

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: P636980

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

Issue Date: 1/10/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P636980  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-45)  
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  
Description: GALLEON WALL SLIM LUMINAIRE. (4) LIGHTSQUARES WITH 16 LEDS EACH AND AUTOMOTIVE FRONTLINE OPTICS  
Light Source: (64) 3000K CCT, 80 CRI LEDS  
Ballast/Driver: -

**Summary**

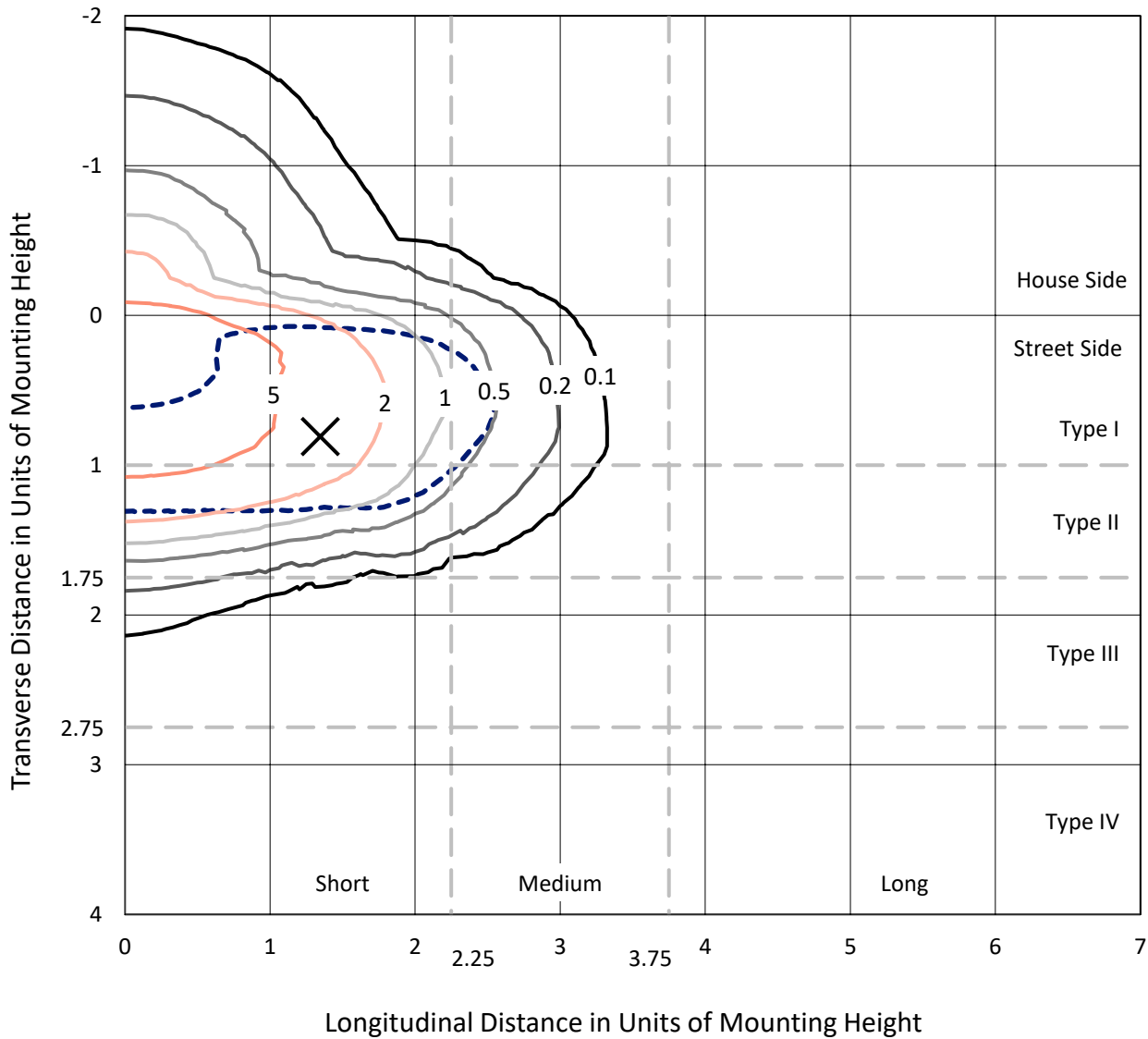
Lumens per Lamp: N/A  
Luminaire Lumens: 11708.8 lumens  
Efficiency: N/A  
Efficacy: 124.0 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')  
IES Classification: Type II - Short  
BUG Rating: B2 - U0 - G1  
  
Input Watts (W): 94.4  
Input Voltage (V): 120  
Input Current (Ain): NR  
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: P636980  
 CATALOG NUMBER: GWS-SA4B-830-U-AFL-W

### Iso-Footcandle Lines of Horizontal Illumination

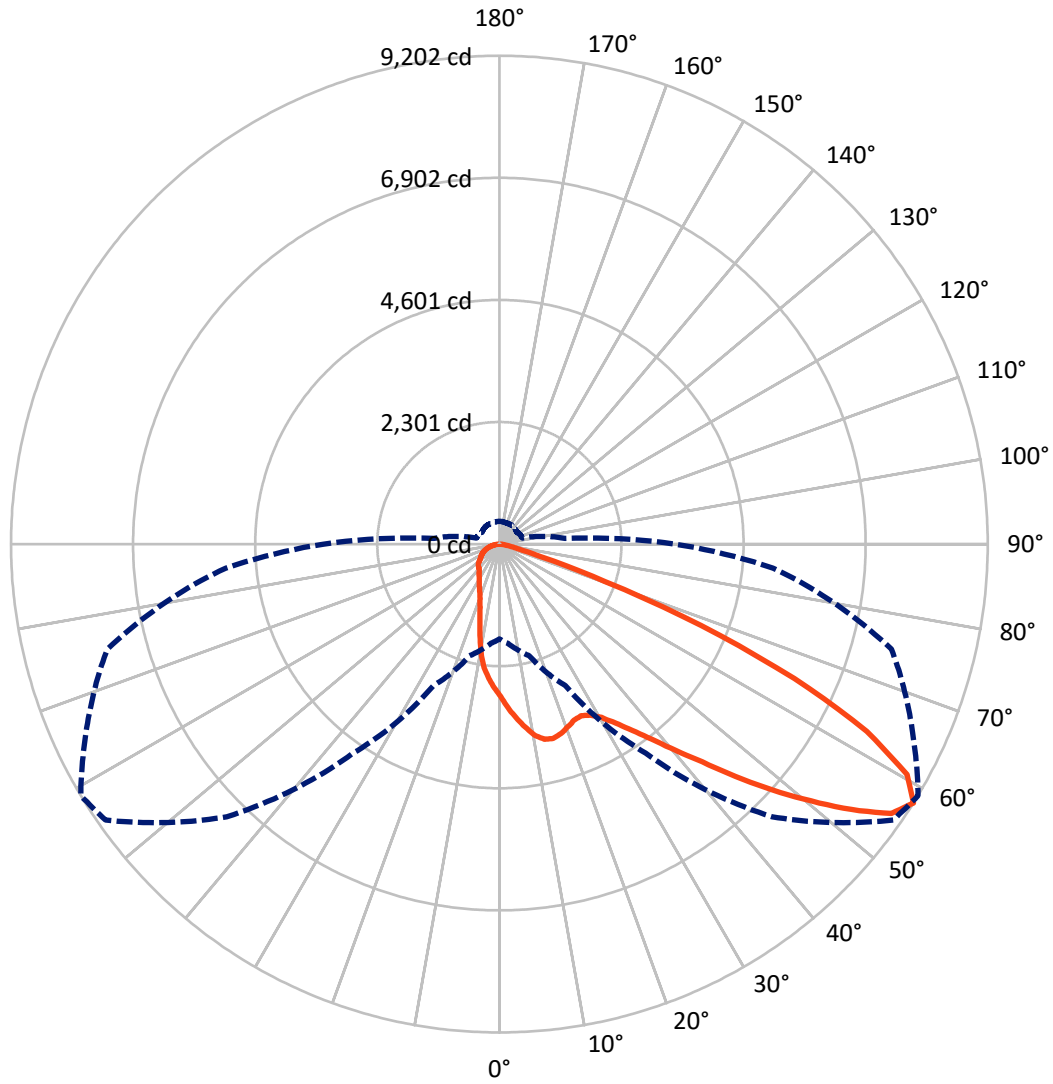
✕ Max cd  
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 8.8 fc  
 Type II - Short - N/A

REPORT NUMBER: P636980  
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### Luminous Intensity Polar Plot



— Vertical Plane Through 59-Deg Lateral    - - - Horizontal Cone Through 57.5-Deg Vertical

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**FLUX DISTRIBUTION:**

		Downward	Upward	Total
<b>House Side</b>	Lumens	1817.2	0.0	1817.2
	% Fixture	15.5	0.0	15.5
<b>Street Side</b>	Lumens	9891.6	0.0	9891.6
	% Fixture	84.5	0.0	84.5
<b>Total</b>	Lumens	11708.8	0.0	11708.8
	% Fixture	100.0	0.0	100.0

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	266.9	2.3
10°-20°	676.3	5.8
20°-30°	1096.3	9.4
30°-40°	1763.5	15.1
40°-50°	2738.5	23.4
50°-60°	2949.7	25.2
60°-70°	1711.9	14.6
70°-80°	446.9	3.8
80°-90°	58.9	0.5
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°	11708.8	100.0
0°-180°	11708.8	100.0

**Coefficient of Utilization**



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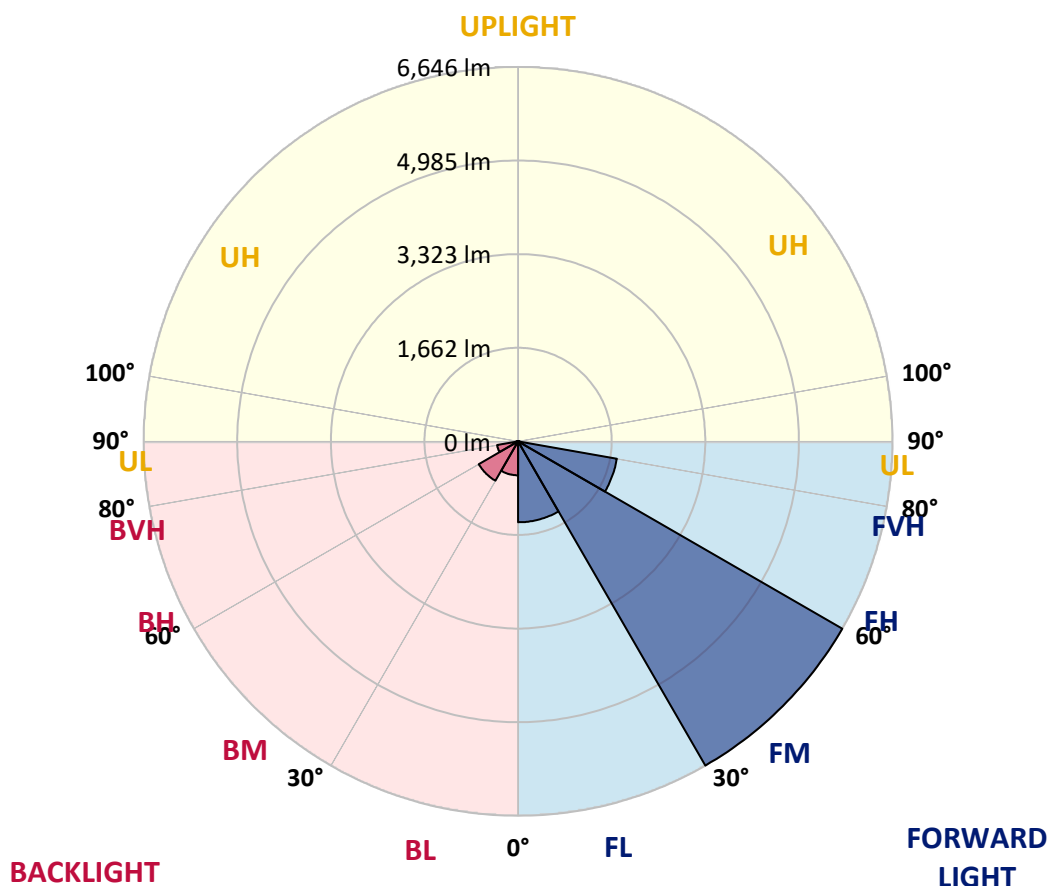
CATALOG NUMBER: GWS-SA4B-830-U-AFL-W

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

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	1436.6	12.3			
FM (30°-60°)	6646.0	56.8			
FH (60°-80°)	1780.9	15.2			G1/1800
FVH (80°-90°)	28.2	0.2			G1/100
BL (0°-30°)	602.9	5.1	B2/1000		
BM (30°-60°)	805.7	6.9	B1/1000		
BH (60°-80°)	378.0	3.2	B1/500		G1/500
BVH (80°-90°)	30.7	0.3			G1/100
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

**BUG Rating: B2-U0-G1**

Type II Short





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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	15°	25°	35°	45°	55°	59°	65°	75°	85°
0°	2874.3	2874.3	2874.3	2874.3	2874.3	2874.3	2874.3	2874.3	2874.3	2874.3	2874.3
2.5°	3260.0	3232.8	3251.8	3218.0	3204.0	3166.9	3119.1	3086.9	3037.5	2973.2	2917.1
5°	3584.0	3565.0	3569.1	3532.9	3500.7	3438.9	3340.8	3286.4	3202.3	3072.9	2952.6
7.5°	3574.1	3596.3	3608.7	3640.0	3649.1	3643.3	3555.1	3479.3	3387.0	3192.4	3011.1
10°	3204.0	3246.0	3283.9	3391.1	3521.3	3686.2	3706.8	3661.5	3568.3	3344.9	3081.2
12.5°	2800.9	2833.1	2866.9	2995.4	3194.9	3524.6	3748.0	3776.0	3738.9	3495.8	3160.3
15°	2603.1	2617.9	2650.1	2735.0	2894.1	3260.0	3676.3	3799.1	3865.9	3655.7	3249.3
17.5°	2594.8	2601.4	2617.1	2662.4	2772.9	3055.6	3546.9	3753.0	3965.6	3824.7	3353.2
20°	2765.5	2748.2	2738.3	2737.4	2791.8	2987.2	3421.6	3678.8	4012.6	3997.8	3464.5
22.5°	3002.0	3007.8	2986.4	2933.6	2927.0	3035.8	3359.0	3603.8	4026.6	4151.1	3567.5
25°	3337.5	3366.4	3302.9	3202.3	3152.9	3176.8	3397.7	3580.7	4025.0	4278.9	3631.8
27.5°	3729.1	3751.3	3687.0	3555.1	3452.9	3395.2	3513.1	3649.1	4039.0	4389.3	3670.5
30°	4175.0	4182.4	4094.2	3955.7	3806.5	3682.9	3705.2	3790.1	4110.7	4534.4	3715.9
32.5°	4719.8	4751.2	4617.6	4398.4	4189.8	4031.6	3963.2	4017.6	4265.7	4705.8	3785.9
35°	5411.4	5422.1	5252.3	4938.3	4643.2	4423.9	4280.5	4309.4	4501.4	4945.7	3891.4
37.5°	6063.4	6074.1	5893.6	5601.8	5179.8	4879.8	4672.0	4658.8	4803.1	5284.5	4063.7
40°	6477.2	6507.7	6426.9	6243.9	5840.9	5436.1	5154.2	5108.9	5198.8	5699.1	4303.6
42.5°	6699.8	6713.0	6711.3	6735.2	6495.4	6093.1	5698.3	5607.6	5667.8	6146.7	4545.9
45°	6701.4	6734.4	6822.6	7052.6	7063.3	6812.7	6385.7	6243.9	6188.7	6597.6	4799.0
47.5°	6401.4	6436.8	6679.2	7131.7	7465.5	7522.4	7209.2	6924.8	6692.4	6985.8	5006.7
50°	5493.0	5582.0	6043.6	6844.0	7544.7	8091.2	7994.7	7609.0	7139.9	7285.8	5136.9
52.5°	4704.2	4700.9	4985.3	6031.3	7214.1	8341.7	8754.7	8312.9	7582.6	7476.3	5169.9
55°	3444.7	3463.6	3754.6	4612.7	6332.1	8099.4	9172.6	8960.8	8090.3	7577.6	5156.7
57.5°	1786.2	1880.2	2178.6	2943.5	4811.3	7265.2	9061.3	9202.3	8606.3	7649.4	5174.0
60°	902.6	884.5	991.6	1405.4	2787.7	5674.4	8375.5	8824.8	8699.5	7705.4	5184.7
62.5°	602.6	597.6	567.9	651.2	1139.2	3360.6	7139.9	7769.7	8052.4	7573.5	5047.9
65°	521.8	511.9	457.5	454.2	553.1	1393.9	5233.4	6107.9	6655.3	6987.5	4720.7
67.5°	469.8	455.0	399.8	372.6	397.3	612.4	2949.3	4096.7	4914.4	5909.3	4003.5
70°	419.6	412.1	356.9	317.3	314.9	373.4	1086.4	2114.3	3007.0	4031.6	2927.0
72.5°	375.9	362.7	315.7	277.8	258.8	264.6	471.5	814.4	1556.2	2514.9	1750.8
75°	325.6	315.7	274.5	236.6	213.5	193.7	287.7	376.7	709.7	1195.2	826.8
77.5°	251.4	244.8	216.8	187.9	174.7	144.2	174.7	237.4	328.1	503.6	430.3
80°	145.9	150.0	161.6	146.7	128.6	103.0	113.8	136.8	197.0	272.8	244.0
82.5°	73.4	78.3	104.7	84.9	76.7	60.2	67.6	80.8	103.0	150.8	95.6
85°	5.8	5.8	19.0	21.4	26.4	21.4	27.2	33.0	47.0	60.2	32.1
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	2.5	4.1	7.4	14.0	9.1
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: P636980  
 CATALOG NUMBER: GWS-SA4B-830-U-AFL-W

**CANDELA DISTRIBUTION (continued):**

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	2874.3	2874.3	2874.3	2874.3	2874.3	2874.3	2874.3	2874.3	2874.3	2874.3	2874.3
2.5°	2879.2	2837.2	2786.9	2745.7	2682.2	2648.4	2605.6	2552.8	2531.4	2521.5	2515.7
5°	2885.0	2810.8	2703.6	2604.7	2495.1	2408.6	2312.1	2211.6	2153.9	2139.8	2129.9
7.5°	2906.4	2802.6	2631.9	2468.7	2265.1	2076.4	1892.6	1710.4	1617.2	1581.8	1578.5
10°	2936.1	2799.3	2559.4	2288.2	1944.5	1646.1	1431.0	1288.4	1228.2	1208.4	1201.8
12.5°	2973.2	2796.8	2463.8	2037.6	1574.4	1292.5	1169.7	1146.6	1154.8	1153.2	1153.2
15°	3020.2	2800.1	2348.4	1754.1	1273.5	1121.8	1124.3	1151.5	1177.1	1181.2	1181.2
17.5°	3071.3	2796.8	2181.1	1469.7	1093.0	1081.5	1119.4	1157.3	1180.4	1183.7	1183.7
20°	3126.5	2781.1	1970.0	1201.8	1013.9	1055.9	1097.1	1126.8	1140.8	1144.1	1144.1
22.5°	3159.5	2736.6	1740.9	1017.2	963.6	1015.5	1042.7	1073.2	1074.9	1048.5	1047.7
25°	3154.5	2653.4	1479.6	898.5	910.0	955.3	990.0	968.5	942.2	927.3	924.8
27.5°	3123.2	2528.1	1213.3	808.6	846.5	897.6	886.9	868.8	862.2	845.7	844.1
30°	3083.6	2373.9	974.3	738.6	780.6	827.6	811.1	809.4	802.9	784.7	784.7
32.5°	3045.7	2214.8	793.8	686.6	738.6	741.9	764.9	766.6	763.3	732.0	728.7
35°	3035.0	2055.8	671.8	645.4	697.3	695.7	728.7	727.8	671.0	627.3	626.5
37.5°	3067.2	1894.2	599.3	611.6	640.5	661.9	688.3	640.5	621.5	595.1	593.5
40°	3135.6	1745.0	562.2	591.8	604.2	635.5	594.3	597.6	592.7	572.9	570.4
42.5°	3226.2	1618.1	541.6	585.2	583.6	591.8	546.5	559.7	567.1	552.3	549.8
45°	3313.6	1507.6	530.8	560.5	568.8	520.9	511.9	524.2	535.8	530.0	527.5
47.5°	3377.9	1412.0	525.1	526.7	549.8	497.0	482.2	488.0	502.0	504.5	503.6
50°	3397.7	1330.4	518.5	498.7	493.7	473.1	461.6	460.0	476.4	488.0	489.6
52.5°	3359.8	1257.9	501.2	474.0	450.1	453.4	449.2	441.0	457.5	473.1	474.8
55°	3303.7	1216.6	474.0	450.1	422.0	435.2	436.9	429.5	440.2	450.9	450.9
57.5°	3307.8	1240.5	447.6	427.8	397.3	414.6	423.7	420.4	420.4	428.6	429.5
60°	3335.1	1275.2	430.3	399.8	372.6	390.7	411.3	408.0	400.6	411.3	411.3
62.5°	3256.7	1229.0	418.7	372.6	346.2	367.6	392.4	390.7	382.5	399.8	401.4
65°	3025.9	1105.4	405.5	338.8	319.8	344.6	366.0	371.8	364.3	387.4	391.5
67.5°	2536.3	929.8	380.0	306.6	293.4	316.5	337.1	345.4	339.6	366.8	370.1
70°	1890.9	752.6	339.6	271.2	261.3	281.9	300.9	304.2	305.0	337.1	340.4
72.5°	1205.9	585.2	286.0	231.6	224.2	239.9	253.9	267.1	272.8	303.3	302.5
75°	672.6	435.2	230.0	196.2	183.0	195.4	211.8	227.5	244.0	288.5	293.4
77.5°	387.4	305.8	182.2	157.4	141.8	155.0	169.0	191.2	240.7	279.4	274.5
80°	218.4	198.7	137.7	115.4	105.5	115.4	126.1	168.2	189.6	206.1	208.5
82.5°	102.2	111.3	94.0	70.9	70.9	77.5	87.4	130.2	143.4	117.0	102.2
85°	37.1	50.3	46.2	36.3	32.1	31.3	54.4	74.2	46.2	41.2	35.4
87.5°	9.9	14.0	13.2	9.1	4.9	4.1	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  
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

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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)