

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: P634048

Luminaire Tested: GWS-SA2F-830-U-T3R-W

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P634048
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-15)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA2F-830-U-T3R-W
Description: GALLEON WALL SLIM LUMINAIRE. (2) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III ROADWAY OPTICS
Light Source: (32) 3000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13100.9 lumens
Efficiency: N/A
Efficacy: 105.2 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 0.5' x H: 0')
IES Classification: Type III - Medium
BUG Rating: B2 - U0 - G2

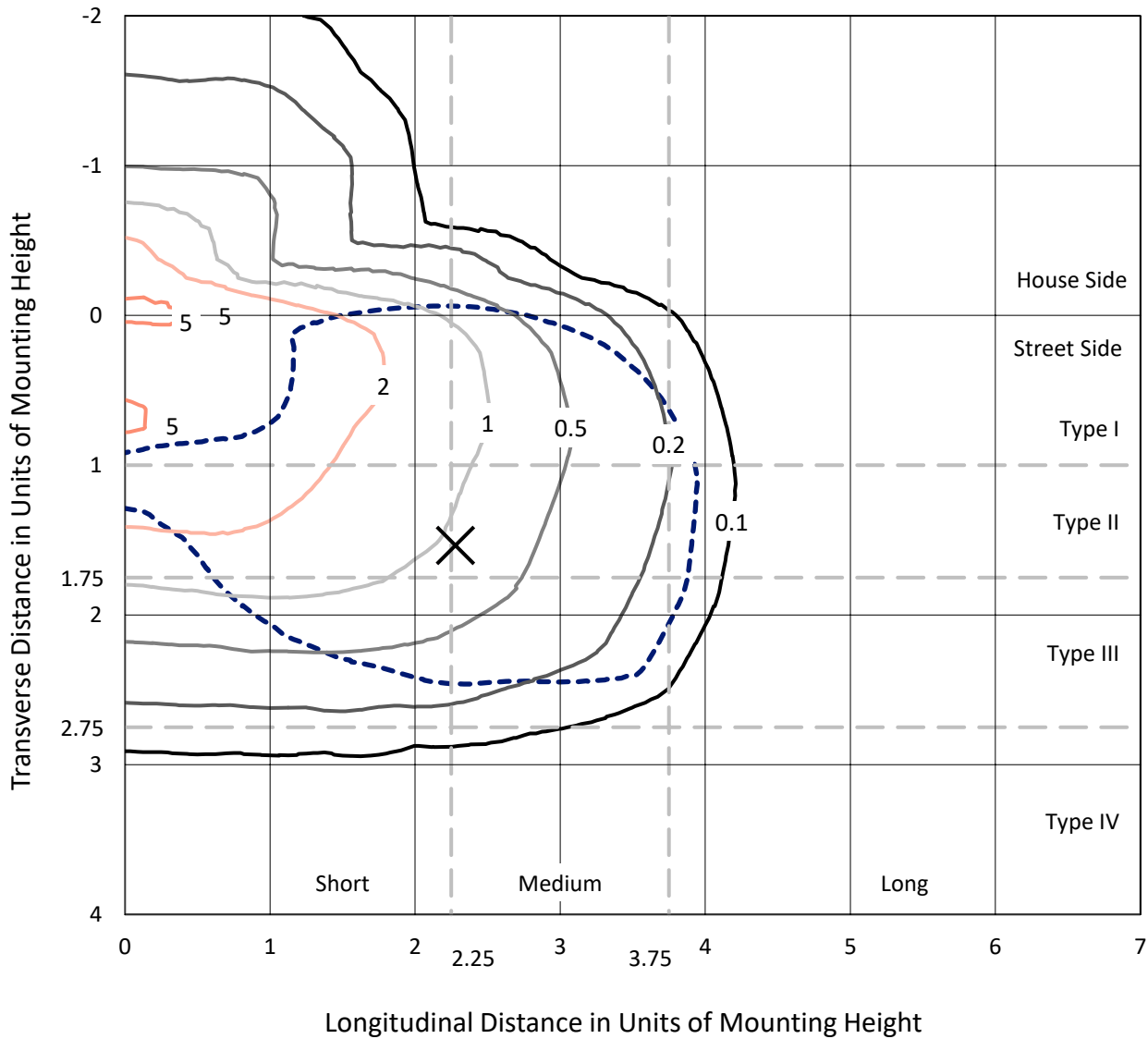
Input Watts (W): 124.5
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P634048
 CATALOG NUMBER: GWS-SA2F-830-U-T3R-W

Iso-Footcandle Lines of Horizontal Illumination

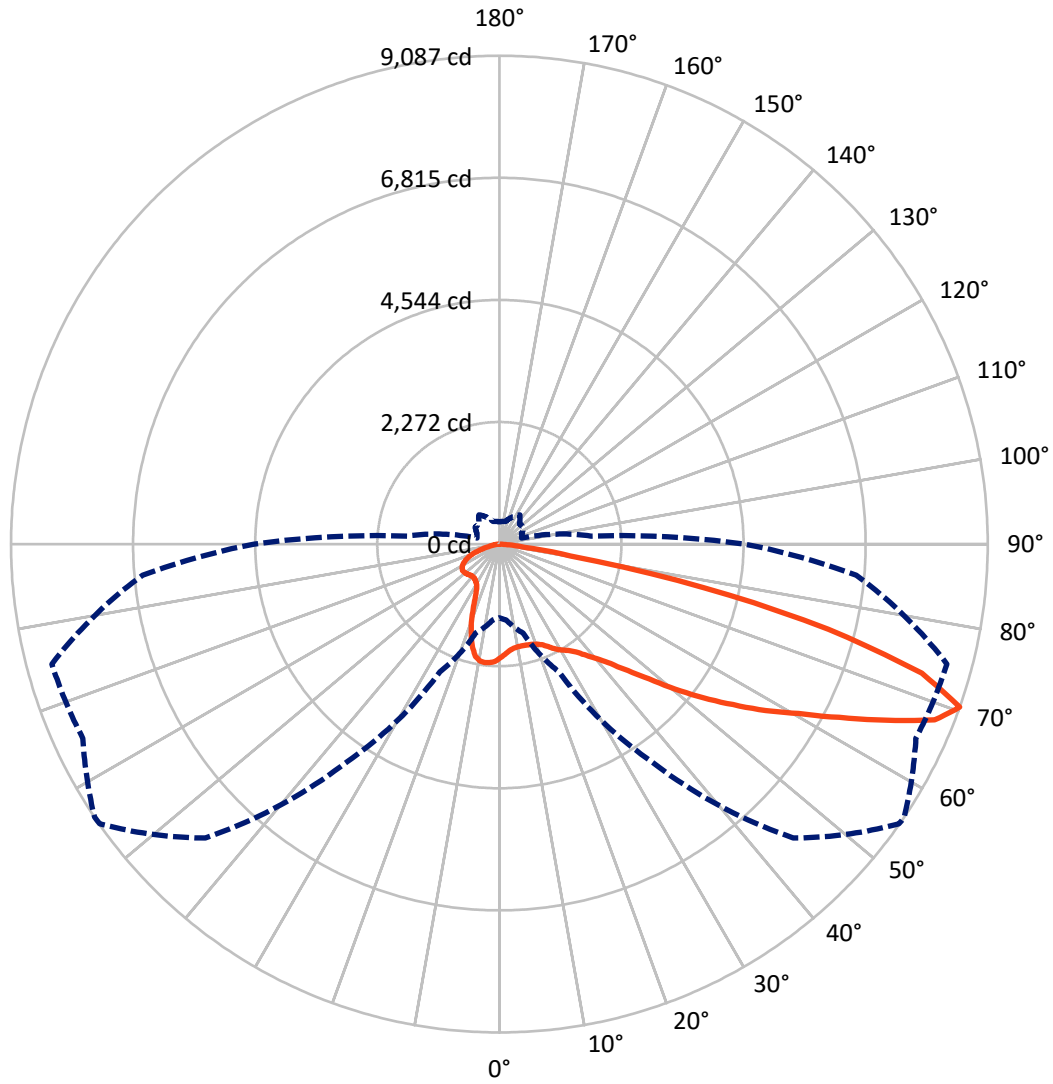
✕ Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 5.5 fc
 Type III - Medium - N/A

REPORT NUMBER: P634048
CATALOG NUMBER: GWS-SA2F-830-U-T3R-W

Luminous Intensity Polar Plot



— Vertical Plane Through 56-Deg Lateral - - - Horizontal Cone Through 70-Deg Vertical

REPORT NUMBER: P634048

CATALOG NUMBER: GWS-SA2F-830-U-T3R-W

FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 2518.7 | 0.0 | 2518.7 |
| | % Fixture | 19.2 | 0.0 | 19.2 |
| Street Side | Lumens | 10582.2 | 0.0 | 10582.2 |
| | % Fixture | 80.8 | 0.0 | 80.8 |
| Total | Lumens | 13100.9 | 0.0 | 13100.9 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 195.7 | 1.5 |
| 10°-20° | 530.2 | 4.0 |
| 20°-30° | 876.6 | 6.7 |
| 30°-40° | 1310.7 | 10.0 |
| 40°-50° | 1950.4 | 14.9 |
| 50°-60° | 2772.9 | 21.2 |
| 60°-70° | 3434.4 | 26.2 |
| 70°-80° | 1896.4 | 14.5 |
| 80°-90° | 133.6 | 1.0 |
| 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° | 13100.9 | 100.0 |
| 0°-180° | 13100.9 | 100.0 |

Coefficient of Utilization



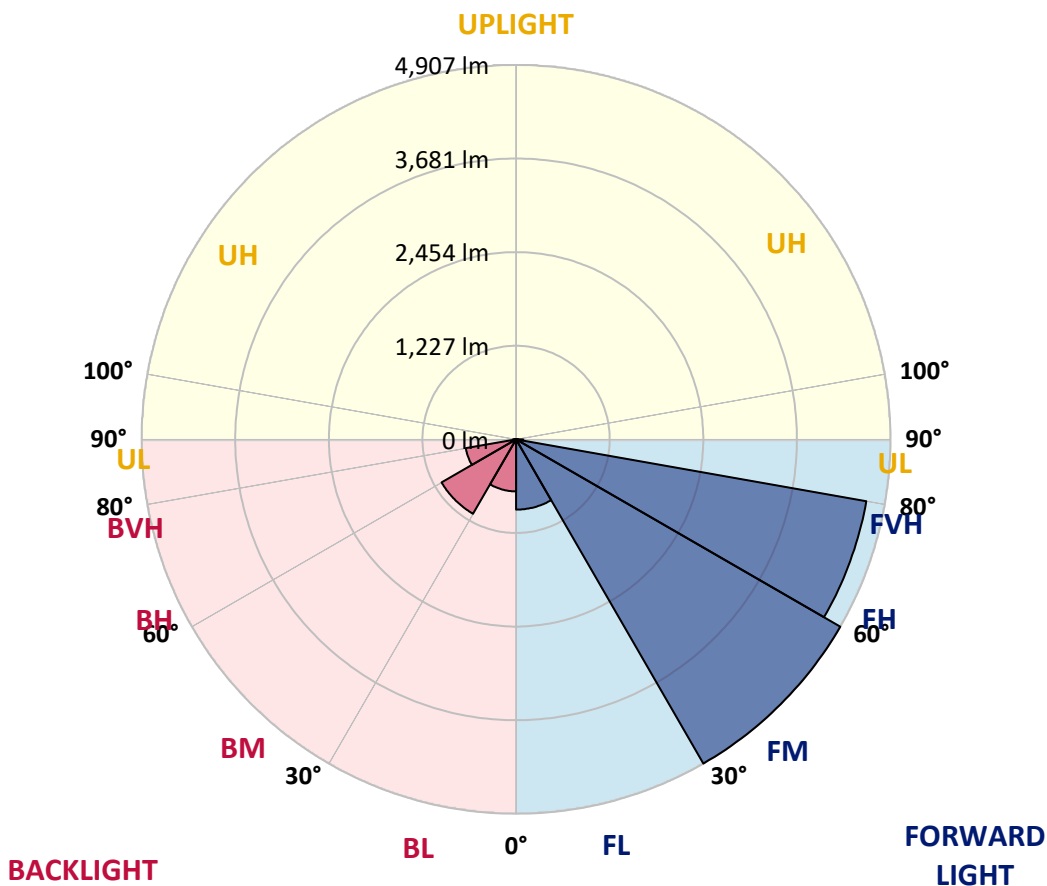
REPORT NUMBER: P634048

CATALOG NUMBER: GWS-SA2F-830-U-T3R-W

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 920.7 | 7.0 | | | |
| FM (30°-60°) | 4907.4 | 37.5 | | | |
| FH (60°-80°) | 4661.3 | 35.6 | | | G2/5000 |
| FVH (80°-90°) | 92.8 | 0.7 | | | G1/100 |
| BL (0°-30°) | 681.8 | 5.2 | B2/1000 | | |
| BM (30°-60°) | 1126.6 | 8.6 | B2/2500 | | |
| BH (60°-80°) | 669.4 | 5.1 | B2/1000 | | G2/1000 |
| BVH (80°-90°) | 40.7 | 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-G2
 Type III Medium





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 56° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2114.7 | 2114.7 | 2114.7 | 2114.7 | 2114.7 | 2114.7 | 2114.7 | 2114.7 | 2114.7 | 2114.7 | 2114.7 |
| 2.5° | 1978.9 | 1967.8 | 1980.7 | 1987.2 | 2003.8 | 2027.8 | 2049.1 | 2050.0 | 2061.1 | 2087.9 | 2113.8 |
| 5° | 1889.3 | 1883.7 | 1887.4 | 1906.8 | 1924.4 | 1954.9 | 1987.2 | 1990.0 | 2021.4 | 2074.0 | 2125.8 |
| 7.5° | 1820.0 | 1812.6 | 1826.4 | 1851.4 | 1873.6 | 1907.7 | 1950.2 | 1953.9 | 1998.3 | 2077.7 | 2157.2 |
| 10° | 1720.2 | 1714.7 | 1740.5 | 1773.8 | 1821.8 | 1878.2 | 1934.5 | 1939.2 | 1997.4 | 2101.8 | 2212.6 |
| 12.5° | 1676.8 | 1676.8 | 1687.9 | 1719.3 | 1771.9 | 1846.8 | 1931.8 | 1939.2 | 2012.1 | 2138.7 | 2283.8 |
| 15° | 1744.2 | 1748.8 | 1739.6 | 1737.8 | 1759.0 | 1830.1 | 1935.5 | 1946.5 | 2039.9 | 2176.6 | 2354.0 |
| 17.5° | 1880.0 | 1884.6 | 1860.6 | 1822.8 | 1801.5 | 1845.8 | 1949.3 | 1961.3 | 2069.4 | 2218.2 | 2429.7 |
| 20° | 2070.3 | 2075.9 | 2023.2 | 1965.0 | 1892.0 | 1891.1 | 1976.1 | 1987.2 | 2107.3 | 2263.4 | 2510.1 |
| 22.5° | 2293.0 | 2296.7 | 2230.2 | 2137.8 | 2026.0 | 1975.2 | 2022.3 | 2033.4 | 2156.3 | 2326.2 | 2596.9 |
| 25° | 2550.7 | 2561.8 | 2481.5 | 2347.5 | 2196.0 | 2090.7 | 2099.0 | 2111.9 | 2244.0 | 2410.3 | 2699.5 |
| 27.5° | 2826.0 | 2839.9 | 2747.5 | 2599.7 | 2390.9 | 2218.2 | 2197.8 | 2208.9 | 2337.3 | 2462.1 | 2754.0 |
| 30° | 3107.8 | 3118.0 | 3025.6 | 2856.5 | 2600.6 | 2362.3 | 2281.0 | 2287.4 | 2378.0 | 2487.0 | 2809.4 |
| 32.5° | 3421.0 | 3412.7 | 3324.0 | 3129.1 | 2842.7 | 2535.0 | 2358.6 | 2356.7 | 2423.3 | 2536.9 | 2888.9 |
| 35° | 3714.8 | 3726.8 | 3632.6 | 3417.3 | 3108.7 | 2748.4 | 2475.0 | 2467.6 | 2519.3 | 2618.2 | 3000.7 |
| 37.5° | 4070.5 | 4066.8 | 3954.1 | 3721.3 | 3375.7 | 2952.6 | 2638.5 | 2625.6 | 2644.1 | 2744.8 | 3156.8 |
| 40° | 4324.5 | 4350.4 | 4277.4 | 4060.3 | 3688.0 | 3203.9 | 2829.7 | 2801.1 | 2805.7 | 2900.9 | 3365.6 |
| 42.5° | 4532.4 | 4556.4 | 4563.8 | 4425.2 | 4045.5 | 3514.3 | 3068.1 | 3039.5 | 3042.2 | 3177.1 | 3622.4 |
| 45° | 4692.2 | 4724.6 | 4829.0 | 4788.3 | 4448.3 | 3872.8 | 3390.5 | 3361.0 | 3362.8 | 3512.5 | 3932.8 |
| 47.5° | 4757.8 | 4792.9 | 5004.5 | 5101.5 | 4876.1 | 4301.4 | 3791.5 | 3748.0 | 3754.5 | 3919.9 | 4287.6 |
| 50° | 4736.6 | 4783.7 | 5070.1 | 5342.6 | 5234.5 | 4737.5 | 4270.9 | 4240.5 | 4215.5 | 4455.7 | 4672.8 |
| 52.5° | 4553.6 | 4605.4 | 5063.6 | 5496.0 | 5527.4 | 5149.5 | 4766.1 | 4748.6 | 4743.0 | 5024.8 | 5103.3 |
| 55° | 4015.0 | 4101.9 | 4841.0 | 5536.6 | 5756.5 | 5537.5 | 5302.9 | 5273.3 | 5302.0 | 5634.5 | 5538.5 |
| 57.5° | 3716.6 | 3781.3 | 4404.9 | 5491.3 | 5944.0 | 5907.1 | 5838.7 | 5841.5 | 5873.8 | 6296.9 | 6066.0 |
| 60° | 3546.7 | 3622.4 | 4162.9 | 5367.6 | 6124.2 | 6356.1 | 6399.5 | 6399.5 | 6457.7 | 7011.1 | 6601.8 |
| 62.5° | 3321.2 | 3397.9 | 3936.5 | 5129.2 | 6290.5 | 6884.5 | 7104.4 | 7101.6 | 7124.7 | 7776.9 | 7125.6 |
| 65° | 2863.9 | 2935.1 | 3482.0 | 4753.2 | 6371.8 | 7466.5 | 7905.4 | 7897.0 | 7850.9 | 8458.7 | 7472.1 |
| 67.5° | 2079.6 | 2147.0 | 2667.1 | 4038.1 | 6078.9 | 7935.8 | 8730.4 | 8734.1 | 8457.8 | 8888.3 | 7490.6 |
| 70° | 1371.0 | 1417.2 | 1714.7 | 2622.8 | 4943.5 | 7733.5 | 9075.9 | 9087.0 | 8551.1 | 8620.4 | 6666.5 |
| 72.5° | 855.5 | 887.8 | 1070.7 | 1564.1 | 2921.2 | 6121.4 | 8189.0 | 8219.5 | 7692.9 | 7575.5 | 5477.5 |
| 75° | 568.2 | 590.3 | 712.3 | 911.8 | 1351.6 | 3312.9 | 6224.9 | 6322.8 | 6165.8 | 5938.5 | 3816.4 |
| 77.5° | 341.8 | 360.3 | 453.6 | 579.3 | 598.7 | 1294.3 | 3633.5 | 3886.6 | 3908.8 | 3100.4 | 1598.3 |
| 80° | 156.1 | 177.4 | 250.4 | 330.7 | 318.7 | 450.8 | 1281.4 | 1340.5 | 1581.6 | 984.8 | 504.4 |
| 82.5° | 92.4 | 101.6 | 166.3 | 164.4 | 135.8 | 219.0 | 461.0 | 473.0 | 401.9 | 360.3 | 215.3 |
| 85° | 37.0 | 43.4 | 70.2 | 61.9 | 49.9 | 71.1 | 173.7 | 182.0 | 174.6 | 157.1 | 79.5 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 1.8 | 15.7 | 16.6 | 24.0 | 43.4 | 24.0 |
| 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: P634048
 CATALOG NUMBER: GWS-SA2F-830-U-T3R-W

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2114.7 | 2114.7 | 2114.7 | 2114.7 | 2114.7 | 2114.7 | 2114.7 | 2114.7 | 2114.7 | 2114.7 | 2114.7 |
| 2.5° | 2130.4 | 2124.8 | 2152.6 | 2173.8 | 2183.1 | 2192.3 | 2184.0 | 2181.2 | 2181.2 | 2162.7 | 2153.5 |
| 5° | 2153.5 | 2156.3 | 2194.1 | 2211.7 | 2211.7 | 2204.3 | 2182.1 | 2166.4 | 2160.9 | 2136.9 | 2130.4 |
| 7.5° | 2196.9 | 2208.9 | 2244.0 | 2243.1 | 2217.2 | 2176.6 | 2121.2 | 2078.7 | 2039.9 | 2023.2 | 2013.1 |
| 10° | 2268.0 | 2283.8 | 2307.8 | 2269.0 | 2196.9 | 2089.7 | 1972.4 | 1880.0 | 1824.6 | 1780.3 | 1780.3 |
| 12.5° | 2349.3 | 2364.1 | 2359.5 | 2269.9 | 2121.2 | 1920.7 | 1751.6 | 1645.4 | 1567.8 | 1527.1 | 1527.1 |
| 15° | 2430.6 | 2442.7 | 2392.8 | 2227.4 | 1963.2 | 1696.2 | 1511.4 | 1383.9 | 1316.5 | 1278.6 | 1278.6 |
| 17.5° | 2512.9 | 2511.9 | 2406.6 | 2129.5 | 1757.2 | 1447.7 | 1266.6 | 1167.7 | 1144.6 | 1138.2 | 1137.3 |
| 20° | 2592.3 | 2571.1 | 2389.1 | 1965.9 | 1517.9 | 1197.3 | 1082.7 | 1089.2 | 1123.4 | 1138.2 | 1140.0 |
| 22.5° | 2681.9 | 2629.3 | 2337.3 | 1757.2 | 1246.3 | 1023.6 | 1031.0 | 1084.6 | 1134.5 | 1156.7 | 1159.4 |
| 25° | 2773.4 | 2679.2 | 2250.5 | 1512.3 | 1019.0 | 959.9 | 1017.2 | 1077.2 | 1133.6 | 1162.2 | 1165.0 |
| 27.5° | 2810.3 | 2679.2 | 2102.7 | 1228.7 | 898.0 | 933.1 | 995.9 | 1054.1 | 1113.2 | 1146.5 | 1153.0 |
| 30° | 2840.8 | 2656.1 | 1895.7 | 972.8 | 848.1 | 907.2 | 961.7 | 1015.3 | 1073.5 | 1114.2 | 1121.6 |
| 32.5° | 2883.3 | 2635.7 | 1645.4 | 817.6 | 825.0 | 882.3 | 920.2 | 965.4 | 1018.1 | 1044.9 | 1042.1 |
| 35° | 2933.2 | 2604.3 | 1343.3 | 743.7 | 805.6 | 861.0 | 887.8 | 914.6 | 890.6 | 889.7 | 892.4 |
| 37.5° | 3004.4 | 2576.6 | 1080.0 | 710.4 | 792.7 | 846.2 | 868.4 | 811.1 | 777.9 | 764.0 | 758.5 |
| 40° | 3106.9 | 2565.5 | 851.8 | 691.0 | 790.8 | 845.3 | 829.6 | 740.9 | 695.7 | 647.6 | 646.7 |
| 42.5° | 3236.2 | 2557.2 | 704.0 | 681.8 | 797.3 | 866.6 | 776.0 | 694.7 | 601.4 | 580.2 | 578.3 |
| 45° | 3402.5 | 2544.3 | 630.1 | 680.0 | 813.0 | 883.2 | 770.5 | 631.0 | 567.2 | 558.0 | 558.0 |
| 47.5° | 3603.0 | 2524.0 | 596.8 | 680.0 | 830.5 | 875.8 | 753.9 | 617.1 | 551.5 | 561.7 | 568.2 |
| 50° | 3833.0 | 2498.1 | 579.3 | 678.1 | 848.1 | 875.8 | 718.8 | 614.4 | 547.8 | 600.5 | 621.7 |
| 52.5° | 4078.8 | 2468.5 | 567.2 | 670.7 | 860.1 | 876.7 | 720.6 | 623.6 | 551.5 | 609.7 | 627.3 |
| 55° | 4350.4 | 2463.9 | 550.6 | 655.0 | 863.8 | 852.7 | 725.2 | 643.9 | 557.1 | 552.5 | 553.4 |
| 57.5° | 4693.1 | 2519.3 | 538.6 | 631.9 | 849.0 | 803.7 | 734.5 | 658.7 | 550.6 | 551.5 | 558.0 |
| 60° | 5051.6 | 2623.7 | 548.8 | 609.7 | 818.5 | 757.6 | 740.9 | 651.3 | 519.2 | 504.4 | 506.3 |
| 62.5° | 5356.5 | 2703.2 | 557.1 | 599.6 | 774.2 | 716.9 | 734.5 | 634.7 | 501.6 | 498.0 | 506.3 |
| 65° | 5484.0 | 2637.6 | 536.8 | 578.3 | 709.5 | 667.0 | 720.6 | 613.4 | 486.9 | 473.0 | 473.9 |
| 67.5° | 5342.6 | 2329.9 | 497.0 | 531.2 | 636.5 | 603.3 | 698.4 | 585.7 | 466.5 | 449.9 | 446.2 |
| 70° | 4563.8 | 1711.9 | 428.7 | 456.4 | 547.8 | 528.4 | 664.2 | 549.7 | 434.2 | 422.2 | 413.9 |
| 72.5° | 3677.8 | 1212.1 | 355.7 | 363.1 | 429.6 | 445.3 | 605.1 | 504.4 | 397.3 | 363.1 | 351.1 |
| 75° | 2560.0 | 761.3 | 296.6 | 289.2 | 310.4 | 340.0 | 472.1 | 418.5 | 342.7 | 306.7 | 295.6 |
| 77.5° | 1101.2 | 390.8 | 231.9 | 228.2 | 206.9 | 235.6 | 362.1 | 349.2 | 287.3 | 245.7 | 239.3 |
| 80° | 368.6 | 226.3 | 167.2 | 160.7 | 137.7 | 165.4 | 255.0 | 279.0 | 225.4 | 182.0 | 170.9 |
| 82.5° | 184.8 | 131.2 | 106.2 | 96.1 | 92.4 | 104.4 | 150.6 | 173.7 | 156.1 | 125.6 | 106.2 |
| 85° | 90.5 | 74.8 | 58.2 | 57.3 | 48.0 | 45.3 | 62.8 | 73.9 | 70.2 | 51.7 | 49.0 |
| 87.5° | 33.3 | 29.6 | 18.5 | 14.8 | 9.2 | 6.5 | 3.7 | 3.7 | 2.8 | 2.8 | 2.8 |
| 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

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)