

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: P632057

Luminaire Tested: GWS-SA2B-830-U-T2R-W-GRSBK

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P632057
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-12)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA2B-830-U-T2R-W-GRSBK
Description: GALLEON WALL SLIM LUMINAIRE. (2) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II ROADWAY OPTICS W/ FACTORY INSTALLED GLARE SHIELD, BK
Light Source: (32) 3000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3675 lumens
Efficiency: N/A
Efficacy: 79.2 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 0.5' x H: 0')
IES Classification: Type II - Short
BUG Rating: B1 - U0 - G0

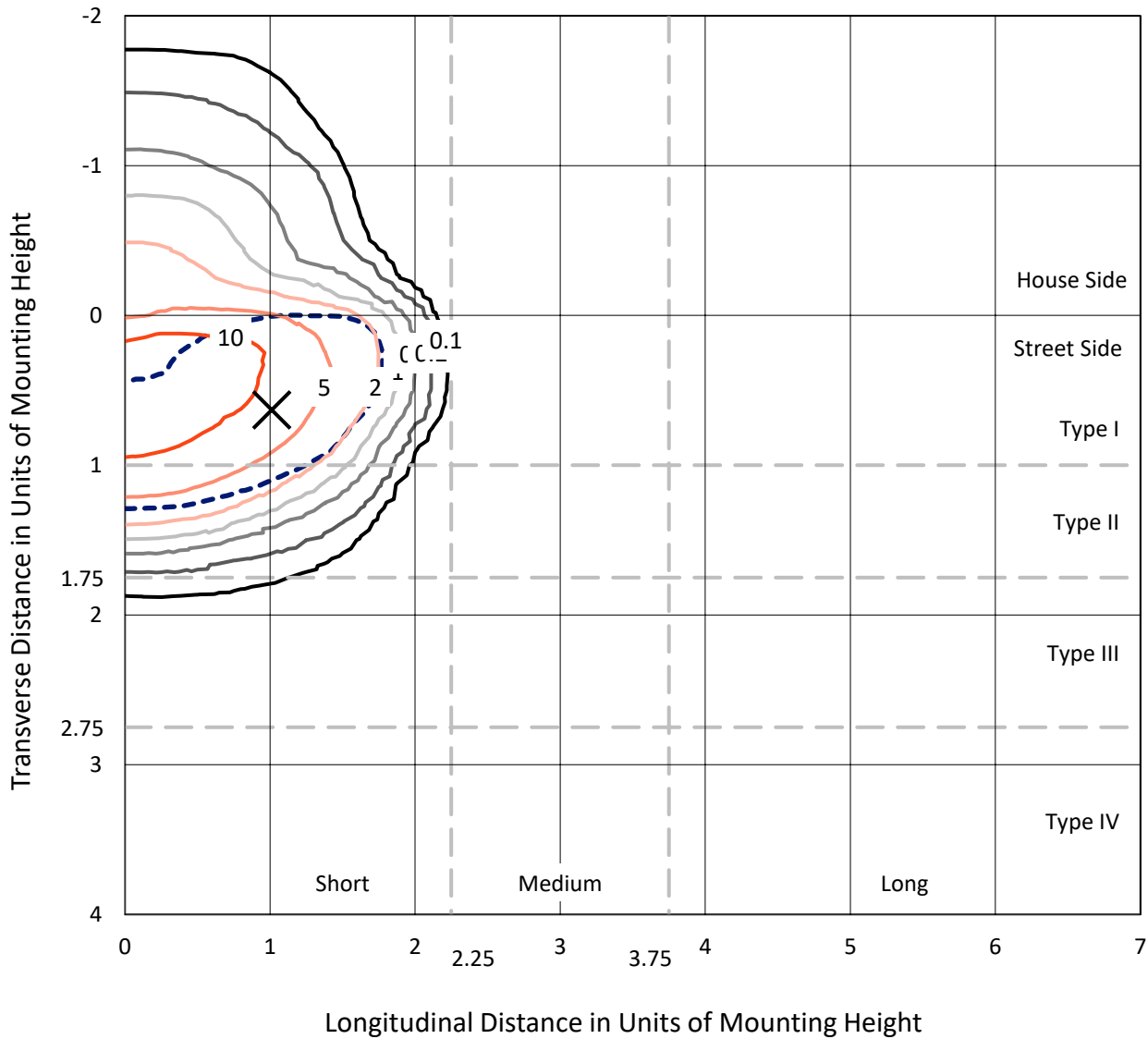
Input Watts (W): 46.4
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P632057
 CATALOG NUMBER: GWS-SA2B-830-U-T2R-W-GRSBK

Iso-Footcandle Lines of Horizontal Illumination

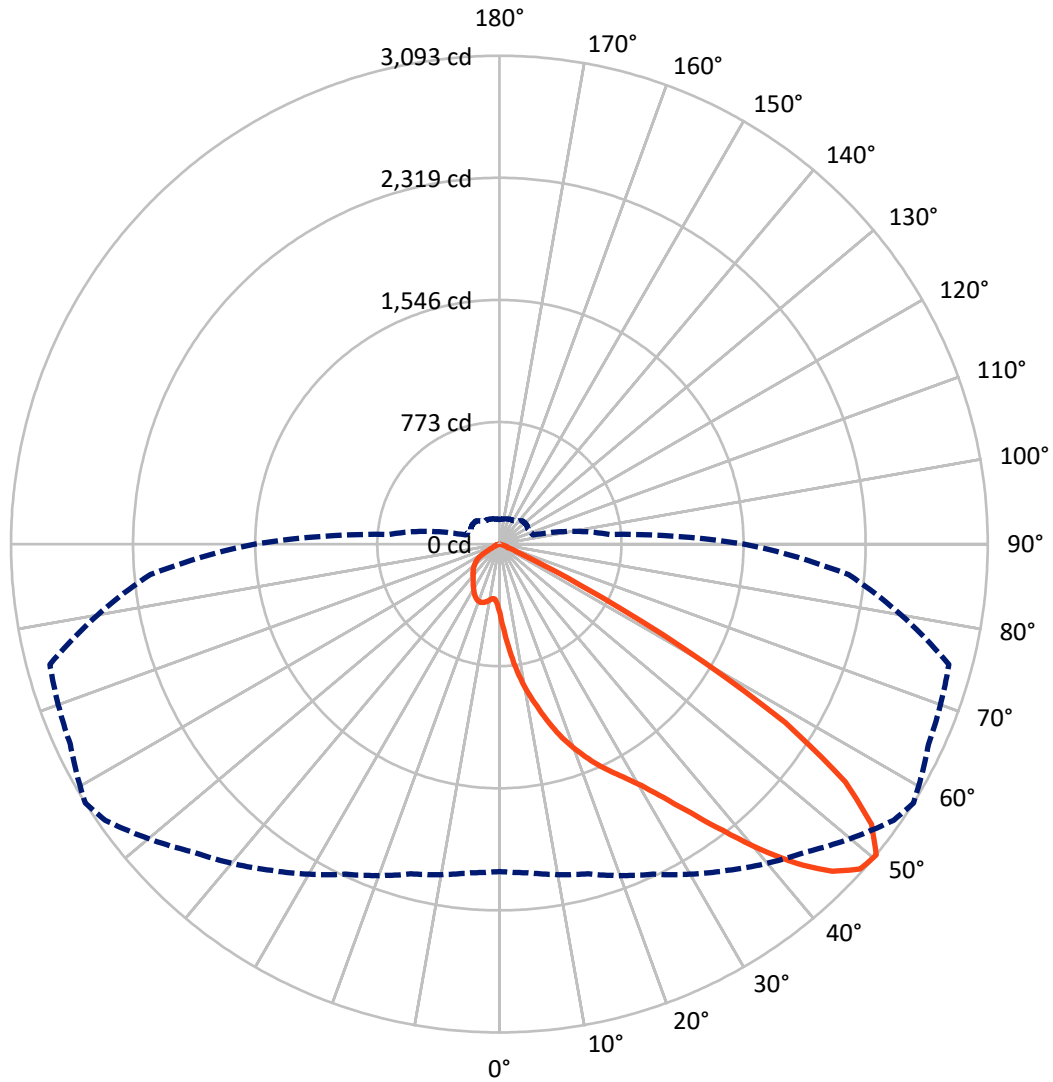
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 13.5 fc
 Type II - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 58-Deg Lateral - - - Horizontal Cone Through 50-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 514.7 | 0.0 | 514.7 |
| | % Fixture | 14.0 | 0.0 | 14.0 |
| Street Side | Lumens | 3160.3 | 0.0 | 3160.3 |
| | % Fixture | 86.0 | 0.0 | 86.0 |
| Total | Lumens | 3675.0 | 0.0 | 3675.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 54.4 | 1.5 |
| 10°-20° | 215.3 | 5.9 |
| 20°-30° | 435.6 | 11.9 |
| 30°-40° | 770.7 | 21.0 |
| 40°-50° | 1123.5 | 30.6 |
| 50°-60° | 900.5 | 24.5 |
| 60°-70° | 162.2 | 4.4 |
| 70°-80° | 12.8 | 0.3 |
| 80°-90° | 0.0 | 0.0 |
| 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° | 3675.0 | 100.0 |
| 0°-180° | 3675.0 | 100.0 |

Coefficient of Utilization



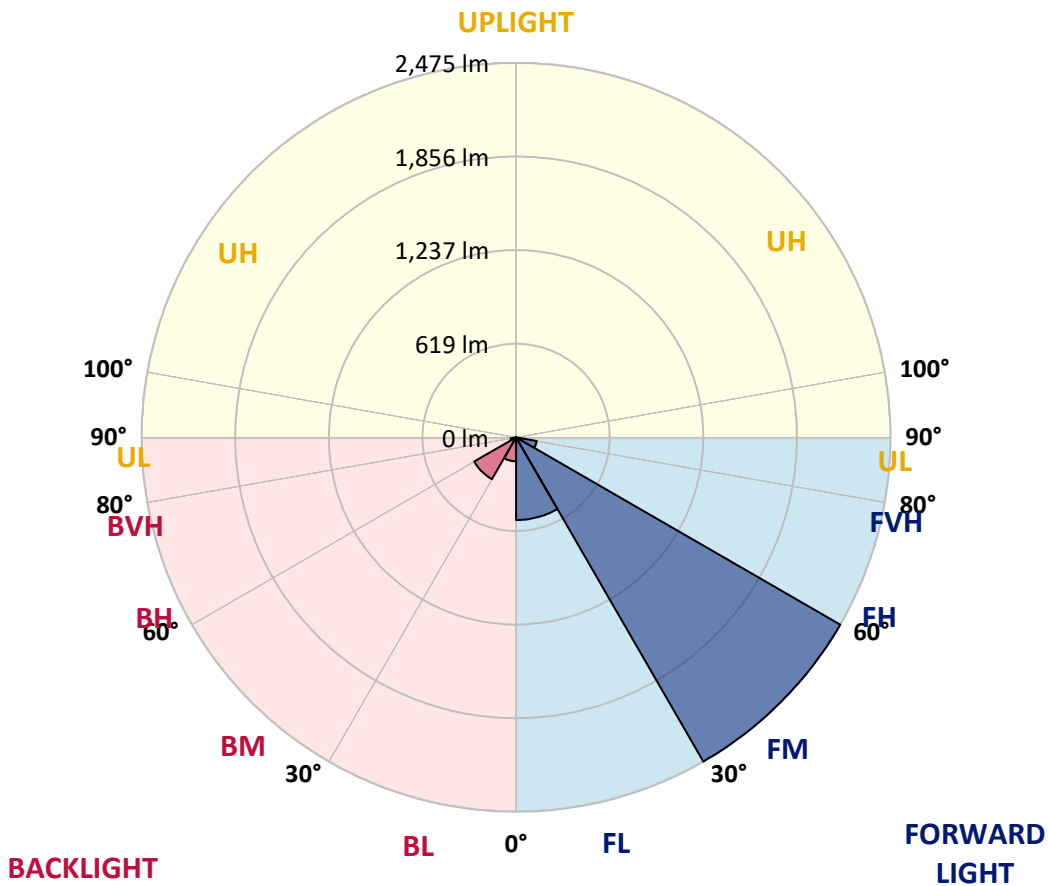
REPORT NUMBER: P632057

CATALOG NUMBER: GWS-SA2B-830-U-T2R-W-GRSBK

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|--------|
| | | | B | U | G |
| FL (0°-30°) | 546.8 | 14.9 | | | |
| FM (30°-60°) | 2475.0 | 67.3 | | | |
| FH (60°-80°) | 138.4 | 3.8 | | | G0/660 |
| FVH (80°-90°) | 0.0 | 0.0 | | | G0/10 |
| BL (0°-30°) | 158.5 | 4.3 | B1/500 | | |
| BM (30°-60°) | 319.7 | 8.7 | B1/1000 | | |
| BH (60°-80°) | 36.6 | 1.0 | B0/110 | | G0/110 |
| BVH (80°-90°) | 0.0 | 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-G0
 Type II Short





REPORT NUMBER: P632057

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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 58° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 439.0 | 439.0 | 439.0 | 439.0 | 439.0 | 439.0 | 439.0 | 439.0 | 439.0 | 439.0 | 439.0 |
| 2.5° | 649.6 | 639.4 | 633.5 | 628.8 | 608.0 | 574.9 | 553.3 | 541.9 | 523.1 | 491.2 | 463.7 |
| 5° | 847.7 | 840.2 | 826.5 | 817.0 | 790.3 | 743.5 | 695.2 | 675.9 | 633.1 | 561.2 | 496.7 |
| 7.5° | 978.9 | 973.4 | 968.3 | 955.8 | 930.6 | 888.2 | 834.7 | 814.7 | 748.7 | 646.5 | 540.8 |
| 10° | 1079.9 | 1075.6 | 1069.7 | 1069.3 | 1049.7 | 1011.6 | 959.3 | 938.5 | 866.9 | 739.2 | 592.6 |
| 12.5° | 1168.8 | 1165.2 | 1164.0 | 1175.0 | 1162.5 | 1134.2 | 1077.6 | 1051.6 | 975.8 | 833.9 | 650.0 |
| 15° | 1229.7 | 1228.9 | 1234.0 | 1255.6 | 1262.7 | 1249.7 | 1202.2 | 1174.3 | 1087.0 | 929.0 | 713.3 |
| 17.5° | 1257.6 | 1259.9 | 1269.8 | 1307.1 | 1338.5 | 1349.5 | 1313.0 | 1289.4 | 1197.4 | 1025.3 | 780.9 |
| 20° | 1305.1 | 1304.3 | 1310.2 | 1345.6 | 1384.1 | 1423.4 | 1412.4 | 1392.4 | 1309.1 | 1127.1 | 855.9 |
| 22.5° | 1439.1 | 1427.7 | 1415.2 | 1420.7 | 1434.4 | 1480.4 | 1500.8 | 1490.6 | 1424.2 | 1231.6 | 933.4 |
| 25° | 1645.1 | 1633.3 | 1592.8 | 1553.5 | 1527.6 | 1548.4 | 1576.3 | 1581.4 | 1538.6 | 1338.9 | 1014.3 |
| 27.5° | 1863.6 | 1853.0 | 1807.4 | 1748.4 | 1674.1 | 1638.0 | 1658.8 | 1669.0 | 1651.0 | 1466.6 | 1100.4 |
| 30° | 2068.3 | 2054.2 | 2004.3 | 1931.2 | 1845.1 | 1789.7 | 1766.1 | 1773.2 | 1783.8 | 1617.9 | 1201.4 |
| 32.5° | 2246.0 | 2235.3 | 2175.6 | 2098.6 | 2015.7 | 1957.9 | 1902.9 | 1914.7 | 1940.6 | 1803.0 | 1330.7 |
| 35° | 2396.5 | 2391.0 | 2327.7 | 2251.1 | 2163.4 | 2133.9 | 2086.8 | 2089.1 | 2115.1 | 2026.7 | 1488.3 |
| 37.5° | 2527.3 | 2517.9 | 2460.5 | 2389.4 | 2319.8 | 2315.1 | 2302.1 | 2303.3 | 2316.7 | 2287.2 | 1669.4 |
| 40° | 2609.9 | 2601.2 | 2560.3 | 2516.3 | 2466.8 | 2467.6 | 2534.8 | 2539.9 | 2524.6 | 2543.1 | 1860.8 |
| 42.5° | 2640.9 | 2634.6 | 2612.6 | 2613.0 | 2607.9 | 2631.1 | 2757.2 | 2766.7 | 2711.6 | 2743.9 | 2024.3 |
| 45° | 2587.1 | 2584.3 | 2585.9 | 2642.5 | 2703.8 | 2775.3 | 2939.2 | 2955.7 | 2877.9 | 2877.1 | 2152.0 |
| 47.5° | 2413.4 | 2407.9 | 2453.8 | 2550.1 | 2692.0 | 2831.1 | 3049.2 | 3074.8 | 2994.2 | 2953.3 | 2232.2 |
| 50° | 2073.0 | 2088.8 | 2161.5 | 2306.1 | 2521.8 | 2754.5 | 3048.0 | 3092.5 | 2998.5 | 2946.7 | 2218.8 |
| 52.5° | 1501.6 | 1498.5 | 1657.6 | 1856.5 | 2119.0 | 2509.3 | 2886.1 | 2951.0 | 2893.6 | 2881.0 | 2189.0 |
| 55° | 817.0 | 845.7 | 953.0 | 1216.3 | 1544.1 | 2045.1 | 2516.3 | 2657.8 | 2724.2 | 2857.1 | 2242.8 |
| 57.5° | 300.2 | 312.8 | 380.0 | 566.3 | 817.4 | 1271.7 | 1922.1 | 2135.5 | 2340.7 | 2790.2 | 2233.8 |
| 60° | 121.0 | 123.4 | 150.1 | 208.3 | 343.5 | 647.3 | 1153.0 | 1342.5 | 1535.8 | 2135.9 | 1714.2 |
| 62.5° | 88.0 | 91.2 | 101.8 | 121.8 | 173.7 | 283.0 | 497.1 | 578.1 | 631.9 | 1057.9 | 844.5 |
| 65° | 71.1 | 73.5 | 82.1 | 91.2 | 114.8 | 152.1 | 160.3 | 154.4 | 153.7 | 273.5 | 193.7 |
| 67.5° | 58.9 | 61.3 | 67.6 | 73.9 | 82.5 | 75.8 | 55.0 | 57.8 | 47.2 | 46.8 | 38.1 |
| 70° | 43.2 | 46.0 | 52.3 | 58.9 | 49.5 | 20.4 | 31.8 | 47.2 | 35.8 | 29.9 | 29.1 |
| 72.5° | 32.6 | 34.6 | 40.5 | 38.5 | 14.5 | 7.9 | 21.2 | 34.2 | 27.5 | 22.0 | 21.6 |
| 75° | 24.4 | 25.5 | 20.4 | 6.3 | 1.6 | 2.0 | 7.9 | 14.1 | 15.3 | 12.6 | 12.6 |
| 77.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 1.2 | 1.6 | 2.0 | 2.4 |
| 80° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 82.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 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 |



REPORT NUMBER: P632057
 CATALOG NUMBER: GWS-SA2B-830-U-T2R-W-GRSBK

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 439.0 | 439.0 | 439.0 | 439.0 | 439.0 | 439.0 | 439.0 | 439.0 | 439.0 | 439.0 | 439.0 |
| 2.5° | 448.0 | 431.5 | 407.9 | 388.3 | 373.3 | 358.8 | 347.8 | 336.8 | 336.4 | 330.9 | 329.7 |
| 5° | 466.9 | 437.0 | 393.8 | 362.7 | 343.9 | 332.5 | 324.6 | 320.7 | 318.7 | 316.8 | 316.0 |
| 7.5° | 494.0 | 451.2 | 391.4 | 358.4 | 342.7 | 335.2 | 329.7 | 327.4 | 326.2 | 324.6 | 324.2 |
| 10° | 527.4 | 471.6 | 400.1 | 366.7 | 352.9 | 345.8 | 339.9 | 336.4 | 334.4 | 331.7 | 330.9 |
| 12.5° | 567.5 | 496.7 | 413.8 | 380.4 | 365.9 | 356.4 | 348.6 | 343.5 | 340.7 | 337.2 | 336.4 |
| 15° | 610.7 | 523.9 | 429.1 | 393.0 | 375.7 | 363.5 | 353.7 | 345.8 | 340.7 | 336.4 | 335.2 |
| 17.5° | 655.5 | 551.4 | 442.9 | 401.6 | 380.4 | 365.9 | 351.7 | 341.1 | 334.8 | 329.3 | 327.8 |
| 20° | 705.8 | 579.7 | 451.9 | 403.2 | 378.8 | 359.6 | 343.1 | 329.7 | 323.4 | 316.0 | 314.4 |
| 22.5° | 758.5 | 606.0 | 455.9 | 399.7 | 370.2 | 347.8 | 330.1 | 316.4 | 307.3 | 299.5 | 297.1 |
| 25° | 809.6 | 629.6 | 453.9 | 389.8 | 357.2 | 331.3 | 313.2 | 299.1 | 289.2 | 281.4 | 279.4 |
| 27.5° | 863.8 | 649.2 | 446.8 | 375.3 | 339.5 | 313.2 | 295.9 | 283.7 | 274.7 | 266.1 | 264.1 |
| 30° | 924.7 | 667.3 | 435.4 | 357.6 | 318.7 | 294.7 | 281.4 | 273.1 | 263.3 | 254.3 | 251.5 |
| 32.5° | 998.2 | 683.4 | 418.9 | 336.4 | 300.2 | 278.6 | 271.2 | 264.9 | 253.5 | 244.0 | 242.1 |
| 35° | 1082.3 | 696.8 | 398.1 | 314.4 | 282.2 | 268.4 | 266.8 | 258.6 | 243.7 | 232.7 | 230.3 |
| 37.5° | 1179.8 | 709.7 | 373.3 | 292.8 | 268.8 | 263.7 | 264.1 | 249.9 | 231.9 | 218.5 | 216.9 |
| 40° | 1284.7 | 722.7 | 345.8 | 273.9 | 256.6 | 260.9 | 257.4 | 237.4 | 207.9 | 194.9 | 193.4 |
| 42.5° | 1393.9 | 736.9 | 317.9 | 256.2 | 246.4 | 250.3 | 245.2 | 212.2 | 191.0 | 184.3 | 183.5 |
| 45° | 1492.6 | 753.8 | 287.7 | 238.5 | 236.2 | 235.0 | 226.4 | 192.2 | 183.1 | 178.4 | 178.0 |
| 47.5° | 1563.7 | 751.0 | 255.4 | 221.6 | 225.2 | 221.3 | 194.9 | 182.7 | 175.3 | 169.0 | 167.4 |
| 50° | 1550.7 | 703.1 | 222.0 | 202.8 | 211.0 | 207.5 | 175.3 | 171.7 | 165.1 | 158.4 | 156.0 |
| 52.5° | 1517.7 | 637.8 | 193.0 | 182.7 | 195.7 | 187.5 | 161.9 | 158.4 | 152.5 | 143.8 | 141.1 |
| 55° | 1535.4 | 576.5 | 170.2 | 166.6 | 180.0 | 155.2 | 147.0 | 141.5 | 135.2 | 125.8 | 124.6 |
| 57.5° | 1478.4 | 470.4 | 136.8 | 139.1 | 159.2 | 132.4 | 128.9 | 120.3 | 109.6 | 103.4 | 102.6 |
| 60° | 1023.4 | 252.7 | 85.7 | 88.4 | 115.1 | 111.2 | 115.5 | 107.7 | 94.7 | 88.8 | 87.6 |
| 62.5° | 470.0 | 101.4 | 46.8 | 44.8 | 60.5 | 75.5 | 99.0 | 98.2 | 82.1 | 72.7 | 71.9 |
| 65° | 114.0 | 46.4 | 33.4 | 31.4 | 34.2 | 45.2 | 64.5 | 77.4 | 66.4 | 55.4 | 54.2 |
| 67.5° | 36.9 | 37.7 | 30.7 | 28.7 | 30.3 | 33.8 | 38.5 | 42.8 | 42.4 | 38.9 | 38.1 |
| 70° | 29.5 | 34.2 | 28.3 | 25.9 | 25.9 | 27.1 | 25.9 | 20.8 | 18.1 | 19.6 | 20.4 |
| 72.5° | 22.0 | 25.9 | 22.4 | 20.0 | 19.3 | 18.9 | 16.1 | 11.8 | 8.3 | 7.5 | 7.1 |
| 75° | 13.0 | 14.5 | 13.8 | 11.8 | 11.0 | 9.8 | 7.9 | 5.1 | 2.8 | 2.0 | 1.2 |
| 77.5° | 2.4 | 2.8 | 3.1 | 2.4 | 2.0 | 1.6 | 1.2 | 0.4 | 0.0 | 0.0 | 0.0 |
| 80° | 0.0 | 0.4 | 0.4 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 82.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 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
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

REPORT NUMBER: SP1-2408-195-9

| 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

| λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /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 | | | |

REPORT NUMBER: SP1-2408-195-9

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.27

| λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /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 | | | |

REPORT NUMBER: SP1-2408-195-9

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.32

| λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /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)