

Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: McGRAW-EDISON

Report Number: P629082

Luminaire Tested: GWS-SA1A-830-U-SLR-W-HSS

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P629082
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-44)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA1A-830-U-SLR-W-HSS
Description: GALLEON WALL SLIM LUMINAIRE. (1) LIGHTSQUARES WITH 16 LEDS EACH AND
SPILL LIGHT ELIMINATOR RIGHT OPTICS WITH HOUSE SIDE SHIELD
Light Source: (16) 3000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1402 lumens
Efficiency: N/A
Efficacy: 71.2 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B0 - U0 - G1

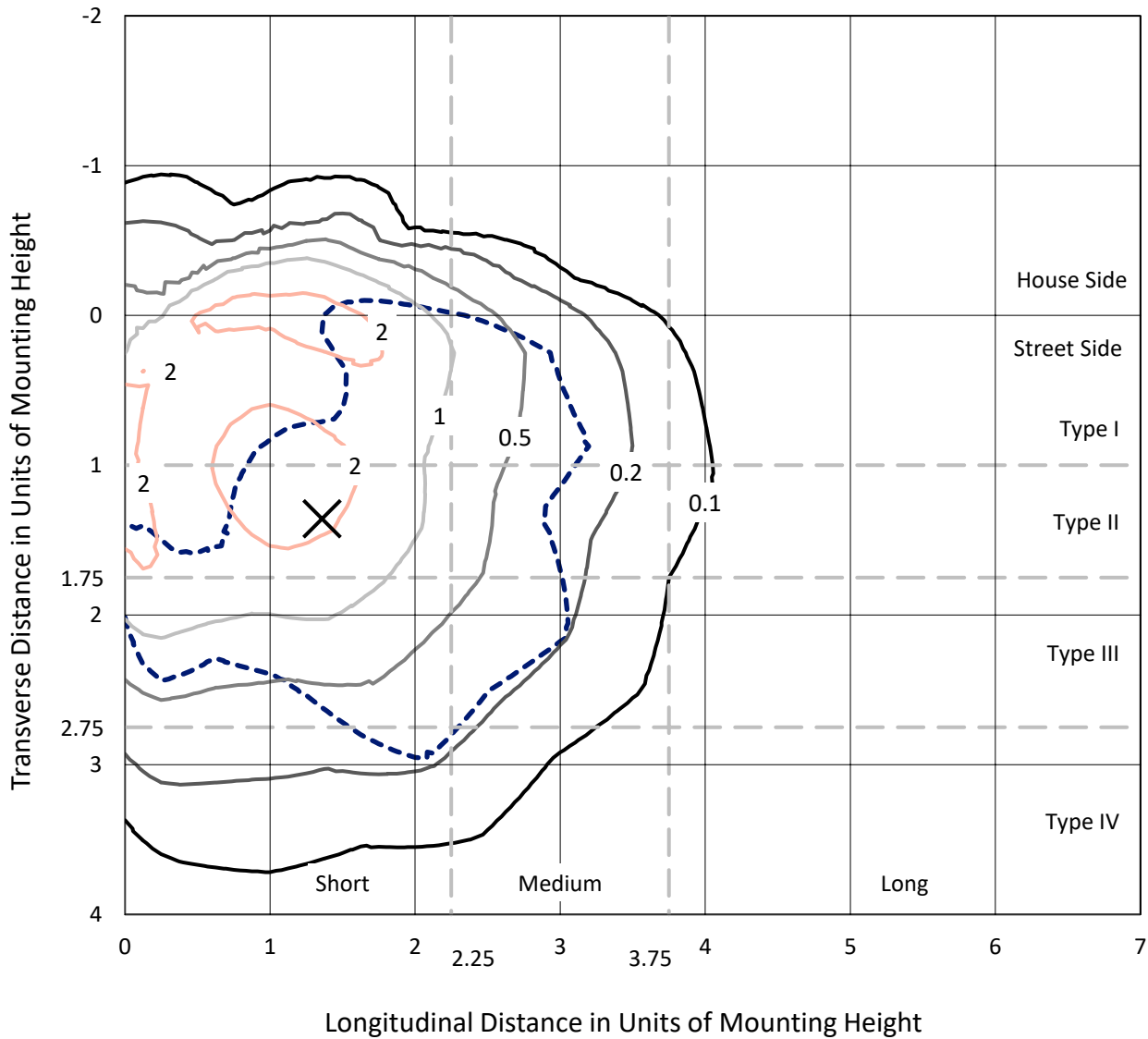
Input Watts (W): 19.7
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

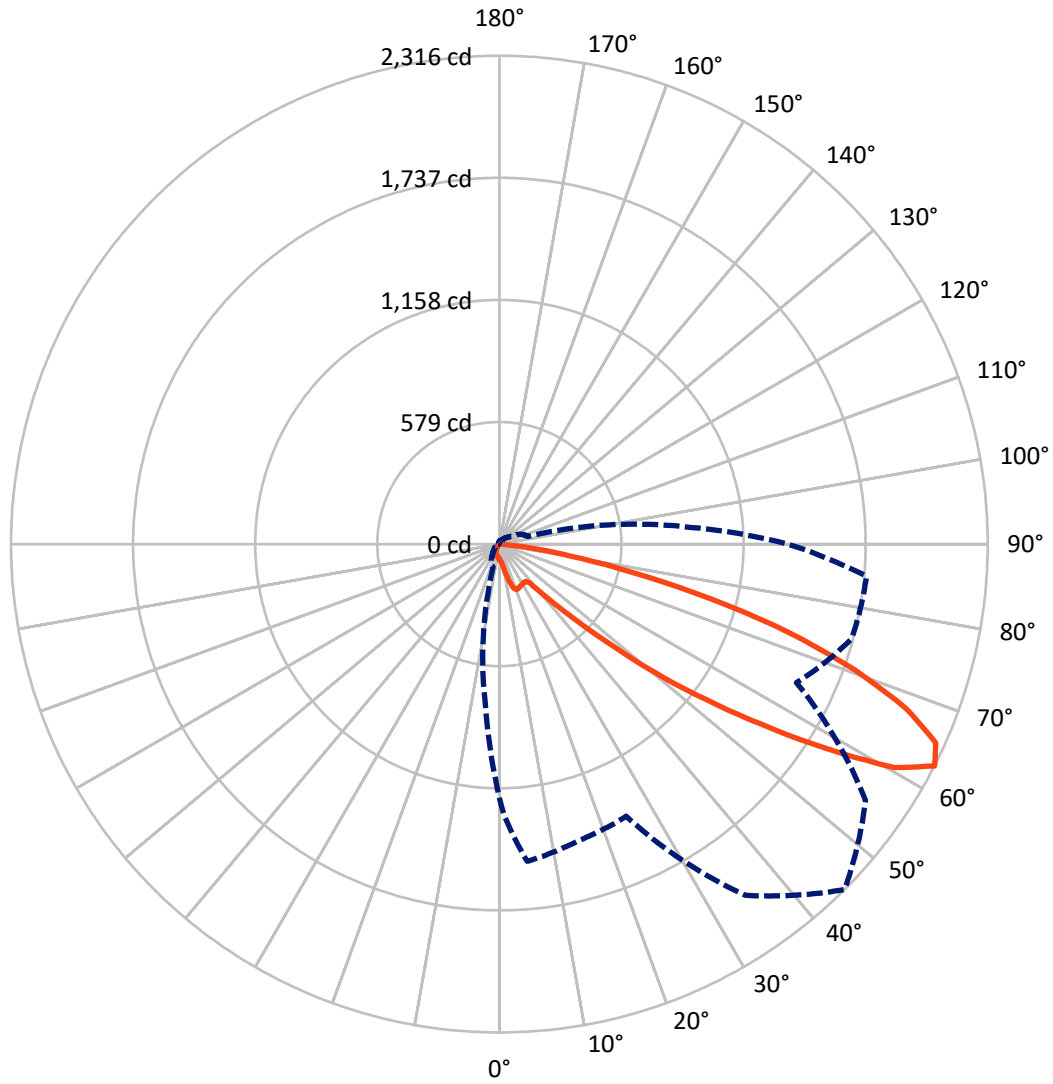
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 2.8 fc
 Type IV - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 45-Deg Lateral - - - Horizontal Cone Through 62.5-Deg Vertical

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FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	173.0	0.0	173.0
	% Fixture	12.3	0.0	12.3
Street Side	Lumens	1229.0	0.0	1229.0
	% Fixture	87.7	0.0	87.7
Total	Lumens	1402.0	0.0	1402.0
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	6.5	0.5
10°-20°	24.4	1.7
20°-30°	53.1	3.8
30°-40°	87.2	6.2
40°-50°	160.3	11.4
50°-60°	344.3	24.6
60°-70°	462.5	33.0
70°-80°	240.8	17.2
80°-90°	22.8	1.6
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°	1402.0	100.0
0°-180°	1402.0	100.0

Coefficient of Utilization



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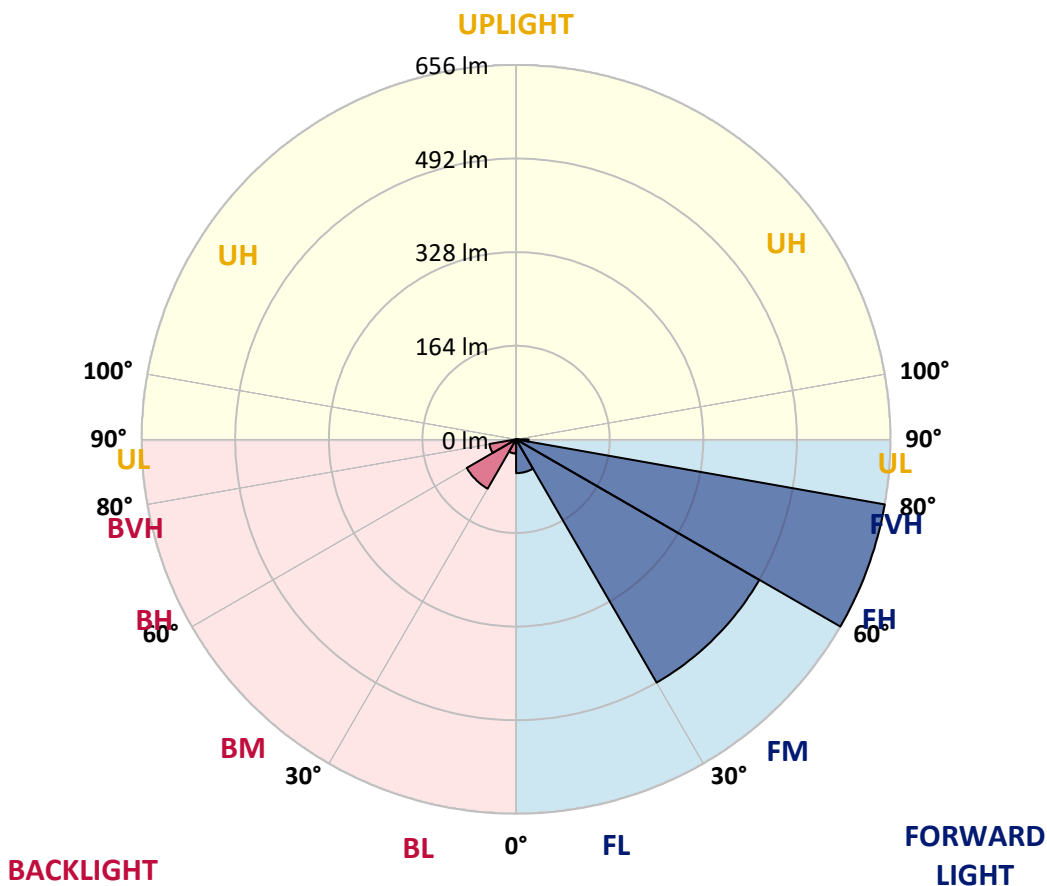
CATALOG NUMBER: GWS-SA1A-830-U-SLR-W-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	59.2	4.2			
FM (30°-60°)	492.1	35.1			
FH (60°-80°)	655.9	46.8			G0/660
FVH (80°-90°)	21.8	1.6			G1/100
BL (0°-30°)	24.8	1.8	B0/110		
BM (30°-60°)	99.8	7.1	B0/220		
BH (60°-80°)	47.4	3.4	B0/110		G0/110
BVH (80°-90°)	1.0	0.1			G0/10
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

BUG Rating: B0-U0-G1

Type IV Short





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CANDELA DISTRIBUTION (FULL):

	0°	1°	5°	15°	25°	35°	45°	55°	65°	75°	85°
0°	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9
2.5°	74.3	74.7	75.0	76.1	76.9	77.6	77.7	77.2	76.1	75.0	73.4
5°	72.1	72.4	73.5	76.6	79.7	82.1	82.9	82.4	79.7	76.1	72.4
7.5°	71.9	72.6	75.3	81.8	88.4	93.4	94.7	93.6	88.4	81.3	73.7
10°	77.7	78.9	82.9	94.6	106.7	115.6	119.2	114.3	106.1	93.1	80.6
12.5°	93.0	94.9	102.7	119.7	138.5	150.3	155.1	149.2	136.2	117.4	97.7
15°	116.9	119.8	131.5	156.9	179.1	189.6	191.3	187.9	172.8	152.1	125.5
17.5°	150.8	155.0	173.1	199.0	215.1	218.8	218.3	214.7	203.7	189.5	164.4
20°	191.3	196.3	214.1	235.5	237.1	232.7	230.3	228.2	224.5	222.0	202.4
22.5°	232.1	238.2	256.8	262.2	247.6	235.0	229.0	230.6	236.1	248.1	240.2
25°	272.7	278.5	296.0	281.6	252.5	231.4	223.8	227.7	240.8	266.7	276.9
27.5°	320.2	324.5	334.9	294.9	253.3	228.5	221.1	227.0	243.1	278.4	317.2
30°	369.6	372.1	367.1	298.5	250.5	224.1	218.3	227.0	247.0	286.2	347.5
32.5°	405.8	406.3	390.0	298.8	249.1	220.6	215.7	226.1	250.7	292.6	376.8
35°	443.2	440.8	411.8	303.6	253.0	221.9	217.7	228.8	256.5	300.2	402.6
37.5°	481.1	476.8	436.3	311.6	263.0	236.0	233.4	242.9	265.9	310.8	430.9
40°	520.0	514.0	461.7	323.6	285.3	283.9	292.8	291.7	291.7	324.2	460.1
42.5°	567.5	560.5	499.3	357.4	337.5	370.0	394.3	379.3	351.4	355.1	498.0
45°	630.1	624.1	564.4	422.2	419.3	494.1	526.8	497.0	427.7	426.6	561.3
47.5°	730.4	729.2	668.2	497.3	519.4	652.0	715.1	657.8	514.7	502.2	681.1
50°	871.3	867.9	797.6	585.4	638.4	847.6	960.3	864.8	619.8	590.4	841.6
52.5°	1030.0	1033.5	978.8	681.6	764.9	1065.3	1222.2	1101.9	733.9	702.7	1043.6
55°	1179.4	1199.8	1185.4	794.2	888.4	1305.6	1509.8	1361.9	875.3	849.6	1270.0
57.5°	1296.4	1353.8	1454.9	957.7	1033.7	1586.7	1830.9	1643.9	1040.3	1088.1	1578.1
60°	1302.8	1379.0	1613.6	1299.9	1220.6	1827.9	2151.6	1919.4	1299.8	1493.1	1819.6
62.5°	1205.2	1286.8	1510.3	1455.4	1424.1	2033.0	2316.1	2120.2	1555.0	1730.4	1748.0
65°	1093.4	1175.9	1395.0	1279.0	1400.5	2024.3	2274.3	2124.9	1578.1	1569.1	1619.9
67.5°	924.5	998.5	1196.9	1132.1	1290.9	1926.6	2081.3	1990.9	1453.9	1467.5	1490.2
70°	674.8	746.1	930.2	933.4	1127.3	1750.6	1788.3	1775.9	1339.0	1353.4	1288.6
72.5°	487.5	547.5	706.4	765.5	899.9	1468.0	1441.9	1490.0	1148.8	1205.3	1035.0
75°	350.4	395.5	518.2	665.9	713.4	1090.2	1032.2	1154.0	921.8	1037.9	778.1
77.5°	142.2	158.1	203.9	448.6	468.8	733.4	631.9	838.2	657.2	681.9	377.2
80°	5.8	6.5	8.4	231.6	321.5	412.6	338.1	448.1	434.0	274.7	89.1
82.5°	0.6	0.6	1.5	66.7	140.7	227.7	159.4	258.1	219.8	116.4	40.5
85°	0.2	0.2	0.3	7.6	33.0	36.4	21.5	79.2	102.2	47.6	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.5	1.6	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°	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9
2.5°	73.4	72.6	71.6	70.6	70.1	68.8	68.3	68.0	67.7	67.9	67.9
5°	70.9	69.1	67.0	64.9	63.8	62.5	61.9	61.5	61.7	62.3	62.3
7.5°	70.6	67.2	62.7	59.9	58.6	57.7	57.0	56.7	56.8	57.7	58.0
10°	76.0	70.0	61.9	57.2	55.7	54.7	54.1	53.6	53.3	53.9	54.1
12.5°	87.4	79.2	65.7	56.8	54.3	53.0	52.5	51.5	51.0	51.3	51.5
15°	111.3	97.0	73.5	58.1	53.0	51.5	50.7	49.9	49.1	48.9	49.1
17.5°	142.3	121.9	85.3	61.2	52.0	50.2	49.1	47.9	46.8	46.6	46.5
20°	180.9	152.6	101.9	66.1	51.2	49.1	47.4	45.8	44.4	43.9	43.9
22.5°	216.0	189.5	123.1	72.1	50.0	47.4	45.5	43.6	41.9	41.1	41.0
25°	258.9	228.7	148.5	79.0	48.4	45.3	43.2	41.3	39.7	38.7	38.4
27.5°	302.2	270.0	177.3	88.1	46.5	43.2	41.3	39.5	37.7	36.6	36.3
30°	344.1	314.5	209.7	99.4	45.0	41.1	39.5	37.7	36.1	34.3	33.8
32.5°	389.2	360.0	246.0	112.1	43.9	39.7	37.9	36.3	34.2	32.6	31.7
35°	432.6	407.0	286.0	124.4	42.8	38.4	36.4	34.8	32.6	30.8	29.6
37.5°	476.3	454.7	327.8	131.8	41.1	36.6	34.8	33.5	30.9	28.8	27.5
40°	522.6	504.1	373.0	128.7	39.7	34.7	33.7	32.2	29.3	26.9	25.3
42.5°	573.4	551.3	418.9	116.9	38.4	33.0	32.1	30.6	27.9	24.9	22.8
45°	637.4	602.9	456.7	99.1	39.0	31.4	29.5	29.1	26.6	22.8	20.2
47.5°	747.4	682.3	486.0	87.6	43.4	29.6	27.4	28.2	25.4	20.7	17.8
50°	915.6	813.8	513.4	86.8	50.0	28.8	25.4	27.5	24.3	18.6	15.7
52.5°	1076.0	947.4	530.9	93.9	55.9	30.9	23.5	26.7	23.5	17.2	14.3
55°	1229.3	1024.5	499.6	99.1	61.4	37.2	22.0	25.4	22.5	16.4	13.8
57.5°	1394.7	1058.8	393.4	109.6	65.3	42.6	22.3	23.5	21.2	15.9	13.6
60°	1444.1	1014.9	237.4	123.4	63.2	44.2	24.8	20.9	19.4	14.9	13.1
62.5°	1367.3	910.8	140.1	112.4	61.4	41.8	28.3	19.3	17.7	13.6	12.1
65°	1252.5	769.4	91.3	94.9	65.1	37.2	30.1	18.5	16.0	12.3	10.7
67.5°	1121.3	619.8	64.0	56.0	60.1	33.5	25.4	18.3	14.4	10.4	8.7
70°	944.5	464.1	45.0	37.1	50.0	29.8	19.8	17.8	12.6	8.4	6.8
72.5°	729.7	290.5	33.5	24.0	35.6	24.3	15.7	15.1	10.2	7.0	5.2
75°	538.1	165.7	23.6	17.3	23.5	18.5	11.7	10.7	8.7	6.6	4.7
77.5°	281.0	82.9	14.7	13.3	13.4	11.5	8.4	7.8	8.1	6.6	4.4
80°	53.9	16.5	8.9	9.7	7.3	7.3	6.2	6.5	7.1	5.3	3.7
82.5°	22.5	3.6	4.9	5.5	4.5	5.0	5.0	5.2	5.0	3.9	2.8
85°	0.0	0.0	2.1	2.3	3.1	3.1	2.6	2.6	2.6	2.3	1.6
87.5°	0.0	0.0	0.0	0.0	0.2	0.5	1.0	1.1	1.3	1.0	0.6
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°	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9
2.5°	67.7	67.4	67.9	68.2	68.5	68.5	68.2	67.9	67.4	67.9	67.4
5°	62.5	63.0	63.8	64.1	64.5	63.8	63.5	62.5	61.7	61.9	61.5
7.5°	58.5	58.9	59.9	60.6	60.6	60.2	59.3	58.3	57.0	57.0	56.8
10°	54.7	55.4	56.5	57.3	57.7	57.3	56.4	55.1	53.9	53.9	53.4
12.5°	51.7	52.5	53.8	54.9	55.2	54.9	53.9	52.6	51.3	51.3	51.0
15°	49.1	50.0	51.5	52.8	53.3	52.8	51.7	50.0	48.7	48.9	48.4
17.5°	46.6	47.4	49.4	50.9	51.3	50.9	49.4	47.3	46.0	46.3	46.0
20°	43.9	44.9	46.8	48.4	48.9	48.4	46.8	44.5	43.2	43.2	43.4
22.5°	41.0	41.9	43.9	45.0	45.7	45.2	43.6	41.5	40.2	40.2	40.3
25°	38.4	38.9	40.3	41.5	41.6	41.1	39.8	38.2	37.2	37.7	37.9
27.5°	36.0	36.0	36.6	37.2	37.1	36.6	36.1	34.8	34.7	35.1	35.6
30°	33.4	32.6	32.2	31.7	31.6	31.4	31.9	31.9	32.2	32.9	33.4
32.5°	31.1	29.5	28.0	26.6	25.7	26.4	27.7	28.8	30.0	30.9	31.4
35°	28.5	25.9	23.5	21.5	20.2	21.2	23.3	25.4	27.4	28.7	29.5
37.5°	25.9	22.2	19.3	16.8	15.9	16.7	18.9	21.9	24.8	26.4	27.5
40°	23.2	18.5	15.1	13.1	12.1	13.0	15.2	18.1	22.0	24.1	25.6
42.5°	20.4	15.2	12.1	10.2	9.7	10.2	12.0	14.9	19.1	21.7	23.6
45°	17.7	12.6	9.7	8.3	7.8	8.3	9.7	12.1	16.4	19.3	21.5
47.5°	15.2	10.7	8.1	6.8	6.5	7.0	8.1	10.2	13.8	16.7	19.3
50°	13.3	9.4	7.0	5.8	5.5	6.0	7.0	8.6	11.7	14.3	17.0
52.5°	12.0	8.7	6.2	5.0	4.9	5.2	6.0	7.3	9.9	12.1	14.7
55°	11.7	8.7	5.7	4.5	4.4	4.7	5.3	6.3	8.6	10.5	12.8
57.5°	12.0	9.4	5.3	3.9	3.7	4.0	4.7	5.5	7.4	9.1	11.2
60°	12.0	9.6	4.7	3.1	2.9	3.2	3.9	4.9	6.6	7.9	9.7
62.5°	10.9	8.7	3.9	2.4	2.1	2.4	3.2	4.0	5.8	7.1	8.6
65°	9.4	7.4	3.2	1.8	1.5	1.8	2.6	3.4	5.0	6.2	7.8
67.5°	7.6	5.7	2.4	1.3	1.0	1.3	1.9	2.8	4.2	5.3	7.0
70°	5.7	4.0	1.9	1.1	1.0	1.1	1.8	2.6	3.7	4.9	6.5
72.5°	4.2	2.8	1.6	1.1	0.8	1.1	1.6	2.4	3.6	4.7	6.2
75°	3.6	2.3	1.5	1.0	0.8	1.0	1.5	2.3	3.2	4.4	5.8
77.5°	3.4	2.1	1.3	0.8	0.6	0.8	1.3	1.9	2.9	4.0	5.7
80°	2.9	1.8	1.1	0.6	0.5	0.6	1.1	1.6	2.3	3.1	4.4
82.5°	2.3	1.5	0.8	0.3	0.2	0.3	0.8	1.0	1.5	1.8	2.6
85°	1.5	0.8	0.3	0.0	0.0	0.0	0.3	0.6	0.6	0.8	1.3
87.5°	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.5
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°	325°	335°	345°	355°	359°	360°
0°	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9
2.5°	68.3	68.5	68.8	69.3	70.4	71.4	72.4	73.7	74.3	74.3
5°	61.9	62.0	62.2	62.8	64.5	65.7	67.9	70.4	71.7	72.1
7.5°	56.8	57.2	57.5	58.0	59.6	61.4	64.1	69.0	71.4	71.9
10°	53.9	54.4	55.1	56.0	57.5	59.4	64.1	72.9	76.9	77.7
12.5°	51.7	52.5	53.1	54.3	56.0	59.1	68.5	83.9	91.0	93.0
15°	49.4	50.4	51.3	52.5	54.4	60.2	76.9	103.6	115.5	116.9
17.5°	47.1	48.3	49.6	50.9	53.3	63.0	90.2	131.0	147.5	150.8
20°	44.5	46.0	47.8	49.4	52.1	67.4	108.7	163.6	184.3	191.3
22.5°	41.8	43.6	45.7	47.8	50.9	72.7	131.0	198.5	227.5	232.1
25°	39.5	41.3	43.2	45.3	48.7	79.2	158.1	241.9	268.3	272.7
27.5°	37.4	39.2	41.0	42.9	46.6	87.6	190.6	288.1	315.6	320.2
30°	35.1	37.2	39.0	41.0	44.7	98.0	228.2	339.3	365.3	369.6
32.5°	33.2	35.3	37.1	39.0	43.2	109.3	267.7	384.6	405.8	405.8
35°	31.6	33.8	35.1	37.7	42.1	116.6	305.1	427.9	443.9	443.2
37.5°	29.8	32.6	33.5	35.3	40.6	117.4	340.2	473.5	485.3	481.1
40°	28.0	30.9	32.4	33.4	39.0	110.8	378.8	515.5	525.5	520.0
42.5°	26.4	28.7	30.8	31.9	38.1	99.1	409.7	560.3	572.3	567.5
45°	24.8	26.7	28.0	30.1	38.7	91.0	436.3	612.6	633.7	630.1
47.5°	23.2	24.8	25.6	28.8	43.1	87.3	452.5	693.6	733.3	730.4
50°	21.4	23.3	23.3	28.5	49.6	88.6	466.6	810.9	872.2	871.3
52.5°	19.6	21.7	21.4	30.9	54.6	94.6	482.6	914.3	1021.1	1030.0
55°	17.8	19.8	20.1	35.8	57.5	99.8	420.6	957.9	1148.2	1179.4
57.5°	15.9	17.0	20.9	39.5	56.5	114.8	288.1	965.8	1229.3	1296.4
60°	13.8	14.7	23.6	38.7	53.4	106.1	181.4	894.6	1217.8	1302.8
62.5°	12.0	13.6	24.9	34.2	54.4	92.0	115.6	762.4	1108.2	1205.2
65°	10.5	13.1	22.7	30.9	55.1	62.3	78.1	620.2	1001.1	1093.4
67.5°	9.4	14.6	18.6	27.5	47.3	43.9	53.6	481.9	841.8	924.5
70°	8.6	14.9	15.2	23.6	36.6	28.2	35.3	324.4	580.2	674.8
72.5°	7.8	11.0	11.5	18.9	23.6	17.2	22.8	185.6	423.0	487.5
75°	7.4	7.4	7.9	12.3	13.1	12.5	14.7	110.8	303.3	350.4
77.5°	7.0	5.7	5.0	7.9	7.1	8.9	8.7	49.2	131.5	142.2
80°	5.5	4.0	3.4	5.0	4.9	6.0	5.2	4.0	6.0	5.8
82.5°	3.4	2.6	2.4	3.1	2.8	3.1	2.4	0.6	0.6	0.6
85°	1.6	1.5	1.3	1.3	1.5	1.3	1.0	0.3	0.2	0.2
87.5°	0.8	0.8	0.6	0.5	0.6	0.6	0.5	0.2	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

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

MCGRAW EDISON

Report Number: SP1-2408-195-9

Test Date: 08/07/2024

Luminaire Tested: GALN-SB1A-830-U-5WQ

Data in this report applies to families of products including GALN-SB1A-830-U-5WQ.

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2408-195-9
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 08/07/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: MCGRAW EDISON
 Catalog Number: **GALN-SB1A-830-U-5WQ**
 Description: GALLEON AREA AND ROADWAY LUMINAIRE. (1) 80 CRI, 3000K, 350MA HIGH DENSITY LIGHTSQUARE WITH 26 LEDS AND TYPE V WIDE OPTICS

Spectral Parameters

CCT (K): 3050
 CIE u': 0.2476
 CIE v': 0.5251
 Duv: 0.0034
 CIE x: 0.4383
 CIE y: 0.4131
 CIE z: 0.1487
 Peak Wavelength (nm): 603
 Dominant Wavelength (nm): 581
 Purity: 55.55201
 Rf: 81.5
 Rg: 99.2

CRI (Ra):	81.0		
R1:	79.6	R9:	7.1
R2:	85.6	R10:	67.0
R3:	92.0	R11:	82.7
R4:	82.6	R12:	63.2
R5:	78.9	R13:	80.3
R6:	81.7	R14:	95.0
R7:	85.2	R15:	71.7
R8:	62.0		



Test Conditions

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

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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 3000K 4-step quadrangle

REPORT NUMBER: SP1-2408-195-9

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	168	NR	620	940	NR	750	35	NR	880	1	NR
365	0	NR	495	233	NR	625	897	NR	755	30	NR	885	1	NR
370	0	NR	500	300	NR	630	847	NR	760	26	NR	890	1	NR
375	0	NR	505	372	NR	635	790	NR	765	22	NR	895	1	NR
380	0	NR	510	430	NR	640	730	NR	770	19	NR	900	1	NR
385	0	NR	515	483	NR	645	668	NR	775	16	NR	905	1	NR
390	0	NR	520	524	NR	650	605	NR	780	14	NR	910	0	NR
395	2	NR	525	555	NR	655	545	NR	785	12	NR	915	0	NR
400	4	NR	530	581	NR	660	485	NR	790	10	NR	920	0	NR
405	7	NR	535	604	NR	665	430	NR	795	9	NR	925	0	NR
410	17	NR	540	623	NR	670	378	NR	800	8	NR	930	0	NR
415	34	NR	545	645	NR	675	331	NR	805	7	NR	935	0	NR
420	68	NR	550	667	NR	680	290	NR	810	6	NR	940	0	NR
425	128	NR	555	693	NR	685	251	NR	815	5	NR	945	0	NR
430	214	NR	560	719	NR	690	218	NR	820	4	NR	950	0	NR
435	339	NR	565	754	NR	695	188	NR	825	4	NR	955	0	NR
440	507	NR	570	791	NR	700	162	NR	830	3	NR	960	0	NR
445	573	NR	575	830	NR	705	139	NR	835	3	NR	965	0	NR
450	356	NR	580	873	NR	710	119	NR	840	3	NR	970	0	NR
455	217	NR	585	913	NR	715	102	NR	845	2	NR	975	0	NR
460	168	NR	590	948	NR	720	88	NR	850	2	NR	980	0	NR
465	113	NR	595	974	NR	725	76	NR	855	2	NR	985	0	NR
470	85	NR	600	994	NR	730	65	NR	860	1	NR	990	0	NR
475	85	NR	605	998	NR	735	55	NR	865	1	NR	995	0	NR
480	94	NR	610	994	NR	740	47	NR	870	1	NR	1000	0	NR
485	120	NR	615	973	NR	745	41	NR	875	1	NR			

REPORT NUMBER: SP1-2408-195-9

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.27

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	168	NR	620	940	NR	750	35	NR	880	1	NR
365	0	NR	495	233	NR	625	897	NR	755	30	NR	885	1	NR
370	0	NR	500	300	NR	630	847	NR	760	26	NR	890	1	NR
375	0	NR	505	372	NR	635	790	NR	765	22	NR	895	1	NR
380	0	NR	510	430	NR	640	730	NR	770	19	NR	900	1	NR
385	0	NR	515	483	NR	645	668	NR	775	16	NR	905	1	NR
390	0	NR	520	524	NR	650	605	NR	780	14	NR	910	0	NR
395	2	NR	525	555	NR	655	545	NR	785	12	NR	915	0	NR
400	4	NR	530	581	NR	660	485	NR	790	10	NR	920	0	NR
405	7	NR	535	604	NR	665	430	NR	795	9	NR	925	0	NR
410	17	NR	540	623	NR	670	378	NR	800	8	NR	930	0	NR
415	34	NR	545	645	NR	675	331	NR	805	7	NR	935	0	NR
420	68	NR	550	667	NR	680	290	NR	810	6	NR	940	0	NR
425	128	NR	555	693	NR	685	251	NR	815	5	NR	945	0	NR
430	214	NR	560	719	NR	690	218	NR	820	4	NR	950	0	NR
435	339	NR	565	754	NR	695	188	NR	825	4	NR	955	0	NR
440	507	NR	570	791	NR	700	162	NR	830	3	NR	960	0	NR
445	573	NR	575	830	NR	705	139	NR	835	3	NR	965	0	NR
450	356	NR	580	873	NR	710	119	NR	840	3	NR	970	0	NR
455	217	NR	585	913	NR	715	102	NR	845	2	NR	975	0	NR
460	168	NR	590	948	NR	720	88	NR	850	2	NR	980	0	NR
465	113	NR	595	974	NR	725	76	NR	855	2	NR	985	0	NR
470	85	NR	600	994	NR	730	65	NR	860	1	NR	990	0	NR
475	85	NR	605	998	NR	735	55	NR	865	1	NR	995	0	NR
480	94	NR	610	994	NR	740	47	NR	870	1	NR	1000	0	NR
485	120	NR	615	973	NR	745	41	NR	875	1	NR			

REPORT NUMBER: SP1-2408-195-9

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.32

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	168	NR	620	940	NR	750	35	NR	880	1	NR
365	0	NR	495	233	NR	625	897	NR	755	30	NR	885	1	NR
370	0	NR	500	300	NR	630	847	NR	760	26	NR	890	1	NR
375	0	NR	505	372	NR	635	790	NR	765	22	NR	895	1	NR
380	0	NR	510	430	NR	640	730	NR	770	19	NR	900	1	NR
385	0	NR	515	483	NR	645	668	NR	775	16	NR	905	1	NR
390	0	NR	520	524	NR	650	605	NR	780	14	NR	910	0	NR
395	2	NR	525	555	NR	655	545	NR	785	12	NR	915	0	NR
400	4	NR	530	581	NR	660	485	NR	790	10	NR	920	0	NR
405	7	NR	535	604	NR	665	430	NR	795	9	NR	925	0	NR
410	17	NR	540	623	NR	670	378	NR	800	8	NR	930	0	NR
415	34	NR	545	645	NR	675	331	NR	805	7	NR	935	0	NR
420	68	NR	550	667	NR	680	290	NR	810	6	NR	940	0	NR
425	128	NR	555	693	NR	685	251	NR	815	5	NR	945	0	NR
430	214	NR	560	719	NR	690	218	NR	820	4	NR	950	0	NR
435	339	NR	565	754	NR	695	188	NR	825	4	NR	955	0	NR
440	507	NR	570	791	NR	700	162	NR	830	3	NR	960	0	NR
445	573	NR	575	830	NR	705	139	NR	835	3	NR	965	0	NR
450	356	NR	580	873	NR	710	119	NR	840	3	NR	970	0	NR
455	217	NR	585	913	NR	715	102	NR	845	2	NR	975	0	NR
460	168	NR	590	948	NR	720	88	NR	850	2	NR	980	0	NR
465	113	NR	595	974	NR	725	76	NR	855	2	NR	985	0	NR
470	85	NR	600	994	NR	730	65	NR	860	1	NR	990	0	NR
475	85	NR	605	998	NR	735	55	NR	865	1	NR	995	0	NR
480	94	NR	610	994	NR	740	47	NR	870	1	NR	1000	0	NR
485	120	NR	615	973	NR	745	41	NR	875	1	NR			

Summary

$R_f = 81.5$
 $R_g = 99.2$
 $CIE R_a = 81.0$
 $R_9 = 7.1$



Color Vector Graphics



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

CES01 = 86	CES26 = 74	CES51 = 89	CES76 = 70
CES02 = 63	CES27 = 88	CES52 = 92	CES77 = 86
CES03 = 31	CES28 = 89	CES53 = 81	CES78 = 72
CES04 = 70	CES29 = 67	CES54 = 87	CES79 = 90
CES05 = 50	CES30 = 68	CES55 = 85	CES80 = 88
CES06 = 51	CES31 = 71	CES56 = 78	CES81 = 78
CES07 = 42	CES32 = 70	CES57 = 76	CES82 = 95
CES08 = 41	CES33 = 71	CES58 = 78	CES83 = 90
CES09 = 29	CES34 = 82	CES59 = 92	CES84 = 94
CES10 = 76	CES35 = 90	CES60 = 95	CES85 = 86
CES11 = 59	CES36 = 93	CES61 = 93	CES86 = 72
CES12 = 65	CES37 = 87	CES62 = 83	CES87 = 85
CES13 = 43	CES38 = 75	CES63 = 77	CES88 = 83
CES14 = 74	CES39 = 94	CES64 = 83	CES89 = 75
CES15 = 71	CES40 = 89	CES65 = 77	CES90 = 81
CES16 = 47	CES41 = 85	CES66 = 80	CES91 = 96
CES17 = 50	CES42 = 86	CES67 = 79	CES92 = 73
CES18 = 56	CES43 = 81	CES68 = 84	CES93 = 84
CES19 = 72	CES44 = 99	CES69 = 91	CES94 = 64
CES20 = 66	CES45 = 87	CES70 = 78	CES95 = 80
CES21 = 87	CES46 = 82	CES71 = 76	CES96 = 84
CES22 = 79	CES47 = 77	CES72 = 92	CES97 = 87
CES23 = 92	CES48 = 71	CES73 = 71	CES98 = 81
CES24 = 91	CES49 = 81	CES74 = 93	CES99 = 74
CES25 = 72	CES50 = 89	CES75 = 74	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)