

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: P1068100

Luminaire Tested: **NAV-SA4D-835-U-LBC**

Issue Date: 08/07/2025

Test Information

Test Method: LM-79-08
Report Number: P1068100
Test Lab: INNOVATION CENTER(G3)
Issue Date: 08/07/2025
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: LUMARK
Catalog Number: NAV-SA4D-835-U-LBC
Description: Navion AREA AND ROADWAY LUMINAIRE 1200mA 4xLight Square PACKAGE
80CRI 3500K FIXTURE w/ LEFT CORNER BACKLIGHT CONTROL
Light Source: (56) 3500K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 18371.7 lumens
Efficiency: N/A
Efficacy: 83.9 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type III - Short
BUG Rating: B0 - U0 - G3

Input Watts (W): 218.9
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.97
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



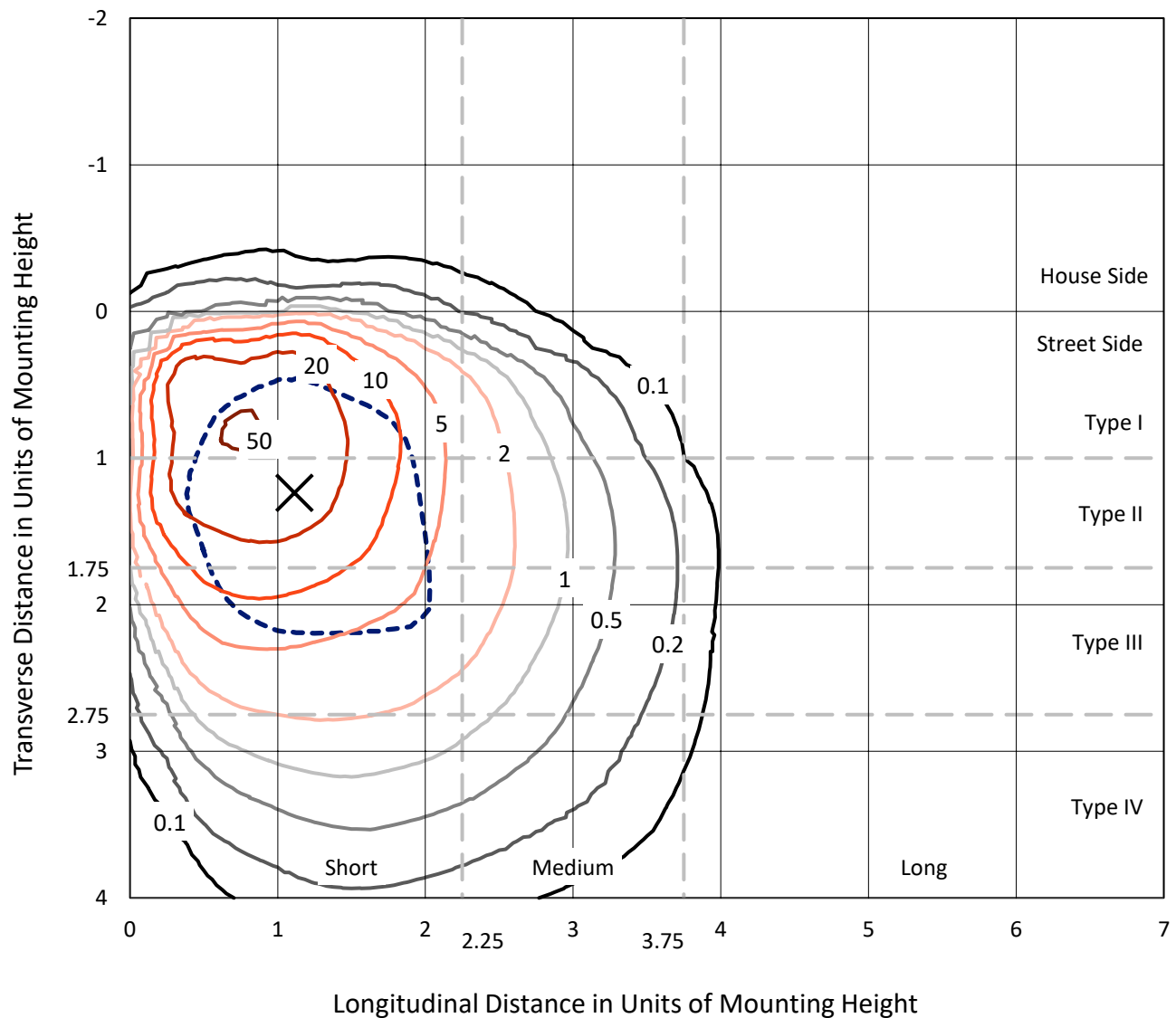
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Iso-Footcandle Lines of Horizontal Illumination

× Max cd

--- 1/2 Max cd

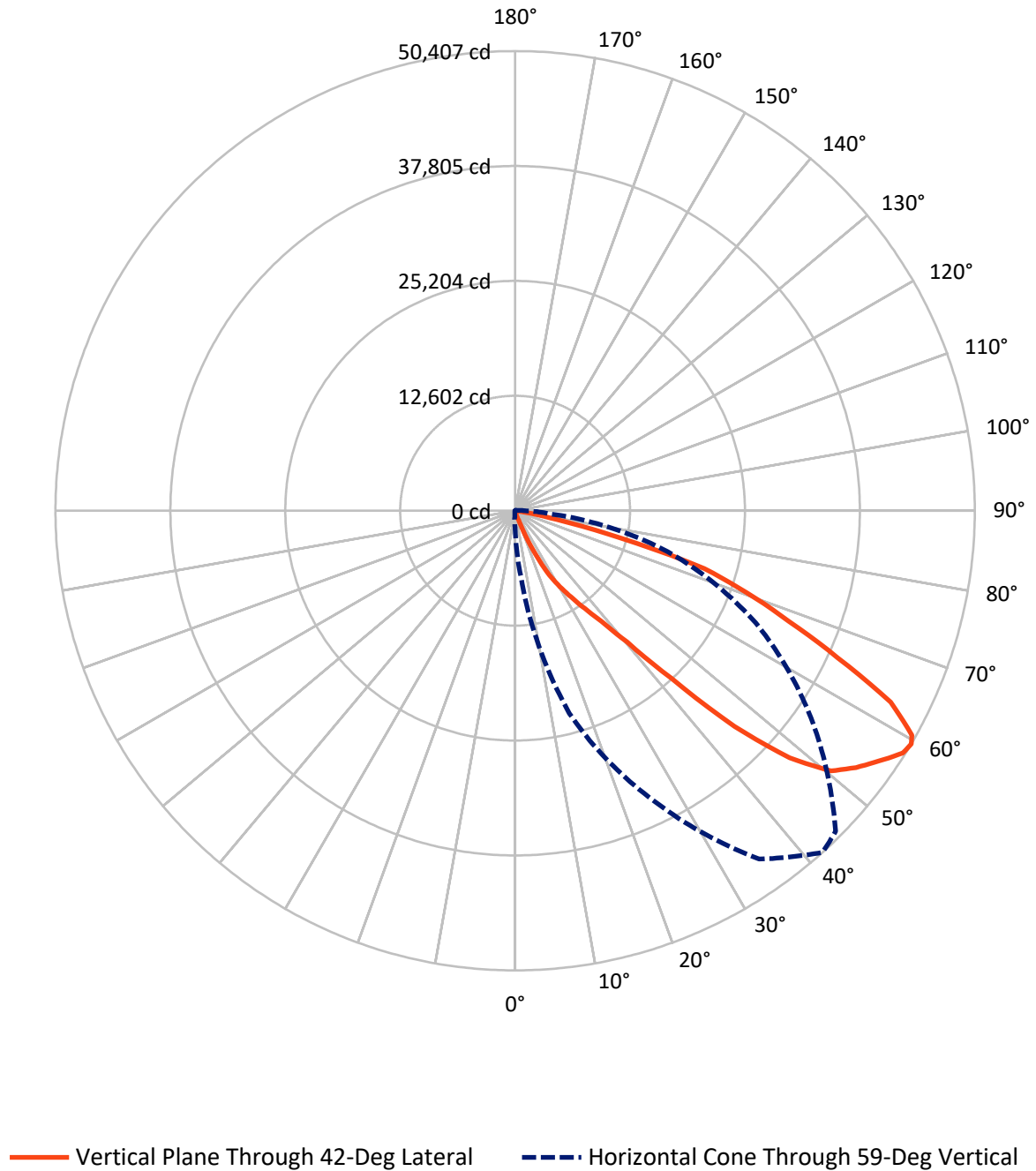


Based on 15 foot mounting height. Maximum calculated value = 54.6 fc
 Type III - Short - N/A

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Luminous Intensity Polar Plot



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FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	88.5	0.0	88.5
	% Fixture	0.5	0.0	0.5
Street Side	Lumens	18283.2	0.0	18283.2
	% Fixture	99.5	0.0	99.5
Total	Lumens	18371.7	0.0	18371.7
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	5.4	0.0
10°-20°	26.8	0.1
20°-30°	342.7	1.9
30°-40°	1155.3	6.3
40°-50°	3489.6	19.0
50°-60°	6160.1	33.5
60°-70°	5424.0	29.5
70°-80°	1726.5	9.4
80°-90°	41.3	0.2
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	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°	18371.7	100.0
0°-180°	18371.7	100.0



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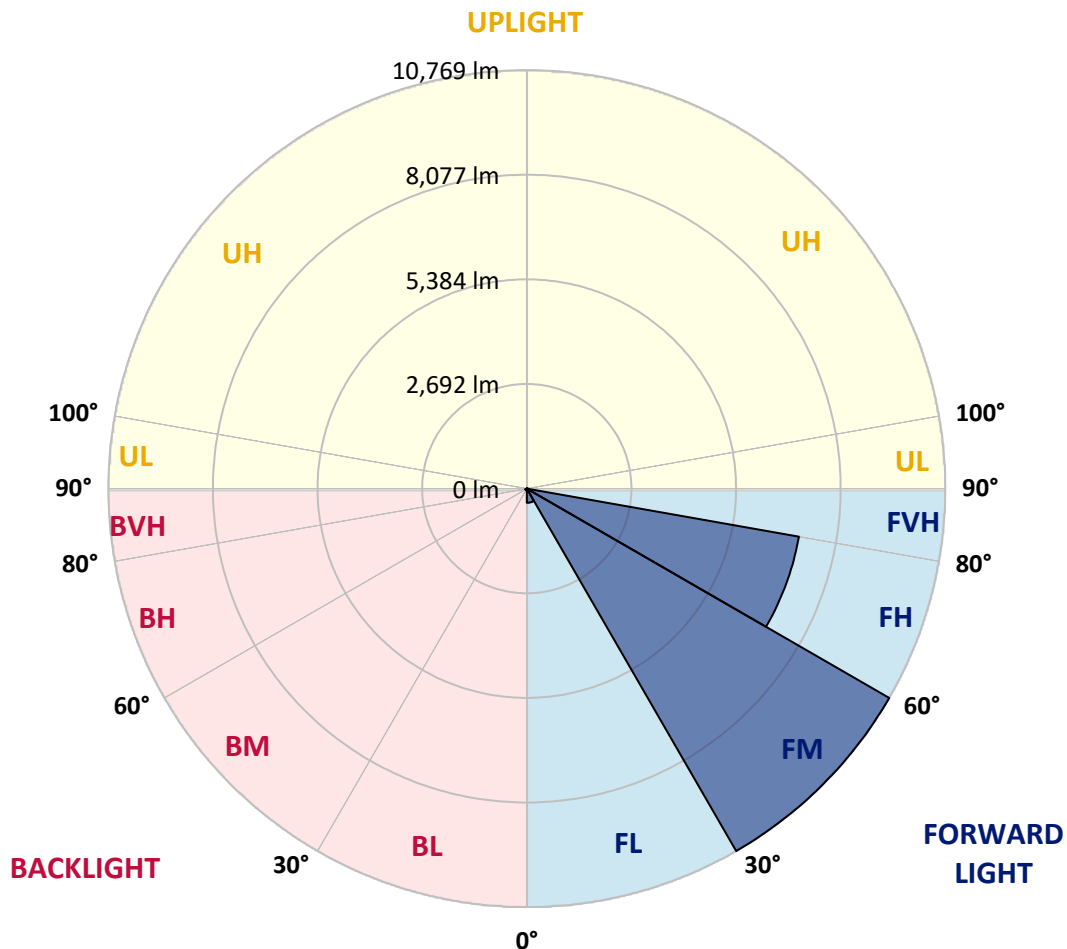
CATALOG NUMBER: NAV-SA4D-835-U-LBC

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	365.0	2.0			
FM	(30°-60°)	10768.9	58.6			
FH	(60°-80°)	7110.0	38.7			G3/7500
FVH	(80°-90°)	39.3	0.2			G1/100
BL	(0°-30°)	9.9	0.1	B0/110		
BM	(30°-60°)	36.2	0.2	B0/220		
BH	(60°-80°)	40.5	0.2	B0/110		G0/110
BVH	(80°-90°)	2.0	0.0			G0/10
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B0-U0-G3

Type III Short



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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	42°	45°	55°	65°	75°	85°
0°	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8
2.5°	80.6	80.6	74.9	69.1	63.4	57.6	57.6	57.6	51.8	51.8	46.1
5°	92.2	92.2	86.4	80.6	80.6	74.9	74.9	69.1	63.4	63.4	57.6
7.5°	97.9	97.9	97.9	97.9	92.2	92.2	92.2	86.4	80.6	74.9	69.1
10°	103.7	109.4	115.2	115.2	115.2	115.2	115.2	109.4	97.9	92.2	80.6
12.5°	115.2	121.0	132.5	144.0	144.0	149.8	144.0	138.2	126.7	109.4	92.2
15°	126.7	138.2	155.5	178.6	201.6	207.4	207.4	190.1	167.0	132.5	109.4
17.5°	144.0	161.3	207.4	282.2	362.9	426.3	426.3	380.2	265.0	172.8	126.7
20°	155.5	190.1	334.1	679.7	1036.8	1301.8	1250.0	1106.0	593.3	270.7	138.2
22.5°	172.8	241.9	708.5	1785.6	2764.9	3248.7	3133.5	2378.9	1330.6	483.9	167.0
25°	195.8	351.4	1405.5	3346.7	5138.1	5662.2	5587.4	4441.1	2425.0	812.2	213.1
27.5°	241.9	518.4	2252.2	5074.7	7580.4	8029.7	8000.9	6503.2	3876.6	1307.6	276.5
30°	305.3	754.6	3340.9	6894.9	9199.0	9654.0	9510.0	8012.4	5230.2	1998.8	357.1
32.5°	380.2	1054.1	4325.9	8237.0	10690.9	11289.9	11117.1	9325.7	6318.9	2586.3	529.9
35°	495.4	1347.9	5299.3	9423.6	12413.1	13173.5	12885.5	10679.3	7257.8	3248.7	639.4
37.5°	553.0	1520.7	6192.2	10713.9	14348.6	15385.4	15166.5	12390.1	8214.0	4095.5	783.4
40°	558.7	1728.0	7119.6	12395.9	17084.6	18933.6	18541.9	15327.8	9993.9	5184.1	1008.0
42.5°	576.0	2039.1	8323.4	15264.4	22458.9	25114.3	24670.8	20730.8	14031.7	7367.2	1428.5
45°	656.7	2626.6	10777.3	20627.1	29837.6	33731.5	33218.8	28259.3	19670.9	11474.2	2436.5
47.5°	938.9	3951.5	15080.1	26416.1	37383.4	40488.1	40361.4	34192.3	24780.2	15684.9	4130.0
50°	1509.2	6065.4	19976.2	31283.4	42187.4	44854.3	44537.5	36669.2	27694.8	18559.2	5293.6
52.5°	2016.1	8087.3	23052.1	33074.8	43621.7	46801.3	46415.3	37573.5	28460.9	19406.0	5616.2
55°	2142.8	8818.8	23968.0	33627.8	44572.1	48448.7	47889.9	38178.3	28558.9	18801.2	5080.5
57.5°	2079.4	8127.6	23374.7	34169.3	45896.9	50142.2	49399.1	39359.2	28887.2	17775.8	4228.0
59°	1970.0	7275.1	23006.1	34601.3	46628.5	50407.1	49710.2	39618.4	29106.1	17309.3	3709.5
60°	1843.3	6699.1	22718.1	34883.5	46582.4	49992.4	49272.4	39497.4	29192.5	16906.1	3461.9
62.5°	1422.8	5345.4	22303.3	34681.9	43673.5	46208.0	45799.0	36536.7	27925.2	15615.8	2730.3
65°	1106.0	4089.7	20782.6	30932.0	37164.5	38869.5	38742.8	30937.8	23501.4	13461.5	1970.0
67.5°	875.5	2983.8	17574.2	25050.9	29901.0	32326.0	32233.8	25114.3	17839.2	10287.6	1417.0
70°	714.3	2125.5	12050.2	18887.6	23916.2	26969.1	26836.6	20212.4	13219.6	6526.3	1031.1
72.5°	604.8	1359.4	7309.6	14239.1	19958.9	21704.3	21318.3	16307.0	9613.7	3554.0	817.9
75°	512.7	835.2	3623.1	8876.4	11889.0	11877.4	11491.5	8634.5	5161.1	1739.6	650.9
77.5°	414.7	587.5	1422.8	2436.5	3749.9	4642.7	4567.8	3058.6	1543.7	506.9	403.2
80°	270.7	276.5	380.2	668.2	1031.1	1140.5	1296.0	933.1	449.3	241.9	167.0
82.5°	121.0	132.5	172.8	218.9	218.9	201.6	178.6	132.5	97.9	80.6	40.3
85°	28.8	40.3	28.8	34.6	28.8	23.0	23.0	11.5	0.0	0.0	0.0
87.5°	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	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):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8
2.5°	46.1	46.1	46.1	40.3	40.3	40.3	34.6	34.6	34.6	28.8	28.8
5°	57.6	51.8	46.1	46.1	40.3	40.3	34.6	28.8	28.8	28.8	23.0
7.5°	63.4	57.6	51.8	46.1	40.3	34.6	34.6	28.8	23.0	23.0	23.0
10°	74.9	69.1	57.6	46.1	40.3	34.6	28.8	28.8	23.0	17.3	17.3
12.5°	86.4	74.9	63.4	51.8	40.3	34.6	28.8	28.8	23.0	17.3	11.5
15°	97.9	86.4	69.1	51.8	40.3	34.6	28.8	28.8	17.3	11.5	5.8
17.5°	109.4	92.2	69.1	57.6	40.3	34.6	28.8	23.0	11.5	5.8	0.0
20°	115.2	97.9	74.9	57.6	40.3	34.6	28.8	17.3	5.8	0.0	0.0
22.5°	126.7	109.4	80.6	57.6	40.3	28.8	17.3	5.8	0.0	0.0	0.0
25°	149.8	115.2	80.6	57.6	40.3	28.8	11.5	0.0	0.0	0.0	0.0
27.5°	167.0	126.7	80.6	57.6	40.3	23.0	5.8	0.0	0.0	0.0	0.0
30°	195.8	138.2	86.4	57.6	40.3	17.3	5.8	0.0	0.0	0.0	0.0
32.5°	241.9	149.8	86.4	57.6	34.6	17.3	0.0	0.0	0.0	0.0	0.0
35°	293.8	172.8	86.4	57.6	34.6	17.3	0.0	0.0	0.0	0.0	0.0
37.5°	299.5	184.3	86.4	57.6	34.6	11.5	0.0	0.0	0.0	0.0	0.0
40°	311.0	172.8	92.2	57.6	34.6	11.5	0.0	0.0	0.0	0.0	0.0
42.5°	357.1	161.3	97.9	57.6	34.6	11.5	0.0	0.0	0.0	0.0	0.0
45°	529.9	167.0	97.9	63.4	34.6	17.3	0.0	0.0	0.0	0.0	0.0
47.5°	921.6	172.8	92.2	63.4	34.6	17.3	0.0	0.0	0.0	0.0	0.0
50°	1180.8	201.6	92.2	69.1	40.3	11.5	0.0	0.0	0.0	0.0	0.0
52.5°	1255.7	236.2	92.2	74.9	51.8	5.8	0.0	0.0	0.0	0.0	0.0
55°	1221.2	276.5	97.9	80.6	63.4	0.0	0.0	0.0	0.0	0.0	0.0
57.5°	1129.0	299.5	103.7	86.4	69.1	0.0	0.0	0.0	0.0	0.0	0.0
59°	1031.1	316.8	121.0	92.2	69.1	0.0	0.0	0.0	0.0	0.0	0.0
60°	950.4	334.1	126.7	97.9	69.1	0.0	0.0	0.0	0.0	0.0	0.0
62.5°	766.1	357.1	138.2	115.2	57.6	0.0	0.0	0.0	0.0	0.0	0.0
65°	668.2	374.4	144.0	126.7	51.8	0.0	0.0	0.0	0.0	0.0	0.0
67.5°	610.6	385.9	155.5	132.5	46.1	0.0	0.0	0.0	0.0	0.0	0.0
70°	564.5	380.2	167.0	126.7	40.3	0.0	0.0	0.0	0.0	0.0	0.0
72.5°	512.7	362.9	201.6	115.2	34.6	0.0	0.0	0.0	0.0	0.0	0.0
75°	460.8	328.3	218.9	103.7	23.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	334.1	276.5	201.6	92.2	11.5	0.0	0.0	0.0	0.0	0.0	0.0
80°	144.0	149.8	144.0	69.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	28.8	34.6	28.8	17.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	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):

	185°	195°	205°	215°	225°	235°	245°	255°	265°	270°	275°
0°	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8
2.5°	28.8	28.8	28.8	28.8	34.6	34.6	46.1	57.6	69.1	74.9	74.9
5°	23.0	23.0	23.0	23.0	23.0	28.8	34.6	46.1	63.4	69.1	69.1
7.5°	17.3	17.3	17.3	17.3	17.3	17.3	28.8	40.3	57.6	63.4	69.1
10°	17.3	11.5	11.5	5.8	5.8	11.5	17.3	34.6	51.8	57.6	63.4
12.5°	11.5	5.8	5.8	0.0	0.0	5.8	11.5	28.8	46.1	51.8	57.6
15°	5.8	0.0	0.0	0.0	0.0	0.0	5.8	23.0	40.3	46.1	57.6
17.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.3	34.6	46.1	51.8
20°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.5	28.8	40.3	46.1
22.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	23.0	34.6	40.3
25°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.3	23.0	28.8
27.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.5	17.3	23.0
30°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.5	17.3	23.0
32.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	11.5	17.3
35°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	11.5	17.3
37.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	11.5	11.5
40°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	11.5
42.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	11.5
45°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	11.5
47.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	11.5
50°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	11.5
52.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	5.8
55°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	5.8
57.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8
59°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8
60°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8
62.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8
65°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8
67.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8
70°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8
72.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	5.8
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	11.5
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	11.5
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	5.8
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	5.8
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	5.8
90°	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):

	285°	295°	305°	315°	318°	325°	335°	345°	355°	360°
0°	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8
2.5°	80.6	80.6	74.9	69.1	69.1	69.1	74.9	80.6	80.6	80.6
5°	74.9	74.9	69.1	69.1	69.1	69.1	74.9	86.4	92.2	92.2
7.5°	74.9	74.9	69.1	69.1	69.1	69.1	74.9	86.4	92.2	97.9
10°	69.1	69.1	69.1	69.1	63.4	69.1	74.9	86.4	103.7	103.7
12.5°	69.1	69.1	69.1	69.1	63.4	69.1	80.6	92.2	109.4	115.2
15°	69.1	69.1	69.1	63.4	63.4	69.1	80.6	97.9	115.2	126.7
17.5°	63.4	69.1	69.1	63.4	63.4	69.1	80.6	97.9	126.7	144.0
20°	57.6	63.4	69.1	63.4	63.4	63.4	80.6	97.9	132.5	155.5
22.5°	51.8	57.6	63.4	63.4	57.6	63.4	80.6	103.7	144.0	172.8
25°	46.1	51.8	51.8	57.6	57.6	63.4	80.6	103.7	149.8	195.8
27.5°	34.6	40.3	46.1	51.8	51.8	63.4	80.6	109.4	161.3	241.9
30°	28.8	34.6	40.3	46.1	51.8	63.4	80.6	109.4	172.8	305.3
32.5°	28.8	34.6	40.3	46.1	51.8	57.6	80.6	115.2	190.1	380.2
35°	23.0	28.8	34.6	46.1	46.1	57.6	80.6	115.2	207.4	495.4
37.5°	23.0	28.8	34.6	46.1	46.1	57.6	80.6	115.2	253.4	553.0
40°	17.3	23.0	28.8	46.1	46.1	57.6	86.4	121.0	259.2	558.7
42.5°	17.3	23.0	28.8	40.3	46.1	57.6	86.4	121.0	241.9	576.0
45°	17.3	23.0	28.8	46.1	51.8	63.4	86.4	126.7	236.2	656.7
47.5°	17.3	23.0	28.8	46.1	57.6	63.4	86.4	126.7	241.9	938.9
50°	17.3	23.0	28.8	46.1	63.4	63.4	86.4	126.7	265.0	1509.2
52.5°	11.5	17.3	23.0	40.3	51.8	69.1	92.2	121.0	282.2	2016.1
55°	11.5	11.5	17.3	34.6	46.1	74.9	97.9	121.0	328.3	2142.8
57.5°	11.5	11.5	17.3	28.8	40.3	80.6	103.7	121.0	380.2	2079.4
59°	11.5	11.5	11.5	28.8	34.6	80.6	103.7	126.7	385.9	1970.0
60°	11.5	11.5	11.5	23.0	34.6	80.6	109.4	132.5	391.7	1843.3
62.5°	5.8	5.8	5.8	23.0	28.8	80.6	121.0	161.3	403.2	1422.8
65°	11.5	11.5	5.8	17.3	28.8	69.1	138.2	172.8	409.0	1106.0
67.5°	11.5	11.5	11.5	23.0	28.8	69.1	144.0	178.6	409.0	875.5
70°	11.5	11.5	11.5	23.0	34.6	69.1	144.0	184.3	403.2	714.3
72.5°	11.5	11.5	11.5	23.0	34.6	63.4	132.5	190.1	385.9	604.8
75°	11.5	11.5	11.5	17.3	28.8	57.6	126.7	207.4	351.4	512.7
77.5°	11.5	11.5	11.5	11.5	23.0	46.1	115.2	230.4	311.0	414.7
80°	17.3	11.5	11.5	11.5	17.3	40.3	109.4	224.6	259.2	270.7
82.5°	17.3	11.5	11.5	5.8	11.5	28.8	86.4	172.8	132.5	121.0
85°	11.5	11.5	11.5	5.8	5.8	17.3	40.3	51.8	40.3	28.8
87.5°	11.5	11.5	11.5	5.8	5.8	5.8	5.8	5.8	5.8	5.8
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-10

Test Date: 10/11/2024

Luminaire Tested: GSS-SB1A-835-U-5WQ

Data in this report applies to families of products including GSS-SB1A-835-U-5WQ

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-184-10
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 10/15/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: McGraw-Edison
 Catalog Number: **GSS-SB1A-835-U-5WQ**
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 80 CRI
 3500K CCT 26 LEDS

Spectral Parameters

CCT (K): 3411
 CIE u' : 0.2360
 CIE v' : 0.5189
 Duv: 0.0044
 CIE x: 0.4154
 CIE y: 0.4059
 CIE z: 0.1787
 Peak Wavelength (nm): 601
 Dominant Wavelength (nm): 579
 Purity: 46.51914
 R_f: 86.6
 R_g: 95.9

CRI (Ra): 83.5
 R1: 81.1
 R2: 88.9
 R3: 97.2
 R4: 83.8
 R5: 81.7
 R6: 86.9
 R7: 86.1
 R8: 62.2
 R9: 6.3
 R10: 75.4
 R11: 84.1
 R12: 69.7
 R13: 82.8
 R14: 98.5
 R15: 72.6



Test Conditions

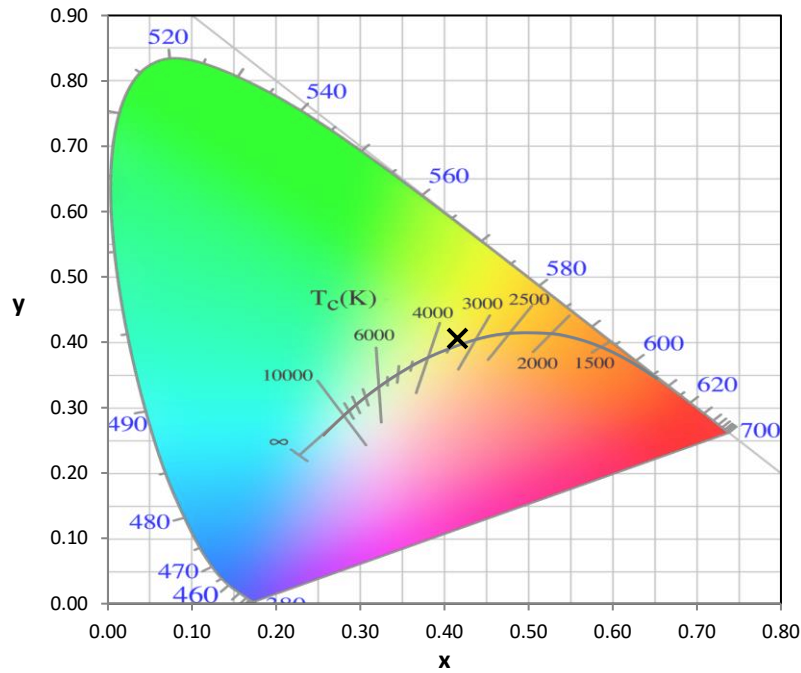
Stabilization Time: 35M
 Operation Time: 1H 35M
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-10

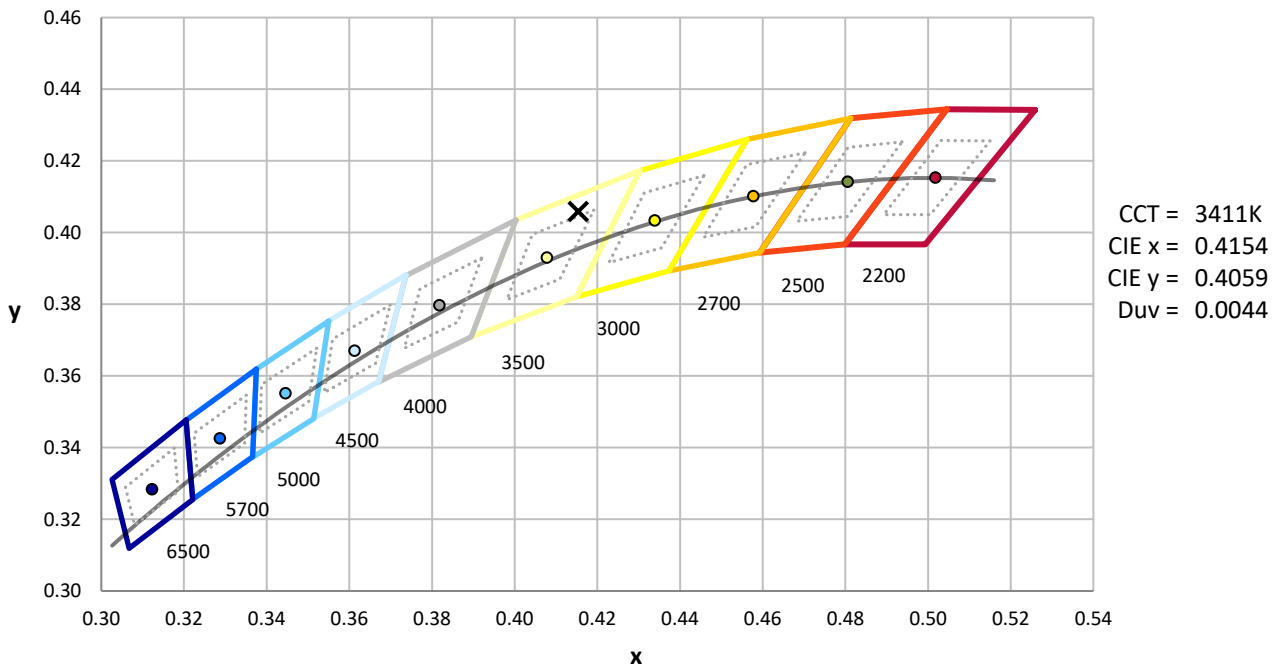
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085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

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CIE 1931 Chromaticity Diagram



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



Point lies inside the ANSI 3500K 7-step quadrangle

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Photopic Flux vs. Wavelength



Photopic Lumens: NR

λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)
360	0	NR	490	311	NR	620	903	NR	750	26	NR	880	1	NR
365	0	NR	495	376	NR	625	851	NR	755	22	NR	885	1	NR
370	0	NR	500	438	NR	630	797	NR	760	19	NR	890	0	NR
375	0	NR	505	491	NR	635	735	NR	765	16	NR	895	0	NR
380	0	NR	510	533	NR	640	672	NR	770	14	NR	900	0	NR
385	0	NR	515	566	NR	645	607	NR	775	12	NR	905	0	NR
390	0	NR	520	592	NR	650	546	NR	780	10	NR	910	0	NR
395	1	NR	525	608	NR	655	487	NR	785	9	NR	915	0	NR
400	3	NR	530	625	NR	660	429	NR	790	7	NR	920	0	NR
405	6	NR	535	642	NR	665	378	NR	795	6	NR	925	0	NR
410	12	NR	540	657	NR	670	329	NR	800	5	NR	930	0	NR
415	22	NR	545	677	NR	675	286	NR	805	5	NR	935	0	NR
420	43	NR	550	701	NR	680	248	NR	810	4	NR	940	0	NR
425	80	NR	555	728	NR	685	213	NR	815	3	NR	945	0	NR
430	140	NR	560	757	NR	690	184	NR	820	3	NR	950	0	NR
435	243	NR	565	793	NR	695	156	NR	825	3	NR	955	0	NR
440	412	NR	570	831	NR	700	134	NR	830	2	NR	960	0	NR
445	610	NR	575	872	NR	705	114	NR	835	2	NR	965	0	NR
450	597	NR	580	911	NR	710	97	NR	840	2	NR	970	0	NR
455	412	NR	585	944	NR	715	83	NR	845	1	NR	975	0	NR
460	330	NR	590	974	NR	720	70	NR	850	1	NR	980	0	NR
465	274	NR	595	992	NR	725	60	NR	855	1	NR	985	0	NR
470	211	NR	600	999	NR	730	51	NR	860	1	NR	990	0	NR
475	200	NR	605	992	NR	735	43	NR	865	1	NR	995	0	NR
480	220	NR	610	975	NR	740	36	NR	870	1	NR	1000	0	NR
485	255	NR	615	944	NR	745	31	NR	875	1	NR			

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Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.48

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	311	NR	620	903	NR	750	26	NR	880	1	NR
365	0	NR	495	376	NR	625	851	NR	755	22	NR	885	1	NR
370	0	NR	500	438	NR	630	797	NR	760	19	NR	890	0	NR
375	0	NR	505	491	NR	635	735	NR	765	16	NR	895	0	NR
380	0	NR	510	533	NR	640	672	NR	770	14	NR	900	0	NR
385	0	NR	515	566	NR	645	607	NR	775	12	NR	905	0	NR
390	0	NR	520	592	NR	650	546	NR	780	10	NR	910	0	NR
395	1	NR	525	608	NR	655	487	NR	785	9	NR	915	0	NR
400	3	NR	530	625	NR	660	429	NR	790	7	NR	920	0	NR
405	6	NR	535	642	NR	665	378	NR	795	6	NR	925	0	NR
410	12	NR	540	657	NR	670	329	NR	800	5	NR	930	0	NR
415	22	NR	545	677	NR	675	286	NR	805	5	NR	935	0	NR
420	43	NR	550	701	NR	680	248	NR	810	4	NR	940	0	NR
425	80	NR	555	728	NR	685	213	NR	815	3	NR	945	0	NR
430	140	NR	560	757	NR	690	184	NR	820	3	NR	950	0	NR
435	243	NR	565	793	NR	695	156	NR	825	3	NR	955	0	NR
440	412	NR	570	831	NR	700	134	NR	830	2	NR	960	0	NR
445	610	NR	575	872	NR	705	114	NR	835	2	NR	965	0	NR
450	597	NR	580	911	NR	710	97	NR	840	2	NR	970	0	NR
455	412	NR	585	944	NR	715	83	NR	845	1	NR	975	0	NR
460	330	NR	590	974	NR	720	70	NR	850	1	NR	980	0	NR
465	274	NR	595	992	NR	725	60	NR	855	1	NR	985	0	NR
470	211	NR	600	999	NR	730	51	NR	860	1	NR	990	0	NR
475	200	NR	605	992	NR	735	43	NR	865	1	NR	995	0	NR
480	220	NR	610	975	NR	740	36	NR	870	1	NR	1000	0	NR
485	255	NR	615	944	NR	745	31	NR	875	1	NR			

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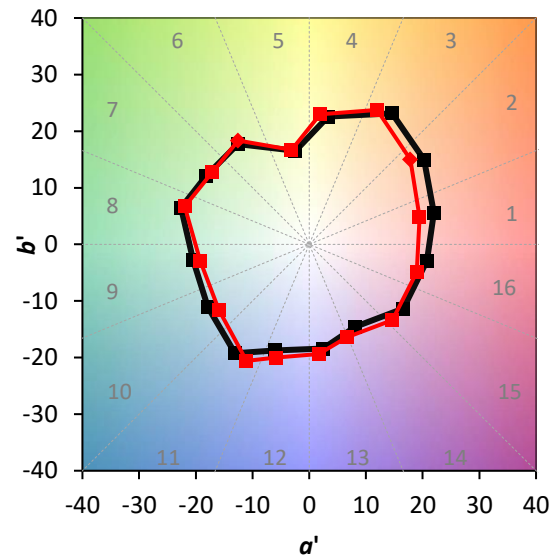
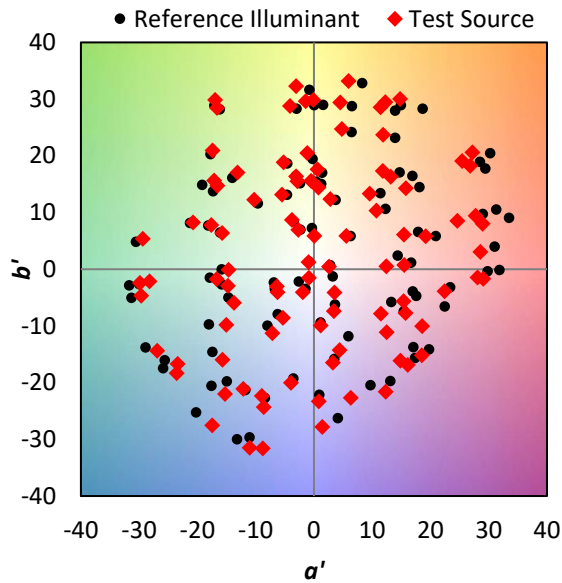
Melanopic Flux vs. Wavelength


Melanopic Lumens: NR
M/P: 2.88

λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)
360	0	NR	490	311	NR	620	903	NR	750	26	NR	880	1	NR
365	0	NR	495	376	NR	625	851	NR	755	22	NR	885	1	NR
370	0	NR	500	438	NR	630	797	NR	760	19	NR	890	0	NR
375	0	NR	505	491	NR	635	735	NR	765	16	NR	895	0	NR
380	0	NR	510	533	NR	640	672	NR	770	14	NR	900	0	NR
385	0	NR	515	566	NR	645	607	NR	775	12	NR	905	0	NR
390	0	NR	520	592	NR	650	546	NR	780	10	NR	910	0	NR
395	1	NR	525	608	NR	655	487	NR	785	9	NR	915	0	NR
400	3	NR	530	625	NR	660	429	NR	790	7	NR	920	0	NR
405	6	NR	535	642	NR	665	378	NR	795	6	NR	925	0	NR
410	12	NR	540	657	NR	670	329	NR	800	5	NR	930	0	NR
415	22	NR	545	677	NR	675	286	NR	805	5	NR	935	0	NR
420	43	NR	550	701	NR	680	248	NR	810	4	NR	940	0	NR
425	80	NR	555	728	NR	685	213	NR	815	3	NR	945	0	NR
430	140	NR	560	757	NR	690	184	NR	820	3	NR	950	0	NR
435	243	NR	565	793	NR	695	156	NR	825	3	NR	955	0	NR
440	412	NR	570	831	NR	700	134	NR	830	2	NR	960	0	NR
445	610	NR	575	872	NR	705	114	NR	835	2	NR	965	0	NR
450	597	NR	580	911	NR	710	97	NR	840	2	NR	970	0	NR
455	412	NR	585	944	NR	715	83	NR	845	1	NR	975	0	NR
460	330	NR	590	974	NR	720	70	NR	850	1	NR	980	0	NR
465	274	NR	595	992	NR	725	60	NR	855	1	NR	985	0	NR
470	211	NR	600	999	NR	730	51	NR	860	1	NR	990	0	NR
475	200	NR	605	992	NR	735	43	NR	865	1	NR	995	0	NR
480	220	NR	610	975	NR	740	36	NR	870	1	NR	1000	0	NR
485	255	NR	615	944	NR	745	31	NR	875	1	NR			

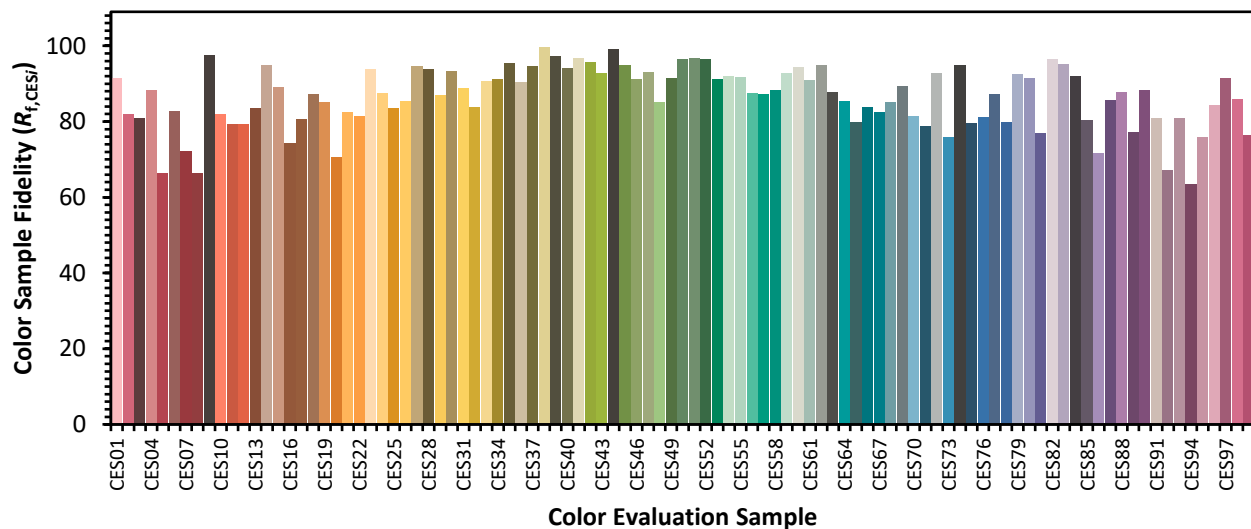
REPORT NUMBER: SP1-2407-184-10

TM-30-18
Summary
 $R_f = 86.6$
 $R_g = 95.9$
 $CIE\ R_a = 83.5$
 $R_9 = 6.3$

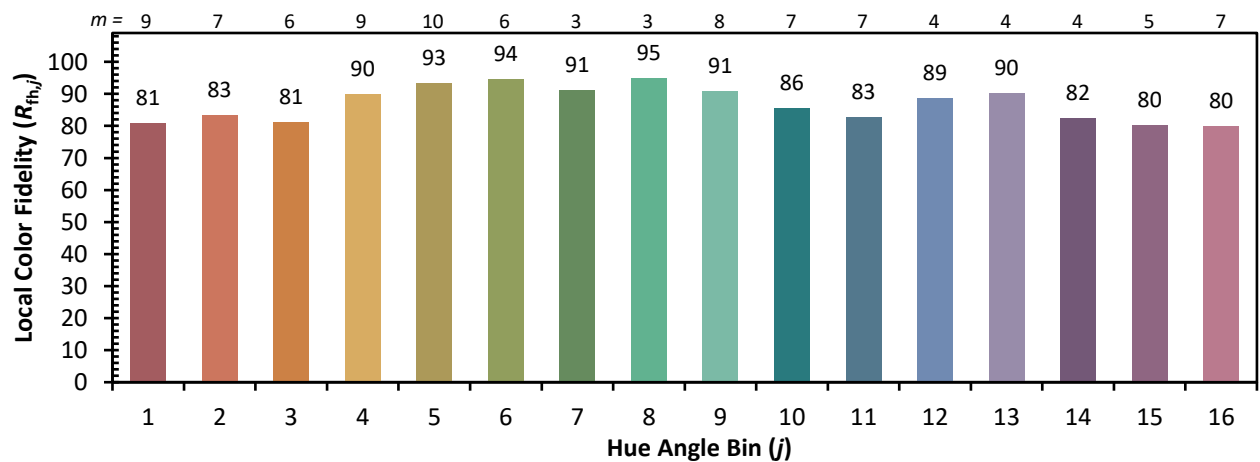
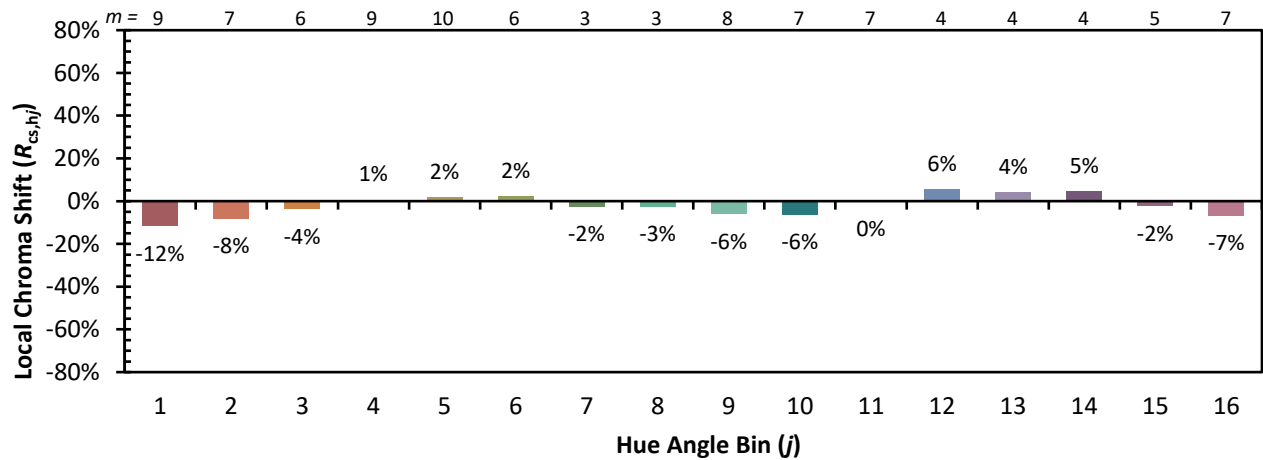
Color Vector Graphics


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

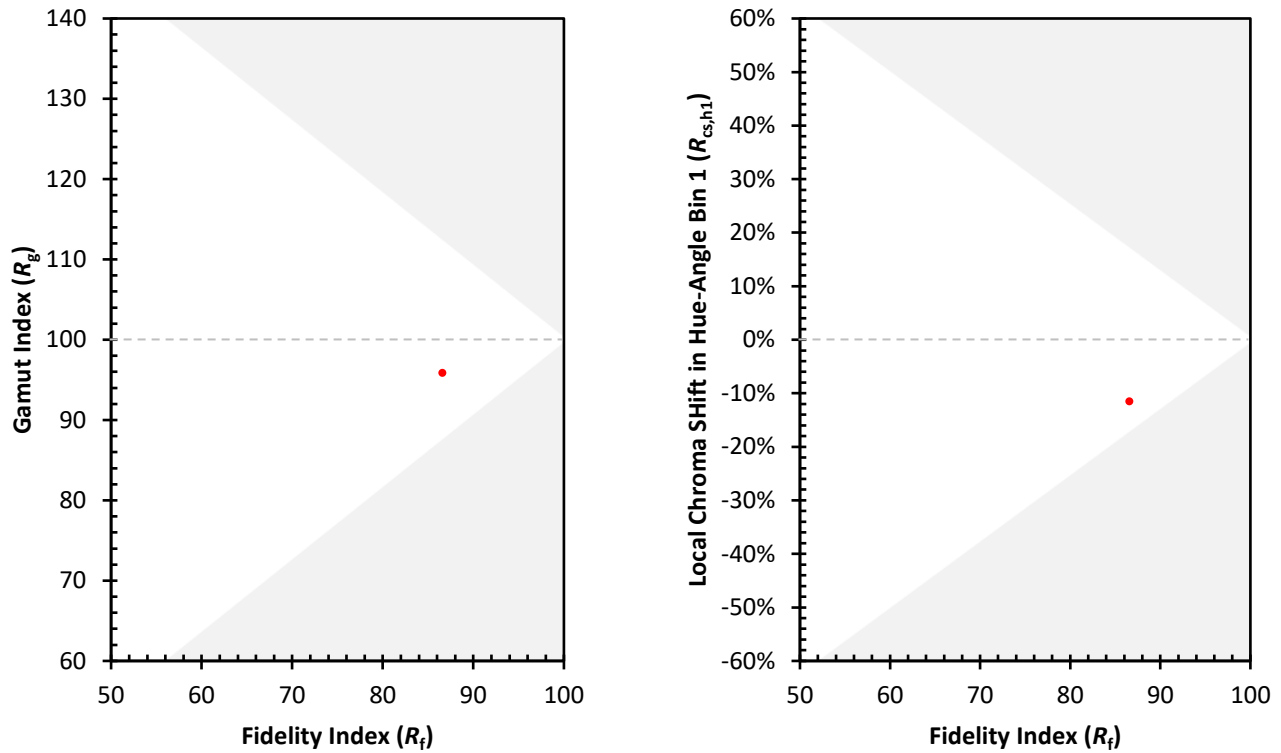
CES01 = 86	CES26 = 85	CES51 = 97	CES76 = 81
CES02 = 62	CES27 = 95	CES52 = 96	CES77 = 87
CES03 = 31	CES28 = 94	CES53 = 91	CES78 = 80
CES04 = 70	CES29 = 87	CES54 = 92	CES79 = 93
CES05 = 49	CES30 = 93	CES55 = 92	CES80 = 91
CES06 = 51	CES31 = 89	CES56 = 88	CES81 = 77
CES07 = 41	CES32 = 84	CES57 = 87	CES82 = 96
CES08 = 40	CES33 = 91	CES58 = 88	CES83 = 95
CES09 = 29	CES34 = 91	CES59 = 93	CES84 = 92
CES10 = 75	CES35 = 95	CES60 = 94	CES85 = 80
CES11 = 58	CES36 = 90	CES61 = 91	CES86 = 72
CES12 = 64	CES37 = 95	CES62 = 95	CES87 = 86
CES13 = 43	CES38 = 100	CES63 = 88	CES88 = 88
CES14 = 74	CES39 = 97	CES64 = 85	CES89 = 77
CES15 = 71	CES40 = 94	CES65 = 80	CES90 = 88
CES16 = 47	CES41 = 97	CES66 = 84	CES91 = 81
CES17 = 49	CES42 = 96	CES67 = 82	CES92 = 67
CES18 = 56	CES43 = 93	CES68 = 85	CES93 = 81
CES19 = 72	CES44 = 99	CES69 = 89	CES94 = 63
CES20 = 66	CES45 = 95	CES70 = 81	CES95 = 76
CES21 = 86	CES46 = 91	CES71 = 79	CES96 = 84
CES22 = 78	CES47 = 93	CES72 = 93	CES97 = 92
CES23 = 91	CES48 = 85	CES73 = 76	CES98 = 86
CES24 = 90	CES49 = 92	CES74 = 95	CES99 = 77
CES25 = 72	CES50 = 96	CES75 = 80	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)