

Signify Classified - Internal
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: LUMARK

Report Number: P979176

Luminaire Tested: **WPLLED38S-120W-5000K**

Issue Date: 03/31/2025



Test Information

Test Method: LM-79-08
Report Number: P979176
Test Lab: Cooper Lighting Solutions
Issue Date: 03/31/2025
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: LUMARK
Catalog Number: WPLLED38S-120W-5000K
Description: LUMARK WALL PACK LED LARGE 80CRI CCT AND LUMEN SELECTIVE FIXTURE
OPERATING @120W-5000K
Light Source: 5000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

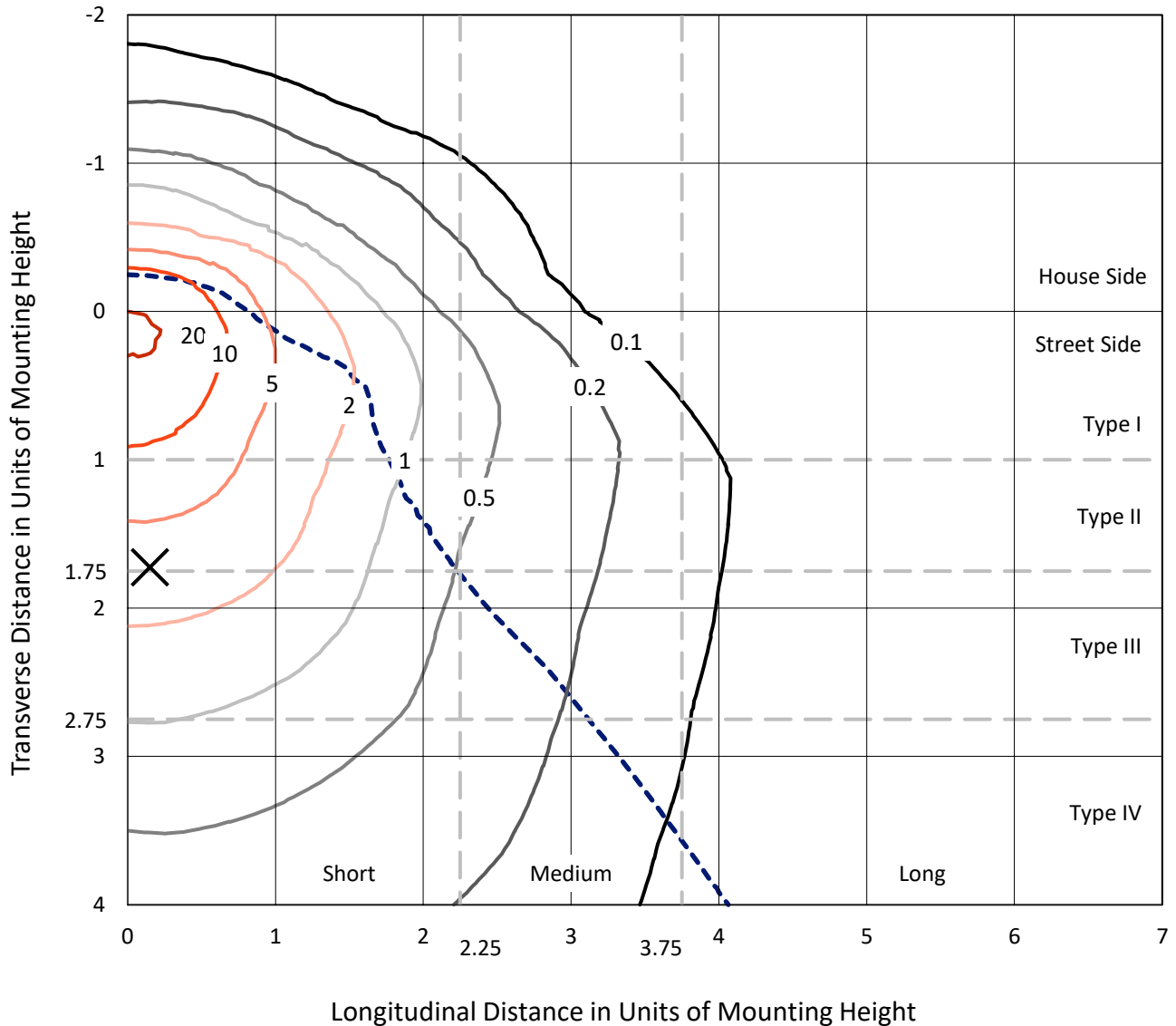
Lumens per Lamp: N/A
Luminaire Lumens: 17539 lumens
Efficiency: N/A
Efficacy: 148.6 lumens/watt
Luminous Opening: Rectangular w/ Sides (W: 1.25' x L: 0.33' x H: 0.58')
IES Classification: Type IV - Short
BUG Rating: B3 - U5 - G5

Input Watts (W): 118
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: 28.75 FT

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Iso-Footcandle Lines of Horizontal Illumination

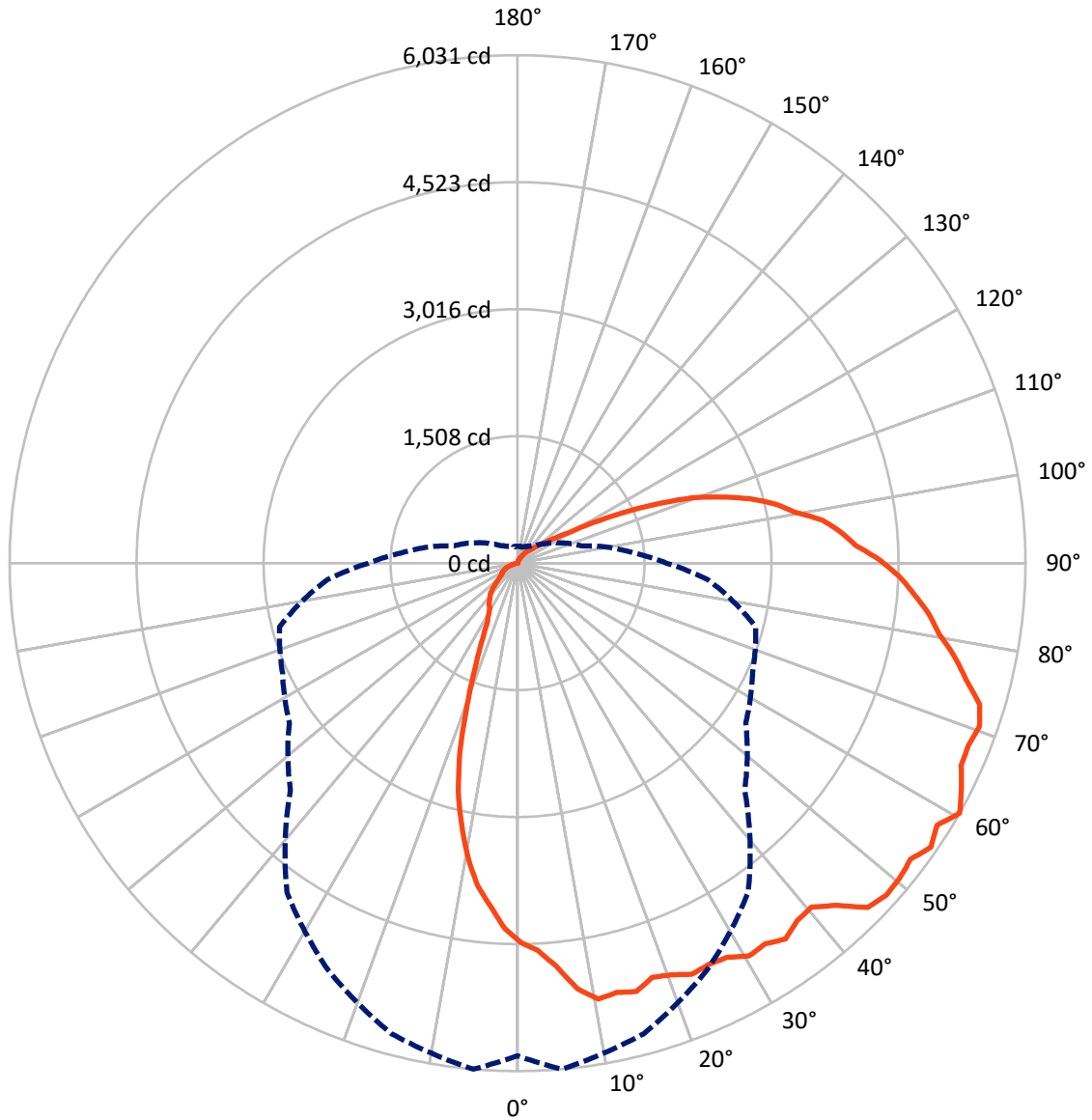
× Max cd
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 21.8 fc
 Type IV - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 5-Deg Lateral - - - Horizontal Cone Through 60-Deg Vertical

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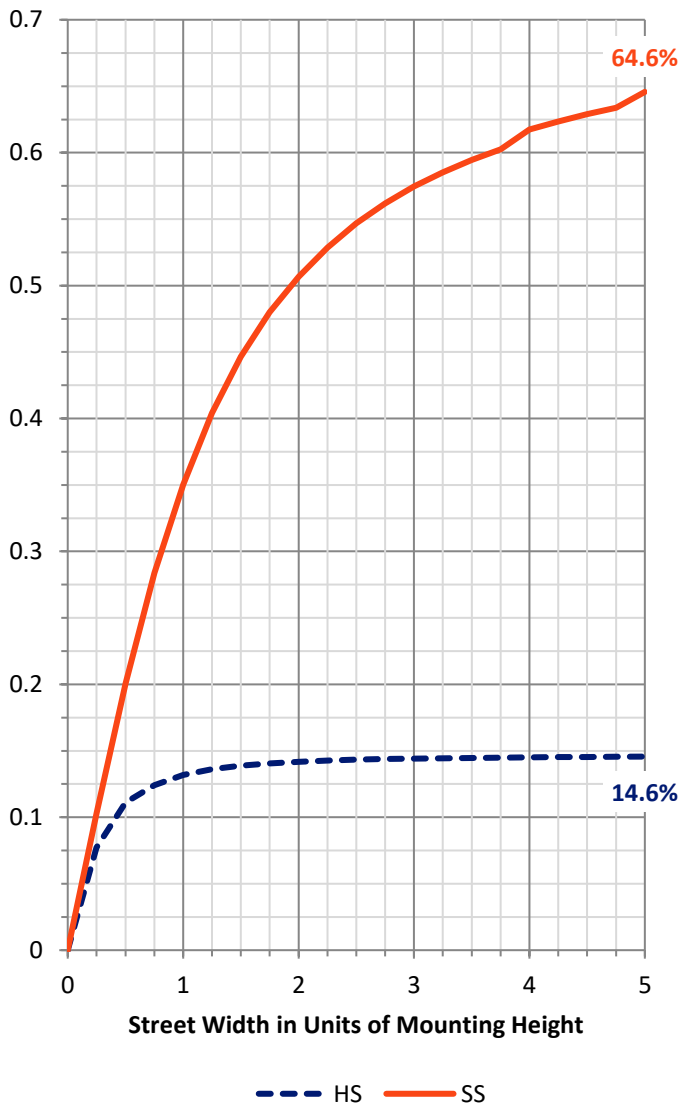
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	2590.6	99.8	2690.3
	% Fixture	14.8	0.6	15.3
Street Side	Lumens	12429.4	2419.3	14848.7
	% Fixture	70.9	13.8	84.7
Total	Lumens	15019.9	2519.1	17539.0
	% Fixture	85.6	14.4	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	425.6	2.4
10°-20°	1184.0	6.8
20°-30°	1629.1	9.3
30°-40°	1892.1	10.8
40°-50°	2056.7	11.7
50°-60°	2180.8	12.4
60°-70°	2155.4	12.3
70°-80°	1934.7	11.0
80°-90°	1561.6	8.9
90°-100°	1159.9	6.6
100°-110°	747.9	4.3
110°-120°	343.5	2.0
120°-130°	138.8	0.8
130°-140°	71.9	0.4
140°-150°	36.6	0.2
150°-160°	14.2	0.1
160°-170°	4.9	0.0
170°-180°	1.5	0.0
0°-90°	15019.9	85.6
0°-180°	17539.0	100.0



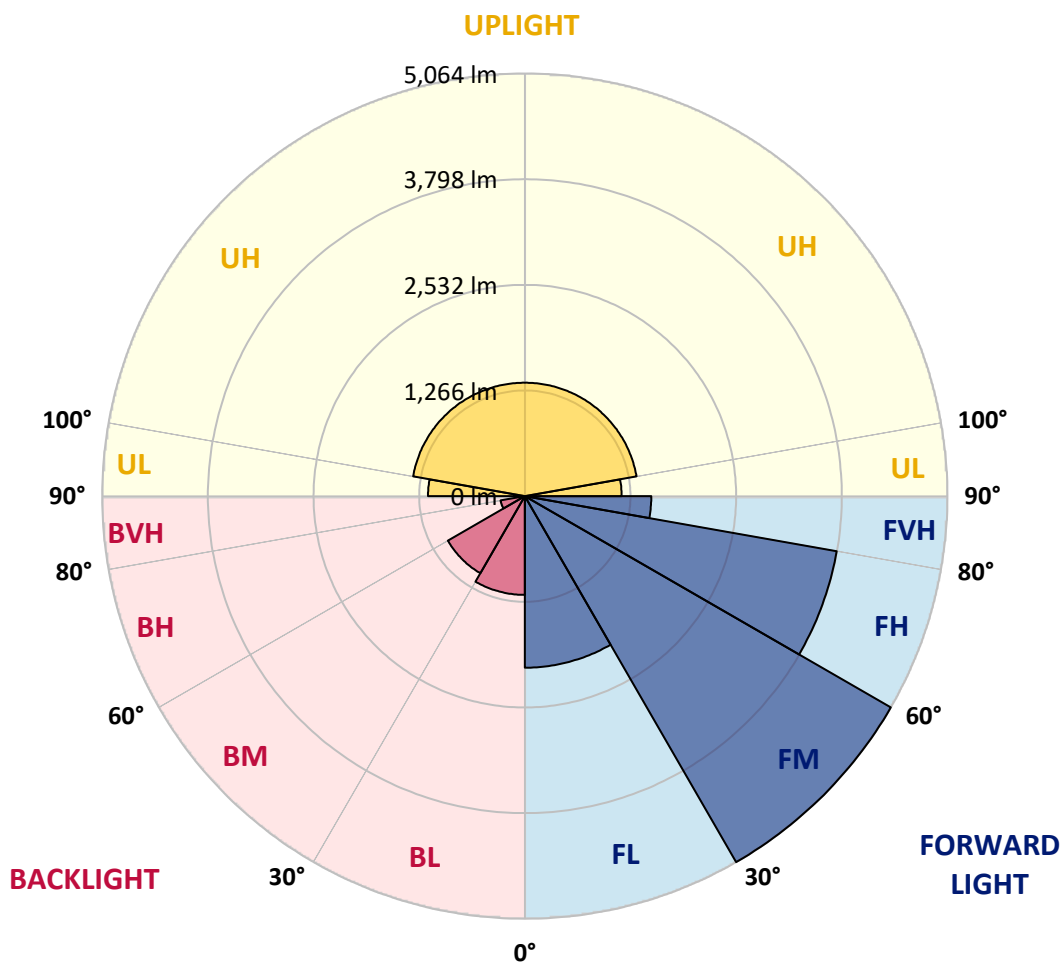
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	2055.5	11.7			
FM (30°-60°)	5064.0	28.9			
FH (60°-80°)	3794.8	21.6			G2/5000
FVH (80°-90°)	1515.1	8.6			G5
BL (0°-30°)	1183.2	6.7	B3/2500		
BM (30°-60°)	1065.6	6.1	B2/2500		
BH (60°-80°)	295.2	1.7	B1/500		G1/500
BVH (80°-90°)	46.5	0.3			G1/100
UL (90°-100°)	1159.9	6.6		U5	
UH (100°-180°)	1359.2	7.7		U5	

BUG Rating: B3-U5-G5

Type IV Short





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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	4503.6	4503.6	4503.6	4503.6	4503.6	4503.6	4503.6	4503.6	4503.6	4503.6	4503.6
2.5°	4649.1	4605.6	4627.3	4584.6	4543.3	4640.8	4611.6	4579.3	4592.8	4524.6	4544.1
5°	4703.8	4806.5	4778.0	4718.8	4764.5	4615.3	4821.5	4511.1	4649.8	4582.3	4575.6
7.5°	5077.2	5101.2	5019.5	5006.0	4925.8	4762.3	4803.5	4657.3	4667.8	4463.1	4523.1
10°	5326.9	5263.9	5311.2	5274.4	5141.7	4977.5	4817.8	4712.1	4596.6	4517.1	4480.4
12.5°	5074.2	5231.7	5220.5	5300.7	5258.0	5220.5	5110.2	4789.3	4724.1	4454.9	4361.1
15°	5136.5	5278.9	5217.5	5275.9	5222.0	5231.7	5175.5	4880.0	4559.1	4397.9	4251.7
17.5°	5080.2	5171.7	5198.0	5287.2	5112.5	5176.2	5213.0	5025.5	4547.1	4371.6	4177.4
20°	5186.7	5216.7	5091.5	5168.0	5006.0	5060.7	4980.5	5024.0	4499.9	4340.9	4166.2
22.5°	5140.2	5302.2	5110.2	4968.5	5042.7	5018.0	4948.3	4898.8	4548.6	4267.4	4102.4
25°	5201.7	5277.4	5236.2	5029.2	5125.2	4856.0	4832.0	4944.5	4530.6	4086.7	3948.0
27.5°	5241.5	5300.7	5180.7	5151.5	4956.5	4752.6	4687.3	4532.1	4449.6	3990.0	3761.2
30°	5377.9	5413.9	5231.7	5113.2	4967.0	4753.3	4573.3	4529.8	4301.1	3824.2	3665.3
32.5°	5434.2	5392.9	5314.9	5170.2	4925.0	4697.8	4387.4	4317.6	4273.4	3789.0	3513.0
35°	5456.7	5479.2	5413.9	5252.0	4981.3	4657.3	4337.1	4145.2	4166.2	3538.5	3285.8
37.5°	5464.2	5389.2	5443.9	5240.0	4957.3	4507.4	4241.2	4064.2	4014.7	3354.1	3129.1
40°	5384.7	5371.2	5368.9	5104.2	5021.0	4463.1	4160.2	3861.7	3742.5	3145.6	2934.2
42.5°	5509.2	5554.1	5403.4	5238.5	4796.0	4339.4	4014.7	3772.5	3561.0	2978.4	2725.0
45°	5899.8	5830.8	5650.9	5253.5	4782.5	4270.4	3890.2	3672.8	3400.6	2884.7	2547.2
47.5°	5796.3	5890.8	5803.1	5354.7	4841.8	4167.7	3853.5	3601.5	3327.8	2695.7	2395.0
50°	5851.1	5879.6	5902.1	5416.2	4822.3	4124.2	3735.8	3476.3	3269.3	2576.5	2328.3
52.5°	5950.1	5842.1	5836.8	5494.2	4892.0	4067.9	3650.3	3519.8	3163.6	2549.5	2174.6
55°	5697.4	5953.1	5848.8	5587.1	4914.5	4026.7	3522.8	3345.1	3120.1	2425.8	2095.8
57.5°	5917.1	5870.6	5693.6	5436.4	4838.8	3907.5	3417.1	3222.1	3000.9	2327.5	1939.1
60°	5848.8	6031.0	5784.3	5328.4	4772.0	3813.7	3306.8	3079.6	2925.9	2267.5	1768.1
62.5°	5690.6	5915.6	5671.9	5320.9	4724.1	3753.8	3196.6	2914.7	2793.2	2110.8	1616.7
65°	5817.3	5788.8	5632.9	5372.7	4691.1	3693.8	3066.1	2844.2	2689.0	1981.9	1399.2
67.5°	5708.6	5773.1	5739.4	5434.2	4740.6	3682.5	2970.2	2716.7	2571.2	1759.1	1185.5
70°	5742.4	5817.3	5579.6	5290.2	4643.1	3523.5	2801.4	2562.2	2417.5	1542.4	951.6
72.5°	5545.9	5735.6	5512.2	4988.8	4571.8	3411.8	2653.7	2373.3	2218.1	1247.8	733.4
75°	5355.4	5495.7	5311.9	5048.0	4368.6	3348.8	2581.7	2265.3	1969.9	978.6	545.1
77.5°	5228.0	5297.7	5186.7	4856.0	4226.2	3206.4	2451.3	2059.8	1770.4	725.9	414.7
80°	5177.7	5073.5	5126.7	4669.3	4110.7	3024.1	2341.0	1918.9	1475.7	527.1	338.2
82.5°	4943.0	4917.5	4961.8	4615.3	3930.7	2889.2	2217.3	1748.7	1216.3	383.2	272.9
85°	4743.6	4724.1	4546.3	4199.9	3699.0	2719.0	2140.1	1584.4	982.3	293.2	227.2
87.5°	4460.1	4535.8	4323.6	4046.9	3500.3	2498.5	1960.9	1439.7	777.6	237.7	194.2
90°	4351.4	4298.9	4139.2	3861.7	3270.8	2318.5	1791.4	1223.8	619.4	200.2	171.0
92.5°	4034.2	4018.4	3990.0	3615.0	3032.4	2150.6	1653.4	1089.5	501.6	189.7	155.2
95°	3898.5	3855.0	3681.8	3382.6	2829.9	1969.9	1439.7	938.1	404.9	168.0	146.2
97.5°	3744.0	3657.0	3413.3	3127.6	2506.0	1805.6	1261.2	753.6	337.4	152.2	135.0
100°	3448.6	3338.3	3195.1	2914.7	2279.5	1628.7	1098.5	626.9	288.7	147.7	135.7
102.5°	3168.1	3130.6	2942.4	2727.2	2016.3	1397.0	893.1	509.1	249.0	144.7	132.0
105°	2967.2	2858.4	2686.7	2311.0	1748.7	1220.8	747.6	415.4	222.7	144.7	130.5
107.5°	2653.7	2539.0	2337.3	1990.9	1464.5	976.3	595.4	338.2	204.0	147.0	125.2
110°	2194.1	2215.8	1983.4	1651.9	1197.5	792.6	482.9	287.2	185.2	138.7	120.7



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CANDELA DISTRIBUTION (continued):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
112.5°	1801.1	1786.1	1611.4	1299.5	960.6	627.6	395.2	246.7	171.0	134.2	115.5
115°	1425.5	1394.0	1249.3	997.3	727.4	494.2	331.4	213.7	161.2	127.5	112.5
117.5°	1034.8	1032.5	927.6	733.4	563.9	425.2	275.9	195.0	153.7	118.5	102.0
120°	752.8	729.6	683.9	578.9	478.4	360.7	240.0	177.7	143.2	107.2	96.0
122.5°	560.9	573.6	520.4	484.4	410.9	305.9	218.2	162.7	138.0	98.2	86.2
125°	462.7	463.4	437.2	403.4	357.7	267.7	196.5	152.2	120.0	87.0	75.0
127.5°	380.9	382.4	359.2	332.9	308.9	237.7	177.7	144.0	107.2	76.5	66.0
130°	317.9	311.2	299.9	289.4	263.9	213.0	173.2	133.5	95.2	67.5	58.5
132.5°	262.4	262.4	257.9	248.2	233.2	198.0	162.0	126.0	84.0	59.2	53.2
135°	230.2	228.0	225.7	211.5	208.5	183.0	156.0	120.0	75.0	53.2	47.2
137.5°	204.0	210.7	199.5	189.0	187.5	172.5	147.0	102.7	66.0	49.5	44.2
140°	189.0	192.7	179.2	171.7	168.0	156.0	128.2	88.5	56.2	45.0	41.2
142.5°	168.0	164.2	162.7	155.2	144.7	138.0	114.7	75.7	49.5	42.0	39.7
145°	129.7	126.7	129.0	128.2	120.7	116.2	93.7	63.7	45.0	39.0	36.0
147.5°	103.5	104.2	102.0	101.2	98.2	95.2	78.0	52.5	42.0	36.0	35.2
150°	87.7	83.2	82.5	78.7	81.0	73.5	62.2	43.5	35.2	33.0	31.5
152.5°	67.5	67.5	69.0	68.2	64.5	58.5	50.2	36.0	32.2	31.5	29.2
155°	55.5	55.5	55.5	54.0	51.0	46.5	39.7	30.7	29.2	29.2	30.0
157.5°	43.5	42.7	43.5	42.0	38.2	34.5	31.5	27.7	27.0	27.7	27.0
160°	30.0	33.0	33.0	32.2	29.2	25.5	25.5	24.0	26.2	29.2	26.2
162.5°	21.0	23.2	25.5	23.2	21.0	19.5	20.2	22.5	25.5	25.5	24.7
165°	13.5	13.5	15.0	15.7	15.0	15.7	18.0	21.7	24.0	25.5	26.2
167.5°	6.7	6.7	8.2	9.7	11.2	14.2	18.7	21.7	22.5	24.7	25.5
170°	3.0	3.0	5.2	9.0	11.2	15.0	20.2	23.2	25.5	27.0	24.7
172.5°	3.0	3.7	6.0	9.0	11.2	15.0	21.0	24.7	24.7	26.2	27.0
175°	6.0	5.2	8.2	11.2	13.5	17.2	22.5	24.0	27.0	27.7	29.2
177.5°	5.2	3.0	6.0	9.0	13.5	14.2	21.0	24.0	25.5	26.2	26.2
180°	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7



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CANDELA DISTRIBUTION (continued):

	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	4503.6	4503.6	4503.6	4503.6	4503.6	4503.6	4503.6	4503.6	4503.6	4503.6
2.5°	4466.9	4478.9	4419.6	4363.4	4353.6	4314.6	4366.4	4353.6	4340.1	4469.1
5°	4449.6	4400.9	4377.6	4313.9	4253.9	4136.2	4121.2	4115.2	4085.9	4207.4
7.5°	4433.9	4328.9	4214.2	4124.9	3978.0	4006.5	3921.7	3879.0	3865.5	3734.3
10°	4404.6	4173.7	4036.4	3952.5	3837.0	3740.3	3717.0	3570.8	3553.5	3555.0
12.5°	4238.2	4167.7	3938.2	3812.2	3668.3	3505.6	3342.1	3306.8	3183.1	3184.6
15°	4214.9	4154.2	3786.7	3650.3	3345.1	3138.9	3001.7	2827.7	2808.2	2853.9
17.5°	4132.4	3901.5	3641.3	3391.6	3071.4	2828.4	2650.0	2395.0	2333.5	2384.5
20°	4118.2	3761.2	3478.6	3154.6	2767.7	2457.3	2138.6	1908.4	1792.9	1800.4
22.5°	3891.7	3720.8	3290.3	2912.4	2446.0	1990.9	1642.2	1457.0	1343.7	1342.2
25°	3822.7	3438.8	2957.4	2594.5	2028.3	1560.4	1285.2	1064.0	1016.8	1007.8
27.5°	3666.8	3236.4	2793.2	2230.8	1650.4	1214.8	979.3	836.1	789.6	784.3
30°	3470.3	3097.6	2542.7	1883.6	1328.7	961.3	785.8	721.4	691.4	689.1
32.5°	3275.3	2884.7	2306.5	1624.2	1070.8	800.8	707.1	668.1	621.6	653.9
35°	3118.6	2654.5	2014.1	1329.5	863.8	704.9	644.1	605.1	598.4	590.1
37.5°	2867.4	2395.0	1739.7	1098.5	751.4	643.4	611.1	578.1	554.1	581.9
40°	2620.0	2158.8	1527.4	911.8	665.9	584.1	554.9	527.1	513.6	518.1
42.5°	2469.3	1977.4	1275.5	766.3	600.6	545.1	513.6	484.4	477.7	470.9
45°	2275.0	1771.9	1066.3	685.4	536.9	491.9	466.4	429.7	417.7	420.7
47.5°	2110.1	1582.9	899.1	597.6	515.1	455.2	404.9	378.7	357.7	364.4
50°	2060.6	1398.5	786.6	561.6	460.4	401.9	372.7	320.2	301.4	308.2
52.5°	1858.1	1207.3	693.6	533.1	418.4	357.7	320.2	281.2	254.9	249.0
55°	1696.9	1025.0	638.9	488.2	374.9	323.9	278.2	247.5	228.0	225.0
57.5°	1533.4	902.8	615.6	442.4	339.7	292.4	243.7	220.5	226.5	219.7
60°	1386.5	785.1	566.1	401.9	293.9	245.2	216.0	196.5	202.5	201.7
62.5°	1178.0	701.9	524.1	362.9	260.9	216.7	185.2	174.7	185.2	189.0
65°	998.1	636.6	491.2	316.4	224.2	185.2	158.2	160.5	164.2	171.7
67.5°	821.8	593.9	443.9	270.7	194.2	154.5	143.2	140.2	143.2	141.7
70°	655.4	537.6	393.7	243.0	162.7	132.0	121.5	117.7	123.7	120.7
72.5°	536.1	475.4	338.9	203.2	138.0	106.5	99.7	99.0	93.0	95.2
75°	454.4	417.7	291.7	175.5	109.5	87.7	76.5	72.0	68.2	70.5
77.5°	395.9	359.2	245.2	140.2	90.7	68.2	51.0	45.0	41.2	39.7
80°	340.4	303.7	207.0	114.7	65.2	42.7	24.7	15.7	9.7	10.5
82.5°	287.9	251.9	171.0	93.0	48.7	22.5	4.5	0.7	0.0	0.0
85°	236.2	208.5	145.5	77.2	41.2	20.2	6.0	1.5	0.7	0.7
87.5°	198.0	177.0	125.2	65.2	35.2	18.0	6.7	3.0	0.7	0.0
90°	171.7	151.5	106.5	59.2	31.5	16.5	5.2	2.2	0.7	0.0
92.5°	154.5	135.7	100.5	56.2	30.7	17.2	6.0	4.5	3.0	3.7
95°	144.7	126.0	94.5	51.7	29.2	17.2	8.2	5.2	4.5	3.7
97.5°	135.0	118.5	85.5	48.7	28.5	17.2	9.0	6.7	5.2	4.5
100°	123.0	113.2	79.5	46.5	28.5	17.2	8.2	7.5	5.2	5.2
102.5°	117.0	105.0	71.2	41.2	24.7	16.5	7.5	5.2	3.7	3.0
105°	114.0	99.7	66.0	39.7	26.2	16.5	9.0	6.0	5.2	5.2
107.5°	110.2	97.5	63.0	39.0	25.5	17.2	9.7	7.5	6.0	6.0
110°	106.5	90.7	57.7	37.5	22.5	15.0	9.7	6.7	5.2	5.2



REPORT NUMBER: P979176
 CATALOG NUMBER: WPLLED38S-120W-5000K

CANDELA DISTRIBUTION (continued):

	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
112.5°	100.5	78.7	52.5	33.0	22.5	14.2	8.2	5.2	4.5	3.7
115°	96.0	70.5	47.2	31.5	21.7	13.5	8.2	5.2	3.7	3.7
117.5°	87.0	64.5	44.2	30.0	18.7	12.0	7.5	4.5	3.0	3.7
120°	81.0	54.7	43.5	28.5	18.7	11.2	7.5	4.5	3.0	3.0
122.5°	72.7	51.7	37.5	27.7	18.7	11.2	8.2	5.2	3.7	3.7
125°	63.0	45.7	36.7	27.0	18.7	11.2	7.5	5.2	2.2	3.0
127.5°	54.7	44.2	33.7	24.7	17.2	10.5	7.5	4.5	2.2	3.0
130°	50.2	41.2	32.2	24.7	16.5	10.5	8.2	4.5	2.2	3.0
132.5°	46.5	38.2	33.7	24.0	16.5	11.2	8.2	5.2	3.0	3.7
135°	43.5	36.0	30.7	23.2	16.5	11.2	8.2	4.5	2.2	3.0
137.5°	40.5	34.5	29.2	24.0	17.2	11.2	8.2	5.2	3.7	3.7
140°	38.2	33.7	28.5	24.0	16.5	12.0	8.2	5.2	3.0	4.5
142.5°	36.7	31.5	27.7	22.5	15.7	10.5	9.0	5.2	4.5	3.7
145°	34.5	31.5	27.7	22.5	15.7	11.2	9.0	6.0	3.7	4.5
147.5°	33.7	30.7	27.0	22.5	15.7	12.7	9.0	5.2	4.5	4.5
150°	31.5	29.2	24.7	21.0	15.0	12.0	8.2	4.5	3.7	4.5
152.5°	29.2	27.7	24.7	18.7	15.7	11.2	9.7	5.2	3.7	3.7
155°	28.5	26.2	23.2	19.5	15.0	11.2	9.0	4.5	4.5	3.7
157.5°	27.0	25.5	22.5	18.7	15.0	10.5	7.5	4.5	3.0	3.0
160°	27.0	24.0	23.2	19.5	15.0	10.5	8.2	4.5	3.0	3.0
162.5°	25.5	24.0	22.5	18.0	14.2	10.5	7.5	3.7	2.2	2.2
165°	25.5	25.5	22.5	19.5	14.2	9.7	7.5	3.7	3.0	2.2
167.5°	24.7	24.7	23.2	19.5	12.7	10.5	7.5	4.5	2.2	2.2
170°	27.0	24.7	23.2	19.5	14.2	12.0	8.2	4.5	2.2	2.2
172.5°	27.0	24.7	23.2	19.5	15.0	10.5	8.2	4.5	3.7	2.2
175°	27.7	27.0	24.7	21.7	15.7	12.7	9.7	6.0	4.5	3.7
177.5°	26.2	24.0	23.2	19.5	13.5	11.2	7.5	3.7	2.2	2.2
180°	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7

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

Lumark

Report Number: SP1-2407-168-4

Test Date: 08/08/2024

Luminaire Tested: LSDL-92S-100W 5000k

Data in this report applies to families of products including LSDL-92S-100W 5000k.

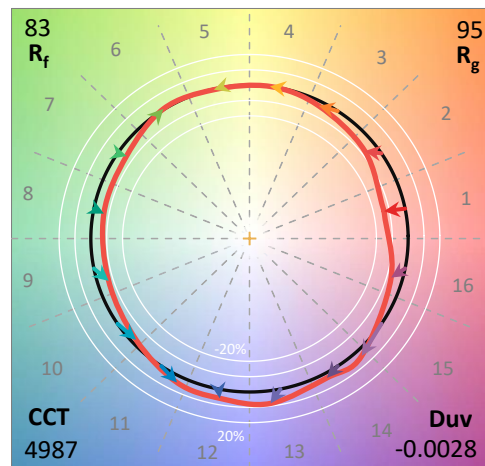
Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-168-4
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 08/12/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: Lumark
 Catalog Number: **LSDL-92S-100W 5000k**
 Description: Lumark Wallpack 100W

Spectral Parameters

CCT (K): 4987
 CIE u': 0.2135
 CIE v': 0.4819
 Duv: -0.0028
 CIE x: 0.3449
 CIE y: 0.3461
 CIE z: 0.3090
 Peak Wavelength (nm): 453
 Dominant Wavelength (nm): 576
 Purity: 7.317109
 Rf: 82.9
 Rg: 94.6

CRI (Ra):	83.4		
R1:	82.5	R9:	6.6
R2:	92.4	R10:	80.3
R3:	94.5	R11:	78.9
R4:	79.9	R12:	59.3
R5:	82.3	R13:	85.9
R6:	86.3	R14:	97.8
R7:	84.5	R15:	77.3
R8:	64.7		



Test Conditions

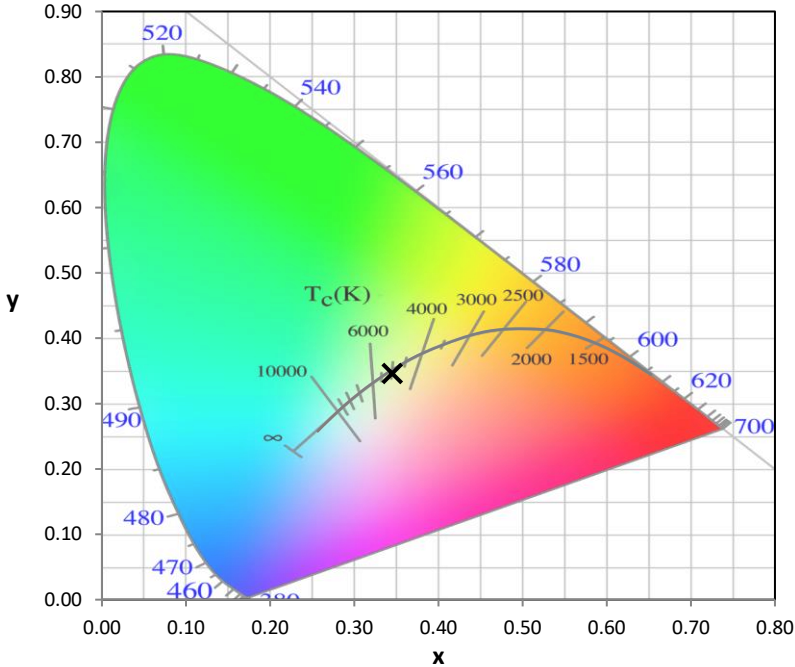
Stabilization Time: 20M
 Operation Time: 1H 20M
 Sphere Temperature (°C): 24.2

REPORT NUMBER: SP1-2407-168-4

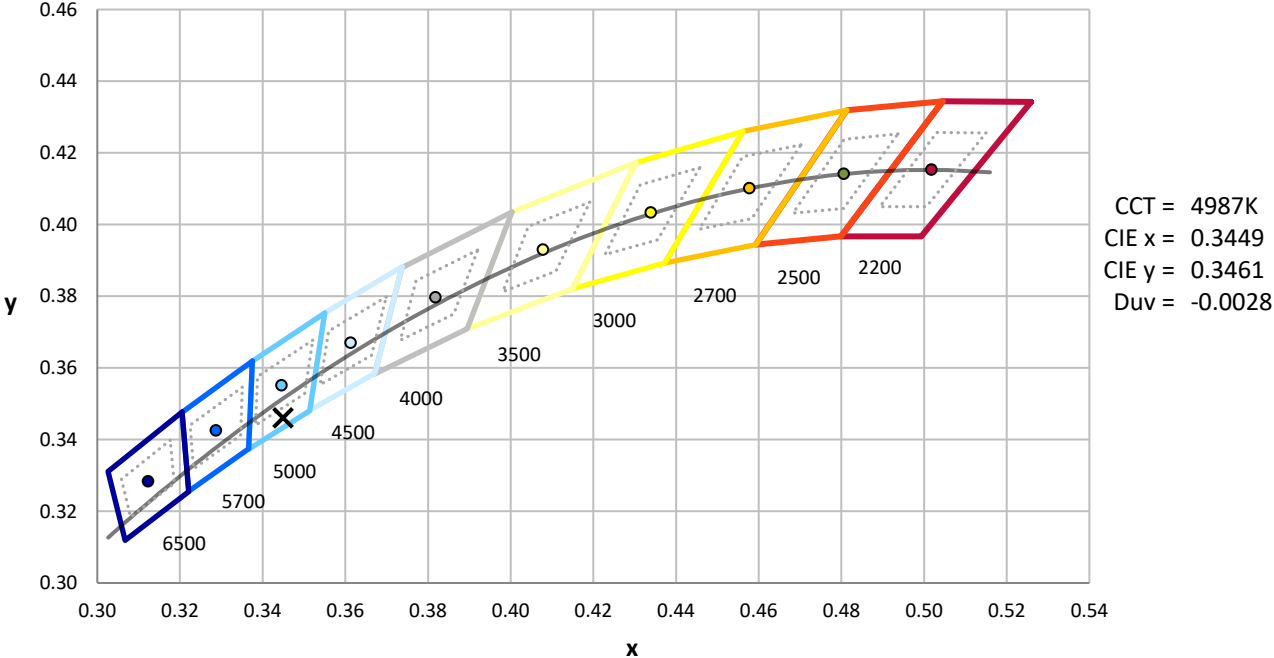
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085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

REPORT NUMBER: SP1-2407-168-4

CIE 1931 Chromaticity Diagram



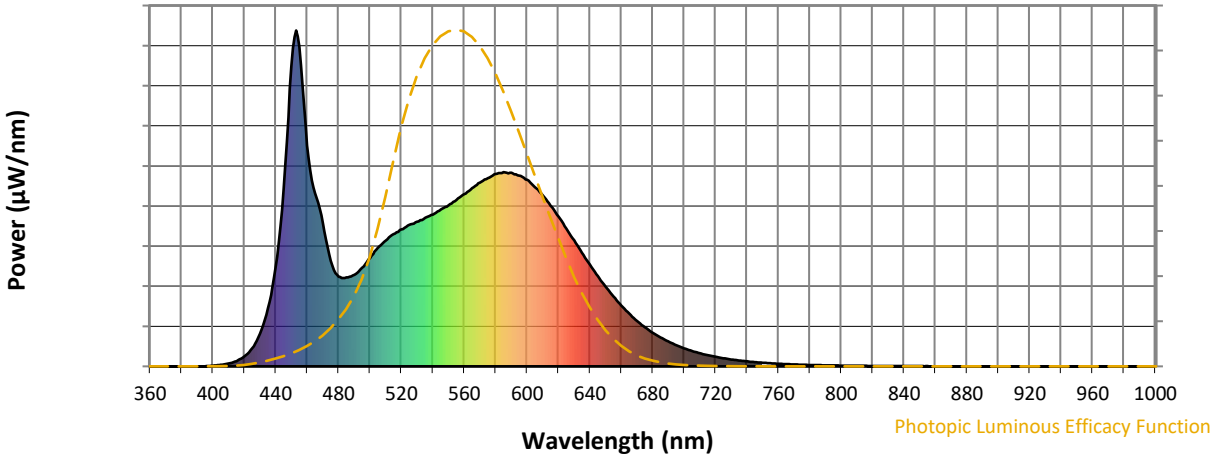
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 5000K 7-step quadrangle

REPORT NUMBER: SP1-2407-168-4

Photopic Flux vs. Wavelength

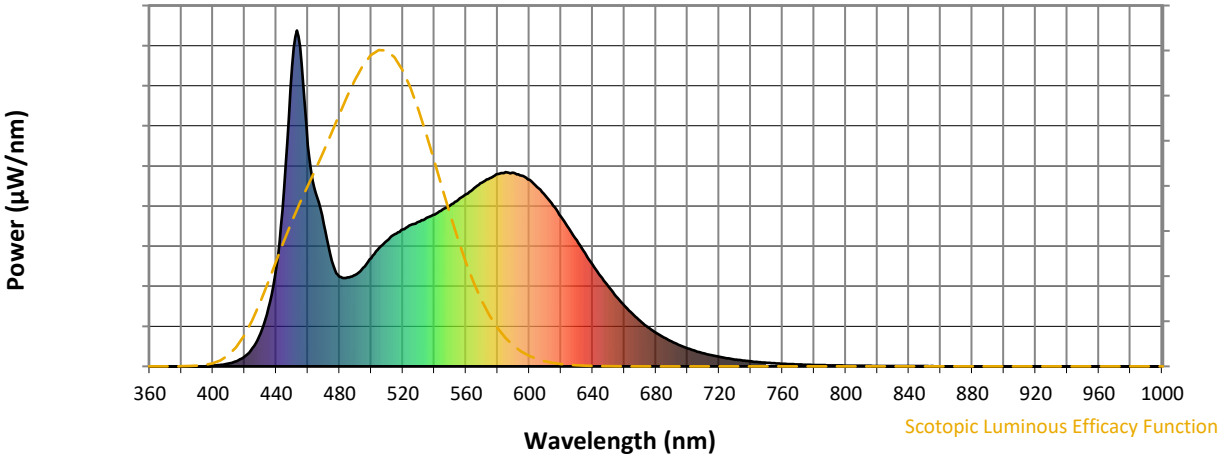


Photopic Lumens: NR

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	273	NR	620	446	NR	750	11	NR	880	0	NR
365	0	NR	495	294	NR	625	410	NR	755	9	NR	885	0	NR
370	0	NR	500	322	NR	630	376	NR	760	8	NR	890	0	NR
375	0	NR	505	352	NR	635	338	NR	765	7	NR	895	0	NR
380	0	NR	510	374	NR	640	303	NR	770	6	NR	900	0	NR
385	0	NR	515	393	NR	645	269	NR	775	5	NR	905	0	NR
390	0	NR	520	408	NR	650	237	NR	780	4	NR	910	0	NR
395	0	NR	525	421	NR	655	208	NR	785	4	NR	915	0	NR
400	2	NR	530	430	NR	660	181	NR	790	3	NR	920	0	NR
405	5	NR	535	442	NR	665	157	NR	795	3	NR	925	0	NR
410	9	NR	540	451	NR	670	135	NR	800	2	NR	930	0	NR
415	16	NR	545	467	NR	675	116	NR	805	2	NR	935	0	NR
420	29	NR	550	480	NR	680	100	NR	810	2	NR	940	0	NR
425	54	NR	555	495	NR	685	86	NR	815	2	NR	945	0	NR
430	98	NR	560	513	NR	690	74	NR	820	1	NR	950	0	NR
435	174	NR	565	530	NR	695	63	NR	825	1	NR	955	0	NR
440	296	NR	570	546	NR	700	54	NR	830	1	NR	960	0	NR
445	529	NR	575	561	NR	705	46	NR	835	1	NR	965	0	NR
450	894	NR	580	572	NR	710	39	NR	840	1	NR	970	0	NR
455	952	NR	585	578	NR	715	33	NR	845	1	NR	975	0	NR
460	658	NR	590	576	NR	720	28	NR	850	1	NR	980	0	NR
465	516	NR	595	568	NR	725	24	NR	855	1	NR	985	0	NR
470	424	NR	600	555	NR	730	21	NR	860	0	NR	990	0	NR
475	314	NR	605	534	NR	735	17	NR	865	0	NR	995	0	NR
480	267	NR	610	509	NR	740	15	NR	870	0	NR	1000	0	NR
485	265	NR	615	479	NR	745	13	NR	875	0	NR			

REPORT NUMBER: SP1-2407-168-4

Scotopic Flux vs. Wavelength



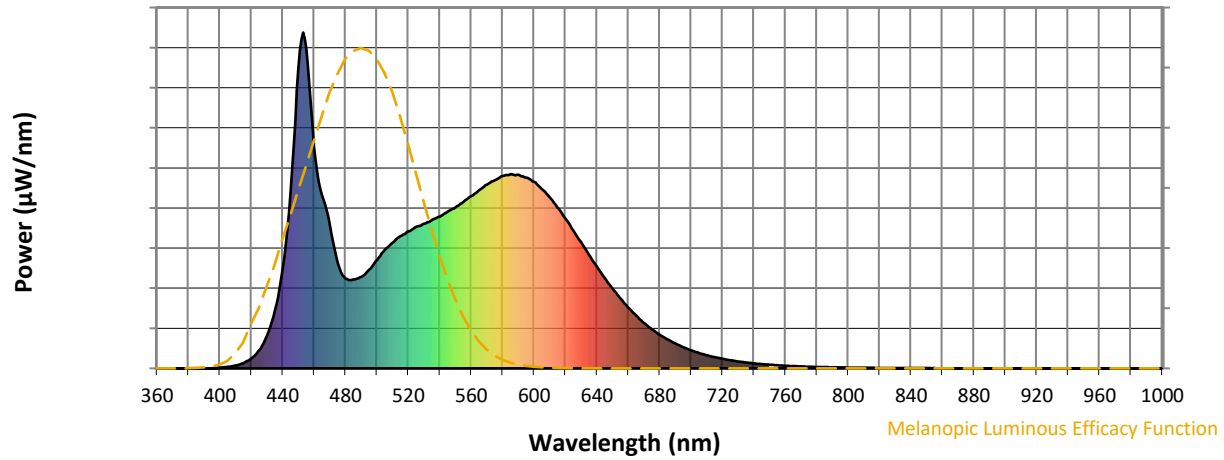
Scotopic Lumens: NR

S/P: 2

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	273	NR	620	446	NR	750	11	NR	880	0	NR
365	0	NR	495	294	NR	625	410	NR	755	9	NR	885	0	NR
370	0	NR	500	322	NR	630	376	NR	760	8	NR	890	0	NR
375	0	NR	505	352	NR	635	338	NR	765	7	NR	895	0	NR
380	0	NR	510	374	NR	640	303	NR	770	6	NR	900	0	NR
385	0	NR	515	393	NR	645	269	NR	775	5	NR	905	0	NR
390	0	NR	520	408	NR	650	237	NR	780	4	NR	910	0	NR
395	0	NR	525	421	NR	655	208	NR	785	4	NR	915	0	NR
400	2	NR	530	430	NR	660	181	NR	790	3	NR	920	0	NR
405	5	NR	535	442	NR	665	157	NR	795	3	NR	925	0	NR
410	9	NR	540	451	NR	670	135	NR	800	2	NR	930	0	NR
415	16	NR	545	467	NR	675	116	NR	805	2	NR	935	0	NR
420	29	NR	550	480	NR	680	100	NR	810	2	NR	940	0	NR
425	54	NR	555	495	NR	685	86	NR	815	2	NR	945	0	NR
430	98	NR	560	513	NR	690	74	NR	820	1	NR	950	0	NR
435	174	NR	565	530	NR	695	63	NR	825	1	NR	955	0	NR
440	296	NR	570	546	NR	700	54	NR	830	1	NR	960	0	NR
445	529	NR	575	561	NR	705	46	NR	835	1	NR	965	0	NR
450	894	NR	580	572	NR	710	39	NR	840	1	NR	970	0	NR
455	952	NR	585	578	NR	715	33	NR	845	1	NR	975	0	NR
460	658	NR	590	576	NR	720	28	NR	850	1	NR	980	0	NR
465	516	NR	595	568	NR	725	24	NR	855	1	NR	985	0	NR
470	424	NR	600	555	NR	730	21	NR	860	0	NR	990	0	NR
475	314	NR	605	534	NR	735	17	NR	865	0	NR	995	0	NR
480	267	NR	610	509	NR	740	15	NR	870	0	NR	1000	0	NR
485	265	NR	615	479	NR	745	13	NR	875	0	NR			

REPORT NUMBER: SP1-2407-168-4

Melanopic Flux vs. Wavelength



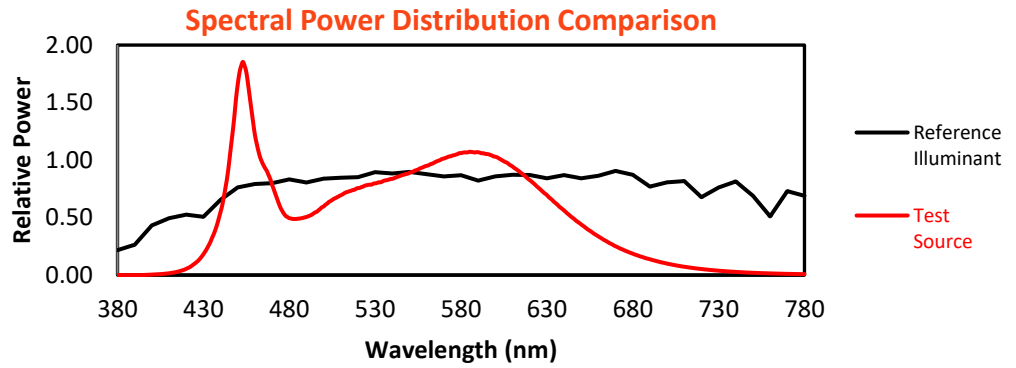
Melanopic Lumens: NR

M/P: 4.35

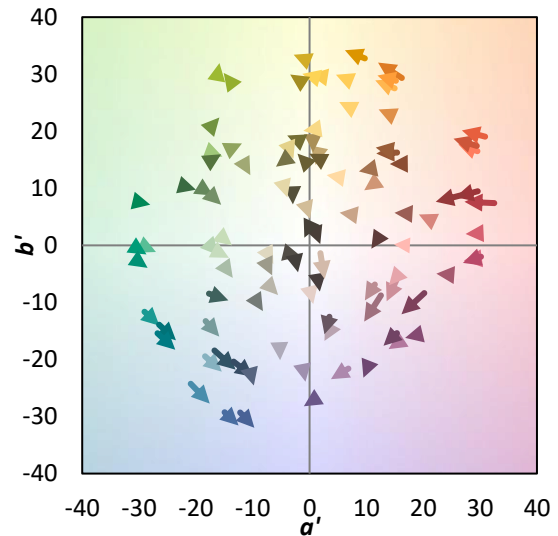
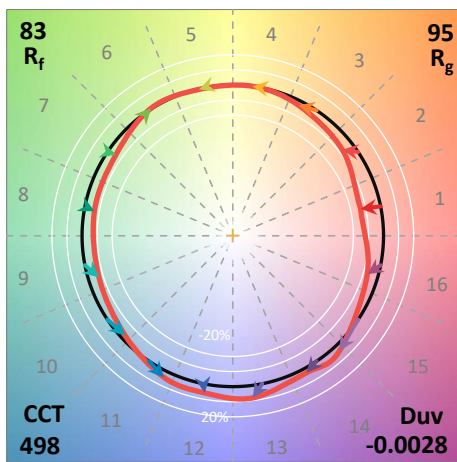
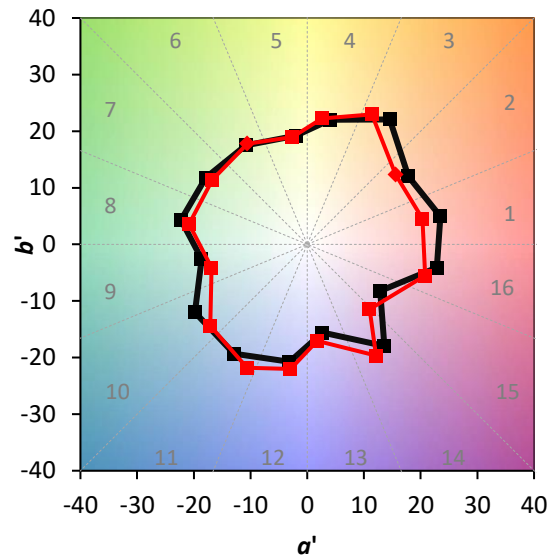
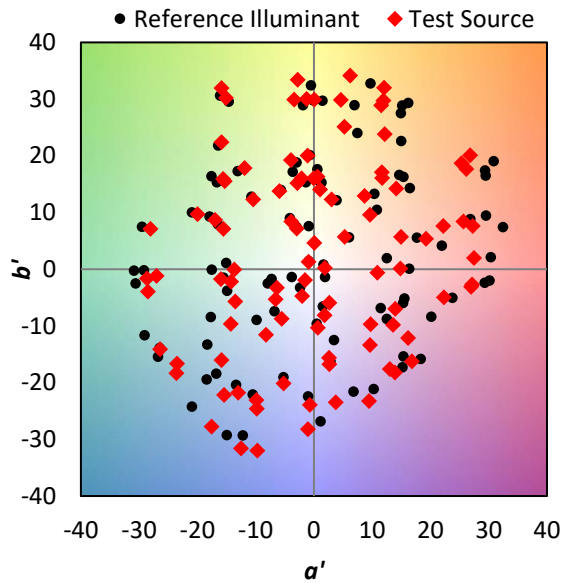
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	273	NR	620	446	NR	750	11	NR	880	0	NR
365	0	NR	495	294	NR	625	410	NR	755	9	NR	885	0	NR
370	0	NR	500	322	NR	630	376	NR	760	8	NR	890	0	NR
375	0	NR	505	352	NR	635	338	NR	765	7	NR	895	0	NR
380	0	NR	510	374	NR	640	303	NR	770	6	NR	900	0	NR
385	0	NR	515	393	NR	645	269	NR	775	5	NR	905	0	NR
390	0	NR	520	408	NR	650	237	NR	780	4	NR	910	0	NR
395	0	NR	525	421	NR	655	208	NR	785	4	NR	915	0	NR
400	2	NR	530	430	NR	660	181	NR	790	3	NR	920	0	NR
405	5	NR	535	442	NR	665	157	NR	795	3	NR	925	0	NR
410	9	NR	540	451	NR	670	135	NR	800	2	NR	930	0	NR
415	16	NR	545	467	NR	675	116	NR	805	2	NR	935	0	NR
420	29	NR	550	480	NR	680	100	NR	810	2	NR	940	0	NR
425	54	NR	555	495	NR	685	86	NR	815	2	NR	945	0	NR
430	98	NR	560	513	NR	690	74	NR	820	1	NR	950	0	NR
435	174	NR	565	530	NR	695	63	NR	825	1	NR	955	0	NR
440	296	NR	570	546	NR	700	54	NR	830	1	NR	960	0	NR
445	529	NR	575	561	NR	705	46	NR	835	1	NR	965	0	NR
450	894	NR	580	572	NR	710	39	NR	840	1	NR	970	0	NR
455	952	NR	585	578	NR	715	33	NR	845	1	NR	975	0	NR
460	658	NR	590	576	NR	720	28	NR	850	1	NR	980	0	NR
465	516	NR	595	568	NR	725	24	NR	855	1	NR	985	0	NR
470	424	NR	600	555	NR	730	21	NR	860	0	NR	990	0	NR
475	314	NR	605	534	NR	735	17	NR	865	0	NR	995	0	NR
480	267	NR	610	509	NR	740	15	NR	870	0	NR	1000	0	NR
485	265	NR	615	479	NR	745	13	NR	875	0	NR			

Summary

$R_f = 82.9$
 $R_g = 94.6$
 $CIE R_a = 83.4$
 $R_9 = 6.6$

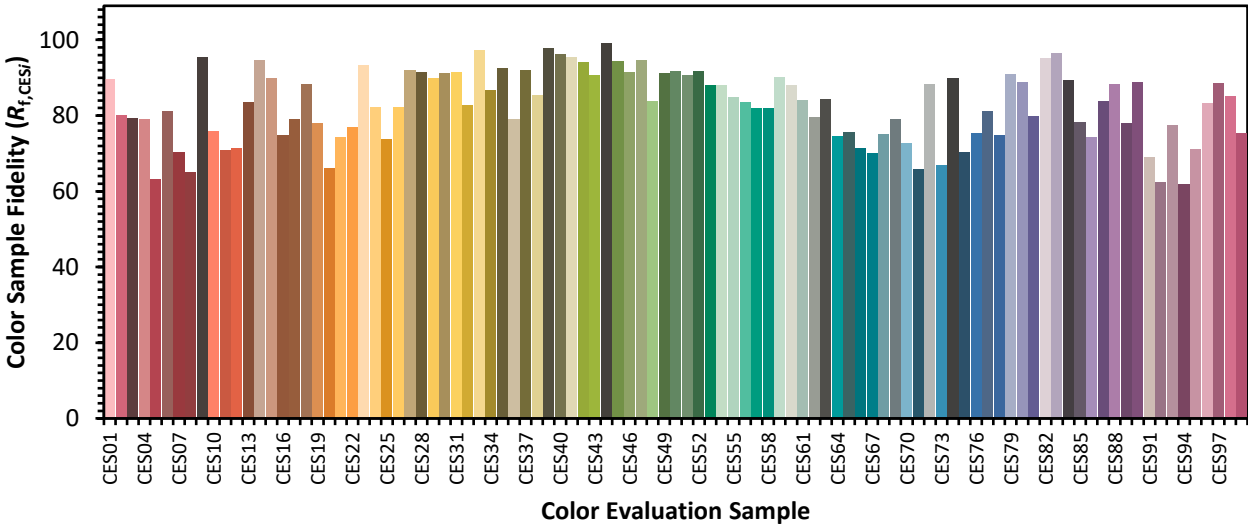


Color Vector Graphics

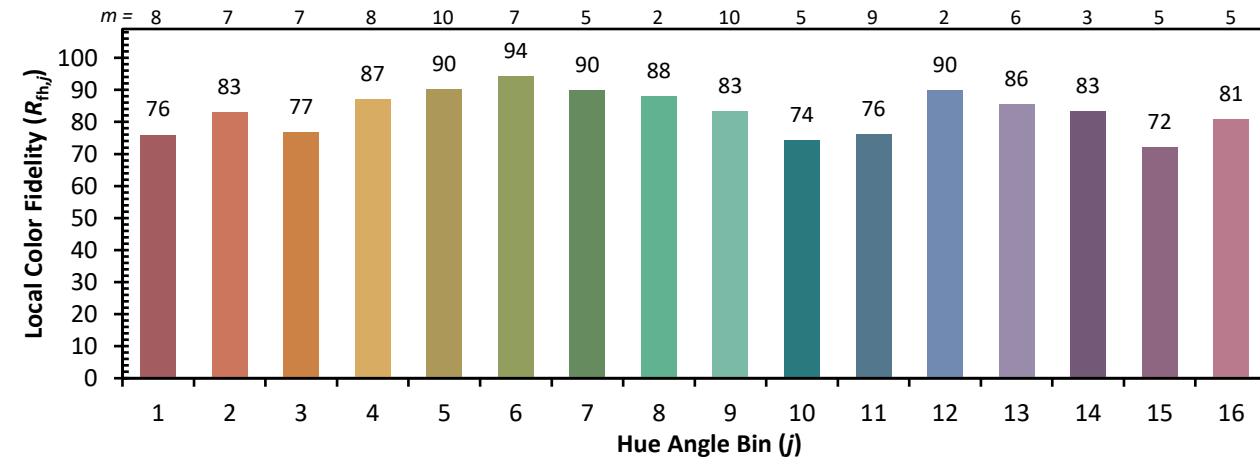
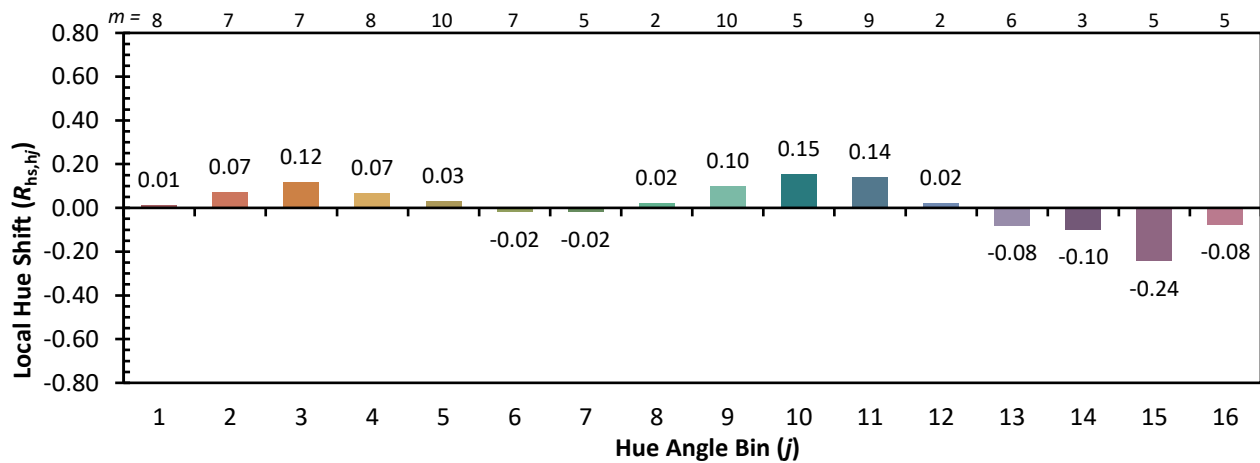
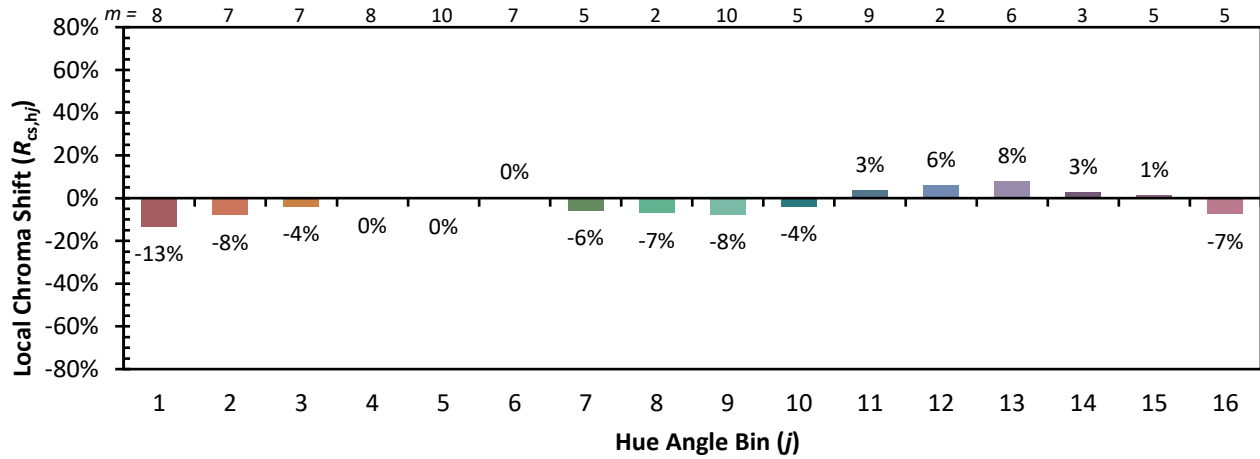


Individual Sample Fidelity Index ($R_{f,i}$)

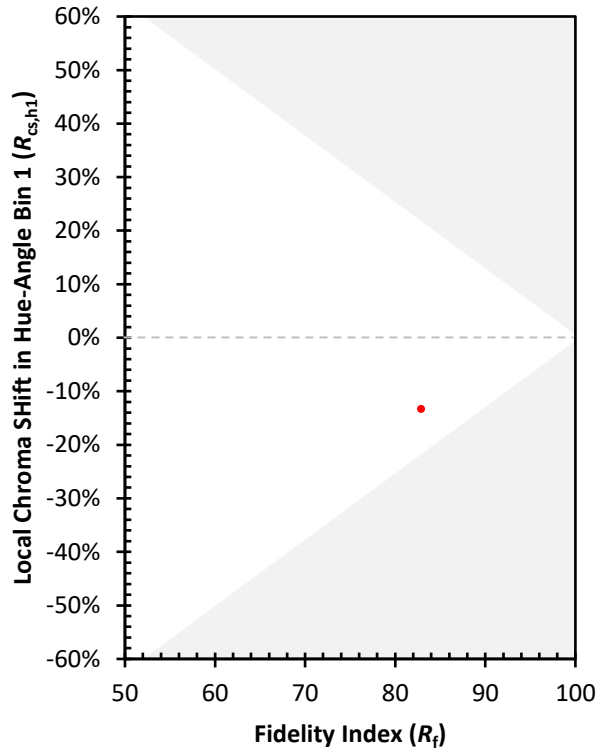
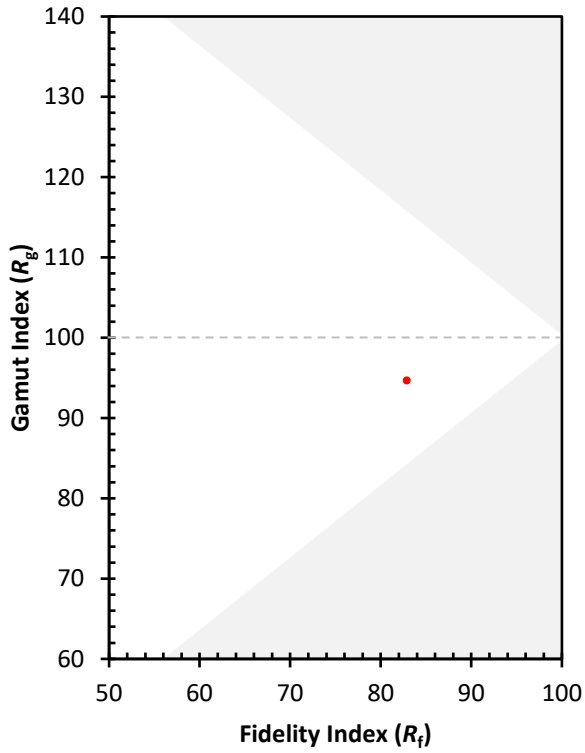
CES01 = 85	CES26 = 82	CES51 = 91	CES76 = 75
CES02 = 60	CES27 = 92	CES52 = 92	CES77 = 81
CES03 = 30	CES28 = 92	CES53 = 88	CES78 = 75
CES04 = 69	CES29 = 90	CES54 = 88	CES79 = 91
CES05 = 47	CES30 = 91	CES55 = 85	CES80 = 89
CES06 = 50	CES31 = 91	CES56 = 84	CES81 = 80
CES07 = 40	CES32 = 83	CES57 = 82	CES82 = 95
CES08 = 39	CES33 = 97	CES58 = 82	CES83 = 96
CES09 = 29	CES34 = 87	CES59 = 90	CES84 = 89
CES10 = 73	CES35 = 92	CES60 = 88	CES85 = 78
CES11 = 56	CES36 = 79	CES61 = 84	CES86 = 74
CES12 = 62	CES37 = 92	CES62 = 80	CES87 = 84
CES13 = 42	CES38 = 85	CES63 = 84	CES88 = 88
CES14 = 74	CES39 = 98	CES64 = 75	CES89 = 78
CES15 = 71	CES40 = 96	CES65 = 76	CES90 = 89
CES16 = 46	CES41 = 96	CES66 = 72	CES91 = 69
CES17 = 49	CES42 = 94	CES67 = 70	CES92 = 62
CES18 = 56	CES43 = 91	CES68 = 75	CES93 = 77
CES19 = 71	CES44 = 99	CES69 = 79	CES94 = 62
CES20 = 64	CES45 = 94	CES70 = 73	CES95 = 71
CES21 = 85	CES46 = 91	CES71 = 66	CES96 = 83
CES22 = 77	CES47 = 95	CES72 = 88	CES97 = 89
CES23 = 91	CES48 = 84	CES73 = 67	CES98 = 85
CES24 = 90	CES49 = 91	CES74 = 90	CES99 = 75
CES25 = 71	CES50 = 92	CES75 = 70	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)