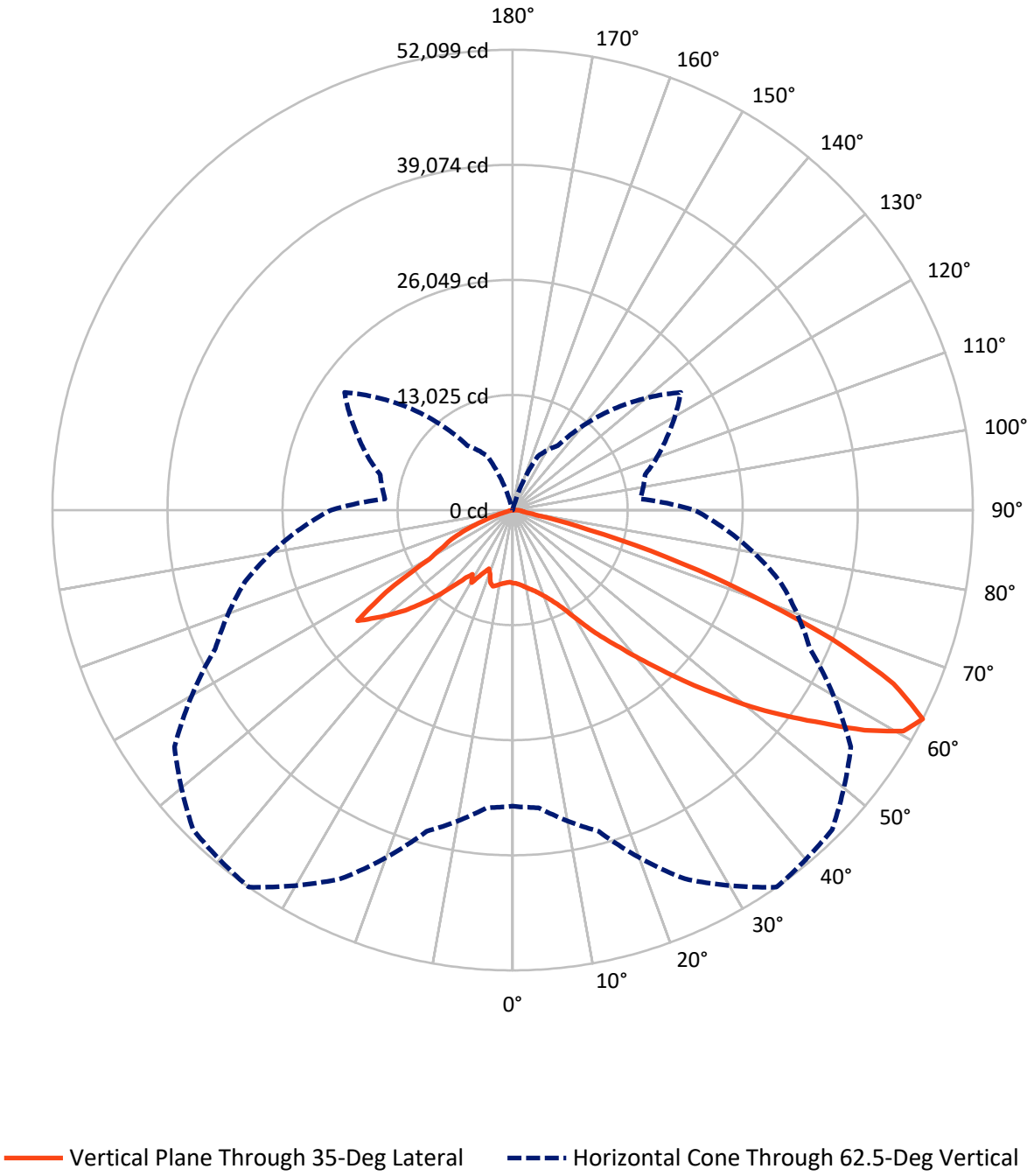
Luminous Intensity Polar Plot



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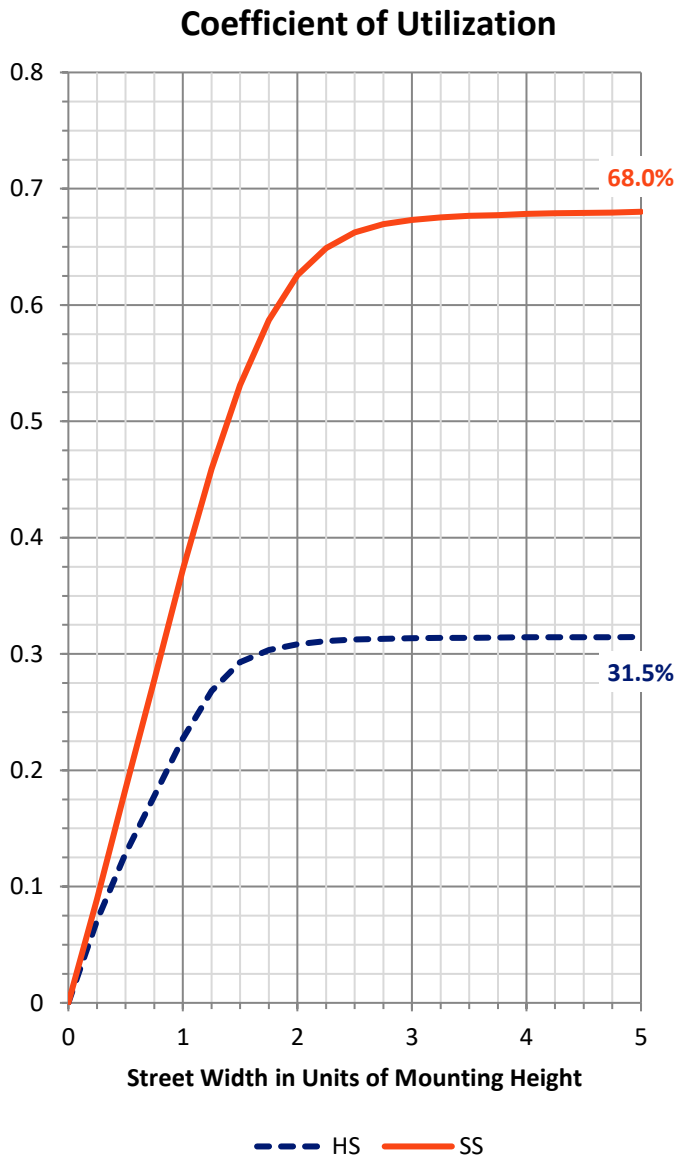
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	26958.7	0.0	26958.7
	% Fixture	31.6	0.0	31.6
Street Side	Lumens	58208.6	48.6	58257.3
	% Fixture	68.3	0.1	68.4
Total	Lumens	85167.3	48.7	85216.0
	% Fixture	99.9	0.1	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	815.7	1.0
10°-20°	2622.5	3.1
20°-30°	4869.7	5.7
30°-40°	9600.9	11.3
40°-50°	17234.7	20.2
50°-60°	25052.6	29.4
60°-70°	20589.1	24.2
70°-80°	3913.7	4.6
80°-90°	468.5	0.5
90°-100°	44.3	0.1
100°-110°	4.3	0.0
110°-120°	0.1	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-90°	85167.3	99.9
0°-180°	85216.0	100.0



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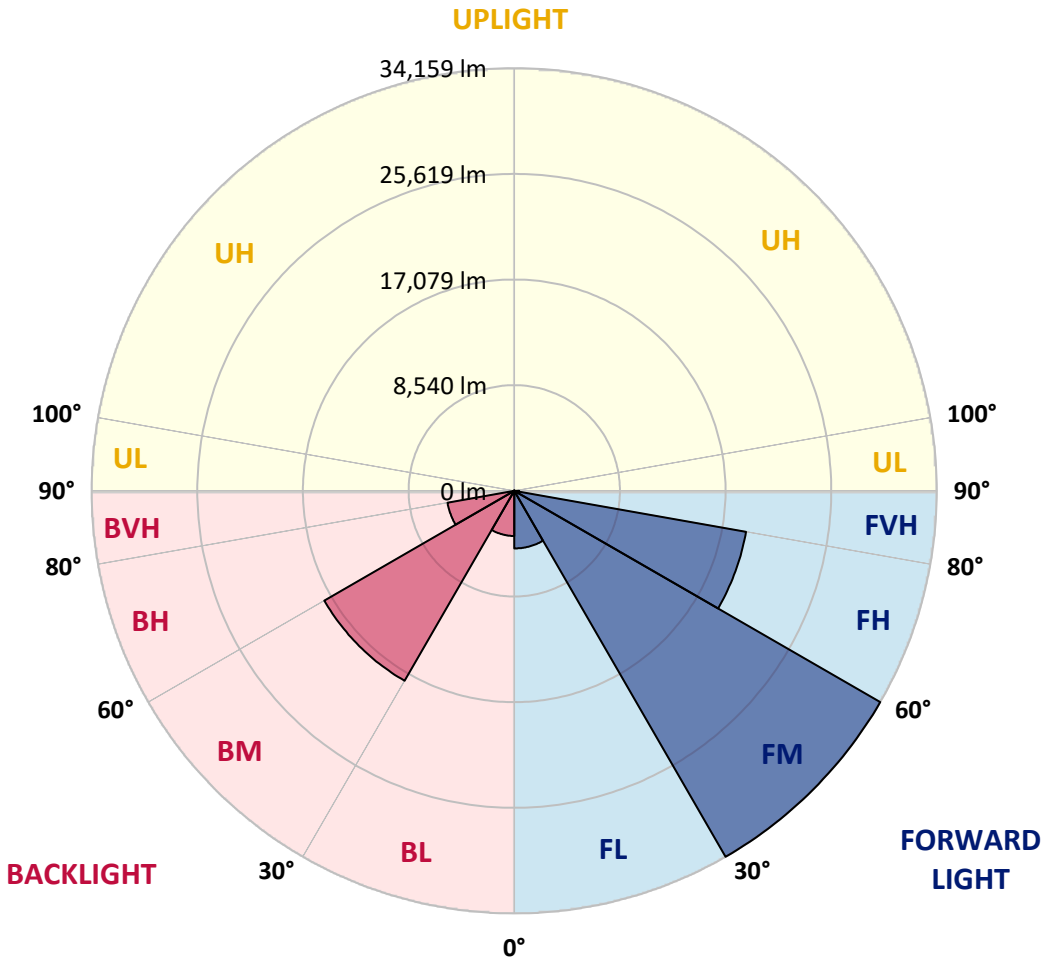
LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	4657.5	5.5			
FM	(30°-60°)	34158.5	40.1			
FH	(60°-80°)	19022.1	22.3			G5
FVH	(80°-90°)	370.4	0.4			G3/500
BL	(0°-30°)	3650.3	4.3	B4/5000		
BM	(30°-60°)	17729.7	20.8	B5		
BH	(60°-80°)	5480.7	6.4	B5		G5
BVH	(80°-90°)	98.0	0.1			G1/100
UL	(90°-100°)	44.3	0.1		U2/50	
UH	(100°-180°)	4.3	0.0		U1/10	

BUG Rating: B5-U2-G5
Type III Short



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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	8271.5	8271.5	8271.5	8271.5	8271.5	8271.5	8271.5	8271.5	8271.5	8271.5	8271.5
2.5°	8482.8	8413.5	8420.5	8472.4	8316.6	8368.5	8295.8	8358.1	8330.4	8358.1	8375.4
5°	8652.5	8566.0	8562.5	8614.4	8489.7	8520.9	8437.8	8479.4	8441.3	8475.9	8475.9
7.5°	8860.4	8787.6	8770.3	8811.9	8701.0	8714.9	8631.8	8649.1	8604.1	8649.1	8614.4
10°	9120.2	9054.3	9026.6	9047.4	8947.0	8953.9	8863.8	8870.8	8805.0	8843.1	8815.3
12.5°	9393.8	9303.7	9289.9	9324.5	9220.6	9206.8	9130.5	9137.5	9064.7	9099.4	9078.6
15°	9677.8	9584.3	9587.8	9622.4	9518.5	9525.4	9445.8	9459.6	9386.9	9421.5	9393.8
17.5°	10055.4	9961.9	9954.9	10017.3	9930.7	9958.4	9875.3	9892.6	9840.6	9847.6	9816.4
20°	10595.7	10474.5	10450.3	10540.3	10426.0	10460.6	10415.6	10474.5	10453.7	10436.4	10412.2
22.5°	11240.0	11146.5	11098.0	11167.3	11032.2	11098.0	11122.2	11243.5	11274.6	11253.9	10872.8
25°	12102.5	12054.0	12005.5	11974.3	11811.5	11915.4	12040.1	12241.0	12372.7	12424.6	11894.7
27.5°	13266.3	13290.6	13079.3	13044.6	12861.1	13023.8	13249.0	13574.6	13841.3	13938.3	13224.7
30°	14762.7	14793.8	14506.4	14423.2	14312.4	14450.9	14870.0	15226.8	15621.7	15784.5	14831.9
32.5°	16750.9	16723.2	16300.6	16141.3	16040.8	16096.2	16536.1	17024.5	17467.9	17835.1	16664.3
35°	19179.0	19092.4	18642.1	18202.2	17803.9	17973.6	18295.7	18888.0	19560.0	20100.4	18472.4
37.5°	21998.5	21915.4	21229.6	20512.6	19726.3	19799.0	20086.5	21052.9	21918.9	22060.9	18164.1
40°	24911.6	24876.9	24229.2	23318.2	22095.5	21752.6	22133.6	23311.3	24225.7	21749.1	18881.1
42.5°	27821.2	27654.9	27291.2	26380.2	24752.2	23997.1	24509.8	25687.5	26671.2	22802.1	20543.7
45°	30755.0	30585.3	30277.0	29608.5	27914.7	26816.7	26965.6	28271.5	29161.6	24776.5	22275.6
47.5°	33359.8	33235.1	33013.4	32639.3	31129.1	30135.0	29847.5	30761.9	31368.1	26380.2	23605.7
50°	35604.3	35496.9	35583.5	35458.8	35015.4	33972.8	33023.8	32964.9	33255.8	27807.3	24828.4
52.5°	37578.7	37433.2	37803.8	38243.7	38652.4	38420.4	36123.9	35053.6	34790.3	28877.6	25649.4
55°	39210.1	39158.1	39795.5	40983.6	42538.8	43148.4	39438.7	36982.9	36162.0	29785.1	25725.6
57.5°	40186.9	40311.6	41659.0	43959.0	47000.2	47287.7	43318.2	39033.4	37370.8	30335.9	26089.3
60°	38517.3	38939.9	41364.6	46189.6	50796.5	50921.2	46106.5	39442.2	35787.9	28354.6	24146.1
62.5°	33515.6	33820.4	37634.1	46047.6	52098.9	51149.8	46730.0	37135.3	31364.6	24052.6	20536.8
65°	23681.9	24035.2	28631.7	41523.9	47398.5	47433.1	42805.5	32112.8	25070.9	18621.3	15857.2
67.5°	14284.7	14856.2	19210.2	30145.4	39026.5	39736.6	35711.7	24312.3	17942.4	12157.9	10263.2
70°	4686.5	5209.5	8770.3	17842.0	28132.9	31174.1	26820.1	15798.3	9369.6	5140.3	4139.2
72.5°	1856.6	2095.6	3089.7	7890.5	18129.5	20813.9	16525.7	7634.2	3145.1	1364.7	1188.1
75°	1240.0	1264.3	1427.1	2687.9	8870.8	11382.0	7966.7	2220.3	1167.3	852.1	748.2
77.5°	1080.7	1084.2	1156.9	1416.7	2888.8	4364.4	2293.0	1191.5	966.4	699.7	620.0
80°	990.6	1004.5	1049.5	1208.9	1323.2	1482.5	1132.7	994.1	838.2	644.3	585.4
82.5°	949.1	959.5	987.2	1094.6	1070.3	1111.9	914.4	789.7	706.6	592.3	561.1
85°	865.9	883.3	900.6	966.4	879.8	762.0	706.6	530.0	505.7	446.8	412.2
87.5°	654.7	651.2	633.9	644.3	588.8	481.5	398.3	297.9	242.5	200.9	166.3
90°	273.6	277.1	266.7	252.9	221.7	183.6	138.6	83.1	41.6	13.9	6.9
92.5°	207.8	211.3	204.4	183.6	159.3	128.2	93.5	48.5	27.7	10.4	3.5
95°	128.2	131.6	124.7	110.8	97.0	72.7	48.5	31.2	17.3	6.9	0.0
97.5°	76.2	79.7	72.7	65.8	52.0	34.6	27.7	20.8	13.9	6.9	0.0
100°	45.0	45.0	41.6	34.6	24.2	20.8	17.3	13.9	10.4	3.5	0.0
102.5°	20.8	20.8	20.8	13.9	10.4	10.4	10.4	10.4	10.4	3.5	0.0
105°	6.9	6.9	3.5	3.5	3.5	6.9	6.9	6.9	6.9	3.5	0.0
107.5°	0.0	0.0	0.0	0.0	0.0	0.0	3.5	6.9	6.9	3.5	0.0
110°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5	3.5	3.5	0.0

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CANDELA DISTRIBUTION (continued):

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

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CANDELA DISTRIBUTION (continued):

	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	8271.5	8271.5	8271.5	8271.5	8271.5	8271.5	8271.5	8271.5	8271.5	8271.5
2.5°	8358.1	8292.3	8302.7	8243.8	8230.0	8167.6	8278.5	8288.8	8257.7	8288.8
5°	8462.0	8382.4	8403.2	8337.3	8320.0	8233.4	8323.5	8316.6	8292.3	8323.5
7.5°	8614.4	8524.4	8534.8	8458.6	8441.3	8344.3	8427.4	8403.2	8375.4	8413.5
10°	8808.4	8721.8	8725.3	8621.4	8611.0	8500.1	8607.5	8562.5	8520.9	8576.3
12.5°	9078.6	8957.4	8947.0	8832.7	8829.2	8714.9	8825.7	8787.6	8732.2	8818.8
15°	9390.3	9227.5	9186.0	9040.5	9037.0	8915.8	9026.6	8967.8	8940.0	9044.0
17.5°	9795.6	9591.2	9276.0	8780.7	8555.6	8593.7	8985.1	9127.1	8756.5	8811.9
20°	10041.5	9050.9	8590.2	8385.8	8278.5	7661.9	6827.1	6896.4	7717.3	8108.7
22.5°	9625.9	9331.4	9161.7	8874.2	7377.9	7166.6	7215.1	7201.2	6141.3	5826.1
25°	10491.8	10214.7	9906.4	8133.0	7824.7	7734.6	7758.9	6764.8	6186.3	6210.6
27.5°	11738.8	11382.0	9428.4	8659.5	8597.1	8465.5	7987.5	6792.5	6865.2	6913.7
30°	13314.8	12047.1	10041.5	9705.5	9580.8	9438.8	7412.5	7589.2	7724.3	7873.2
32.5°	14838.9	11718.0	11215.8	10865.9	10671.9	8569.4	8361.6	8687.2	8822.3	8950.4
35°	14700.3	13127.8	12476.6	12033.2	11669.5	9248.3	9431.9	9927.2	10284.0	10280.5
37.5°	15081.3	14662.2	13910.6	13349.4	10128.1	10360.2	10744.7	11309.3	11742.2	11738.8
40°	16671.2	16217.5	15510.8	14305.5	11222.7	11763.0	12289.5	12819.5	13131.2	13155.5
42.5°	18250.7	17900.9	17263.5	12635.9	12563.2	13311.3	13862.1	14198.1	14388.6	14454.4
45°	19823.3	19494.2	16962.2	13976.4	14198.1	14939.3	15275.3	15341.1	15545.5	15538.6
47.5°	21073.7	20793.1	15604.4	15569.7	16120.5	16633.1	16525.7	16442.6	16494.6	16522.3
50°	22227.1	18101.8	16823.6	17329.3	18167.6	18229.9	17783.1	14087.2	17440.2	17381.3
52.5°	20647.6	17665.3	17959.7	19144.4	20571.4	19847.5	18974.6	12348.4	16356.0	17911.3
55°	18067.1	18365.0	19030.1	21018.3	22428.0	21569.0	20110.8	12715.6	10855.5	8836.1
57.5°	18427.4	18898.4	20162.7	22909.5	24139.1	17083.4	18770.3	8964.3	6068.6	6065.1
60°	17159.6	17873.2	20138.5	23758.1	19539.2	10945.6	7519.9	204.4	1177.7	1167.3
62.5°	*14506.4*	*15521.2*	*19213.6*	*23221.2*	*16186.3*	*8895.0*	*6699.0*	*17.3*	*6.9*	*6.9*
65°	11219.2	12414.2	16020.0	20107.3	14340.1	7661.9	4974.0	0.0	0.0	0.0
67.5°	7357.1	8465.5	12029.7	16702.4	11905.0	5791.5	3342.6	0.0	0.0	0.0
70°	3065.5	4433.7	7474.9	12071.3	8756.5	3792.8	1586.4	0.0	0.0	0.0
72.5°	886.7	1350.9	3366.8	7208.1	5434.7	1984.8	588.8	0.0	0.0	0.0
75°	585.4	616.6	1018.4	2899.2	2642.9	727.4	239.0	0.0	0.0	0.0
77.5°	491.9	505.7	647.7	810.5	848.6	287.5	194.0	0.0	0.0	0.0
80°	453.8	457.2	581.9	602.7	453.8	239.0	190.5	0.0	0.0	0.0
82.5°	422.6	412.2	495.3	478.0	377.6	207.8	176.7	0.0	0.0	0.0
85°	291.0	297.9	336.0	426.0	228.6	103.9	124.7	0.0	0.0	0.0
87.5°	90.1	103.9	131.6	135.1	41.6	13.9	0.0	0.0	0.0	0.0
90°	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
92.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
97.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
102.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
105°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
107.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110°	0.0	0.0	0.0	0.0	0.0	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: P579541
CATALOG NUMBER: CST-CA10-760-750-U-T5N-HSS-HM-EX120

CANDELA DISTRIBUTION (continued):

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

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

Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

STREETWORKS

Report Number: SP1-2104-215-7

Luminaire Tested: CST-CA6-230-750-U-T4

Test Date: 04/22/2021

Report Generated By controller / USPTCWHP6086842

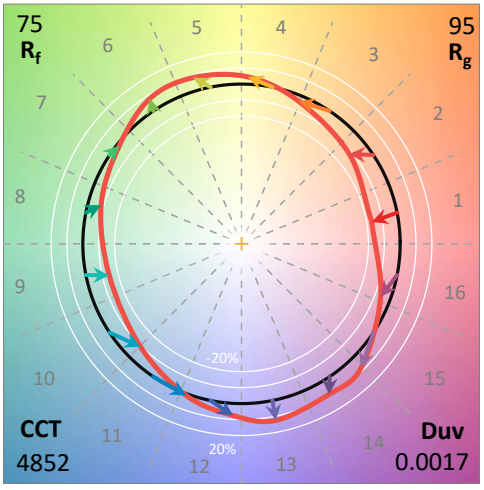
Test Information

Test Method:	LM-79-08
Report Number:	SP1-2104-215-7
Test Lab:	COOPER LIGHTING SOLUTIONS
Photometer:	SP1
Measurement Geometry:	4π
Issue Date:	04/22/2021
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	STREETWORKS
Catalog Number:	**CST-CA6-230-750-U-T4**
Description:	STREETWORKS HIGH MAST LUMINAIRE

Spectral Parameters

CCT (K):	4852	CRI (Ra):	74.1		
CIE u':	0.2118	R1:	71.0	R9:	-25.4
CIE v':	0.4888	R2:	79.6	R10:	51.4
Duv:	0.0017	R3:	85.8	R11:	70.1
CIE x:	0.3498	R4:	73.5	R12:	42.9
CIE y:	0.3588	R5:	71.4	R13:	72.5
CIE z:	0.2914	R6:	71.2	R14:	92.1
Peak Wavelength (nm):	449	R7:	82.9		
Dominant Wavelength (nm):	572	R8:	57.2		
Purity:	12.7				

Rf:	75.2
Rg:	94.7



Test Conditions

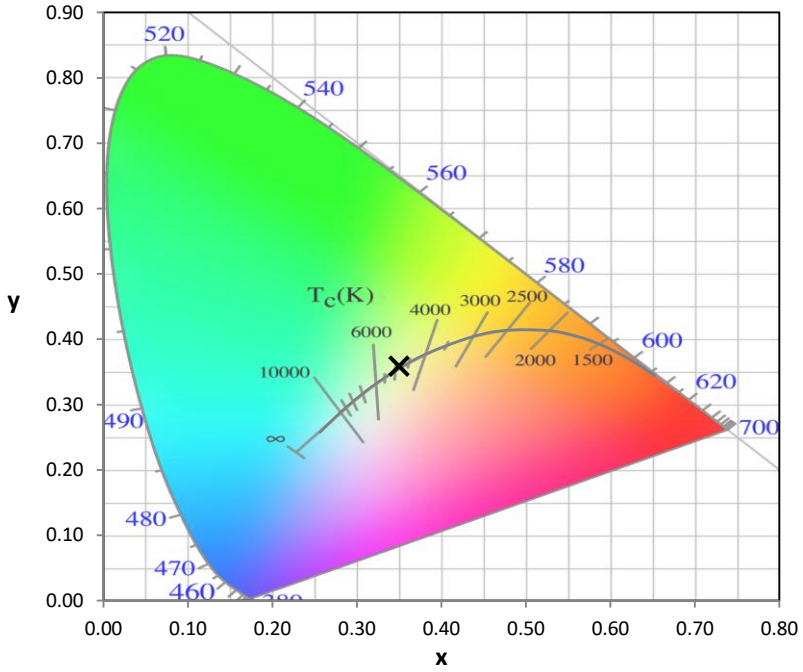
Stabilization Time:	72M
Operation Time:	12H
Room Temperature (°C) / RH%:	25.4/13%
Sphere Temperature (°C):	24.0

REPORT NUMBER: SP1-2104-215-7

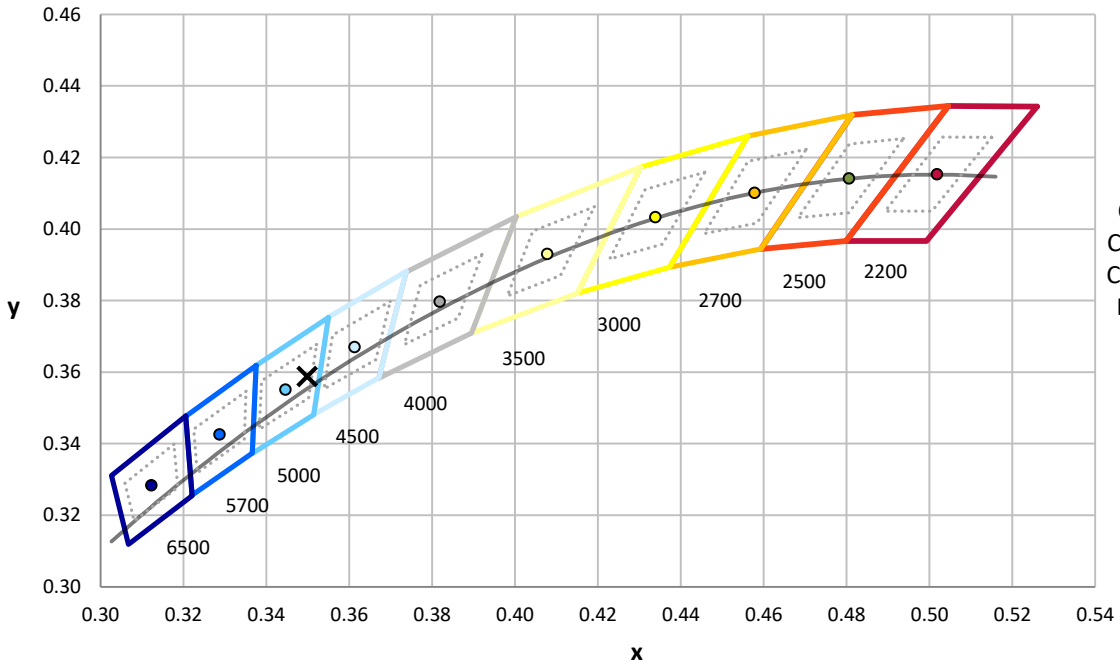
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	1/31/2021	7/31/2021
Power Meter	IN0071	12/1/2020	12/1/2021
AC Power Source	IN0063	12/1/2020	12/1/2021
DC Power Source	IN0208	12/1/2020	12/1/2021
Sphere Thermometer	IN0085	12/1/2020	12/1/2021
Room Thermometer	IN0046	12/1/2020	12/1/2021

REPORT NUMBER: SP1-2104-215-7

CIE 1931 Chromaticity Diagram



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

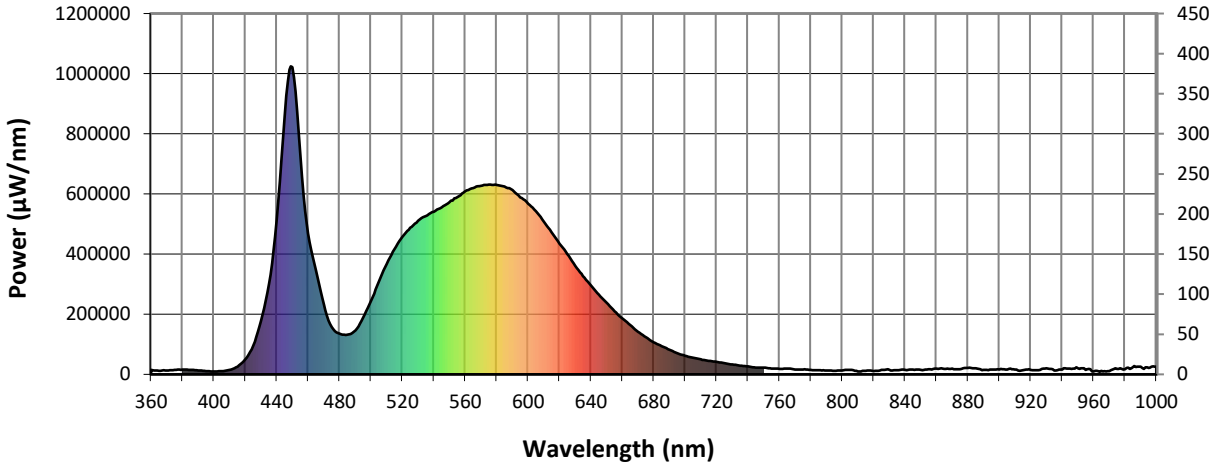


CCT = 4852K
CIE x = 0.3498
CIE y = 0.3588
Duv = 0.0017

Point lies inside the ANSI 5000K 4-step quadrangle

REPORT NUMBER: SP1-2104-215-7

Photopic Flux vs. Wavelength



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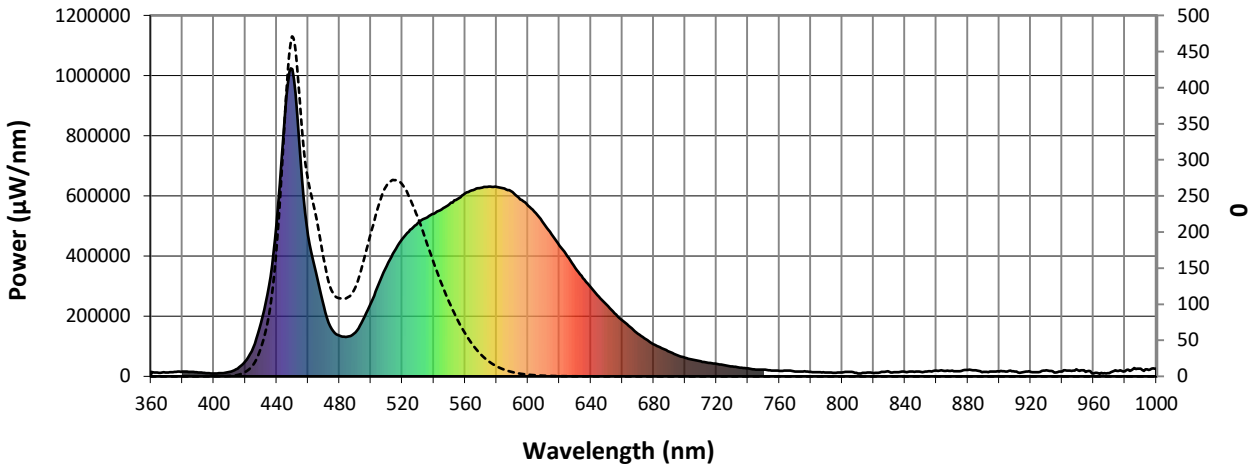
λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)
360	15077	0.0	490	146327	20.8	620	434415	113.0	750	22886	0.0	880	20960	0.0
365	12138	0.0	495	188585	34.2	625	400670	88.4	755	19692	0.0	885	20315	0.0
370	12993	0.0	500	245069	54.1	630	360611	65.3	760	18199	0.0	890	15211	0.0
375	14513	0.0	505	307682	86.1	635	326986	49.1	765	19191	0.0	895	15502	0.0
380	15679	0.0	510	367102	126.1	640	295583	35.3	770	16229	0.0	900	15935	0.0
385	14569	0.0	515	416068	172.4	645	264664	25.5	775	16351	0.0	905	15965	0.0
390	13091	0.0	520	457470	221.8	650	238441	17.4	780	14567	0.0	910	16119	0.0
395	10927	0.0	525	486980	261.4	655	210047	12.1	785	13349	0.0	915	13972	0.0
400	9655	0.0	530	511184	301.0	660	186019	7.8	790	12552	0.0	920	14830	0.0
405	10895	0.0	535	527191	326.9	665	164001	5.2	795	11517	0.0	925	13744	0.0
410	14929	0.0	540	540658	352.3	670	142007	3.1	800	13250	0.0	930	20340	0.0
415	25993	0.0	545	555639	369.8	675	123441	2.1	805	15135	0.0	935	13272	0.0
420	49620	0.1	550	572229	388.9	680	106894	1.2	810	9873	0.0	940	16357	0.0
425	95836	0.5	555	589788	402.8	685	94026	0.8	815	11566	0.0	945	19257	0.0
430	178101	1.4	560	608278	413.4	690	82099	0.5	820	11216	0.0	950	19804	0.0
435	300144	3.5	565	619317	411.8	695	70275	0.3	825	15165	0.0	955	14877	0.0
440	512674	8.1	570	627176	407.8	700	61784	0.2	830	14983	0.0	960	9882	0.0
445	857336	17.9	575	631114	392.7	705	55550	0.1	835	13993	0.0	965	11741	0.0
450	1021494	26.5	580	630436	374.6	710	50234	0.1	840	15281	0.0	970	11068	0.0
455	730207	24.4	585	625204	347.4	715	44909	0.0	845	15737	0.0	975	18108	0.0
460	467897	19.2	590	612752	316.8	720	41441	0.0	850	15148	0.0	980	17506	0.0
465	344659	17.8	595	589048	279.2	725	36834	0.0	855	17198	0.0	985	23821	0.0
470	230541	14.3	600	567479	244.6	730	32988	0.0	860	19169	0.0	990	25862	0.0
475	157156	12.3	605	542722	210.2	735	28984	0.0	865	18632	0.0	995	21133	0.0
480	134805	12.8	610	507118	174.2	740	26177	0.0	870	18831	0.0	1000	25640	0.0
485	132031	15.6	615	472188	142.5	745	22680	0.0	875	16978	0.0			

REPORT NUMBER: SP1-2104-215-7

Scotopic Flux vs. Wavelength

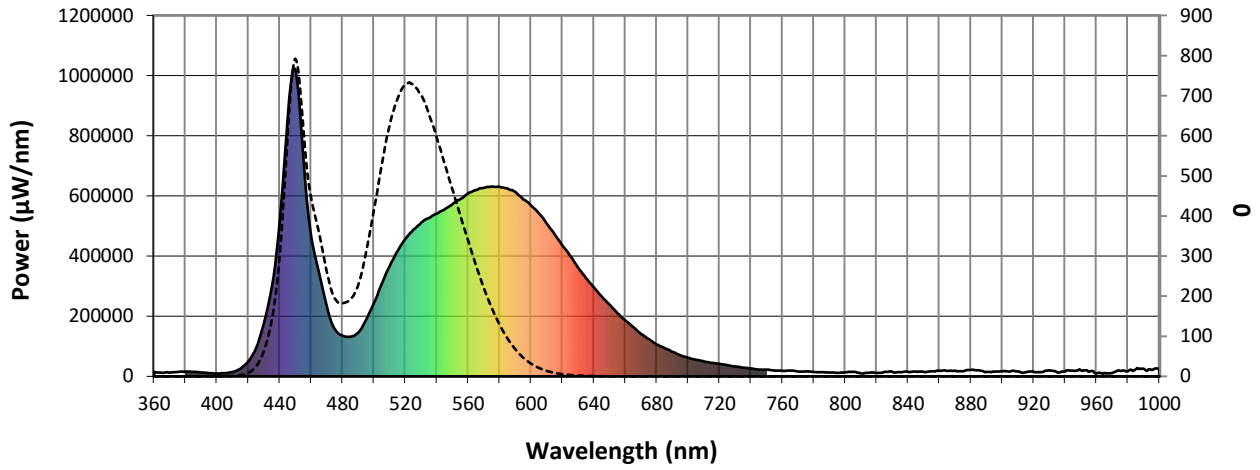


Scotopic Lumens: 66024.8 **S/P: 1.78**

λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)
360	15077	0.0	490	146327	225.3	620	434415	5.4	750	22886	0.0	880	20960	0.0
365	12138	0.0	495	188585	304.9	625	400670	3.4	755	19692	0.0	885	20315	0.0
370	12993	0.0	500	245069	409.9	630	360611	2.0	760	18199	0.0	890	15211	0.0
375	14513	0.0	505	307682	523.1	635	326986	1.2	765	19191	0.0	895	15502	0.0
380	15679	0.0	510	367102	622.2	640	295583	0.8	770	16229	0.0	900	15935	0.0
385	14569	0.0	515	416068	689.6	645	264664	0.5	775	16351	0.0	905	15965	0.0
390	13091	0.0	520	457470	727.1	650	238441	0.3	780	14567	0.0	910	16119	0.0
395	10927	0.1	525	486980	728.5	655	210047	0.2	785	13349	0.0	915	13972	0.0
400	9655	0.2	530	511184	704.8	660	186019	0.1	790	12552	0.0	920	14830	0.0
405	10895	0.3	535	527191	656.9	665	164001	0.1	795	11517	0.0	925	13744	0.0
410	14929	0.9	540	540658	597.4	670	142007	0.0	800	13250	0.0	930	20340	0.0
415	25993	2.7	545	555639	532.7	675	123441	0.0	805	15135	0.0	935	13272	0.0
420	49620	8.2	550	572229	467.9	680	106894	0.0	810	9873	0.0	940	16357	0.0
425	95836	23.4	555	589788	403.1	685	94026	0.0	815	11566	0.0	945	19257	0.0
430	178101	60.6	560	608278	340.0	690	82099	0.0	820	11216	0.0	950	19804	0.0
435	300144	134.2	565	619317	277.8	695	70275	0.0	825	15165	0.0	955	14877	0.0
440	512674	286.5	570	627176	221.3	700	61784	0.0	830	14983	0.0	960	9882	0.0
445	857336	574.1	575	631114	171.9	705	55550	0.0	835	13993	0.0	965	11741	0.0
450	1021494	791.7	580	630436	129.9	710	50234	0.0	840	15281	0.0	970	11068	0.0
455	730207	638.1	585	625204	95.5	715	44909	0.0	845	15737	0.0	975	18108	0.0
460	467897	451.9	590	612752	68.2	720	41441	0.0	850	15148	0.0	980	17506	0.0
465	344659	364.0	595	589048	47.0	725	36834	0.0	855	17198	0.0	985	23821	0.0
470	230541	265.5	600	567479	32.0	730	32988	0.0	860	19169	0.0	990	25862	0.0
475	157156	196.5	605	542722	21.3	735	28984	0.0	865	18632	0.0	995	21133	0.0
480	134805	182.1	610	507118	13.7	740	26177	0.0	870	18831	0.0	1000	25640	0.0
485	132031	191.4	615	472188	8.7	745	22680	0.0	875	16978	0.0			

REPORT NUMBER: SP1-2104-215-7

Melanopic Flux vs. Wavelength



Melanopic Lumens: 26696.3 **M/P: 0.72**

λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)
360	15077	0.0	490	146327	121.8	620	434415	0.3	750	22886	0.0	880	20960	0.0
365	12138	0.0	495	188585	155.7	625	400670	0.2	755	19692	0.0	885	20315	0.0
370	12993	0.0	500	245069	197.0	630	360611	0.1	760	18199	0.0	890	15211	0.0
375	14513	0.0	505	307682	236.1	635	326986	0.1	765	19191	0.0	895	15502	0.0
380	15679	0.0	510	367102	263.6	640	295583	0.0	770	16229	0.0	900	15935	0.0
385	14569	0.0	515	416068	271.9	645	264664	0.0	775	16351	0.0	905	15965	0.0
390	13091	0.0	520	457470	266.3	650	238441	0.0	780	14567	0.0	910	16119	0.0
395	10927	0.1	525	486980	247.0	655	210047	0.0	785	13349	0.0	915	13972	0.0
400	9655	0.1	530	511184	220.9	660	186019	0.0	790	12552	0.0	920	14830	0.0
405	10895	0.2	535	527191	189.7	665	164001	0.0	795	11517	0.0	925	13744	0.0
410	14929	0.6	540	540658	158.2	670	142007	0.0	800	13250	0.0	930	20340	0.0
415	25993	1.7	545	555639	129.1	675	123441	0.0	805	15135	0.0	935	13272	0.0
420	49620	5.7	550	572229	102.7	680	106894	0.0	810	9873	0.0	940	16357	0.0
425	95836	14.9	555	589788	79.5	685	94026	0.0	815	11566	0.0	945	19257	0.0
430	178101	37.6	560	608278	60.0	690	82099	0.0	820	11216	0.0	950	19804	0.0
435	300144	80.1	565	619317	43.5	695	70275	0.0	825	15165	0.0	955	14877	0.0
440	512674	171.3	570	627176	30.6	700	61784	0.0	830	14983	0.0	960	9882	0.0
445	857336	338.2	575	631114	21.0	705	55550	0.0	835	13993	0.0	965	11741	0.0
450	1021494	470.7	580	630436	14.1	710	50234	0.0	840	15281	0.0	970	11068	0.0
455	730207	382.6	585	625204	9.3	715	44909	0.0	845	15737	0.0	975	18108	0.0
460	467897	275.7	590	612752	6.0	720	41441	0.0	850	15148	0.0	980	17506	0.0
465	344659	225.2	595	589048	3.8	725	36834	0.0	855	17198	0.0	985	23821	0.0
470	230541	165.0	600	567479	2.4	730	32988	0.0	860	19169	0.0	990	25862	0.0
475	157156	120.0	605	542722	1.5	735	28984	0.0	865	18632	0.0	995	21133	0.0
480	134805	108.3	610	507118	0.9	740	26177	0.0	870	18831	0.0	1000	25640	0.0
485	132031	108.8	615	472188	0.6	745	22680	0.0	875	16978	0.0			

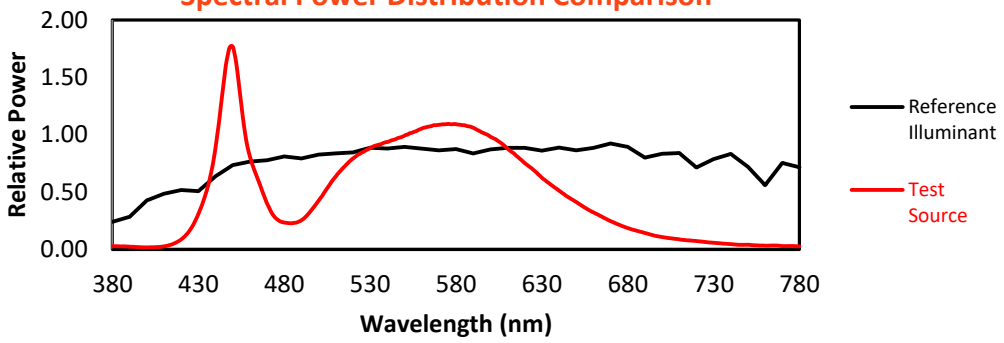
REPORT NUMBER: SP1-2104-215-7

TM-30-18

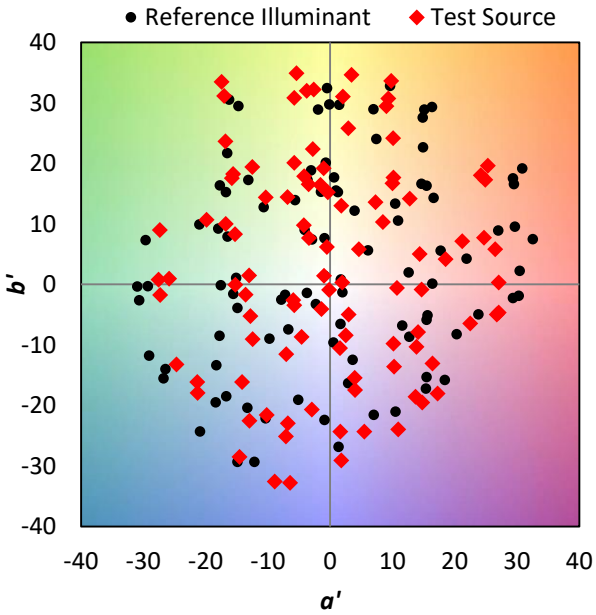
Summary

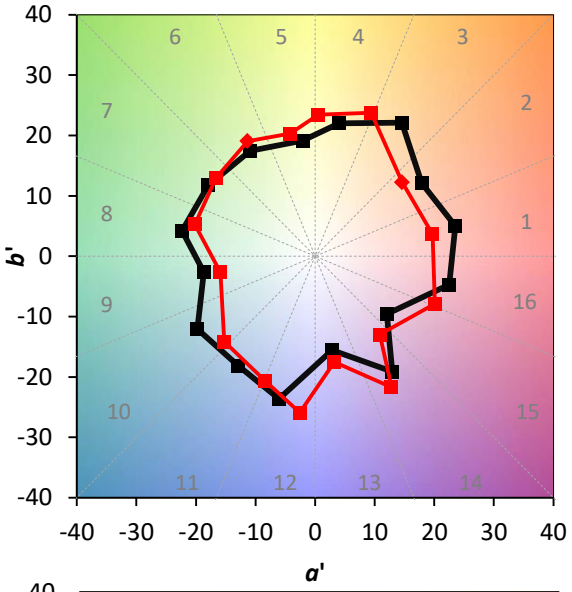
R_f = 75.2
R_g = 94.7
CIE R_a = 74.1
R_9 = -25.4

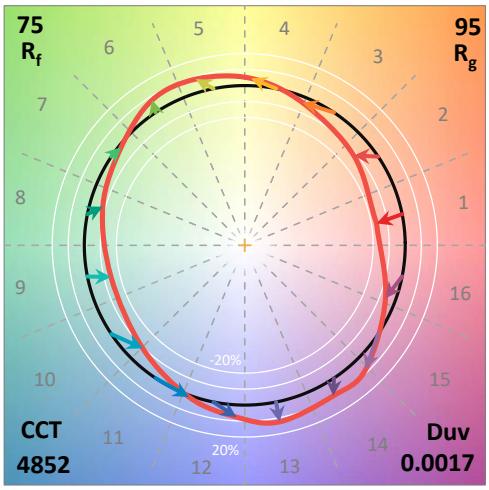
Spectral Power Distribution Comparison

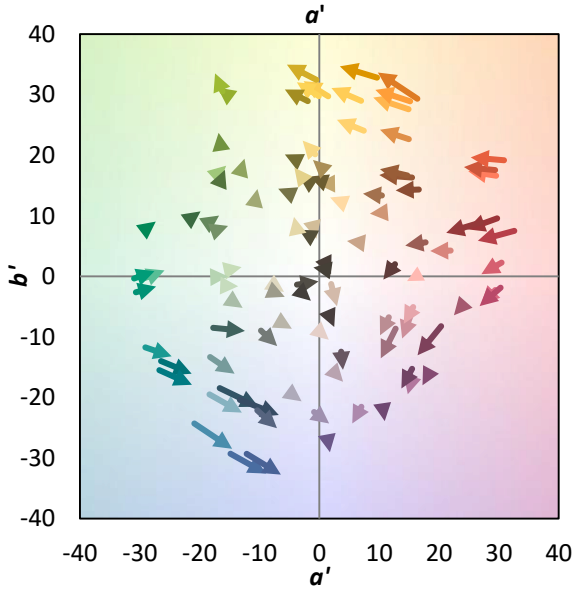


Color Vector Graphics









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

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CES02 = 60	CES27 = 88	CES52 = 90	CES77 = 68
CES03 = 30	CES28 = 81	CES53 = 81	CES78 = 54
CES04 = 69	CES29 = 67	CES54 = 86	CES79 = 81
CES05 = 46	CES30 = 85	CES55 = 84	CES80 = 77
CES06 = 50	CES31 = 71	CES56 = 76	CES81 = 79
CES07 = 39	CES32 = 63	CES57 = 75	CES82 = 91
CES08 = 38	CES33 = 79	CES58 = 76	CES83 = 89
CES09 = 29	CES34 = 70	CES59 = 87	CES84 = 86
CES10 = 73	CES35 = 83	CES60 = 89	CES85 = 79
CES11 = 56	CES36 = 90	CES61 = 83	CES86 = 76
CES12 = 62	CES37 = 79	CES62 = 85	CES87 = 78
CES13 = 42	CES38 = 94	CES63 = 76	CES88 = 82
CES14 = 74	CES39 = 96	CES64 = 67	CES89 = 74
CES15 = 70	CES40 = 91	CES65 = 64	CES90 = 81
CES16 = 46	CES41 = 95	CES66 = 61	CES91 = 74
CES17 = 49	CES42 = 80	CES67 = 58	CES92 = 61
CES18 = 55	CES43 = 78	CES68 = 66	CES93 = 77
CES19 = 71	CES44 = 99	CES69 = 74	CES94 = 56
CES20 = 64	CES45 = 86	CES70 = 58	CES95 = 67
CES21 = 85	CES46 = 85	CES71 = 51	CES96 = 78
CES22 = 77	CES47 = 88	CES72 = 83	CES97 = 86
CES23 = 91	CES48 = 80	CES73 = 48	CES98 = 77
CES24 = 90	CES49 = 83	CES74 = 92	CES99 = 65
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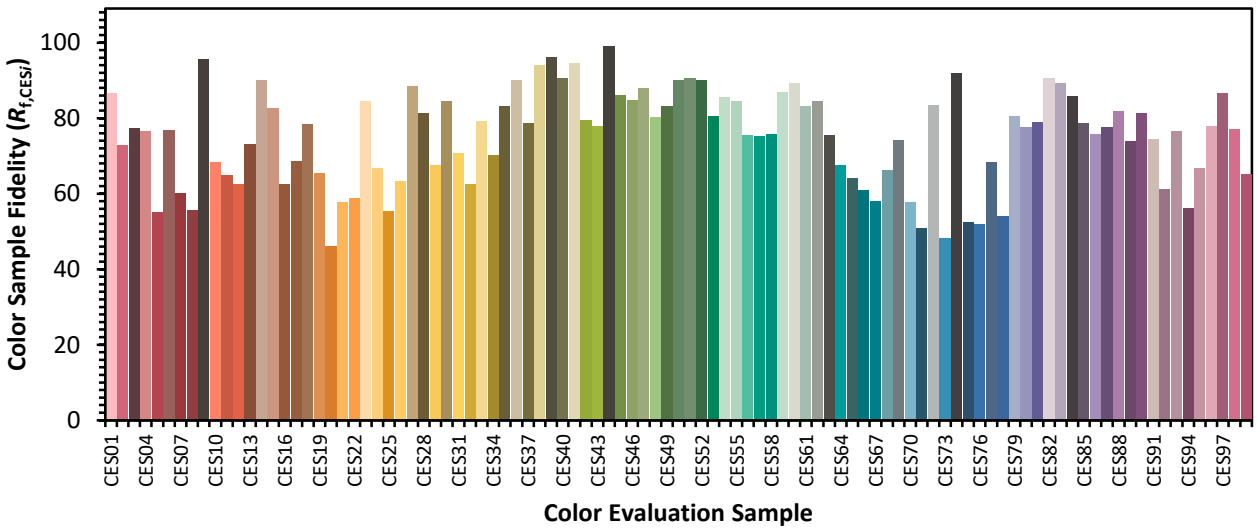

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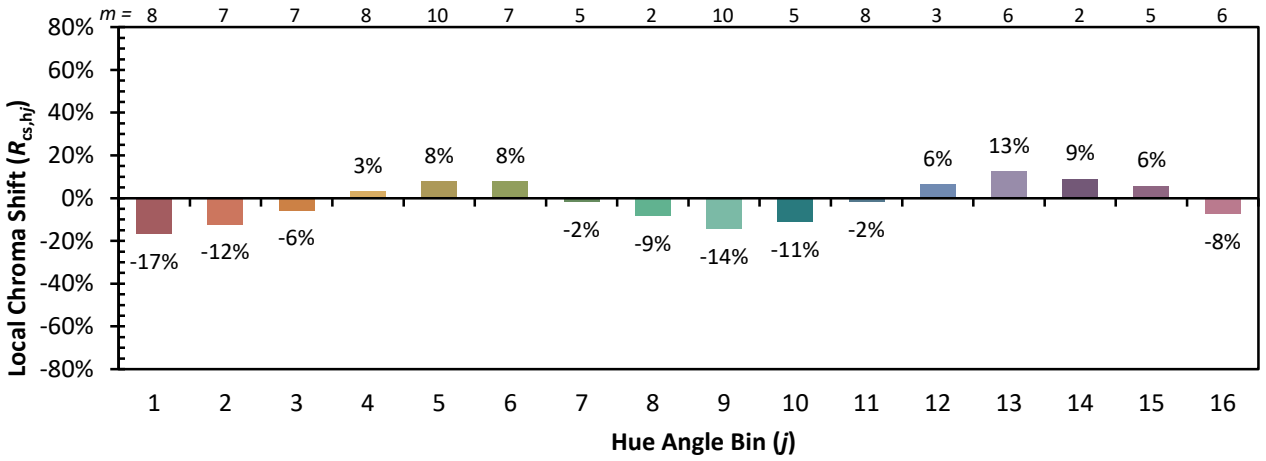
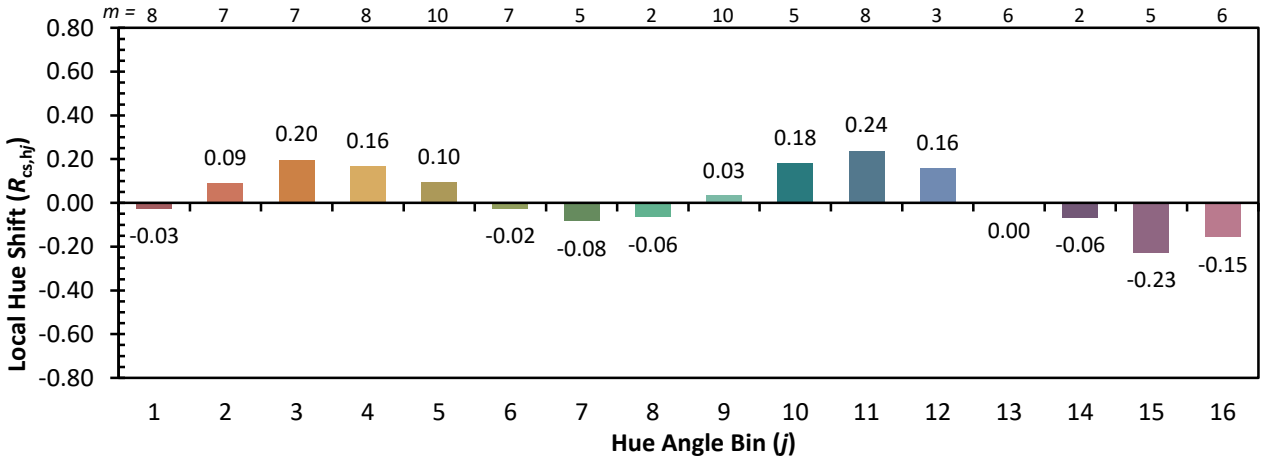
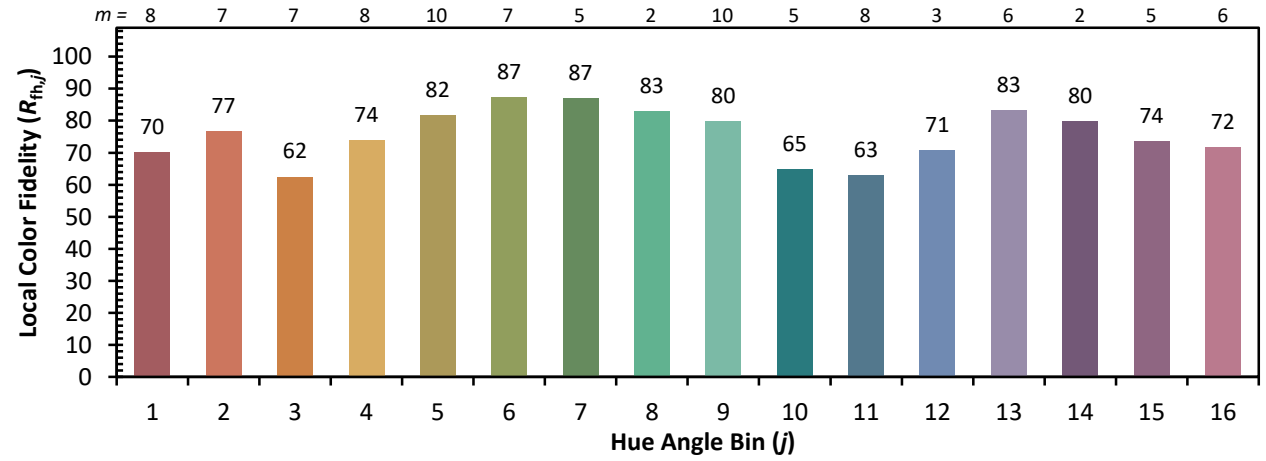
Color Rendition by Hue-Angle Bin







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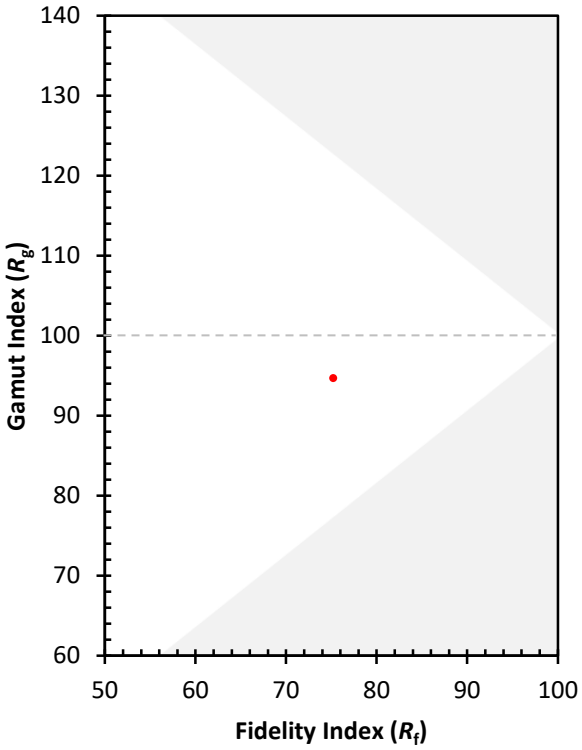
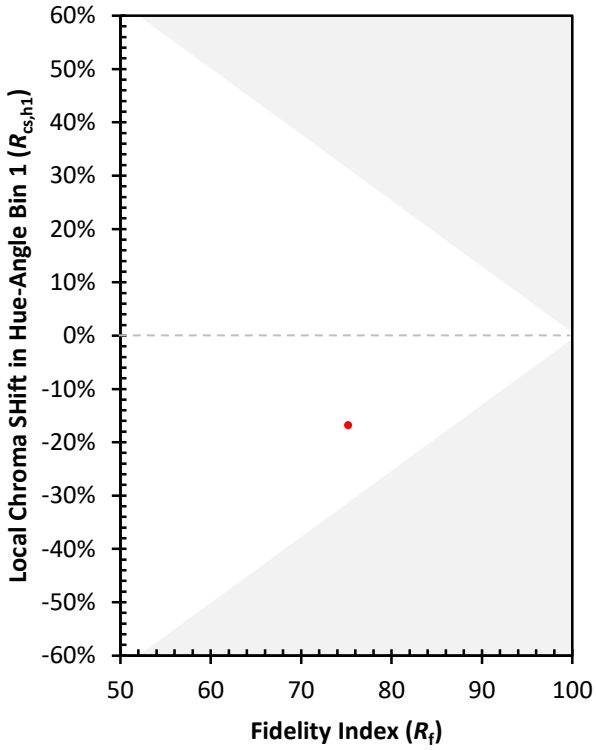
Measure Comparisons





(END OF REPORT)