

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: P640951

Luminaire Tested: GWS-SA5E-830-U-SL3-W

Issue Date: 1/10/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P640951  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-31)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 1/10/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: McGRAW-EDISON  
Catalog Number: GWS-SA5E-830-U-SL3-W  
Description: GALLEON WALL SLIM LUMINAIRE. (5) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III SPILL LIGHT ELIMINATOR OPTICS  
Light Source: (80) 3000K CCT, 80 CRI LEDS  
Ballast/Driver: -

**Summary**

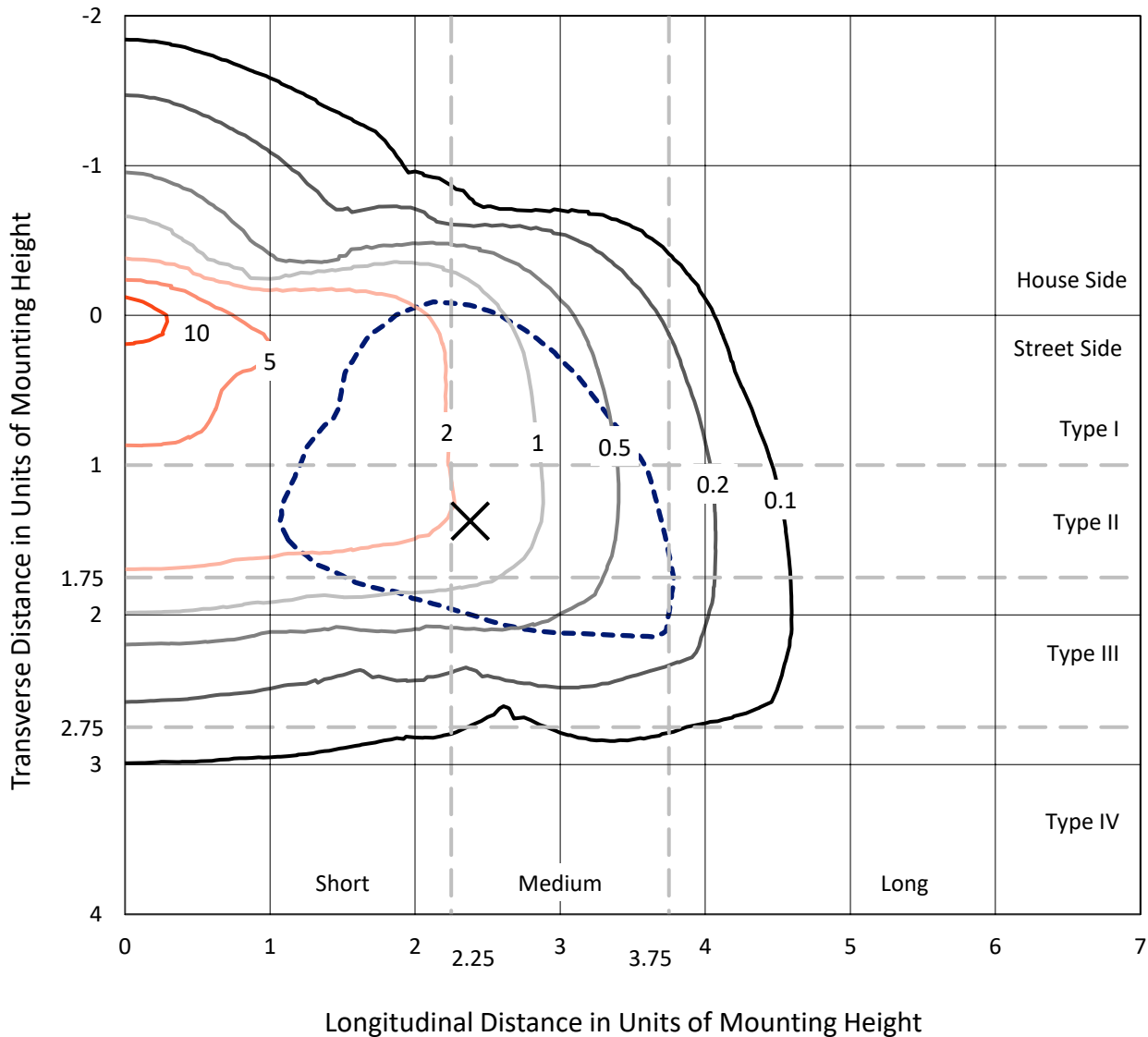
Lumens per Lamp: N/A  
Luminaire Lumens: 29220 lumens  
Efficiency: N/A  
Efficacy: 108.4 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')  
IES Classification: Type III - Medium  
BUG Rating: B3 - U0 - G4  
  
Input Watts (W): 269.6  
Input Voltage (V): 120  
Input Current (Ain): 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: P640951  
 CATALOG NUMBER: GWS-SA5E-830-U-SL3-W

### Iso-Footcandle Lines of Horizontal Illumination

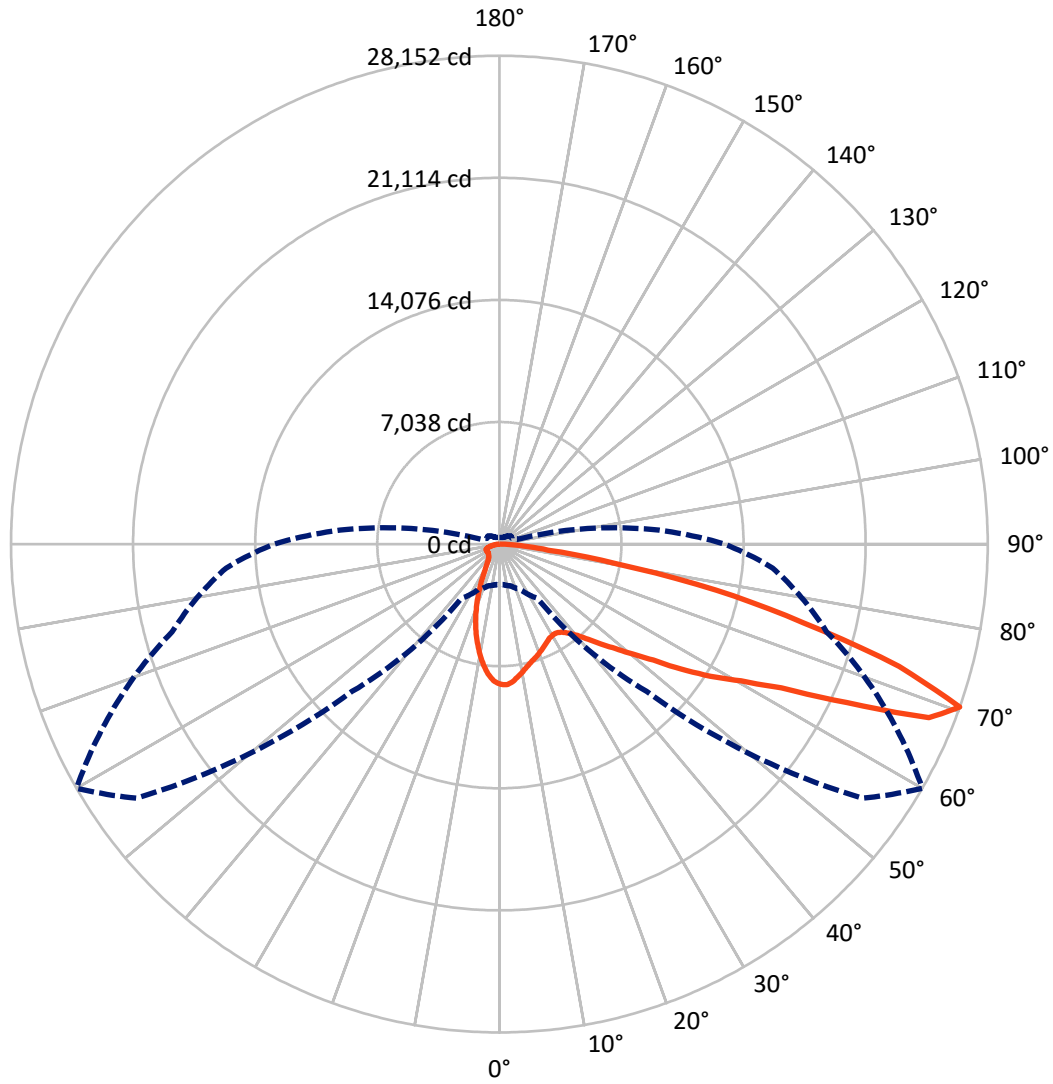
✕ Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 12.9 fc  
 Type III - Medium - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 60-Deg Lateral    - - - Horizontal Cone Through 70-Deg Vertical

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**FLUX DISTRIBUTION:**

		Downward	Upward	Total
<b>House Side</b>	Lumens	4997.3	0.0	4997.3
	% Fixture	17.1	0.0	17.1
<b>Street Side</b>	Lumens	24222.7	0.0	24222.7
	% Fixture	82.9	0.0	82.9
<b>Total</b>	Lumens	29220.0	0.0	29220.0
	% Fixture	100.0	0.0	100.0

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	696.9	2.4
10°-20°	1561.4	5.3
20°-30°	1999.6	6.8
30°-40°	2628.0	9.0
40°-50°	3812.7	13.0
50°-60°	5948.8	20.4
60°-70°	7788.1	26.7
70°-80°	4306.6	14.7
80°-90°	477.9	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°	29220.0	100.0
0°-180°	29220.0	100.0

**Coefficient of Utilization**



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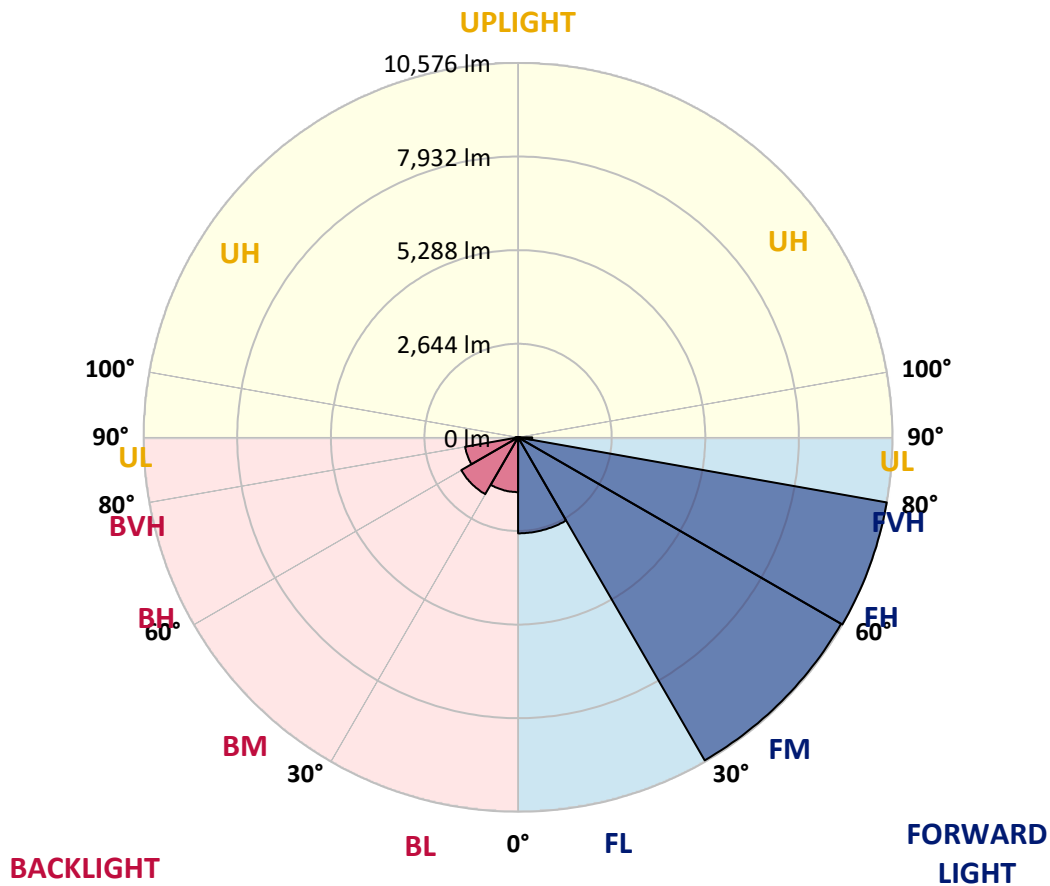
CATALOG NUMBER: GWS-SA5E-830-U-SL3-W

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

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	2711.8	9.3			
FM (30°-60°)	10536.6	36.1			
FH (60°-80°)	10576.0	36.2			G4/12000
FVH (80°-90°)	398.2	1.4			G3/500
BL (0°-30°)	1546.1	5.3	B3/2500		
BM (30°-60°)	1852.8	6.3	B2/2500		
BH (60°-80°)	1518.7	5.2	B3/2500		G3/2500
BVH (80°-90°)	79.7	0.3			G1/100
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

**BUG Rating: B3-U0-G4**

Type III Medium





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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	15°	25°	35°	45°	55°	60°	65°	75°	85°
0°	8085.6	8085.6	8085.6	8085.6	8085.6	8085.6	8085.6	8085.6	8085.6	8085.6	8085.6
2.5°	7972.2	7980.8	8004.3	8038.5	8072.7	8089.8	8132.6	8119.8	8111.2	8094.1	8072.7
5°	7619.5	7636.6	7658.0	7724.2	7799.1	7858.9	7955.1	7965.8	7970.1	7978.7	7944.5
7.5°	7170.5	7174.8	7226.1	7313.8	7412.1	7514.7	7675.1	7720.0	7758.5	7801.2	7773.4
10°	6674.5	6685.2	6723.7	6849.8	7018.7	7170.5	7386.5	7461.3	7542.5	7636.6	7598.1
12.5°	6268.3	6270.5	6332.5	6467.2	6651.0	6856.3	7125.6	7215.4	7322.3	7469.8	7435.6
15°	5945.5	5945.5	6003.2	6118.7	6330.3	6571.9	6892.6	7008.0	7153.4	7352.3	7292.4
17.5°	5689.0	5691.1	5727.4	5849.3	6037.4	6304.7	6685.2	6841.3	7001.6	7264.6	7174.8
20°	5554.3	5543.6	5550.0	5624.8	5785.2	6043.9	6477.8	6659.6	6875.5	7204.7	7067.9
22.5°	5547.9	5528.6	5500.8	5507.2	5601.3	5815.1	6255.5	6475.7	6747.2	7155.6	6958.9
25°	5656.9	5635.5	5586.3	5530.8	5522.2	5650.5	6046.0	6296.1	6614.7	7134.2	6854.1
27.5°	5840.8	5825.8	5761.7	5678.3	5590.6	5586.3	5887.8	6148.6	6518.5	7155.6	6779.3
30°	6084.5	6058.8	6018.2	5911.3	5778.8	5641.9	5825.8	6069.5	6454.3	7224.0	6747.2
32.5°	6360.3	6345.3	6306.8	6199.9	6058.8	5840.8	5875.0	6086.6	6454.3	7343.7	6753.6
35°	6653.2	6651.0	6651.0	6580.5	6424.4	6152.9	6069.5	6232.0	6552.7	7536.1	6822.1
37.5°	6937.5	6935.4	7003.8	7029.4	6852.0	6559.1	6400.9	6522.7	6768.6	7820.5	6990.9
40°	7168.4	7176.9	7326.6	7454.9	7356.5	7085.0	6862.7	6924.7	7119.2	8224.5	7286.0
42.5°	7401.4	7424.9	7649.4	7876.0	7914.5	7679.4	7454.9	7491.2	7621.6	8759.0	7726.4
45°	7655.8	7666.5	7980.8	8297.2	8483.2	8344.2	8160.4	8209.6	8239.5	9419.6	8382.7
47.5°	7901.7	7929.5	8335.7	8769.7	9122.4	9109.6	9007.0	8992.0	8998.4	10223.5	9158.8
50°	8237.3	8278.0	8754.7	9278.5	9795.9	10033.2	10063.1	9949.8	9902.8	11117.1	10125.1
52.5°	8874.4	8874.4	9302.0	9817.3	10512.1	11100.0	11301.0	11115.0	10965.3	12062.1	11151.3
55°	9671.9	9706.1	10046.0	10462.9	11343.7	12222.4	12902.2	12697.0	12273.7	13090.4	12226.7
57.5°	10026.8	10069.5	10608.3	11256.1	12431.9	13498.7	14441.5	14368.9	13751.0	14159.3	13342.7
60°	9385.4	9475.2	10217.0	11303.1	13417.5	15557.5	16222.4	16010.8	15127.8	15281.7	14552.7
62.5°	7829.0	7927.3	8750.4	10266.2	13280.7	17783.1	19029.5	18249.1	16846.7	16699.2	16164.7
65°	4671.3	4667.0	5656.9	7666.5	11593.9	18400.9	23472.0	22016.1	19502.0	18644.7	17823.7
67.5°	2969.5	2963.1	3170.5	4062.0	7715.7	16887.3	26328.3	26706.7	23108.6	20074.9	17960.5
70°	2343.1	2341.0	2490.7	2896.9	3816.2	12017.2	25533.0	28151.9	25287.1	19529.8	15814.1
72.5°	1708.2	1712.5	1943.4	2426.5	2943.9	6033.2	20675.7	24087.8	23258.3	17240.1	12838.1
75°	1227.2	1233.6	1372.5	1857.8	2715.1	3298.8	13748.9	18112.3	17695.4	13819.4	8831.7
77.5°	780.3	788.9	910.7	1302.0	2193.5	2663.8	8335.7	12786.8	11773.4	7786.2	3140.6
80°	476.8	504.5	607.2	970.6	1753.1	1998.9	4166.8	6736.5	5896.3	2135.8	1056.1
82.5°	245.9	267.2	365.6	600.8	1207.9	1755.2	2358.1	2830.6	1825.8	893.6	562.3
85°	77.0	89.8	128.3	243.7	575.1	1088.2	1560.7	1406.7	838.1	421.2	260.8
87.5°	19.2	19.2	21.4	21.4	23.5	49.2	301.4	318.5	222.3	132.6	106.9
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°	8085.6	8085.6	8085.6	8085.6	8085.6	8085.6	8085.6	8085.6	8085.6	8085.6	8085.6
2.5°	8030.0	7978.7	7957.3	7955.1	7901.7	7824.7	7773.4	7737.1	7715.7	7711.4	7711.4
5°	7886.7	7820.5	7732.8	7666.5	7523.3	7377.9	7256.0	7187.6	7108.5	7097.8	7095.7
7.5°	7696.5	7600.2	7433.5	7247.5	6997.4	6755.8	6550.5	6411.6	6272.6	6247.0	6238.4
10°	7491.2	7360.8	7076.5	6749.4	6375.2	6013.9	5699.7	5453.8	5291.3	5175.9	5154.5
12.5°	7288.1	7114.9	6698.1	6210.6	5697.5	5203.7	4731.2	4329.3	4038.5	3869.6	3839.7
15°	7097.8	6856.3	6285.4	5663.3	4996.3	4320.7	3651.5	3129.9	2721.6	2576.2	2542.0
17.5°	6924.7	6623.2	5885.6	5096.8	4265.1	3382.2	2621.1	2157.1	1917.7	1845.0	1827.9
20°	6751.5	6383.8	5479.4	4500.3	3489.1	2499.2	1915.6	1697.5	1607.7	1579.9	1571.4
22.5°	6565.5	6120.8	5036.9	3912.4	2704.4	1870.7	1567.1	1470.9	1443.1	1445.2	1443.1
25°	6379.5	5853.6	4573.0	3273.1	2013.9	1517.9	1368.3	1331.9	1338.3	1357.6	1361.8
27.5°	6225.6	5616.3	4117.6	2571.9	1573.5	1306.3	1235.7	1233.6	1257.1	1282.7	1287.0
30°	6114.4	5404.6	3668.6	1977.6	1295.6	1160.9	1133.1	1145.9	1173.7	1193.0	1199.4
32.5°	6035.3	5222.9	3189.8	1554.3	1135.2	1058.3	1045.4	1058.3	1075.4	1094.6	1098.9
35°	6007.5	5090.3	2719.4	1267.8	1026.2	983.4	974.9	981.3	989.8	1000.5	1004.8
37.5°	6069.5	5024.1	2227.7	1103.2	959.9	934.3	921.4	917.2	919.3	923.6	925.7
40°	6253.4	5054.0	1825.8	1007.0	917.2	893.6	872.3	863.7	861.6	865.9	863.7
42.5°	6569.8	5180.1	1535.0	951.4	883.0	848.7	825.2	816.7	816.7	827.4	827.4
45°	7033.7	5428.1	1325.5	910.7	853.0	810.3	784.6	780.3	788.9	806.0	808.1
47.5°	7713.6	5791.6	1199.4	880.8	825.2	776.1	750.4	748.3	765.4	793.2	795.3
50°	8519.5	6315.4	1131.0	859.4	806.0	748.3	722.6	724.7	744.0	773.9	780.3
52.5°	9490.2	7029.4	1135.2	850.9	795.3	731.2	705.5	701.2	720.5	750.4	756.8
55°	10492.8	7897.4	1218.6	853.0	780.3	722.6	688.4	673.4	690.5	711.9	714.1
57.5°	11596.0	8876.6	1426.0	848.7	761.1	714.1	673.4	639.2	649.9	662.8	669.2
60°	12840.3	10028.9	1872.8	857.3	752.5	694.8	643.5	598.6	596.5	605.0	607.2
62.5°	14503.5	11596.0	2375.2	872.3	771.8	671.3	598.6	551.6	543.0	547.3	549.4
65°	15775.6	12344.3	2217.0	859.4	812.4	654.2	555.9	506.7	489.6	485.3	485.3
67.5°	15258.2	11354.4	1543.6	825.2	831.6	656.3	521.6	459.6	438.3	427.6	425.4
70°	12983.5	9222.9	1073.2	791.0	810.3	652.1	485.3	421.2	393.4	378.4	376.3
72.5°	10257.7	7042.3	868.0	722.6	735.4	587.9	431.9	378.4	354.9	335.7	335.7
75°	6601.8	4297.2	724.7	643.5	600.8	457.5	374.1	337.8	314.3	295.0	295.0
77.5°	2221.3	1594.9	562.3	545.2	449.0	344.2	314.3	290.8	271.5	254.4	252.3
80°	902.2	756.8	412.6	412.6	314.3	263.0	245.9	235.2	222.3	201.0	201.0
82.5°	523.8	459.6	288.6	250.1	209.5	181.7	171.0	160.3	160.3	145.4	145.4
85°	252.3	254.4	173.2	153.9	119.7	104.8	100.5	94.1	91.9	83.4	81.2
87.5°	136.8	139.0	87.7	68.4	47.0	40.6	34.2	32.1	29.9	27.8	27.8
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



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

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 <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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**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: NR**

**M/P: 2.32**

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