

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: P637508

Luminaire Tested: GWS-SA4C-830-U-T3-W-HSS

Issue Date: 1/10/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P637508  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-26)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 1/10/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: McGRAW-EDISON  
Catalog Number: GWS-SA4C-830-U-T3-W-HSS  
Description: GALLEON WALL SLIM LUMINAIRE. (4) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III OPTICS WITH HOUSE SIDE SHIELD  
Light Source: (64) 3000K CCT, 80 CRI LEDS  
Ballast/Driver: -

**Summary**

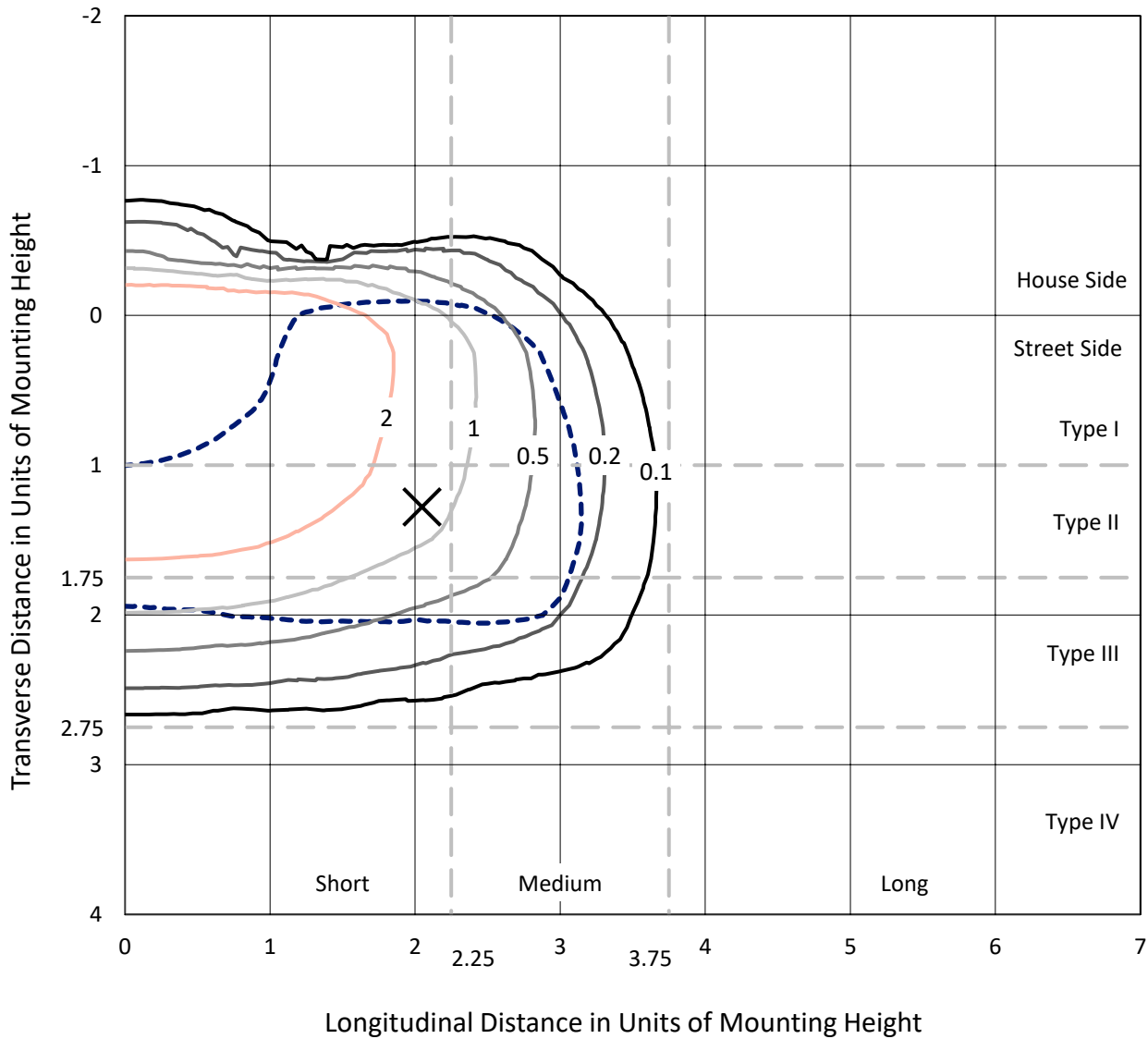
Lumens per Lamp: N/A  
Luminaire Lumens: 11320.8 lumens  
Efficiency: N/A  
Efficacy: 88.1 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B1 - U0 - G2  
  
Input Watts (W): 128.5  
Input Voltage (V): 120  
Input Current (Ain): NR  
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



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### Iso-Footcandle Lines of Horizontal Illumination

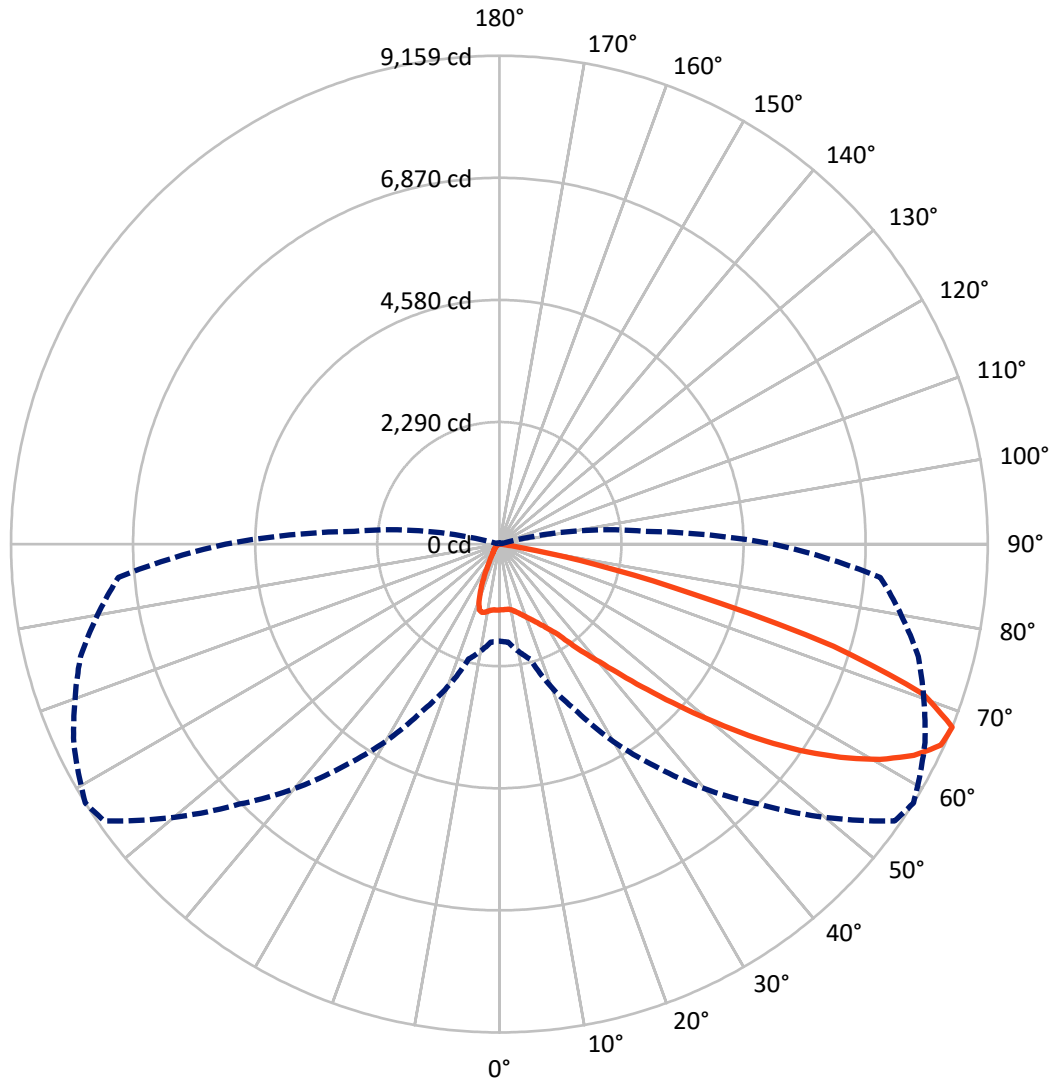
✕ Max cd  
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 4.3 fc  
 Type III - Short - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 58-Deg Lateral    - - - Horizontal Cone Through 67.5-Deg Vertical

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**FLUX DISTRIBUTION:**

		Downward	Upward	Total
<b>House Side</b>	Lumens	1235.1	0.0	1235.1
	% Fixture	10.9	0.0	10.9
<b>Street Side</b>	Lumens	10085.7	0.0	10085.7
	% Fixture	89.1	0.0	89.1
<b>Total</b>	Lumens	11320.8	0.0	11320.8
	% Fixture	100.0	0.0	100.0

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	115.9	1.0
10°-20°	325.4	2.9
20°-30°	567.9	5.0
30°-40°	1014.3	9.0
40°-50°	1853.9	16.4
50°-60°	3083.2	27.2
60°-70°	3348.9	29.6
70°-80°	983.3	8.7
80°-90°	28.0	0.2
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°	11320.8	100.0
0°-180°	11320.8	100.0

**Coefficient of Utilization**



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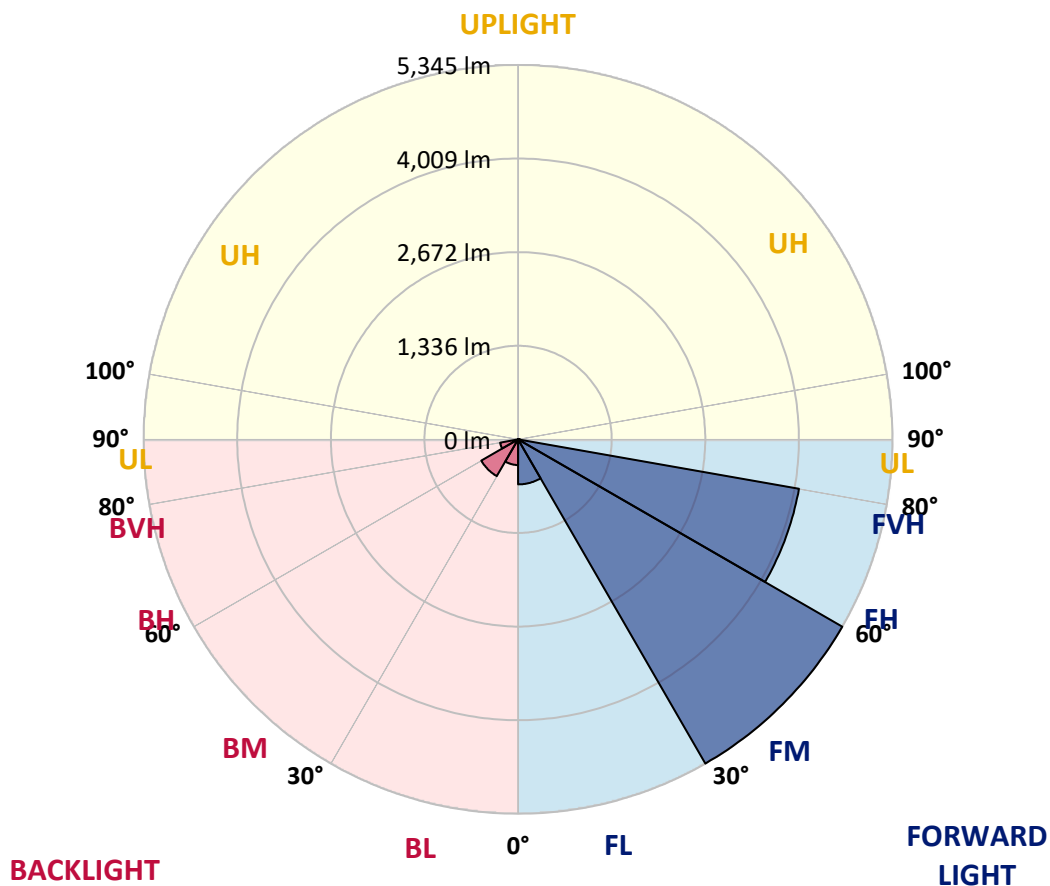
CATALOG NUMBER: GWS-SA4C-830-U-T3-W-HSS

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

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	642.8	5.7			
FM (30°-60°)	5344.8	47.2			
FH (60°-80°)	4071.5	36.0			G2/5000
FVH (80°-90°)	26.6	0.2			G1/100
BL (0°-30°)	366.4	3.2	B1/500		
BM (30°-60°)	606.6	5.4	B1/1000		
BH (60°-80°)	260.7	2.3	B1/500		G1/500
BVH (80°-90°)	1.4	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-G2**

Type III Short





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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	15°	25°	35°	45°	55°	58°	65°	75°	85°
0°	1233.6	1233.6	1233.6	1233.6	1233.6	1233.6	1233.6	1233.6	1233.6	1233.6	1233.6
2.5°	1210.4	1208.2	1208.2	1217.0	1218.2	1222.6	1232.5	1233.6	1239.2	1236.9	1229.2
5°	1147.4	1148.5	1155.1	1170.6	1183.9	1200.5	1224.8	1230.3	1242.5	1249.1	1244.7
7.5°	1088.8	1089.9	1099.9	1124.2	1149.6	1182.8	1222.6	1233.6	1257.9	1275.6	1276.7
10°	1066.7	1065.6	1075.6	1103.2	1136.4	1182.8	1240.3	1254.6	1291.1	1322.1	1327.6
12.5°	1073.3	1072.2	1082.2	1107.6	1144.1	1202.7	1271.2	1291.1	1337.5	1385.1	1395.0
15°	1099.9	1098.8	1105.4	1126.4	1166.2	1227.0	1311.0	1340.9	1399.4	1456.9	1472.4
17.5°	1179.5	1173.9	1167.3	1169.5	1192.7	1255.7	1361.9	1398.3	1471.3	1539.8	1553.1
20°	1321.0	1306.6	1288.9	1265.7	1254.6	1297.7	1420.4	1462.4	1550.9	1629.4	1631.6
22.5°	1534.3	1528.8	1487.9	1420.4	1372.9	1374.0	1489.0	1537.6	1645.9	1732.2	1720.0
25°	1831.7	1828.3	1765.3	1654.8	1531.0	1489.0	1576.3	1626.0	1758.7	1850.4	1811.8
27.5°	2200.9	2177.6	2103.6	1954.4	1769.7	1638.2	1686.8	1731.1	1878.1	1964.3	1891.3
30°	2522.5	2523.6	2454.0	2298.1	2090.3	1862.6	1821.7	1860.4	1987.5	2078.2	1989.7
32.5°	2832.0	2842.0	2765.7	2625.3	2397.6	2155.5	2015.1	2021.8	2127.9	2226.3	2119.1
35°	3119.4	3127.2	3074.1	2954.7	2742.5	2461.7	2284.9	2281.6	2339.0	2439.6	2299.2
37.5°	3441.1	3448.9	3396.9	3289.7	3090.7	2812.1	2591.1	2586.6	2609.9	2691.7	2531.4
40°	3783.8	3798.2	3740.7	3650.0	3459.9	3224.5	2947.0	2907.2	2884.0	2980.2	2832.0
42.5°	4130.9	4153.0	4133.1	4042.5	3880.0	3685.4	3409.1	3347.2	3297.4	3417.9	3260.9
45°	4562.0	4588.5	4579.7	4510.0	4384.0	4226.0	3965.1	3893.2	3870.0	3981.7	3794.8
47.5°	4976.5	5005.3	5037.3	5021.8	4932.3	4859.3	4569.7	4528.8	4522.2	4641.6	4352.0
50°	5284.9	5311.5	5434.2	5522.6	5583.4	5567.9	5317.0	5256.2	5246.2	5322.5	4940.0
52.5°	5506.0	5531.4	5700.6	5976.9	6200.2	6321.8	6068.7	6055.4	6001.2	5974.7	5490.5
55°	5677.3	5712.7	5890.7	6308.5	6758.4	7028.1	6870.1	6822.5	6683.3	6530.7	6001.2
57.5°	5711.6	5726.0	5976.9	6540.7	7191.7	7628.4	7628.4	7545.5	7276.9	7065.7	6591.5
60°	5404.3	5448.5	5787.9	6521.9	7377.5	8020.8	8257.4	8199.9	7837.3	7577.5	7159.7
62.5°	4722.3	4772.0	5185.4	6072.0	7191.7	8101.5	8733.8	8724.9	8315.9	8000.9	7630.6
65°	3621.3	3657.8	4018.1	5079.3	6406.9	7790.9	9074.2	9098.6	8694.0	8280.6	7793.1
67.5°	1819.5	1844.9	2234.0	3469.9	5078.2	6896.6	9051.0	9159.4	8809.0	8132.4	7173.0
70°	635.6	661.0	844.5	1489.0	3090.7	5266.1	8268.4	8445.3	8133.6	6941.9	5291.6
72.5°	217.8	229.9	350.4	552.7	1202.7	3121.7	6287.5	6553.9	5995.7	4660.4	3041.0
75°	123.8	131.5	187.9	299.6	504.1	1026.9	3567.1	3730.7	3495.3	2540.2	1251.3
77.5°	84.0	90.6	117.2	170.2	278.6	330.5	1454.7	1831.7	1597.3	829.1	319.5
80°	49.7	54.2	71.9	100.6	142.6	128.2	311.7	414.5	533.9	247.6	96.2
82.5°	23.2	26.5	46.4	66.3	71.9	54.2	91.7	111.6	150.3	121.6	39.8
85°	0.0	0.0	15.5	27.6	26.5	15.5	25.4	27.6	40.9	60.8	15.5
87.5°	0.0	0.0	0.0	0.0	0.0	1.1	2.2	3.3	6.6	12.2	6.6
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°	1233.6	1233.6	1233.6	1233.6	1233.6	1233.6	1233.6	1233.6	1233.6	1233.6	1233.6
2.5°	1238.1	1230.3	1239.2	1234.7	1239.2	1238.1	1229.2	1223.7	1223.7	1213.7	1210.4
5°	1253.5	1245.8	1248.0	1238.1	1235.8	1230.3	1219.3	1214.8	1214.8	1204.9	1201.6
7.5°	1287.8	1275.6	1273.4	1253.5	1244.7	1229.2	1209.3	1201.6	1200.5	1190.5	1187.2
10°	1342.0	1327.6	1317.6	1292.2	1266.8	1235.8	1193.8	1158.5	1138.6	1112.0	1109.8
12.5°	1408.3	1390.6	1375.1	1336.4	1294.4	1224.8	1101.0	971.6	892.1	829.1	833.5
15°	1482.3	1465.8	1441.4	1382.9	1296.6	1115.4	856.7	657.7	560.4	508.5	506.3
17.5°	1563.0	1538.7	1498.9	1419.3	1227.0	852.3	557.1	393.5	342.7	325.0	320.6
20°	1638.2	1608.4	1558.6	1427.1	1025.8	577.0	348.2	305.1	296.2	290.7	290.7
22.5°	1717.8	1680.2	1606.1	1367.4	762.7	369.2	296.2	286.3	279.7	271.9	270.8
25°	1798.5	1749.9	1649.3	1211.5	499.6	290.7	277.5	266.4	254.2	242.1	238.8
27.5°	1867.0	1804.0	1682.4	979.4	320.6	262.0	253.1	234.3	217.8	204.5	202.3
30°	1948.8	1868.1	1696.8	716.3	252.0	231.0	217.8	197.9	178.0	164.7	160.3
32.5°	2058.3	1969.8	1674.7	466.5	223.3	203.4	182.4	159.2	139.3	124.9	122.7
35°	2228.5	2123.5	1573.0	297.4	202.3	175.8	150.3	126.0	109.4	98.4	96.2
37.5°	2436.3	2339.0	1406.1	223.3	181.3	152.5	122.7	99.5	87.3	79.6	77.4
40°	2744.7	2608.7	1199.4	195.7	160.3	129.3	100.6	81.8	73.0	66.3	64.1
42.5°	3144.9	2927.1	961.7	178.0	140.4	108.3	81.8	67.4	59.7	55.3	54.2
45°	3612.5	3237.7	710.8	160.3	121.6	89.5	67.4	55.3	49.7	46.4	45.3
47.5°	4091.1	3509.7	490.8	141.5	103.9	74.1	56.4	47.5	43.1	38.7	37.6
50°	4601.8	3739.6	334.9	122.7	88.4	60.8	48.6	43.1	37.6	34.3	33.2
52.5°	4976.5	3824.7	233.2	106.1	75.2	52.0	43.1	38.7	34.3	29.8	28.7
55°	5322.5	3822.5	176.9	89.5	64.1	45.3	38.7	34.3	29.8	26.5	25.4
57.5°	5667.4	3792.6	139.3	76.3	55.3	40.9	34.3	29.8	27.6	23.2	22.1
60°	5890.7	3679.9	108.3	64.1	47.5	35.4	29.8	26.5	23.2	19.9	18.8
62.5°	6009.0	3522.9	82.9	50.8	38.7	31.0	26.5	23.2	19.9	16.6	15.5
65°	5848.7	3244.4	65.2	39.8	29.8	26.5	22.1	18.8	15.5	12.2	11.1
67.5°	5137.9	2735.9	50.8	32.1	23.2	19.9	18.8	15.5	11.1	8.8	7.7
70°	3631.2	1873.7	39.8	24.3	17.7	15.5	14.4	12.2	8.8	6.6	5.5
72.5°	1993.0	945.1	28.7	17.7	13.3	12.2	11.1	9.9	7.7	5.5	5.5
75°	767.1	259.8	21.0	12.2	8.8	8.8	7.7	7.7	6.6	4.4	4.4
77.5°	200.1	77.4	13.3	7.7	5.5	5.5	5.5	4.4	4.4	3.3	3.3
80°	64.1	25.4	7.7	5.5	4.4	3.3	3.3	2.2	3.3	2.2	2.2
82.5°	21.0	8.8	4.4	4.4	3.3	2.2	2.2	1.1	1.1	0.0	0.0
85°	7.7	4.4	3.3	2.2	2.2	2.2	1.1	0.0	0.0	0.0	0.0
87.5°	4.4	2.2	2.2	2.2	2.2	1.1	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**

$\lambda$ (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**

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)