

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: P635001

Luminaire Tested: GWS-SA3C-830-U-RW-W-GRSBK

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P635001
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-50)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA3C-830-U-RW-W-GRSBK
Description: GALLEON WALL SLIM LUMINAIRE. (3) LIGHTSQUARES WITH 16 LEDS EACH AND RECTANGULAR WIDE OPTICS W/ FACTORY INSTALLED GLARE SHIELD, BK
Light Source: (48) 3000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7182.1 lumens
Efficiency: N/A
Efficacy: 77.2 lumens/watt
Luminous Opening: Rectangular (W 1.5' x L: 0.5' x H: 0')
IES Classification: Type V - Short
BUG Rating: B3 - U0 - G0

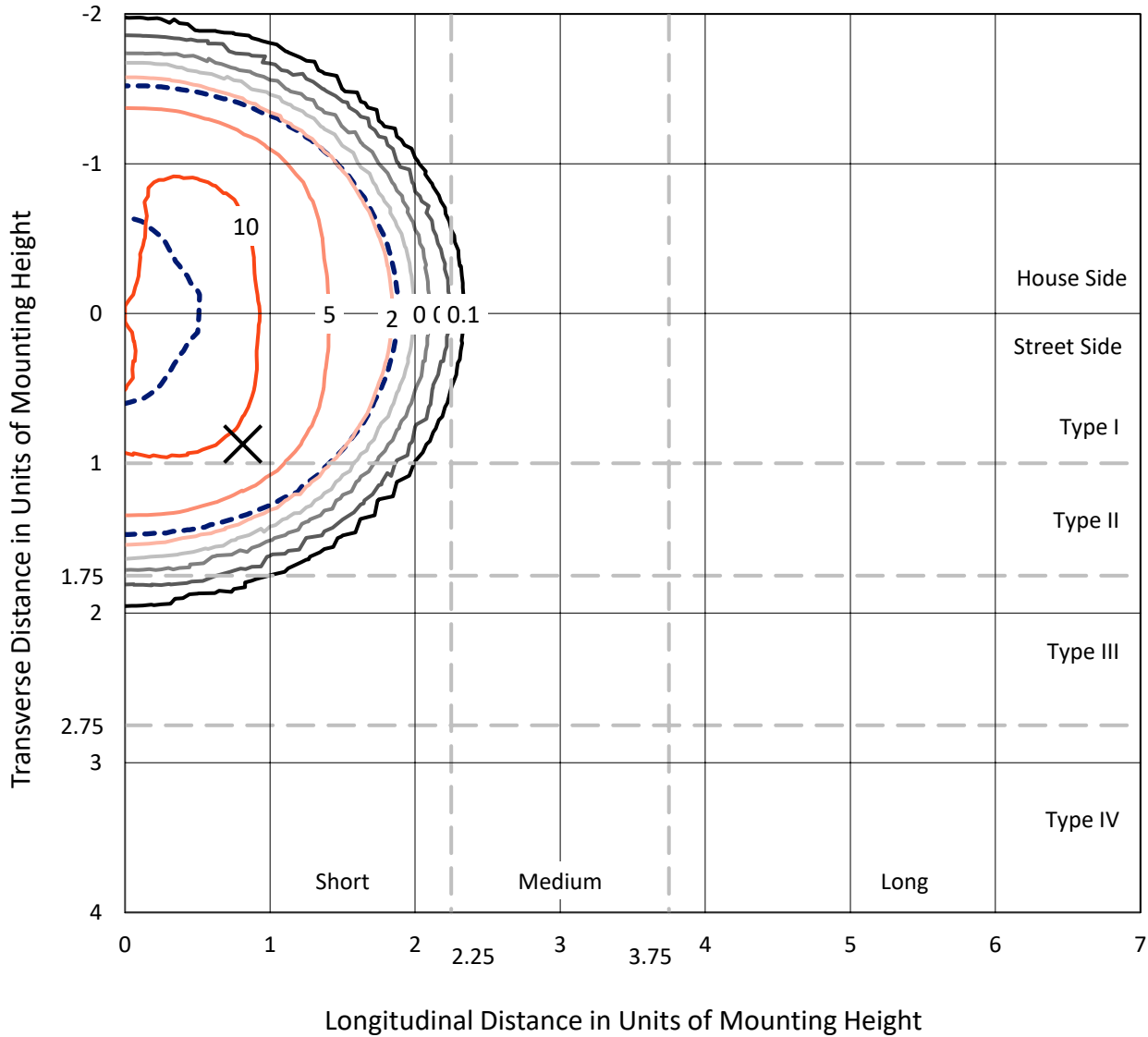
Input Watts (W): 93
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P635001
 CATALOG NUMBER: GWS-SA3C-830-U-RW-W-GRSBK

Iso-Footcandle Lines of Horizontal Illumination

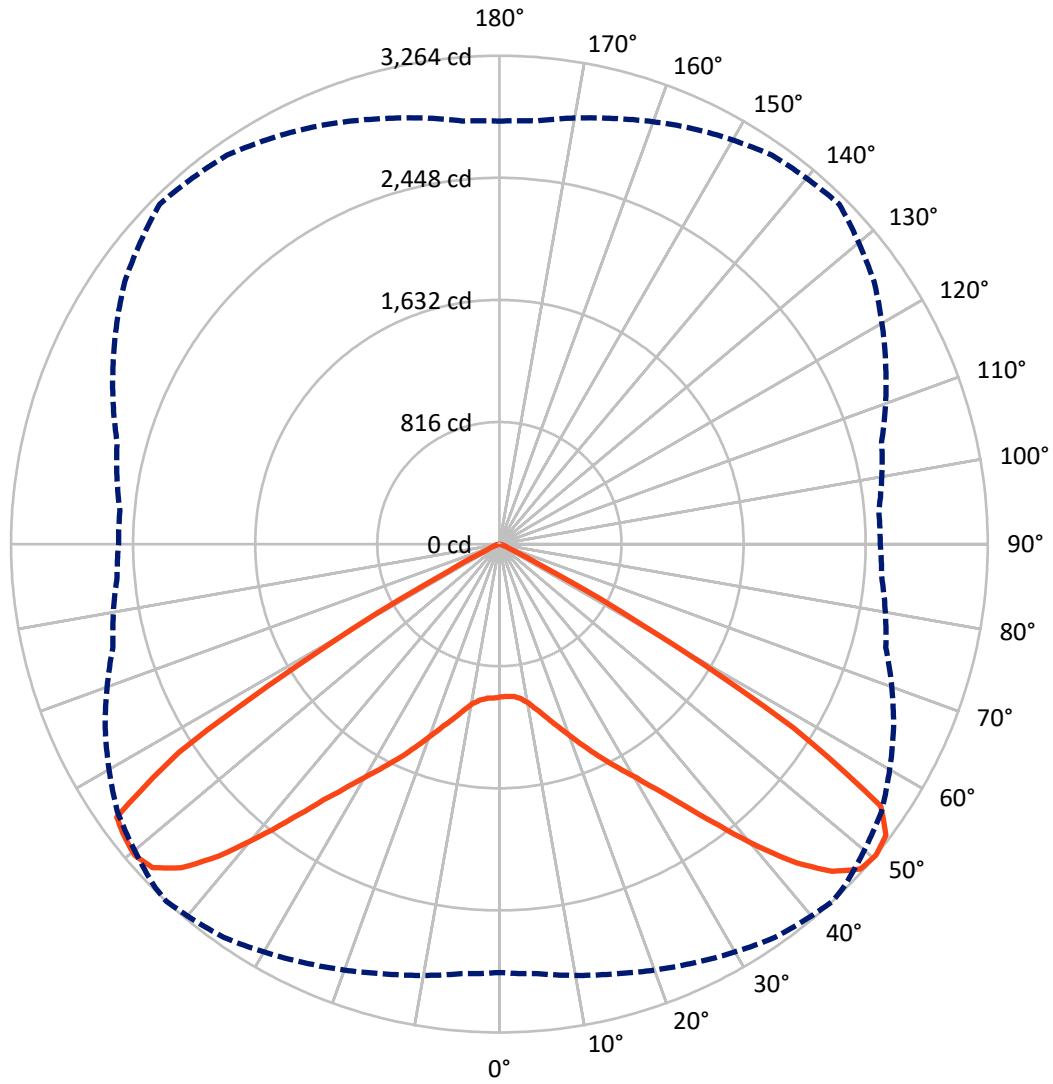
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 12.2 fc
 Type V - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 43-Deg Lateral - - - Horizontal Cone Through 50-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 3591.0 | 0.0 | 3591.0 |
| | % Fixture | 50.0 | 0.0 | 50.0 |
| Street Side | Lumens | 3591.1 | 0.0 | 3591.1 |
| | % Fixture | 50.0 | 0.0 | 50.0 |
| Total | Lumens | 7182.1 | 0.0 | 7182.1 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 100.6 | 1.4 |
| 10°-20° | 346.2 | 4.8 |
| 20°-30° | 700.4 | 9.8 |
| 30°-40° | 1299.5 | 18.1 |
| 40°-50° | 2157.1 | 30.0 |
| 50°-60° | 2201.4 | 30.7 |
| 60°-70° | 361.0 | 5.0 |
| 70°-80° | 15.8 | 0.2 |
| 80°-90° | 0.2 | 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° | 7182.1 | 100.0 |
| 0°-180° | 7182.1 | 100.0 |

Coefficient of Utilization



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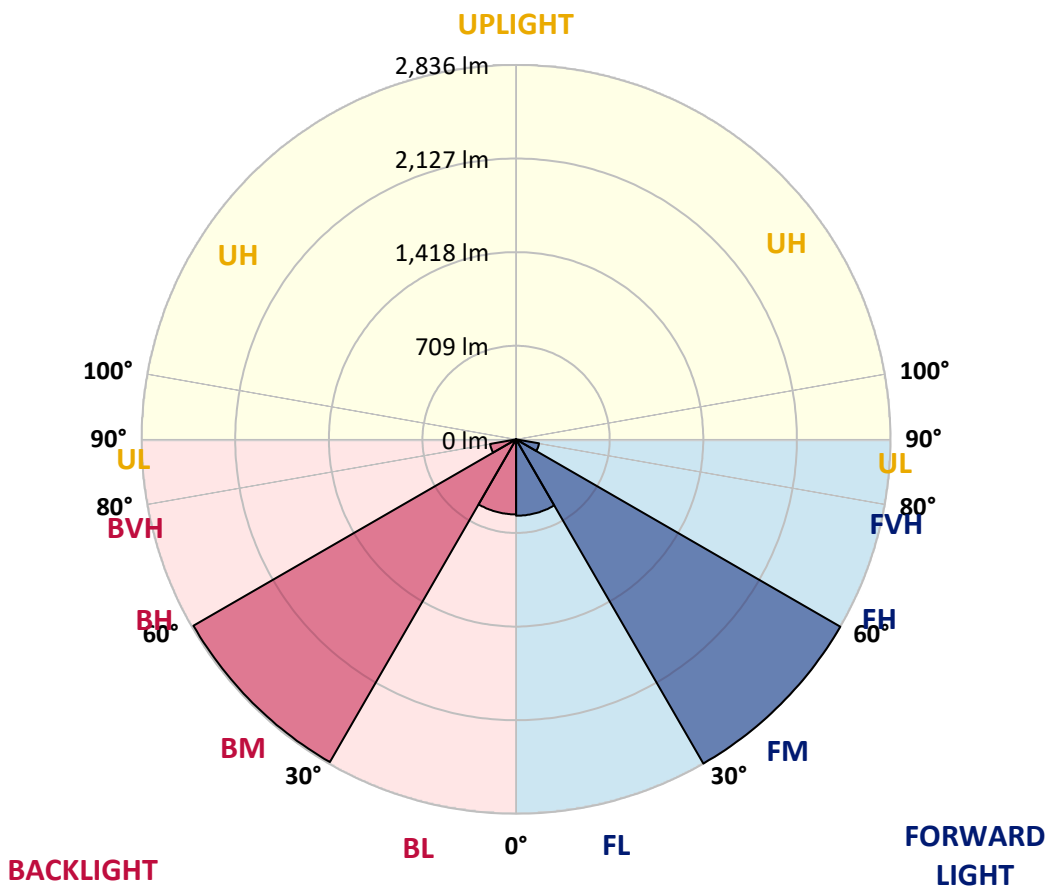
CATALOG NUMBER: GWS-SA3C-830-U-RW-W-GRSBK

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|--------|
| | | | B | U | G |
| FL (0°-30°) | 578.6 | 8.1 | | | |
| FM (30°-60°) | 2835.8 | 39.5 | | | |
| FH (60°-80°) | 176.6 | 2.5 | | | G0/660 |
| FVH (80°-90°) | 0.1 | 0.0 | | | G0/10 |
| BL (0°-30°) | 568.6 | 7.9 | B2/1000 | | |
| BM (30°-60°) | 2822.1 | 39.3 | B3/5000 | | |
| BH (60°-80°) | 200.2 | 2.8 | B1/500 | | G0/660 |
| BVH (80°-90°) | 0.1 | 0.0 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B3-U0-G0

Type V Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 43° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1021.5 | 1021.5 | 1021.5 | 1021.5 | 1021.5 | 1021.5 | 1021.5 | 1021.5 | 1021.5 | 1021.5 | 1021.5 |
| 2.5° | 1002.5 | 1004.9 | 1008.0 | 1011.2 | 1015.2 | 1019.2 | 1021.5 | 1028.7 | 1027.1 | 1033.5 | 1033.5 |
| 5° | 991.4 | 993.7 | 997.7 | 1004.9 | 1013.6 | 1022.3 | 1028.7 | 1043.0 | 1050.9 | 1063.6 | 1068.4 |
| 7.5° | 996.9 | 1000.1 | 1004.9 | 1016.0 | 1029.5 | 1043.0 | 1050.1 | 1073.2 | 1089.1 | 1112.9 | 1126.4 |
| 10° | 1015.2 | 1018.4 | 1026.3 | 1045.4 | 1062.8 | 1081.9 | 1090.6 | 1120.0 | 1145.5 | 1178.0 | 1197.1 |
| 12.5° | 1035.8 | 1039.8 | 1055.7 | 1084.3 | 1114.5 | 1139.9 | 1151.8 | 1184.4 | 1210.6 | 1247.1 | 1277.3 |
| 15° | 1057.3 | 1063.6 | 1088.3 | 1130.4 | 1173.3 | 1207.4 | 1220.1 | 1255.1 | 1281.3 | 1320.2 | 1354.4 |
| 17.5° | 1107.3 | 1114.5 | 1142.3 | 1187.6 | 1246.3 | 1286.1 | 1297.2 | 1333.7 | 1353.6 | 1379.8 | 1415.5 |
| 20° | 1170.1 | 1183.6 | 1217.7 | 1272.6 | 1336.9 | 1375.0 | 1383.0 | 1418.7 | 1417.1 | 1428.2 | 1459.2 |
| 22.5° | 1247.9 | 1257.5 | 1294.8 | 1359.9 | 1432.2 | 1474.3 | 1492.6 | 1507.7 | 1487.8 | 1478.3 | 1498.2 |
| 25° | 1329.0 | 1340.1 | 1380.6 | 1452.1 | 1533.1 | 1581.6 | 1596.7 | 1608.6 | 1576.8 | 1541.0 | 1543.4 |
| 27.5° | 1433.8 | 1441.8 | 1481.5 | 1557.7 | 1638.8 | 1693.6 | 1707.1 | 1727.7 | 1685.6 | 1628.4 | 1612.5 |
| 30° | 1558.5 | 1566.5 | 1608.6 | 1688.8 | 1769.0 | 1815.9 | 1836.5 | 1862.0 | 1815.9 | 1744.4 | 1726.1 |
| 32.5° | 1704.7 | 1712.6 | 1766.6 | 1849.3 | 1915.2 | 1966.0 | 1985.9 | 2012.9 | 1976.4 | 1896.1 | 1875.5 |
| 35° | 1879.4 | 1884.2 | 1947.8 | 2037.5 | 2107.4 | 2156.7 | 2170.2 | 2202.0 | 2161.4 | 2081.2 | 2070.1 |
| 37.5° | 2082.0 | 2087.6 | 2156.7 | 2260.7 | 2332.2 | 2387.0 | 2408.5 | 2417.2 | 2368.0 | 2278.2 | 2269.5 |
| 40° | 2304.4 | 2322.7 | 2390.2 | 2502.2 | 2582.4 | 2651.6 | 2670.6 | 2641.2 | 2572.1 | 2449.8 | 2433.9 |
| 42.5° | 2536.4 | 2552.3 | 2627.7 | 2749.3 | 2842.2 | 2912.9 | 2913.7 | 2850.1 | 2732.6 | 2563.4 | 2539.6 |
| 45° | 2729.4 | 2735.8 | 2833.5 | 2955.8 | 3070.2 | 3120.2 | 3125.0 | 3009.8 | 2832.7 | 2629.3 | 2578.5 |
| 47.5° | 2862.1 | 2872.4 | 2957.4 | 3074.9 | 3201.2 | 3246.5 | 3237.0 | 3093.2 | 2880.3 | 2672.2 | 2588.0 |
| 50° | 2863.6 | 2881.1 | 2973.3 | 3086.9 | 3209.2 | 3264.0 | 3250.5 | 3117.0 | 2907.3 | 2673.8 | 2565.0 |
| 52.5° | 2610.2 | 2638.8 | 2789.0 | 2953.4 | 3140.9 | 3234.6 | 3237.8 | 3148.0 | 2897.0 | 2648.4 | 2544.3 |
| 55° | 1969.2 | 2000.2 | 2189.2 | 2469.6 | 2831.9 | 3093.2 | 3138.5 | 3111.5 | 2885.1 | 2659.5 | 2580.9 |
| 57.5° | 1042.2 | 1018.4 | 1123.2 | 1401.2 | 1856.4 | 2318.7 | 2451.4 | 2667.4 | 2752.4 | 2673.0 | 2648.4 |
| 60° | 227.2 | 242.3 | 322.5 | 434.5 | 724.5 | 1090.6 | 1220.1 | 1590.3 | 2030.4 | 2225.8 | 2367.2 |
| 62.5° | 97.7 | 96.1 | 100.1 | 113.6 | 166.0 | 276.4 | 337.6 | 551.3 | 869.8 | 1194.7 | 1414.7 |
| 65° | 80.2 | 81.0 | 84.2 | 84.2 | 78.6 | 79.4 | 83.4 | 126.3 | 203.4 | 285.2 | 382.9 |
| 67.5° | 60.4 | 61.2 | 66.7 | 68.3 | 64.3 | 57.2 | 56.4 | 47.7 | 50.0 | 62.8 | 65.1 |
| 70° | 38.1 | 38.1 | 41.3 | 42.9 | 42.9 | 39.7 | 38.9 | 34.2 | 33.4 | 38.1 | 42.9 |
| 72.5° | 20.7 | 20.7 | 22.2 | 23.0 | 22.2 | 21.4 | 21.4 | 20.7 | 19.9 | 23.0 | 29.4 |
| 75° | 8.7 | 8.7 | 9.5 | 9.5 | 8.7 | 8.7 | 8.7 | 8.7 | 8.7 | 10.3 | 15.9 |
| 77.5° | 1.6 | 2.4 | 3.2 | 2.4 | 1.6 | 1.6 | 1.6 | 2.4 | 2.4 | 3.2 | 4.8 |
| 80° | 0.8 | 0.8 | 1.6 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.8 | 0.8 |
| 82.5° | 0.8 | 0.8 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 |
| 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: P635001

CATALOG NUMBER: GWS-SA3C-830-U-RW-W-GRSBK

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1021.5 | 1021.5 | 1021.5 | 1021.5 | 1021.5 | 1021.5 | 1021.5 | 1021.5 | 1021.5 | 1021.5 | 1021.5 |
| 2.5° | 1039.0 | 1030.3 | 1033.5 | 1035.0 | 1032.7 | 1031.1 | 1022.3 | 1020.0 | 1016.0 | 1009.6 | 1008.0 |
| 5° | 1074.0 | 1066.8 | 1066.0 | 1061.3 | 1050.1 | 1036.6 | 1020.0 | 1012.8 | 1004.9 | 996.9 | 995.3 |
| 7.5° | 1132.7 | 1124.0 | 1118.5 | 1102.6 | 1077.1 | 1055.7 | 1027.9 | 1012.8 | 1002.5 | 992.1 | 989.8 |
| 10° | 1208.2 | 1197.9 | 1182.0 | 1152.6 | 1118.5 | 1087.5 | 1054.9 | 1035.0 | 1019.2 | 1004.9 | 1004.1 |
| 12.5° | 1288.4 | 1277.3 | 1248.7 | 1211.4 | 1170.1 | 1141.5 | 1100.2 | 1072.4 | 1048.5 | 1027.1 | 1024.7 |
| 15° | 1372.6 | 1359.1 | 1320.2 | 1275.7 | 1237.6 | 1208.2 | 1162.9 | 1118.5 | 1081.9 | 1050.9 | 1047.8 |
| 17.5° | 1437.0 | 1420.3 | 1374.2 | 1340.9 | 1309.9 | 1279.7 | 1228.9 | 1170.1 | 1121.6 | 1084.3 | 1075.6 |
| 20° | 1477.5 | 1461.6 | 1417.9 | 1399.7 | 1385.4 | 1363.9 | 1303.5 | 1242.4 | 1188.4 | 1142.3 | 1134.3 |
| 22.5° | 1516.4 | 1497.4 | 1459.2 | 1459.2 | 1470.4 | 1461.6 | 1396.5 | 1326.6 | 1263.0 | 1209.8 | 1197.9 |
| 25° | 1560.1 | 1545.0 | 1518.0 | 1540.3 | 1568.1 | 1567.3 | 1500.5 | 1413.2 | 1340.1 | 1280.5 | 1268.6 |
| 27.5° | 1623.7 | 1608.6 | 1599.0 | 1641.1 | 1676.1 | 1673.7 | 1600.6 | 1506.1 | 1429.0 | 1370.3 | 1359.1 |
| 30° | 1735.7 | 1721.4 | 1711.0 | 1761.9 | 1806.4 | 1789.7 | 1709.5 | 1618.1 | 1540.3 | 1473.5 | 1465.6 |
| 32.5° | 1885.0 | 1869.9 | 1856.4 | 1907.2 | 1947.0 | 1925.5 | 1849.3 | 1763.5 | 1673.7 | 1608.6 | 1592.7 |
| 35° | 2081.2 | 2049.4 | 2035.9 | 2096.3 | 2113.0 | 2089.2 | 2016.1 | 1940.6 | 1845.3 | 1770.6 | 1760.3 |
| 37.5° | 2283.8 | 2246.4 | 2236.9 | 2289.3 | 2316.3 | 2307.6 | 2221.8 | 2143.2 | 2039.9 | 1957.3 | 1945.4 |
| 40° | 2456.9 | 2422.8 | 2406.1 | 2487.9 | 2549.1 | 2554.6 | 2477.6 | 2381.5 | 2259.9 | 2174.1 | 2152.7 |
| 42.5° | 2558.6 | 2529.2 | 2525.3 | 2652.4 | 2752.4 | 2823.9 | 2731.8 | 2632.5 | 2504.6 | 2407.7 | 2390.2 |
| 45° | 2581.7 | 2562.6 | 2596.0 | 2762.8 | 2918.5 | 3048.7 | 2970.1 | 2865.2 | 2727.0 | 2624.5 | 2607.9 |
| 47.5° | 2579.3 | 2572.9 | 2632.5 | 2820.0 | 3017.0 | 3177.4 | 3138.5 | 3020.1 | 2886.7 | 2779.4 | 2763.6 |
| 50° | 2545.1 | 2545.9 | 2645.2 | 2848.6 | 3056.7 | 3212.4 | 3173.4 | 3063.8 | 2944.7 | 2839.0 | 2826.3 |
| 52.5° | 2531.6 | 2526.8 | 2621.4 | 2839.8 | 3097.2 | 3196.5 | 3109.1 | 2986.0 | 2853.3 | 2723.0 | 2704.0 |
| 55° | 2579.3 | 2567.4 | 2624.5 | 2832.7 | 3102.0 | 3187.7 | 2957.4 | 2690.5 | 2418.8 | 2264.7 | 2252.0 |
| 57.5° | 2650.8 | 2638.1 | 2665.1 | 2780.2 | 2853.3 | 2650.8 | 2176.5 | 1746.0 | 1466.4 | 1348.0 | 1296.4 |
| 60° | 2367.2 | 2358.4 | 2337.8 | 2198.8 | 1885.8 | 1422.7 | 969.1 | 618.0 | 444.0 | 359.0 | 359.0 |
| 62.5° | 1468.8 | 1456.8 | 1344.8 | 999.3 | 726.0 | 420.2 | 231.2 | 144.6 | 109.6 | 102.5 | 101.7 |
| 65° | 412.3 | 409.9 | 339.2 | 239.9 | 152.5 | 94.5 | 83.4 | 85.0 | 83.4 | 81.0 | 80.2 |
| 67.5° | 62.0 | 68.3 | 68.3 | 55.6 | 53.2 | 59.6 | 69.9 | 74.7 | 70.7 | 66.7 | 65.1 |
| 70° | 39.7 | 42.9 | 41.3 | 35.7 | 38.1 | 44.5 | 50.0 | 50.8 | 48.5 | 44.5 | 43.7 |
| 72.5° | 27.8 | 31.0 | 25.4 | 23.0 | 23.8 | 26.2 | 28.6 | 28.6 | 27.8 | 26.2 | 24.6 |
| 75° | 16.7 | 16.7 | 11.9 | 11.1 | 11.1 | 11.9 | 11.9 | 13.5 | 13.5 | 12.7 | 11.9 |
| 77.5° | 5.6 | 6.4 | 4.0 | 3.2 | 3.2 | 3.2 | 4.0 | 4.8 | 4.8 | 4.0 | 3.2 |
| 80° | 0.8 | 1.6 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 1.6 | 1.6 | 0.8 |
| 82.5° | 0.8 | 0.8 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.8 | 0.8 | 0.8 |
| 85° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.8 |
| 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

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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

| 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)