

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: P633019

Luminaire Tested: GWS-SA2D-830-U-AFL-W-HSS

Issue Date: 1/10/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P633019  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-48)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 1/10/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: McGRAW-EDISON  
Catalog Number: GWS-SA2D-830-U-AFL-W-HSS  
Description: GALLEON WALL SLIM LUMINAIRE. (2) LIGHTSQUARES WITH 16 LEDS EACH AND  
AUTOMOTIVE FRONTLINE OPTICS WITH HOUSE SIDE SHIELD  
Light Source: (32) 3000K CCT, 80 CRI LEDS  
Ballast/Driver: -

**Summary**

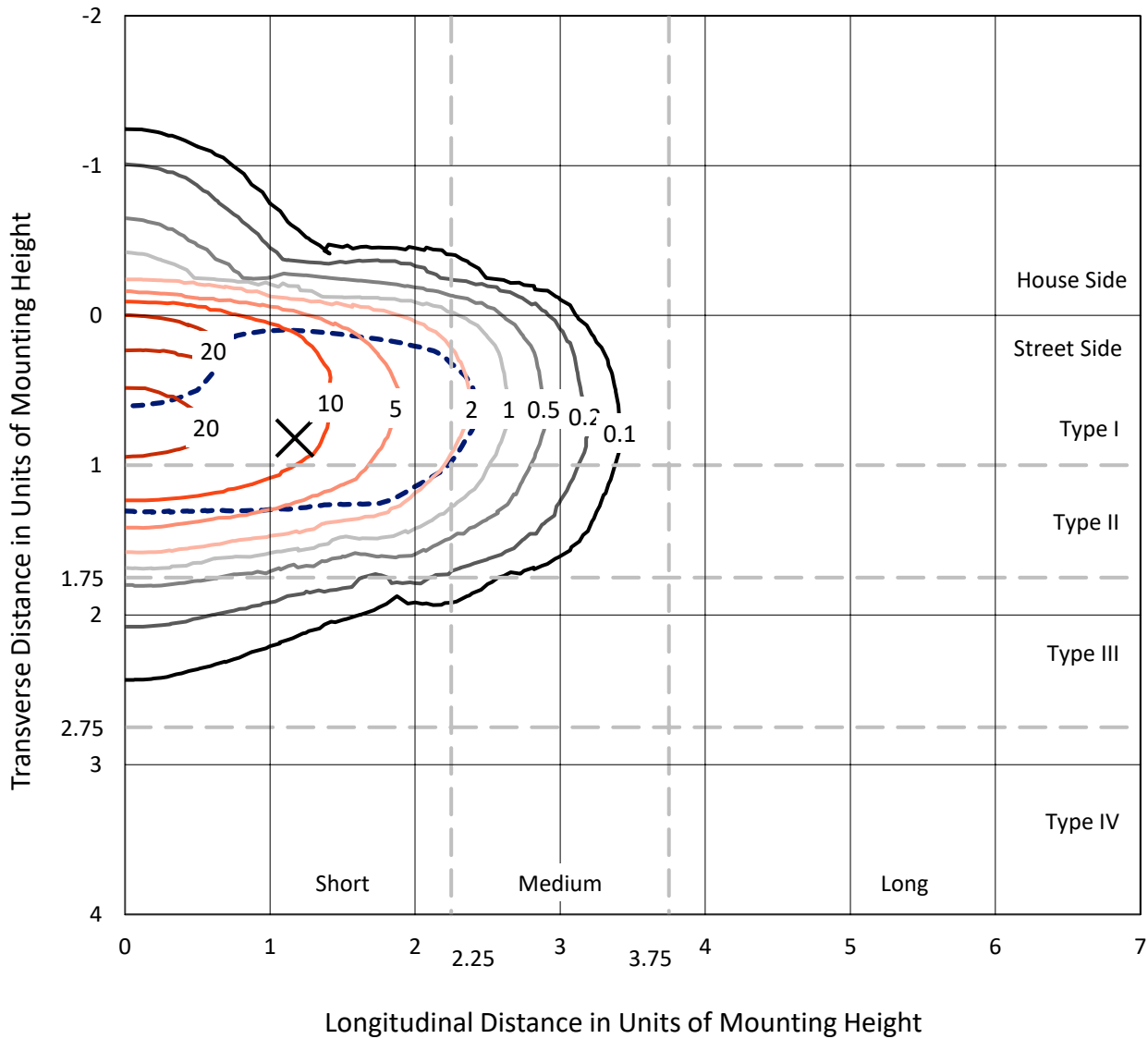
Lumens per Lamp: N/A  
Luminaire Lumens: 7778.3 lumens  
Efficiency: N/A  
Efficacy: 94.7 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 0.5' x H: 0')  
IES Classification: Type II - Short  
BUG Rating: B1 - U0 - G1  
  
Input Watts (W): 82.1  
Input Voltage (V): 120  
Input Current (Ain): NR  
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: P633019  
 CATALOG NUMBER: GWS-SA2D-830-U-AFL-W-HSS

### Iso-Footcandle Lines of Horizontal Illumination

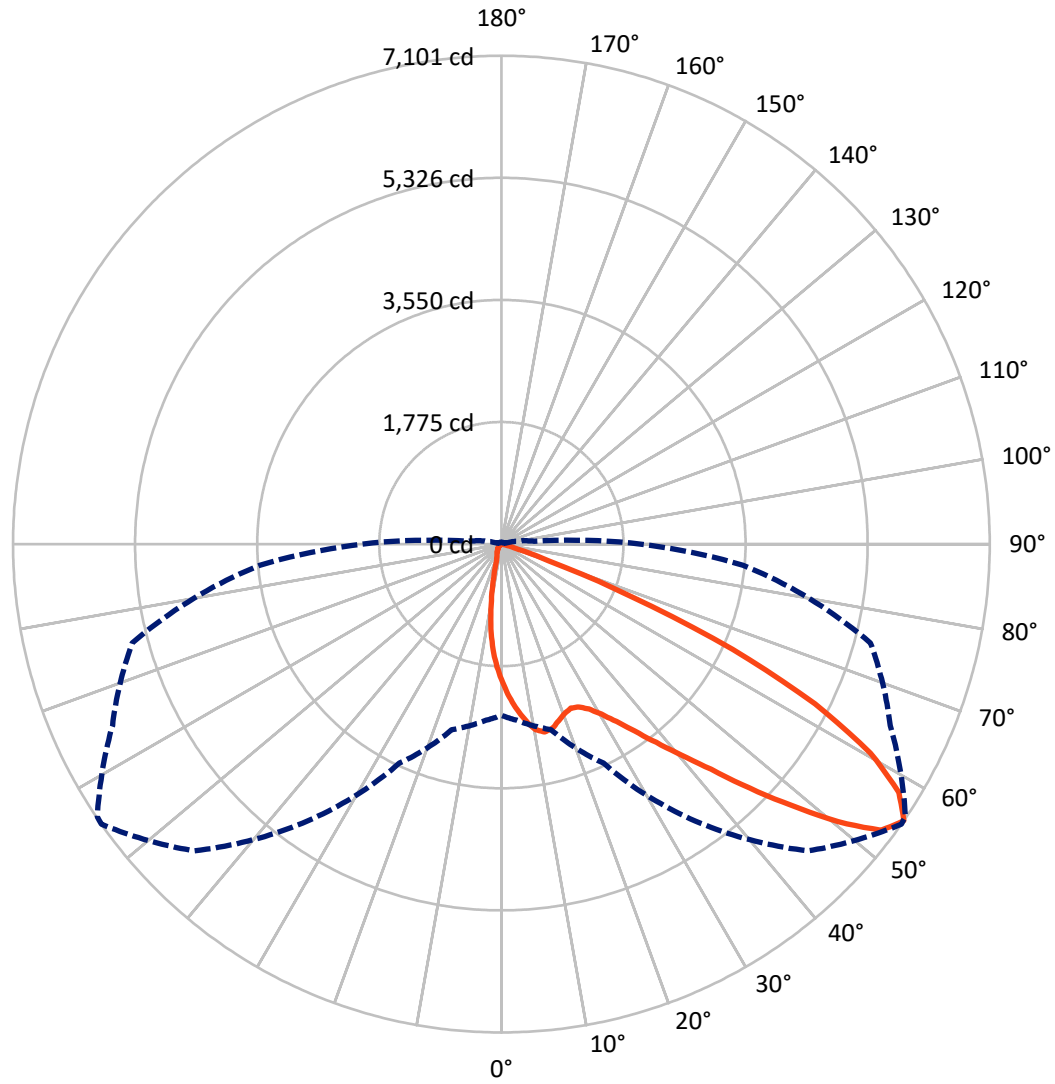
✕ Max cd  
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 26.3 fc  
 Type II - Short - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 55-Deg Lateral    - - - Horizontal Cone Through 55-Deg Vertical

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**FLUX DISTRIBUTION:**

		Downward	Upward	Total
<b>House Side</b>	Lumens	480.0	0.0	480.0
	% Fixture	6.2	0.0	6.2
<b>Street Side</b>	Lumens	7298.4	0.0	7298.4
	% Fixture	93.8	0.0	93.8
<b>Total</b>	Lumens	7778.3	0.0	7778.3
	% Fixture	100.0	0.0	100.0

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	177.6	2.3
10°-20°	428.1	5.5
20°-30°	713.0	9.2
30°-40°	1215.0	15.6
40°-50°	1983.4	25.5
50°-60°	2076.5	26.7
60°-70°	1047.3	13.5
70°-80°	132.3	1.7
80°-90°	5.0	0.1
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°	7778.3	100.0
0°-180°	7778.3	100.0

**Coefficient of Utilization**



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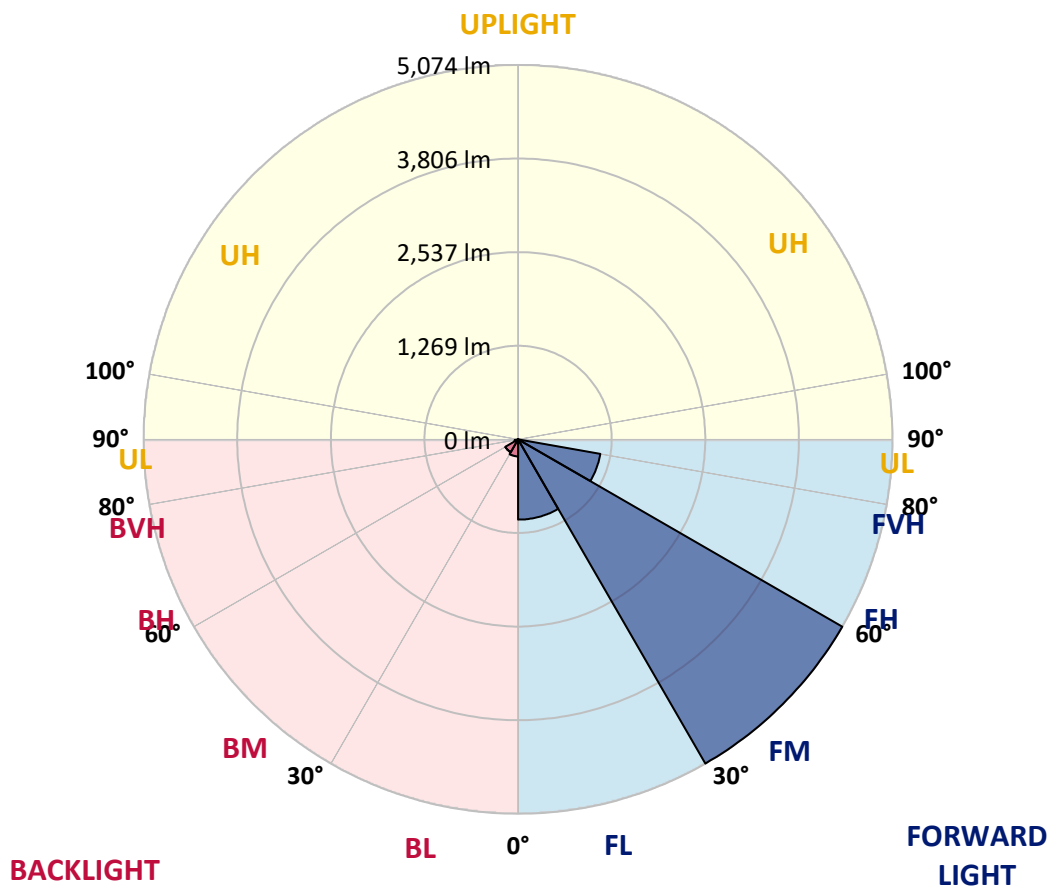
CATALOG NUMBER: GWS-SA2D-830-U-AFL-W-HSS

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

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	1088.1	14.0			
FM (30°-60°)	5074.2	65.2			
FH (60°-80°)	1131.5	14.5			G1/1800
FVH (80°-90°)	4.6	0.1			G0/10
BL (0°-30°)	230.7	3.0	B1/500		
BM (30°-60°)	200.7	2.6	B0/220		
BH (60°-80°)	48.1	0.6	B0/110		G0/110
BVH (80°-90°)	0.5	0.0			G0/10
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

**BUG Rating: B1-U0-G1**

Type II Short





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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	15°	25°	35°	45°	55°	56°	65°	75°	85°
0°	2009.5	2009.5	2009.5	2009.5	2009.5	2009.5	2009.5	2009.5	2009.5	2009.5	2009.5
2.5°	2342.6	2331.3	2348.6	2328.6	2294.7	2266.1	2228.9	2215.6	2155.7	2099.2	2044.7
5°	2627.2	2630.5	2625.2	2597.3	2549.4	2496.2	2421.1	2404.4	2300.0	2192.3	2076.0
7.5°	2697.7	2695.7	2707.0	2717.6	2709.6	2683.0	2601.3	2584.6	2455.0	2293.4	2123.8
10°	2480.2	2481.6	2504.8	2576.7	2665.8	2758.2	2745.5	2736.2	2609.2	2407.8	2177.0
12.5°	2173.0	2185.0	2209.6	2312.0	2462.9	2673.1	2803.4	2812.7	2750.9	2533.4	2239.5
15°	2040.0	2042.7	2062.7	2124.5	2236.9	2496.2	2778.8	2804.7	2869.2	2659.8	2307.4
17.5°	2036.7	2040.0	2048.7	2076.0	2149.1	2357.2	2699.7	2744.9	2958.3	2795.4	2388.5
20°	2161.7	2159.7	2153.7	2139.1	2171.0	2311.3	2626.5	2676.4	3006.9	2927.7	2470.3
22.5°	2388.5	2385.8	2359.2	2298.7	2272.8	2353.2	2590.6	2635.8	3036.1	3045.4	2537.4
25°	2649.8	2668.4	2618.5	2526.8	2462.9	2460.3	2622.5	2654.5	3061.4	3149.8	2583.3
27.5°	2936.4	2942.4	2899.8	2796.7	2704.3	2631.8	2715.0	2738.9	3089.3	3242.9	2609.2
30°	3250.9	3248.9	3200.4	3080.7	2968.3	2863.9	2870.6	2879.9	3154.5	3349.3	2637.8
32.5°	3643.9	3652.5	3566.1	3403.2	3268.2	3123.9	3074.0	3075.4	3272.2	3486.3	2681.0
35°	4177.8	4156.6	4042.2	3810.1	3580.1	3424.5	3339.3	3332.0	3453.7	3670.5	2756.2
37.5°	4686.5	4688.5	4568.8	4313.5	4022.9	3777.5	3657.2	3637.2	3709.1	3925.8	2881.2
40°	5039.6	5046.3	4996.4	4862.7	4554.9	4207.8	4030.9	4010.3	4040.2	4249.0	3044.8
42.5°	5226.5	5245.1	5259.0	5290.3	5056.9	4745.0	4473.1	4471.1	4439.8	4617.4	3234.3
45°	5233.8	5261.7	5346.8	5560.3	5586.8	5358.1	5062.2	5017.7	4897.3	5011.7	3403.8
47.5°	4944.5	5009.0	5189.9	5612.8	5892.1	5967.9	5674.6	5647.4	5309.6	5323.5	3530.8
50°	4270.3	4337.4	4670.6	5343.5	5969.2	6451.9	6346.9	6290.4	5654.0	5529.7	3592.0
52.5°	3578.7	3639.9	3866.0	4702.5	5649.4	6604.2	6913.4	6846.3	5963.2	5601.5	3566.8
55°	2490.2	2572.0	2792.8	3514.9	4912.6	6307.6	7100.9	7087.0	6239.2	5556.3	3527.5
57.5°	1220.8	1302.0	1522.1	2167.0	3639.2	5507.1	6814.3	6888.1	6404.1	5507.7	3495.6
60°	510.0	543.3	619.1	950.9	2036.1	4161.9	6167.3	6269.7	6303.0	5441.9	3492.3
62.5°	295.9	301.2	309.2	394.3	791.9	2385.8	5116.1	5261.7	5771.7	5354.8	3439.7
65°	223.4	225.4	222.1	242.0	327.2	905.0	3696.4	3894.6	4817.5	5014.3	3232.3
67.5°	183.5	183.5	174.9	178.9	205.5	339.1	2040.7	2317.3	3564.8	4121.3	2669.1
70°	146.3	149.6	145.6	140.3	147.0	187.5	726.1	900.3	2076.0	2433.7	1556.6
72.5°	111.0	111.0	117.7	113.7	109.1	117.7	253.3	284.6	833.2	1014.7	561.9
75°	85.8	88.4	93.1	89.1	82.5	69.8	121.7	129.0	251.3	236.1	125.7
77.5°	43.9	44.6	59.2	65.2	61.2	42.6	53.2	58.5	81.8	73.1	46.5
80°	26.6	27.9	33.2	51.2	40.6	22.6	21.9	23.3	38.6	33.2	19.3
82.5°	11.3	12.0	18.6	18.6	16.6	8.6	8.6	8.6	18.6	17.3	8.0
85°	0.0	0.0	3.3	2.7	2.7	3.3	3.3	3.3	4.7	6.6	4.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	2.0	2.0
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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CATALOG NUMBER: GWS-SA2D-830-U-AFL-W-HSS

**CANDELA DISTRIBUTION (continued):**

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	2009.5	2009.5	2009.5	2009.5	2009.5	2009.5	2009.5	2009.5	2009.5	2009.5	2009.5
2.5°	2009.5	1966.9	1909.7	1857.9	1788.0	1748.8	1694.3	1649.7	1611.8	1599.9	1594.5
5°	2010.1	1937.0	1814.6	1692.3	1542.0	1423.6	1302.0	1205.5	1126.4	1101.1	1094.5
7.5°	2023.4	1915.7	1717.5	1495.5	1244.1	1036.6	851.1	684.9	607.8	581.8	576.5
10°	2041.4	1897.7	1605.2	1259.4	898.3	631.7	447.5	341.1	290.6	262.7	266.6
12.5°	2064.6	1883.1	1480.8	1004.1	594.5	347.1	246.0	206.1	195.5	190.2	187.5
15°	2095.9	1865.8	1326.6	750.7	364.4	223.4	189.5	178.9	174.9	172.2	171.6
17.5°	2127.8	1845.9	1169.6	528.0	242.0	185.5	170.2	164.9	162.2	160.3	159.6
20°	2161.7	1812.0	985.4	363.7	190.8	166.9	156.9	150.9	147.6	144.3	143.6
22.5°	2176.4	1757.4	809.2	254.7	169.6	153.6	141.0	133.7	129.7	127.0	127.0
25°	2162.4	1669.0	627.0	193.5	154.3	139.0	126.3	118.4	115.0	112.4	112.4
27.5°	2125.2	1555.3	457.5	160.3	137.6	123.7	111.7	104.4	101.7	100.4	100.4
30°	2083.9	1411.7	322.5	137.6	119.0	107.7	97.7	93.1	92.4	91.1	91.1
32.5°	2048.7	1277.4	222.1	121.0	105.1	93.8	87.1	85.1	85.8	84.4	85.1
35°	2029.4	1145.7	164.9	107.7	93.8	83.1	79.8	79.8	79.8	79.1	79.1
37.5°	2037.4	1016.0	134.3	98.4	83.8	75.8	72.5	73.8	75.1	75.1	75.1
40°	2077.3	901.0	119.0	89.8	75.1	69.2	66.5	68.5	70.5	71.8	71.8
42.5°	2127.8	807.9	107.7	82.5	69.2	62.5	61.2	63.2	65.2	66.5	66.5
45°	2159.7	714.1	96.4	73.1	63.2	55.2	55.2	57.9	57.2	57.9	57.9
47.5°	2174.4	639.7	85.1	63.2	53.9	47.9	48.5	49.9	48.5	49.9	49.9
50°	2138.5	564.5	75.1	52.5	44.6	41.9	43.2	42.6	42.6	45.2	45.2
52.5°	2072.6	508.7	66.5	44.6	37.9	37.2	38.6	35.9	36.6	36.6	35.9
55°	2024.1	476.8	59.2	38.6	32.6	33.2	32.6	27.9	25.3	22.6	21.9
57.5°	2000.1	464.1	53.9	34.6	29.3	29.3	26.6	19.3	14.6	11.3	10.0
60°	1994.8	448.8	48.5	29.9	25.9	24.6	19.3	11.3	7.3	5.3	4.7
62.5°	1944.3	411.6	43.9	23.9	22.6	19.9	12.0	6.6	4.0	2.7	2.0
65°	1778.7	338.5	39.2	18.6	17.3	14.6	7.3	4.0	2.0	0.7	0.0
67.5°	1415.0	240.0	34.6	14.0	12.0	9.3	4.7	2.7	0.7	0.0	0.0
70°	815.9	129.7	28.6	10.0	8.0	6.0	3.3	1.3	0.0	0.0	0.0
72.5°	272.6	60.5	21.9	6.6	6.0	4.7	2.0	0.7	0.0	0.0	0.0
75°	59.8	35.9	14.6	4.7	4.0	3.3	1.3	0.0	0.0	0.0	0.0
77.5°	22.6	25.3	7.3	3.3	2.7	2.0	0.7	0.0	0.0	0.0	0.0
80°	8.6	16.6	3.3	2.0	2.0	0.7	0.0	0.0	0.0	0.0	0.0
82.5°	4.7	6.6	2.0	1.3	1.3	0.0	0.0	0.0	0.0	0.0	0.0
85°	2.7	3.3	1.3	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	1.3	0.7	0.7	0.7	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



Cooper Lighting Solutions Photometric Lab  
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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

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**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			

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**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			

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**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)