

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: P631577

Luminaire Tested: GWS-SA1F-830-U-T4W-W

Issue Date: 1/10/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P631577  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-52)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 1/10/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: McGRAW-EDISON  
Catalog Number: GWS-SA1F-830-U-T4W-W  
Description: GALLEON WALL SLIM LUMINAIRE. (1) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV WIDE OPTICS  
Light Source: (16) 3000K CCT, 80 CRI LEDS  
Ballast/Driver: -

**Summary**

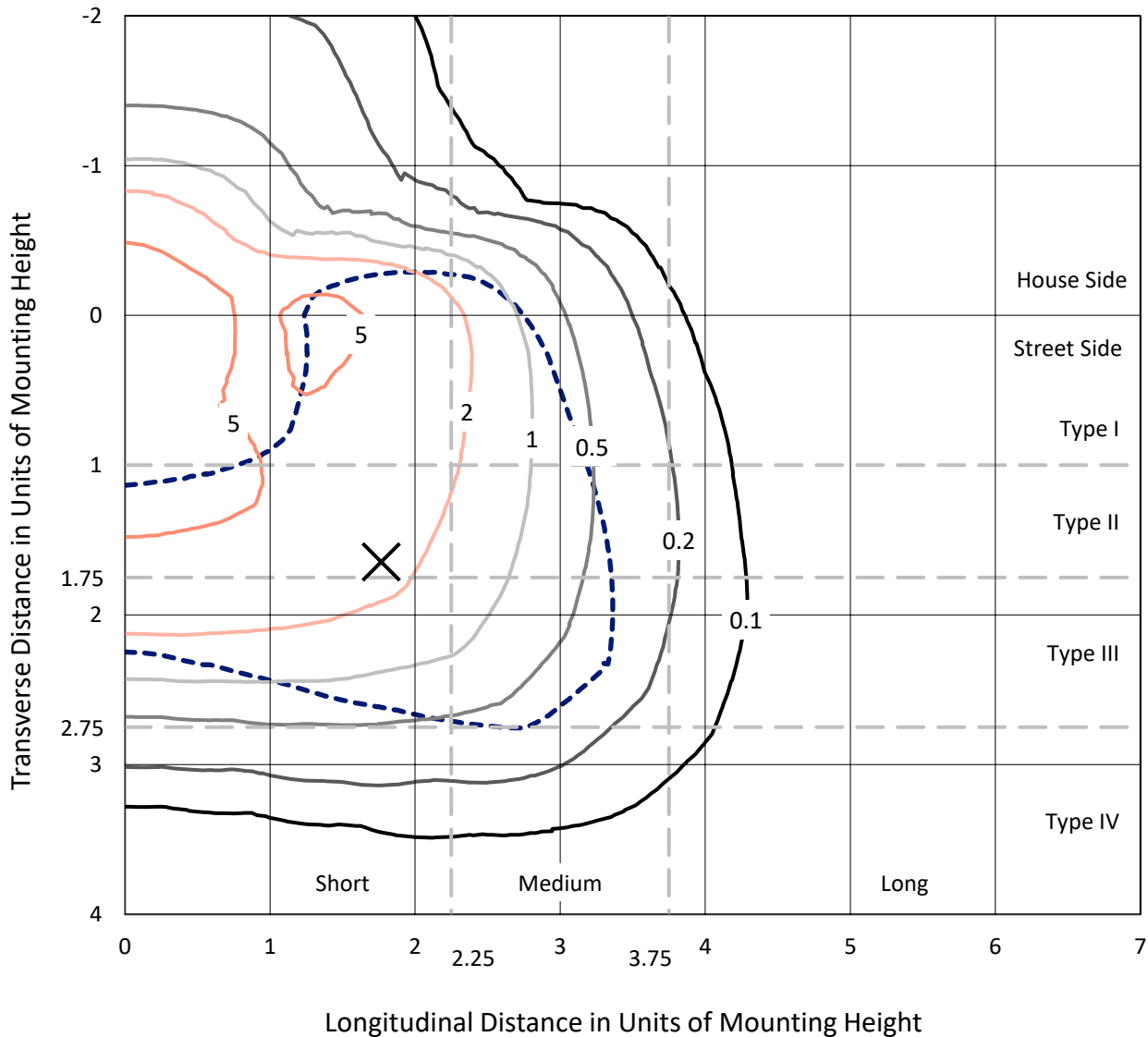
Lumens per Lamp: N/A  
Luminaire Lumens: 6635.3 lumens  
Efficiency: N/A  
Efficacy: 98.7 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B1 - U0 - G2  
  
Input Watts (W): 67.2  
Input Voltage (V): 120  
Input Current (Ain): 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



REPORT NUMBER: P631577  
 CATALOG NUMBER: GWS-SA1F-830-U-T4W-W

### Iso-Footcandle Lines of Horizontal Illumination

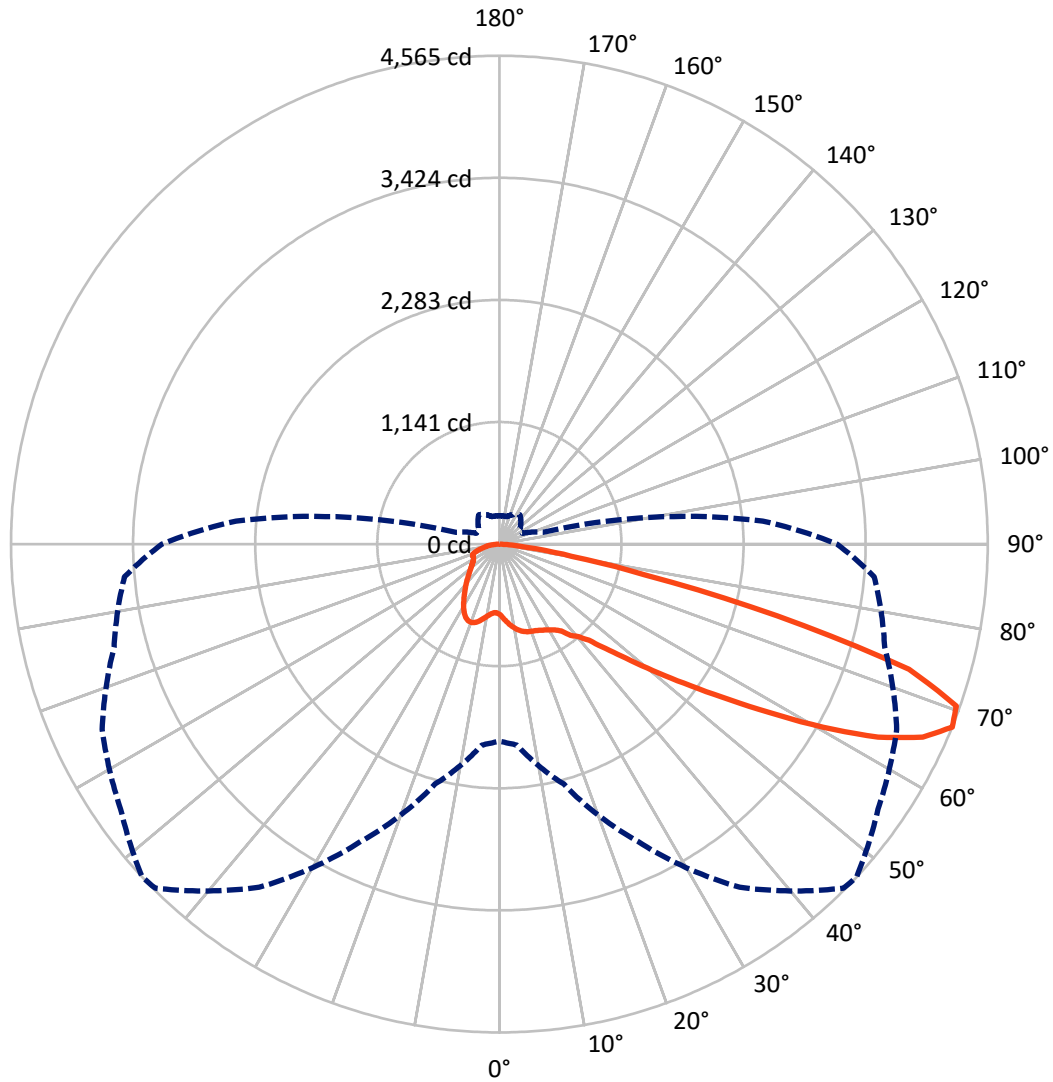
✕ Max cd  
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 8.3 fc  
 Type III - Short - N/A

REPORT NUMBER: P631577  
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### Luminous Intensity Polar Plot



— Vertical Plane Through 47-Deg Lateral    - - - Horizontal Cone Through 67.5-Deg Vertical

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CATALOG NUMBER: GWS-SA1F-830-U-T4W-W

**FLUX DISTRIBUTION:**

		Downward	Upward	Total
<b>House Side</b>	Lumens	1512.2	0.0	1512.2
	% Fixture	22.8	0.0	22.8
<b>Street Side</b>	Lumens	5123.1	0.0	5123.1
	% Fixture	77.2	0.0	77.2
<b>Total</b>	Lumens	6635.3	0.0	6635.3
	% Fixture	100.0	0.0	100.0

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	67.2	1.0
10°-20°	224.0	3.4
20°-30°	380.7	5.7
30°-40°	557.7	8.4
40°-50°	849.7	12.8
50°-60°	1520.2	22.9
60°-70°	2028.6	30.6
70°-80°	917.4	13.8
80°-90°	89.9	1.4
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°	6635.3	100.0
0°-180°	6635.3	100.0

**Coefficient of Utilization**



REPORT NUMBER: P631577

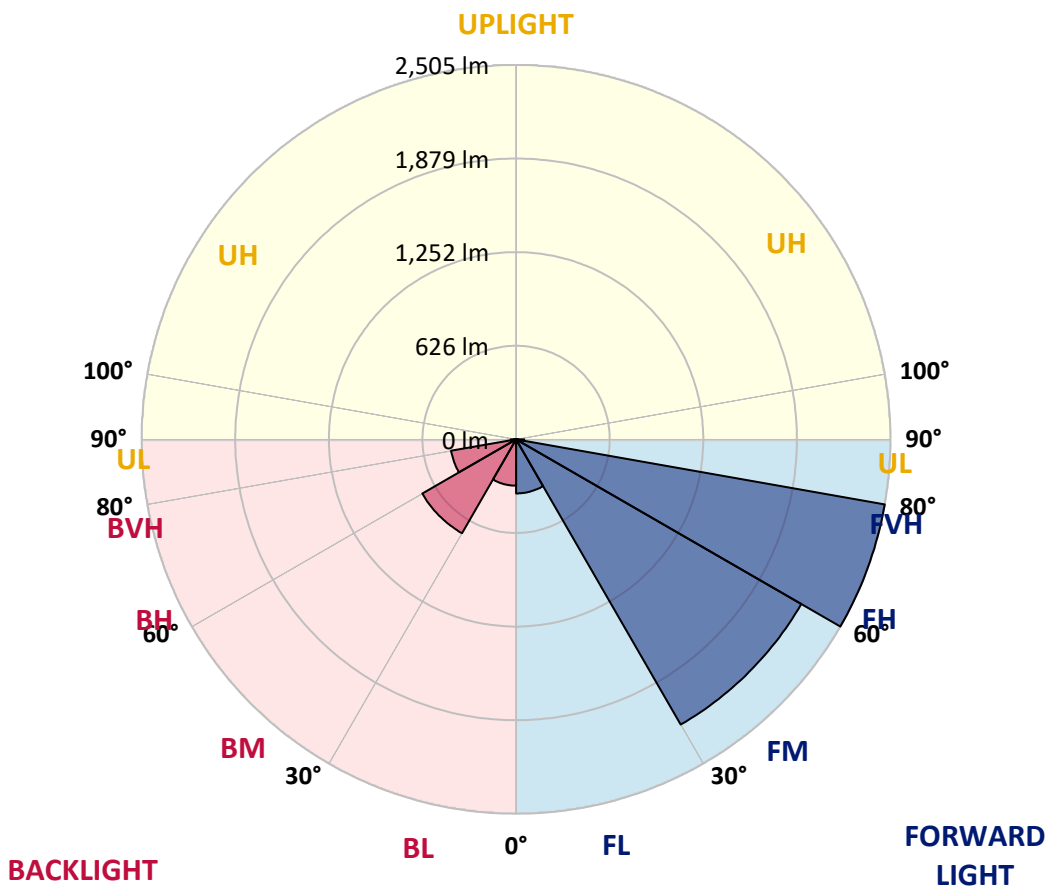
CATALOG NUMBER: GWS-SA1F-830-U-T4W-W

**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	361.9	5.5			
FM (30°-60°)	2203.0	33.2			
FH (60°-80°)	2504.8	37.7			G2/5000
FVH (80°-90°)	53.5	0.8			G1/100
BL (0°-30°)	310.0	4.7	B1/500		
BM (30°-60°)	724.6	10.9	B1/1000		
BH (60°-80°)	441.2	6.6	B1/500		G1/500
BVH (80°-90°)	36.4	0.5			G1/100
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

**BUG Rating: B1-U0-G2**

Type III Short





REPORT NUMBER: P631577  
 CATALOG NUMBER: GWS-SA1F-830-U-T4W-W

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	15°	25°	35°	45°	47°	55°	65°	75°	85°
0°	657.8	657.8	657.8	657.8	657.8	657.8	657.8	657.8	657.8	657.8	657.8
2.5°	701.4	703.8	703.3	699.5	697.1	692.8	693.3	686.6	676.5	669.8	662.1
5°	763.3	767.2	762.4	756.1	746.5	732.6	731.2	715.8	696.6	683.2	669.3
7.5°	817.1	819.5	813.7	803.1	789.2	770.5	767.2	748.9	724.9	703.8	683.7
10°	858.8	861.7	854.0	840.1	821.9	803.1	800.7	782.0	756.6	731.7	706.2
12.5°	894.3	895.3	887.1	868.4	848.7	829.5	827.1	809.9	786.3	760.9	733.1
15°	914.9	915.4	905.3	884.7	866.0	849.2	847.8	832.9	811.3	787.3	757.6
17.5°	913.5	914.4	907.2	889.0	872.7	862.6	861.2	851.6	834.8	813.2	783.5
20°	895.7	896.7	891.9	879.9	871.3	868.4	868.9	866.0	855.9	838.2	807.9
22.5°	881.8	883.3	878.9	870.3	869.3	876.1	877.5	878.9	874.1	858.3	829.0
25°	888.5	890.9	884.2	872.2	874.1	889.0	891.9	896.7	892.9	879.4	854.0
27.5°	935.1	936.5	919.2	894.8	889.0	904.9	909.2	916.8	914.0	901.5	881.8
30°	1043.0	1042.1	1005.1	945.2	921.2	927.4	930.8	941.8	942.8	934.6	915.9
32.5°	1195.1	1190.3	1133.2	1037.7	968.2	952.8	956.7	971.5	982.6	973.9	948.5
35°	1355.8	1351.5	1288.7	1176.9	1055.0	1001.8	997.4	1009.0	1025.8	1001.8	965.3
37.5°	1508.9	1502.2	1437.9	1299.7	1162.0	1087.6	1081.4	1069.9	1059.8	1013.8	985.9
40°	1678.7	1671.0	1614.9	1458.5	1280.0	1153.4	1137.5	1092.0	1082.8	1053.6	1039.7
42.5°	1860.1	1860.1	1813.5	1659.5	1422.5	1247.4	1226.8	1158.2	1167.8	1148.6	1132.3
45°	2041.4	2046.7	2009.8	1862.0	1613.0	1424.9	1391.8	1294.4	1317.5	1308.8	1300.7
47.5°	2195.9	2206.0	2198.8	2068.8	1846.2	1640.8	1590.4	1489.2	1538.6	1559.3	1582.3
50°	2362.4	2373.4	2366.2	2314.9	2119.2	1902.3	1857.2	1752.6	1837.5	1899.4	1974.7
52.5°	2609.5	2625.3	2565.3	2545.7	2450.7	2199.3	2159.0	2040.0	2194.0	2296.7	2464.6
55°	2818.2	2817.7	2796.6	2841.7	2806.7	2562.5	2517.8	2409.9	2606.6	2715.5	2961.2
57.5°	2915.1	2926.6	2999.1	3126.7	3196.7	3006.3	2963.6	2853.2	3049.4	3106.0	3371.4
60°	2965.0	2979.4	3119.5	3371.8	3560.4	3490.8	3474.0	3333.5	3443.8	3437.1	3717.3
62.5°	2894.9	2923.7	3148.7	3484.1	3819.9	3977.8	3972.5	3760.0	3779.2	3713.4	3931.7
65°	2573.5	2604.7	2957.8	3428.0	3968.2	4348.2	4349.6	4146.2	4036.8	3847.8	3895.8
67.5°	1840.4	1885.0	2321.6	3067.2	3915.9	4548.2	4565.0	4321.3	4097.3	3728.8	3517.7
70°	1003.2	1035.8	1377.9	2229.5	3444.8	4500.3	4531.5	4236.9	3830.5	3225.5	2707.8
72.5°	455.8	466.3	641.0	1223.4	2353.3	3873.7	4004.2	3781.1	3145.9	2382.6	1721.9
75°	208.7	213.5	279.2	585.3	1229.7	2592.2	2683.8	2816.3	2189.2	1504.6	897.7
77.5°	131.0	132.4	158.8	267.7	613.1	1293.9	1390.4	1676.8	1282.0	744.6	375.2
80°	77.2	78.7	98.8	144.9	287.9	592.0	683.7	663.0	602.6	321.4	170.8
82.5°	38.9	40.3	57.1	82.5	156.9	235.6	277.3	278.7	224.5	174.2	96.4
85°	13.9	14.4	18.7	32.6	66.7	77.7	86.8	106.0	109.9	101.2	46.5
87.5°	0.0	0.0	0.5	1.0	1.9	7.7	8.2	15.4	32.1	36.0	18.7
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



REPORT NUMBER: P631577  
 CATALOG NUMBER: GWS-SA1F-830-U-T4W-W

**CANDELA DISTRIBUTION (continued):**

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	657.8	657.8	657.8	657.8	657.8	657.8	657.8	657.8	657.8	657.8	657.8
2.5°	659.7	652.5	650.1	647.7	643.9	642.4	639.5	636.7	636.7	633.8	632.3
5°	663.0	653.5	647.2	644.3	641.9	643.4	643.4	644.3	647.7	645.8	646.7
7.5°	675.0	664.0	655.4	653.0	653.0	658.7	662.6	667.4	673.6	674.6	674.6
10°	696.2	683.2	674.1	672.6	675.0	683.2	689.0	694.7	702.4	702.9	703.8
12.5°	719.2	706.2	697.1	699.0	701.4	712.0	718.2	723.0	730.7	730.7	730.2
15°	743.2	728.8	721.1	724.9	732.1	744.1	745.1	745.6	749.4	748.4	748.0
17.5°	768.1	752.8	747.0	752.8	760.4	766.2	761.4	754.7	753.2	751.3	750.4
20°	792.6	776.8	774.4	778.7	781.1	776.3	761.4	748.9	743.2	740.3	739.3
22.5°	813.7	800.3	798.8	798.8	786.8	770.0	748.0	731.2	723.5	719.7	718.7
25°	838.6	826.2	823.8	810.8	780.1	749.4	719.7	704.3	698.1	696.2	696.6
27.5°	867.9	859.3	851.6	814.7	760.9	712.9	679.4	672.6	670.2	672.6	674.1
30°	903.9	895.3	878.0	809.9	730.2	665.4	633.3	632.8	640.0	646.3	647.2
32.5°	933.2	929.3	901.0	794.5	687.0	613.1	585.8	587.7	600.7	609.3	610.8
35°	956.2	962.4	920.2	769.1	635.7	563.7	542.1	543.1	550.3	562.3	562.8
37.5°	988.8	1009.9	937.5	730.2	576.7	521.0	501.4	494.2	493.2	496.6	497.5
40°	1054.5	1086.2	949.9	673.6	519.6	482.7	460.6	446.7	434.7	425.6	422.7
42.5°	1153.9	1190.3	957.1	605.0	468.7	444.7	419.8	402.0	380.9	361.7	355.0
45°	1336.2	1348.2	957.1	532.1	423.6	409.2	384.3	363.2	336.3	313.8	309.0
47.5°	1627.9	1589.5	958.1	461.5	383.8	378.1	356.5	332.5	302.7	284.0	281.1
50°	2067.3	1932.5	977.8	403.0	350.7	351.7	335.8	309.5	282.6	268.7	266.3
52.5°	2565.3	2355.2	1030.6	359.8	322.9	330.1	321.4	296.0	272.0	260.0	257.6
55°	3033.6	2743.8	1075.7	329.1	299.4	311.9	311.4	287.9	266.3	254.3	252.8
57.5°	3431.8	3010.1	1068.9	304.2	279.2	295.1	302.3	282.6	262.4	252.4	250.9
60°	3679.4	3151.1	973.5	281.1	263.9	283.1	297.0	281.1	264.4	262.0	262.4
62.5°	3786.8	3125.2	790.2	263.9	253.8	277.3	302.7	291.2	282.1	287.9	291.2
65°	3619.9	2902.6	581.5	250.9	244.2	278.7	316.2	307.1	282.1	285.9	287.4
67.5°	3156.4	2470.8	420.3	238.0	232.2	283.1	335.4	304.7	265.8	265.8	262.9
70°	2274.6	1777.1	305.1	225.0	220.2	276.8	336.3	288.3	247.1	245.6	238.4
72.5°	1368.8	1048.3	238.0	210.6	202.0	245.6	315.2	269.2	228.9	216.9	208.2
75°	711.0	525.4	199.6	194.8	173.2	208.2	288.3	239.4	195.7	185.2	180.4
77.5°	304.7	245.6	171.3	173.7	143.9	175.1	232.7	207.3	173.7	160.2	155.9
80°	150.2	139.6	135.3	139.1	115.1	135.3	200.5	181.4	147.3	131.9	125.7
82.5°	85.9	81.6	97.4	98.8	82.0	113.2	169.4	153.5	121.9	105.1	95.0
85°	39.8	42.7	59.0	59.5	50.9	77.7	110.8	86.4	64.8	53.7	51.3
87.5°	15.8	18.7	25.9	25.4	14.9	14.4	9.6	5.3	4.3	3.8	3.4
90°	0.0	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

REPORT NUMBER: SP1-2408-195-9

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: SP1-2408-195-9

**CIE 1931 Chromaticity Diagram**



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



CCT = 3050K  
 CIE x = 0.4383  
 CIE y = 0.4131  
 Duv = 0.0034

Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2408-195-9

**Photopic Flux vs. Wavelength**



**Photopic Lumens: NR**

$\lambda$ (nm)	Power W <sup>^</sup> /nm	Lumens ( $\phi$ /nm)	$\lambda$ (nm)	Power W <sup>^</sup> /nm	Lumens ( $\phi$ /nm)	$\lambda$ (nm)	Power W <sup>^</sup> /nm	Lumens ( $\phi$ /nm)	$\lambda$ (nm)	Power W <sup>^</sup> /nm	Lumens ( $\phi$ /nm)	$\lambda$ (nm)	Power W <sup>^</sup> /nm	Lumens ( $\phi$ /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 <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /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 <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /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)