

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: P630580

Luminaire Tested: GWS-SA1D-830-U-T3R-W-GRSBK

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P630580
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-16)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA1D-830-U-T3R-W-GRSBK
Description: GALLEON WALL SLIM LUMINAIRE. (1) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III ROADWAY OPTICS W/ FACTORY INSTALLED GLARE SHIELD, BK
Light Source: (16) 3000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3021.2 lumens
Efficiency: N/A
Efficacy: 68.2 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type II - Short
BUG Rating: B1 - U0 - G0

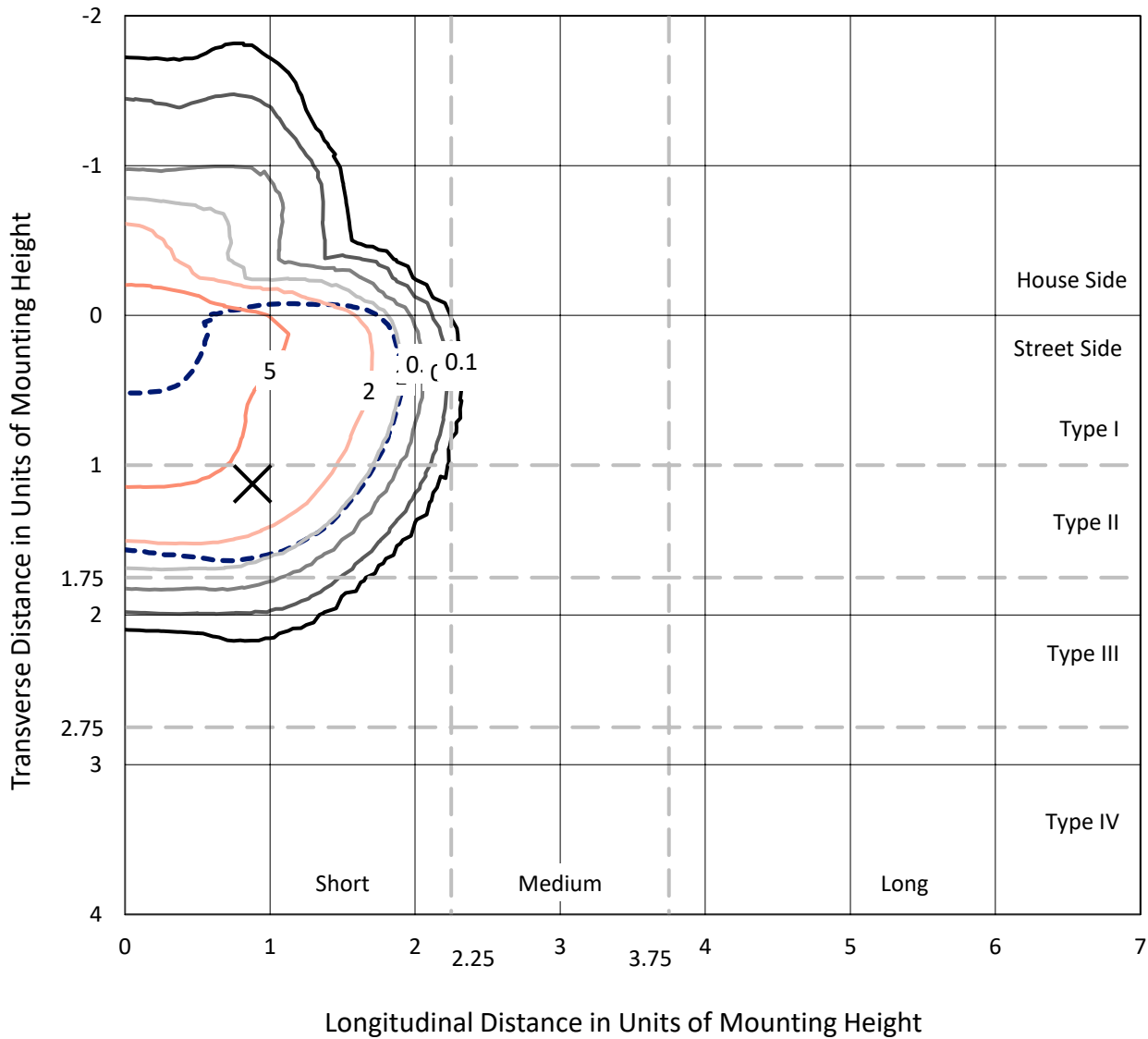
Input Watts (W): 44.3
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

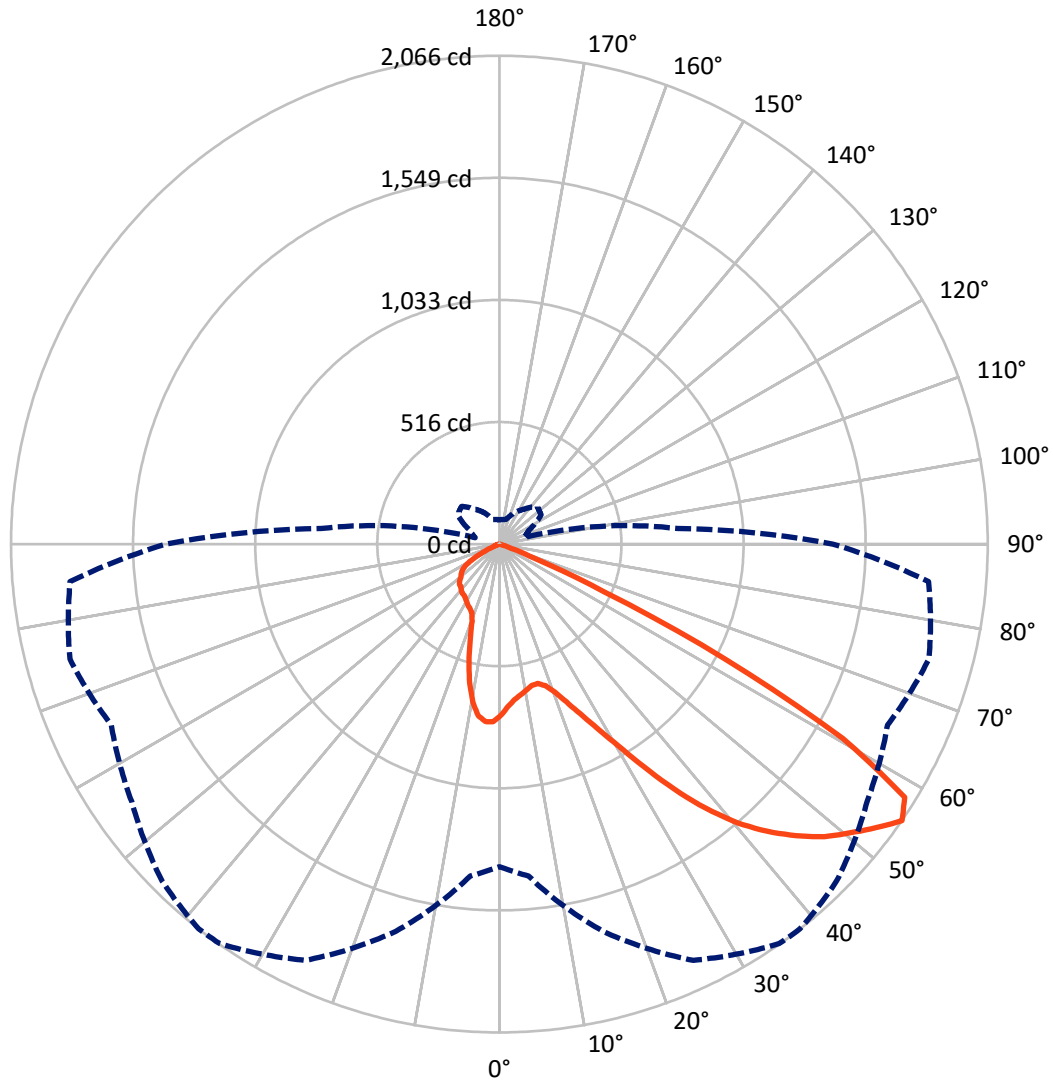
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 7.6 fc
 Type II - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 38-Deg Lateral - - - Horizontal Cone Through 55-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 588.6 | 0.0 | 588.6 |
| | % Fixture | 19.5 | 0.0 | 19.5 |
| Street Side | Lumens | 2432.6 | 0.0 | 2432.6 |
| | % Fixture | 80.5 | 0.0 | 80.5 |
| Total | Lumens | 3021.2 | 0.0 | 3021.2 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 67.0 | 2.2 |
| 10°-20° | 180.3 | 6.0 |
| 20°-30° | 309.5 | 10.2 |
| 30°-40° | 513.3 | 17.0 |
| 40°-50° | 754.6 | 25.0 |
| 50°-60° | 881.7 | 29.2 |
| 60°-70° | 298.9 | 9.9 |
| 70°-80° | 15.3 | 0.5 |
| 80°-90° | 0.6 | 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° | 3021.2 | 100.0 |
| 0°-180° | 3021.2 | 100.0 |

Coefficient of Utilization



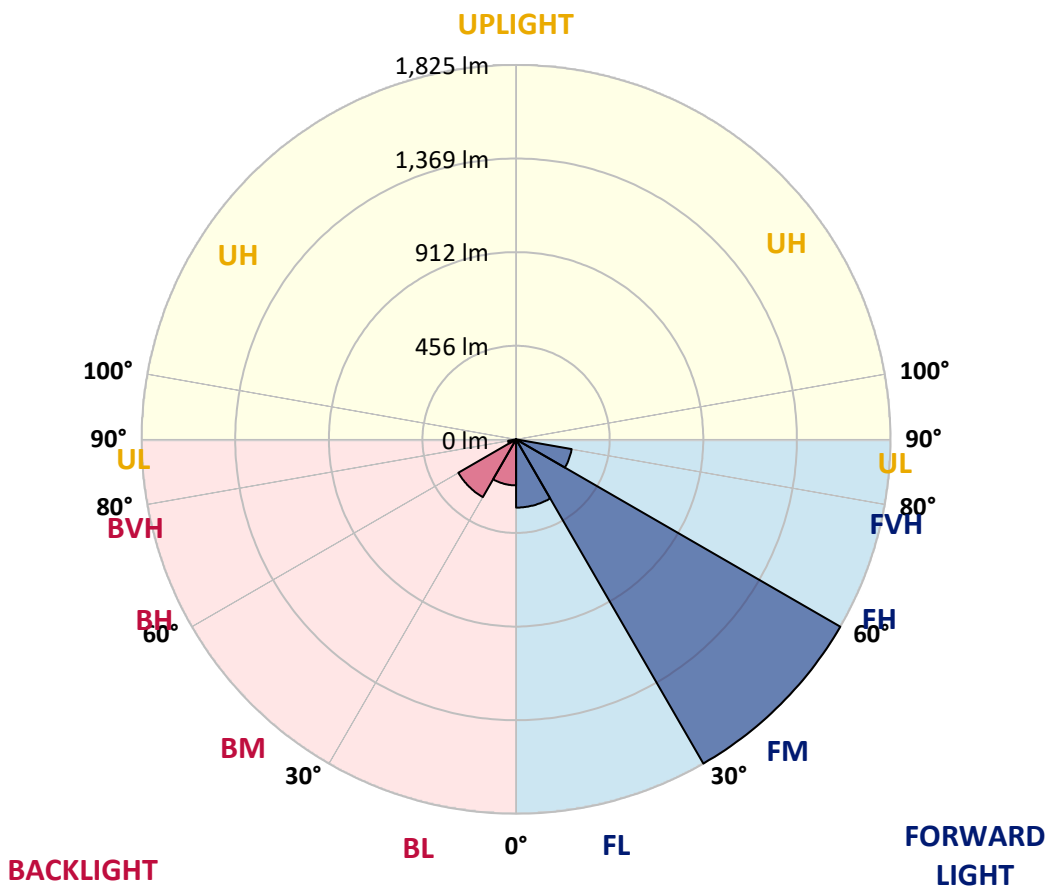
REPORT NUMBER: P630580

CATALOG NUMBER: GWS-SA1D-830-U-T3R-W-GRSBK

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|--------|
| | | | B | U | G |
| FL (0°-30°) | 332.6 | 11.0 | | | |
| FM (30°-60°) | 1824.7 | 60.4 | | | |
| FH (60°-80°) | 275.0 | 9.1 | | | G0/660 |
| FVH (80°-90°) | 0.3 | 0.0 | | | G0/10 |
| BL (0°-30°) | 224.3 | 7.4 | B1/500 | | |
| BM (30°-60°) | 324.9 | 10.8 | B1/1000 | | |
| BH (60°-80°) | 39.2 | 1.3 | B0/110 | | G0/110 |
| BVH (80°-90°) | 0.3 | 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





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 38° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 724.5 | 724.5 | 724.5 | 724.5 | 724.5 | 724.5 | 724.5 | 724.5 | 724.5 | 724.5 | 724.5 |
| 2.5° | 674.8 | 673.4 | 676.2 | 681.7 | 686.9 | 688.6 | 693.8 | 701.0 | 705.5 | 716.2 | 724.9 |
| 5° | 644.4 | 643.7 | 646.5 | 651.3 | 658.2 | 660.6 | 668.6 | 680.6 | 692.7 | 711.4 | 729.7 |
| 7.5° | 616.8 | 616.4 | 620.6 | 631.3 | 641.3 | 644.4 | 654.1 | 668.9 | 685.1 | 713.8 | 740.7 |
| 10° | 580.5 | 580.8 | 588.8 | 604.0 | 622.3 | 628.5 | 644.0 | 665.5 | 686.5 | 723.5 | 760.8 |
| 12.5° | 568.8 | 569.5 | 573.6 | 585.3 | 605.4 | 613.3 | 635.1 | 667.5 | 694.5 | 737.3 | 786.7 |
| 15° | 597.4 | 597.4 | 594.0 | 595.4 | 604.3 | 611.6 | 634.4 | 674.4 | 707.9 | 753.9 | 812.2 |
| 17.5° | 653.0 | 651.0 | 642.3 | 630.6 | 627.5 | 629.9 | 648.2 | 689.3 | 726.9 | 773.2 | 841.2 |
| 20° | 728.3 | 729.0 | 712.1 | 687.6 | 667.9 | 667.5 | 678.6 | 715.5 | 754.2 | 796.3 | 872.7 |
| 22.5° | 819.5 | 816.7 | 794.3 | 760.8 | 726.6 | 723.8 | 728.3 | 755.6 | 793.6 | 832.9 | 911.3 |
| 25° | 925.1 | 923.8 | 892.0 | 847.1 | 801.9 | 795.3 | 795.3 | 822.2 | 849.9 | 885.1 | 957.6 |
| 27.5° | 1035.7 | 1035.7 | 1004.9 | 953.1 | 893.0 | 881.3 | 879.6 | 911.3 | 929.6 | 936.5 | 996.6 |
| 30° | 1149.3 | 1147.9 | 1117.5 | 1064.3 | 1000.1 | 988.0 | 983.2 | 1006.6 | 1019.8 | 999.0 | 1045.3 |
| 32.5° | 1264.6 | 1267.0 | 1236.3 | 1186.9 | 1129.6 | 1121.6 | 1106.8 | 1106.8 | 1117.5 | 1088.5 | 1122.0 |
| 35° | 1388.6 | 1387.9 | 1363.7 | 1330.2 | 1281.2 | 1272.2 | 1247.7 | 1209.4 | 1225.6 | 1212.8 | 1228.0 |
| 37.5° | 1498.1 | 1503.2 | 1491.5 | 1466.6 | 1426.9 | 1417.9 | 1377.5 | 1308.1 | 1320.6 | 1340.6 | 1354.0 |
| 40° | 1609.2 | 1613.4 | 1625.1 | 1617.2 | 1567.1 | 1550.5 | 1478.7 | 1364.8 | 1378.6 | 1447.3 | 1486.0 |
| 42.5° | 1718.4 | 1720.4 | 1744.3 | 1757.4 | 1690.4 | 1661.4 | 1555.4 | 1399.3 | 1413.8 | 1530.9 | 1598.5 |
| 45° | 1787.8 | 1792.3 | 1831.6 | 1871.7 | 1799.2 | 1759.5 | 1622.0 | 1443.5 | 1449.7 | 1588.9 | 1681.8 |
| 47.5° | 1785.0 | 1795.4 | 1869.3 | 1942.1 | 1892.8 | 1849.9 | 1702.1 | 1514.3 | 1503.9 | 1643.4 | 1736.7 |
| 50° | 1729.4 | 1741.9 | 1847.9 | 1963.6 | 1960.1 | 1920.4 | 1791.2 | 1616.8 | 1584.4 | 1691.8 | 1743.6 |
| 52.5° | 1614.1 | 1650.0 | 1810.2 | 1966.3 | 2014.3 | 1994.3 | 1901.4 | 1755.0 | 1693.2 | 1761.2 | 1754.6 |
| 55° | 1364.8 | 1409.0 | 1695.9 | 1942.8 | 2063.4 | 2065.8 | 2017.1 | 1899.0 | 1811.3 | 1880.7 | 1822.7 |
| 57.5° | 1036.0 | 1071.2 | 1305.4 | 1729.4 | 1982.2 | 2021.9 | 2062.0 | 1975.0 | 1884.1 | 1962.2 | 1838.5 |
| 60° | 624.4 | 665.1 | 817.4 | 1269.1 | 1601.0 | 1668.6 | 1825.8 | 1808.8 | 1699.4 | 1732.9 | 1507.7 |
| 62.5° | 253.1 | 274.5 | 377.4 | 699.3 | 1007.7 | 1070.9 | 1221.4 | 1247.0 | 1220.1 | 1185.9 | 914.4 |
| 65° | 92.5 | 101.2 | 151.3 | 289.0 | 463.4 | 486.6 | 566.0 | 611.2 | 648.5 | 552.2 | 340.2 |
| 67.5° | 57.3 | 62.9 | 98.4 | 148.5 | 168.5 | 156.8 | 159.5 | 190.3 | 181.6 | 112.2 | 60.8 |
| 70° | 42.5 | 47.0 | 77.0 | 102.9 | 68.0 | 52.5 | 35.6 | 38.0 | 34.2 | 30.0 | 29.7 |
| 72.5° | 29.4 | 33.5 | 57.7 | 60.8 | 26.2 | 18.6 | 13.1 | 18.3 | 20.7 | 20.4 | 21.1 |
| 75° | 19.3 | 22.4 | 36.3 | 23.8 | 6.6 | 5.2 | 4.5 | 9.7 | 12.4 | 12.4 | 12.8 |
| 77.5° | 11.4 | 13.1 | 12.8 | 4.8 | 1.4 | 1.4 | 1.0 | 1.7 | 2.8 | 3.1 | 3.8 |
| 80° | 1.4 | 1.0 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 1.0 | 1.0 | 1.0 |
| 82.5° | 0.3 | 0.3 | 0.3 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 1.0 | 1.0 |
| 85° | 0.0 | 0.0 | 0.3 | 0.3 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 1.0 | 1.0 |
| 87.5° | 0.0 | 0.0 | 0.3 | 0.3 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 1.0 | 1.0 |
| 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: P630580

CATALOG NUMBER: GWS-SA1D-830-U-T3R-W-GRSBK

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 724.5 | 724.5 | 724.5 | 724.5 | 724.5 | 724.5 | 724.5 | 724.5 | 724.5 | 724.5 | 724.5 |
| 2.5° | 731.4 | 729.0 | 739.0 | 746.3 | 752.1 | 754.9 | 751.1 | 750.8 | 750.8 | 743.2 | 741.1 |
| 5° | 740.0 | 741.1 | 755.2 | 761.5 | 762.5 | 759.0 | 750.4 | 744.5 | 741.1 | 733.1 | 728.7 |
| 7.5° | 756.6 | 760.1 | 773.5 | 772.5 | 763.2 | 747.3 | 724.5 | 706.9 | 695.5 | 683.1 | 675.5 |
| 10° | 780.5 | 787.0 | 795.3 | 780.8 | 751.1 | 710.7 | 663.7 | 630.2 | 610.2 | 596.0 | 587.4 |
| 12.5° | 809.5 | 816.0 | 813.3 | 779.1 | 717.3 | 645.1 | 584.6 | 536.3 | 513.2 | 500.4 | 491.4 |
| 15° | 838.8 | 843.0 | 825.0 | 758.3 | 657.5 | 560.5 | 493.1 | 445.1 | 416.8 | 406.5 | 398.9 |
| 17.5° | 868.9 | 867.8 | 827.1 | 717.6 | 577.7 | 465.2 | 398.9 | 366.1 | 358.1 | 356.4 | 355.7 |
| 20° | 900.3 | 891.0 | 818.8 | 659.2 | 481.7 | 370.9 | 333.2 | 335.3 | 349.8 | 356.7 | 358.1 |
| 22.5° | 936.2 | 912.7 | 798.1 | 580.2 | 383.7 | 309.1 | 312.9 | 333.2 | 352.9 | 362.3 | 363.6 |
| 25° | 974.5 | 932.7 | 763.5 | 478.6 | 302.5 | 284.2 | 306.7 | 330.1 | 351.2 | 362.6 | 364.0 |
| 27.5° | 999.7 | 937.6 | 706.9 | 376.4 | 259.7 | 274.5 | 298.4 | 320.8 | 342.6 | 355.0 | 356.7 |
| 30° | 1027.0 | 935.5 | 629.9 | 290.1 | 245.2 | 266.3 | 287.0 | 307.3 | 327.4 | 341.2 | 342.6 |
| 32.5° | 1067.1 | 934.1 | 536.0 | 235.5 | 239.3 | 259.7 | 274.9 | 291.8 | 305.6 | 313.6 | 312.5 |
| 35° | 1119.6 | 932.4 | 426.5 | 212.4 | 235.9 | 254.5 | 266.6 | 274.5 | 259.3 | 254.5 | 255.5 |
| 37.5° | 1186.9 | 936.5 | 334.3 | 202.7 | 234.8 | 253.1 | 263.5 | 240.7 | 217.2 | 208.2 | 206.9 |
| 40° | 1261.5 | 947.2 | 254.9 | 198.9 | 238.3 | 256.6 | 251.7 | 214.1 | 185.1 | 167.5 | 163.7 |
| 42.5° | 1336.4 | 959.0 | 201.7 | 197.5 | 244.1 | 266.3 | 232.4 | 194.8 | 151.3 | 141.2 | 139.9 |
| 45° | 1392.0 | 956.9 | 174.4 | 195.1 | 249.3 | 271.8 | 227.2 | 167.1 | 135.0 | 130.5 | 130.9 |
| 47.5° | 1420.0 | 934.1 | 159.5 | 189.6 | 251.4 | 266.3 | 214.5 | 155.7 | 124.0 | 128.8 | 133.0 |
| 50° | 1405.2 | 875.1 | 145.7 | 178.9 | 246.9 | 259.0 | 194.1 | 147.1 | 118.4 | 138.5 | 147.8 |
| 52.5° | 1387.2 | 802.6 | 130.5 | 162.3 | 236.2 | 249.0 | 186.1 | 144.7 | 115.0 | 133.6 | 140.6 |
| 55° | 1411.0 | 756.6 | 105.7 | 136.8 | 215.1 | 225.5 | 179.9 | 144.3 | 107.1 | 103.9 | 102.9 |
| 57.5° | 1377.5 | 665.1 | 75.6 | 98.4 | 165.1 | 178.5 | 175.4 | 141.9 | 95.0 | 94.6 | 96.0 |
| 60° | 1064.7 | 405.8 | 51.8 | 62.5 | 101.2 | 114.0 | 159.2 | 135.7 | 81.8 | 75.3 | 75.6 |
| 62.5° | 605.0 | 172.7 | 35.6 | 38.7 | 51.8 | 61.5 | 121.6 | 123.3 | 75.6 | 71.8 | 75.6 |
| 65° | 210.7 | 61.8 | 27.6 | 25.9 | 28.7 | 32.8 | 69.8 | 95.3 | 68.7 | 62.2 | 62.9 |
| 67.5° | 43.5 | 30.7 | 24.5 | 21.4 | 21.4 | 21.4 | 35.6 | 59.4 | 56.6 | 49.4 | 50.1 |
| 70° | 27.6 | 26.2 | 21.4 | 18.3 | 17.6 | 16.2 | 20.4 | 32.8 | 39.0 | 35.9 | 36.3 |
| 72.5° | 20.4 | 20.0 | 16.9 | 14.8 | 13.1 | 11.7 | 12.8 | 16.2 | 20.0 | 20.7 | 21.1 |
| 75° | 12.4 | 12.8 | 11.1 | 9.3 | 8.3 | 7.3 | 7.6 | 7.6 | 7.6 | 6.9 | 7.6 |
| 77.5° | 3.8 | 4.1 | 3.5 | 2.8 | 2.4 | 2.4 | 2.4 | 2.1 | 1.7 | 1.0 | 1.0 |
| 80° | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.7 | 0.7 | 0.3 | 0.3 | 0.0 | 0.0 |
| 82.5° | 1.0 | 1.0 | 1.0 | 1.0 | 0.7 | 0.7 | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 |
| 85° | 1.0 | 1.0 | 1.0 | 1.0 | 0.7 | 0.7 | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 |
| 87.5° | 1.0 | 1.0 | 1.0 | 1.0 | 0.7 | 0.7 | 0.3 | 0.3 | 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

REPORT NUMBER: SP1-2408-195-9

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)