

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: P636979

Luminaire Tested: GWS-SA4B-830-U-AFL-W-HSS

Issue Date: 1/10/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P636979  
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-SA4B-830-U-AFL-W-HSS  
Description: GALLEON WALL SLIM LUMINAIRE. (4) LIGHTSQUARES WITH 16 LEDS EACH AND AUTOMOTIVE FRONTLINE OPTICS WITH HOUSE SIDE SHIELD  
Light Source: (64) 3000K CCT, 80 CRI LEDS  
Ballast/Driver: -

**Summary**

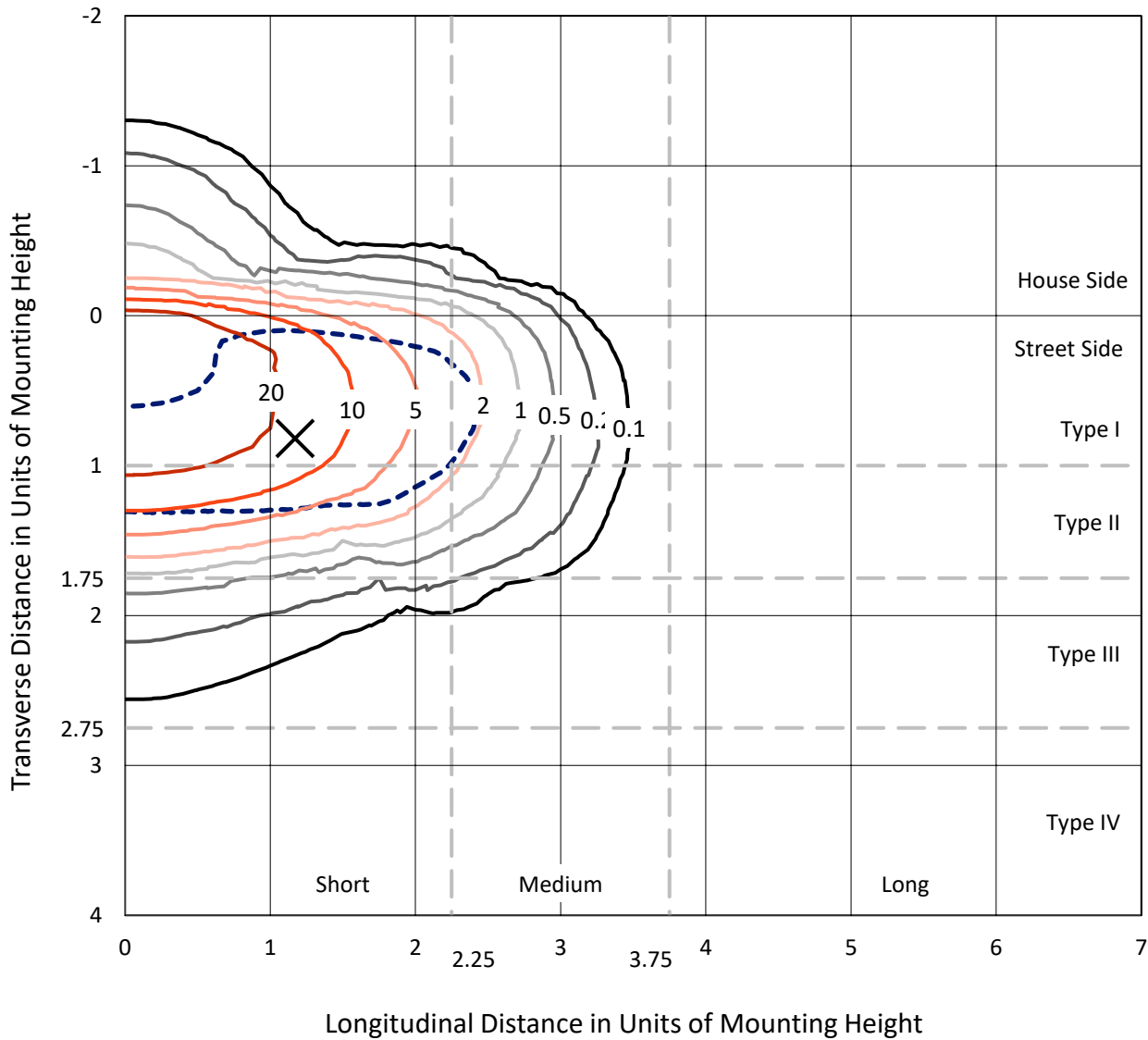
Lumens per Lamp: N/A  
Luminaire Lumens: 9642.4 lumens  
Efficiency: N/A  
Efficacy: 102.1 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')  
IES Classification: Type II - Short  
BUG Rating: B1 - U0 - G1  
  
Input Watts (W): 94.4  
Input Voltage (V): 120  
Input Current (Ain): NR  
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: P636979  
 CATALOG NUMBER: GWS-SA4B-830-U-AFL-W-HSS

### Iso-Footcandle Lines of Horizontal Illumination

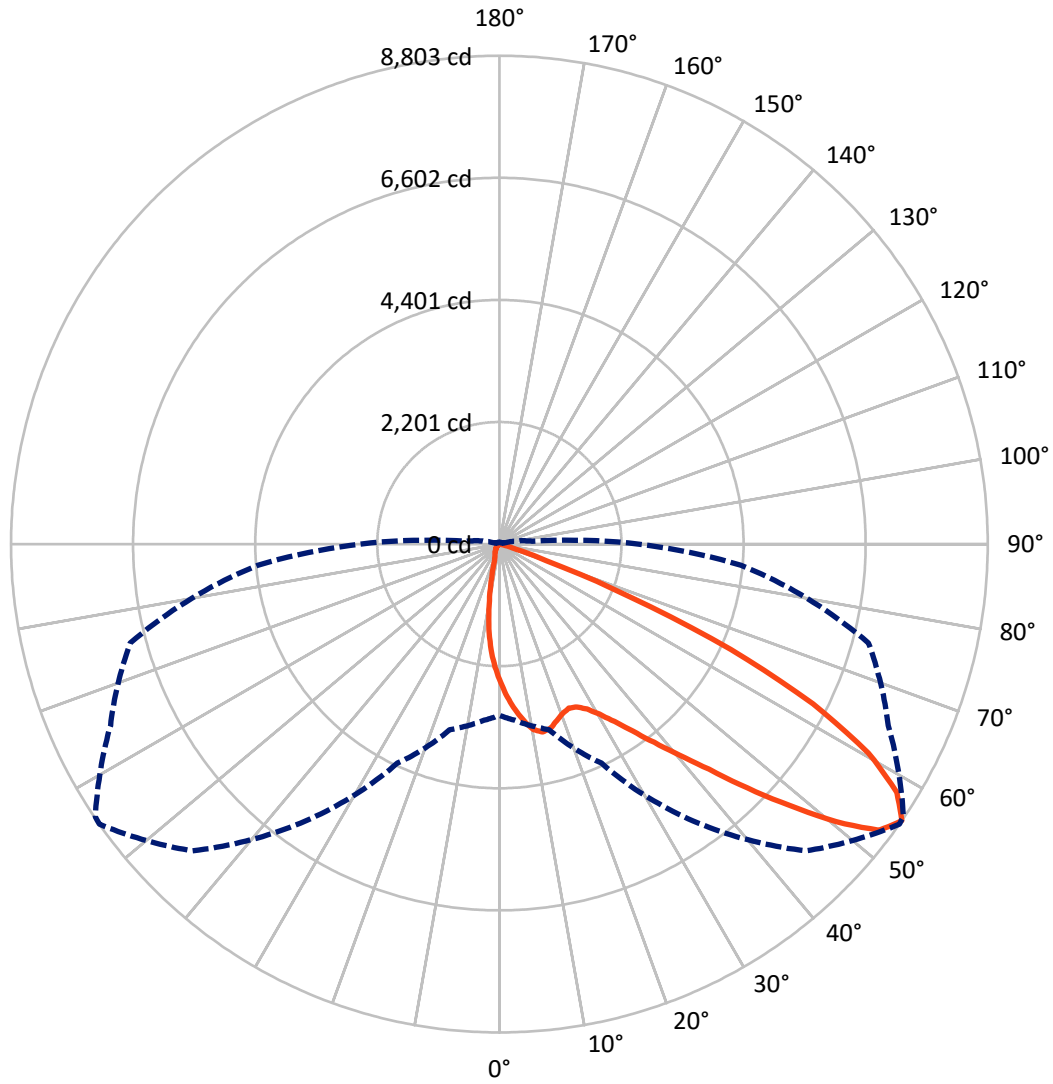
✕ Max cd  
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 32.6 fc  
 Type II - Short - N/A

REPORT NUMBER: P636979  
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### Luminous Intensity Polar Plot



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

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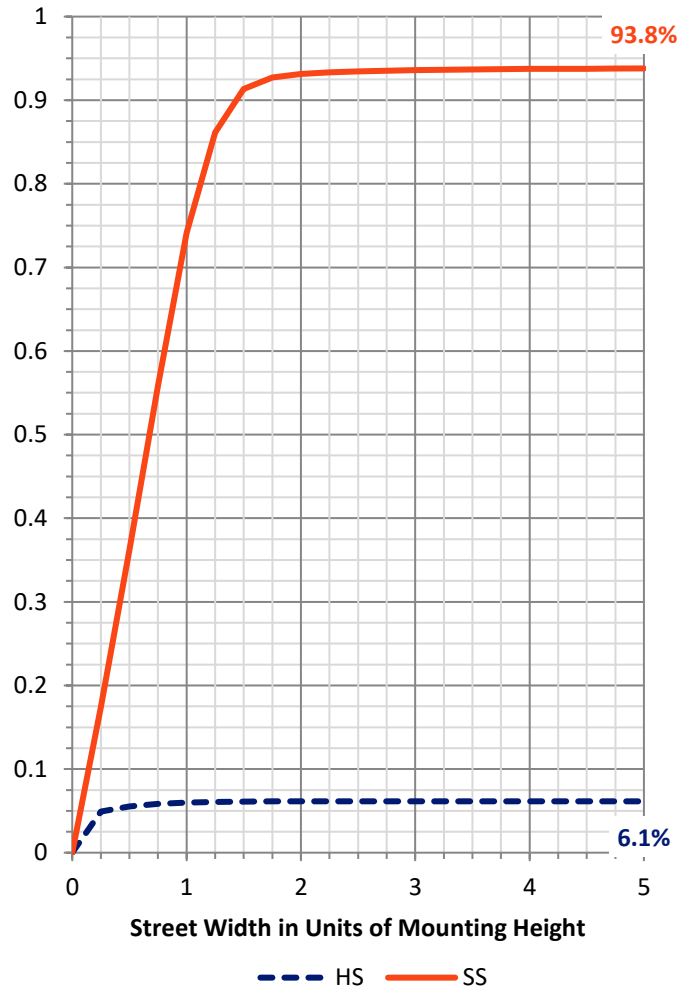
**FLUX DISTRIBUTION:**

		Downward	Upward	Total
<b>House Side</b>	Lumens	595.0	0.0	595.0
	% Fixture	6.2	0.0	6.2
<b>Street Side</b>	Lumens	9047.4	0.0	9047.4
	% Fixture	93.8	0.0	93.8
<b>Total</b>	Lumens	9642.4	0.0	9642.4
	% Fixture	100.0	0.0	100.0

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	220.1	2.3
10°-20°	530.8	5.5
20°-30°	883.9	9.2
30°-40°	1506.2	15.6
40°-50°	2458.7	25.5
50°-60°	2574.1	26.7
60°-70°	1298.3	13.5
70°-80°	164.0	1.7
80°-90°	6.2	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°	9642.4	100.0
0°-180°	9642.4	100.0

**Coefficient of Utilization**

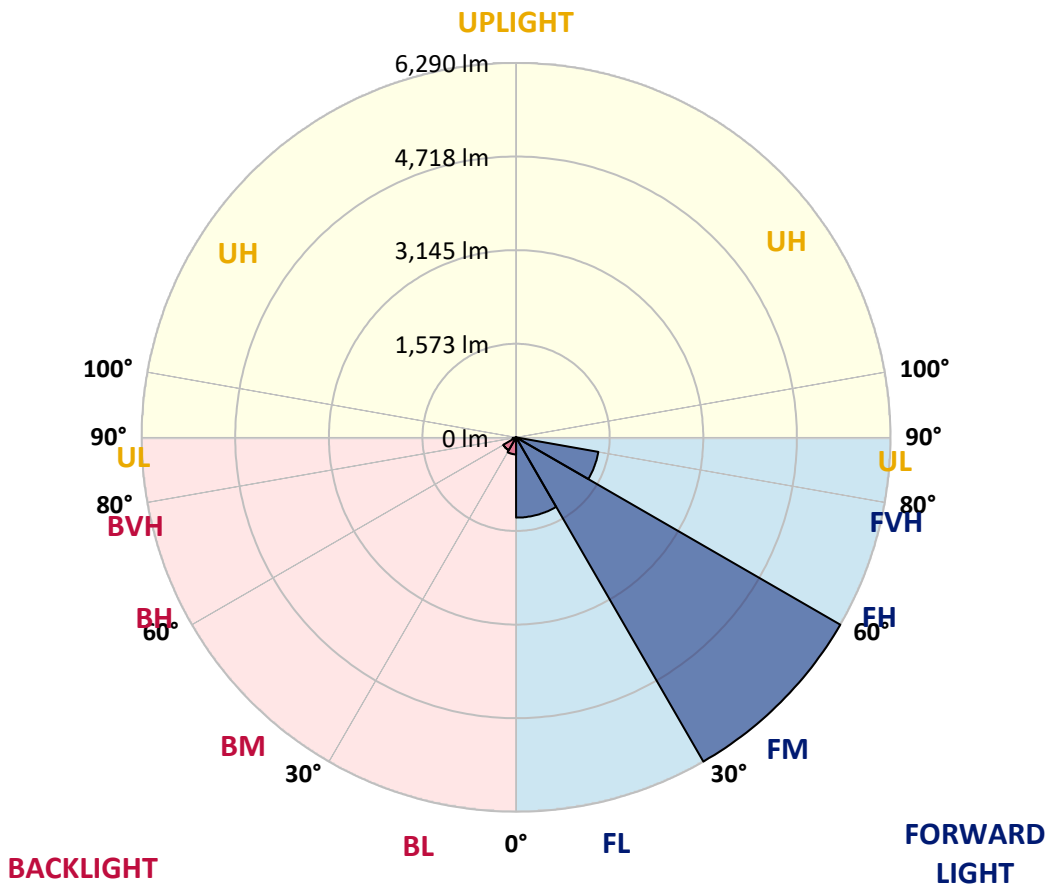


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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	1348.8	14.0			
FM (30°-60°)	6290.3	65.2			
FH (60°-80°)	1402.7	14.5			G1/1800
FVH (80°-90°)	5.7	0.1			G0/10
BL (0°-30°)	286.0	3.0	B1/500		
BM (30°-60°)	248.8	2.6	B1/1000		
BH (60°-80°)	59.7	0.6	B0/110		G0/110
BVH (80°-90°)	0.6	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





REPORT NUMBER: P636979  
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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	15°	25°	35°	45°	55°	56°	65°	75°	85°
0°	2491.0	2491.0	2491.0	2491.0	2491.0	2491.0	2491.0	2491.0	2491.0	2491.0	2491.0
2.5°	2904.0	2890.0	2911.4	2886.7	2844.7	2809.2	2763.1	2746.6	2672.4	2602.3	2534.7
5°	3256.8	3260.9	3254.3	3219.7	3160.4	3094.4	3001.3	2980.7	2851.3	2717.7	2573.5
7.5°	3344.2	3341.7	3355.7	3368.9	3359.0	3326.0	3224.7	3204.0	3043.3	2843.0	2632.8
10°	3074.6	3076.3	3105.1	3194.2	3304.6	3419.2	3403.5	3392.0	3234.5	2984.8	2698.8
12.5°	2693.8	2708.6	2739.1	2866.1	3053.2	3313.7	3475.2	3486.8	3410.1	3140.6	2776.2
15°	2528.9	2532.2	2557.0	2633.6	2772.9	3094.4	3444.7	3476.9	3556.8	3297.2	2860.3
17.5°	2524.8	2528.9	2539.7	2573.5	2664.1	2922.1	3346.7	3402.7	3667.3	3465.4	2960.9
20°	2679.8	2677.3	2669.9	2651.8	2691.3	2865.3	3256.0	3317.8	3727.5	3629.4	3062.3
22.5°	2960.9	2957.6	2924.6	2849.6	2817.5	2917.2	3211.5	3267.5	3763.7	3775.3	3145.5
25°	3284.8	3307.9	3246.1	3132.3	3053.2	3049.9	3251.0	3290.6	3795.1	3904.7	3202.4
27.5°	3640.1	3647.5	3594.8	3467.0	3352.4	3262.6	3365.6	3395.3	3829.7	4020.1	3234.5
30°	4030.0	4027.5	3967.4	3819.0	3679.7	3550.3	3558.5	3570.0	3910.5	4152.0	3270.0
32.5°	4517.2	4527.9	4420.7	4218.8	4051.4	3872.6	3810.7	3812.4	4056.4	4321.8	3323.6
35°	5179.1	5152.7	5010.9	4723.2	4438.0	4245.1	4139.6	4130.6	4281.4	4550.1	3416.7
37.5°	5809.7	5812.1	5663.8	5347.2	4987.0	4682.8	4533.6	4508.9	4597.9	4866.7	3571.7
40°	6247.4	6255.6	6193.8	6028.1	5646.4	5216.2	4996.9	4971.3	5008.4	5267.3	3774.5
42.5°	6479.0	6502.1	6519.4	6558.1	6268.8	5882.2	5545.1	5542.6	5503.8	5723.9	4009.4
45°	6488.1	6522.7	6628.2	6892.8	6925.8	6642.2	6275.4	6220.2	6071.0	6212.7	4219.6
47.5°	6129.5	6209.4	6433.7	6957.9	7304.1	7398.1	7034.6	7000.8	6582.0	6599.3	4377.0
50°	5293.6	5376.9	5789.9	6624.1	7399.7	7998.2	7867.9	7797.9	7009.0	6854.9	4452.9
52.5°	4436.4	4512.2	4792.5	5829.4	7003.2	8186.9	8570.2	8487.0	7392.3	6943.9	4421.5
55°	3087.0	3188.4	3462.1	4357.2	6089.9	7819.3	8802.7	8785.4	7734.4	6887.8	4372.9
57.5°	1513.4	1614.0	1886.8	2686.4	4511.4	6826.8	8447.4	8538.9	7938.8	6827.7	4333.3
60°	632.2	673.5	767.4	1178.7	2524.0	5159.3	7645.4	7772.3	7813.5	6746.1	4329.2
62.5°	366.8	373.4	383.3	488.8	981.7	2957.6	6342.2	6522.7	7154.9	6638.1	4264.1
65°	277.0	279.4	275.3	300.0	405.6	1121.9	4582.3	4827.9	5972.0	6216.0	4006.9
67.5°	227.5	227.5	216.8	221.7	254.7	420.4	2529.8	2872.7	4419.1	5109.0	3308.7
70°	181.3	185.5	180.5	173.9	182.2	232.5	900.1	1116.1	2573.5	3016.9	1929.7
72.5°	137.7	137.7	145.9	141.0	135.2	145.9	314.1	352.8	1032.8	1257.9	696.5
75°	106.3	109.6	115.4	110.5	102.2	86.6	150.8	159.9	311.6	292.6	155.8
77.5°	54.4	55.2	73.4	80.8	75.8	52.8	65.9	72.5	101.4	90.7	57.7
80°	33.0	34.6	41.2	63.5	50.3	28.0	27.2	28.9	47.8	41.2	23.9
82.5°	14.0	14.8	23.1	23.1	20.6	10.7	10.7	10.7	23.1	21.4	9.9
85°	0.0	0.0	4.1	3.3	3.3	4.1	4.1	4.1	5.8	8.2	4.9
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	2.5	2.5
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: P636979

CATALOG NUMBER: GWS-SA4B-830-U-AFL-W-HSS

**CANDELA DISTRIBUTION (continued):**

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	2491.0	2491.0	2491.0	2491.0	2491.0	2491.0	2491.0	2491.0	2491.0	2491.0	2491.0
2.5°	2491.0	2438.3	2367.4	2303.1	2216.5	2167.9	2100.3	2045.1	1998.1	1983.3	1976.7
5°	2491.9	2401.2	2249.5	2097.8	1911.5	1764.8	1614.0	1494.5	1396.4	1365.0	1356.8
7.5°	2508.3	2374.8	2129.2	1853.8	1542.3	1285.1	1055.1	849.0	753.4	721.3	714.7
10°	2530.6	2352.5	1989.9	1561.2	1113.6	783.1	554.8	422.9	360.2	325.6	330.5
12.5°	2559.4	2334.4	1835.7	1244.7	736.9	430.3	305.0	255.5	242.3	235.7	232.5
15°	2598.2	2313.0	1644.5	930.6	451.7	277.0	234.9	221.7	216.8	213.5	212.7
17.5°	2637.8	2288.3	1449.9	654.5	300.0	230.0	211.0	204.4	201.1	198.7	197.8
20°	2679.8	2246.2	1221.6	450.9	236.6	206.9	194.5	187.1	183.0	178.9	178.0
22.5°	2697.9	2178.6	1003.2	315.7	210.2	190.4	174.8	165.7	160.7	157.4	157.4
25°	2680.6	2069.0	777.3	239.9	191.2	172.3	156.6	146.7	142.6	139.3	139.3
27.5°	2634.5	1928.0	567.1	198.7	170.6	153.3	138.5	129.4	126.1	124.5	124.5
30°	2583.4	1750.0	399.8	170.6	147.5	133.5	121.2	115.4	114.6	112.9	112.9
32.5°	2539.7	1583.5	275.3	150.0	130.2	116.2	108.0	105.5	106.3	104.7	105.5
35°	2515.8	1420.3	204.4	133.5	116.2	103.0	98.9	98.9	98.9	98.1	98.1
37.5°	2525.7	1259.5	166.5	122.0	103.9	94.0	89.8	91.5	93.1	93.1	93.1
40°	2575.1	1116.9	147.5	111.3	93.1	85.7	82.4	84.9	87.4	89.0	89.0
42.5°	2637.8	1001.5	133.5	102.2	85.7	77.5	75.8	78.3	80.8	82.4	82.4
45°	2677.3	885.3	119.5	90.7	78.3	68.4	68.4	71.7	70.9	71.7	71.7
47.5°	2695.5	793.0	105.5	78.3	66.8	59.3	60.2	61.8	60.2	61.8	61.8
50°	2650.9	699.8	93.1	65.1	55.2	51.9	53.6	52.8	52.8	56.1	56.1
52.5°	2569.3	630.6	82.4	55.2	47.0	46.2	47.8	44.5	45.3	45.3	44.5
55°	2509.2	591.0	73.4	47.8	40.4	41.2	40.4	34.6	31.3	28.0	27.2
57.5°	2479.5	575.4	66.8	42.9	36.3	36.3	33.0	23.9	18.1	14.0	12.4
60°	2472.9	556.4	60.2	37.1	32.1	30.5	23.9	14.0	9.1	6.6	5.8
62.5°	2410.3	510.2	54.4	29.7	28.0	24.7	14.8	8.2	4.9	3.3	2.5
65°	2205.0	419.6	48.6	23.1	21.4	18.1	9.1	4.9	2.5	0.8	0.0
67.5°	1754.1	297.6	42.9	17.3	14.8	11.5	5.8	3.3	0.8	0.0	0.0
70°	1011.4	160.7	35.4	12.4	9.9	7.4	4.1	1.6	0.0	0.0	0.0
72.5°	338.0	75.0	27.2	8.2	7.4	5.8	2.5	0.8	0.0	0.0	0.0
75°	74.2	44.5	18.1	5.8	4.9	4.1	1.6	0.0	0.0	0.0	0.0
77.5°	28.0	31.3	9.1	4.1	3.3	2.5	0.8	0.0	0.0	0.0	0.0
80°	10.7	20.6	4.1	2.5	2.5	0.8	0.0	0.0	0.0	0.0	0.0
82.5°	5.8	8.2	2.5	1.6	1.6	0.0	0.0	0.0	0.0	0.0	0.0
85°	3.3	4.1	1.6	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	1.6	0.8	0.8	0.8	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



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**

$\lambda$ (nm)	Power $W^{\wedge}/nm$	Lumens ( $\phi/nm$ )	$\lambda$ (nm)	Power $W^{\wedge}/nm$	Lumens ( $\phi/nm$ )	$\lambda$ (nm)	Power $W^{\wedge}/nm$	Lumens ( $\phi/nm$ )	$\lambda$ (nm)	Power $W^{\wedge}/nm$	Lumens ( $\phi/nm$ )	$\lambda$ (nm)	Power $W^{\wedge}/nm$	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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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)