

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: P636026

Luminaire Tested: GWS-SA3E-830-U-T3R-W-GRSWH

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P636026
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-17)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA3E-830-U-T3R-W-GRSWH
Description: GALLEON WALL SLIM LUMINAIRE. (3) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III ROADWAY OPTICS W/ FACTORY INSTALLED GLARE SHIELD, WH
Light Source: (48) 3000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 15316.4 lumens
Efficiency: N/A
Efficacy: 96.2 lumens/watt
Luminous Opening: Rectangular (W 1.5' x L: 0.5' x H: 0')
IES Classification: Type II - Short
BUG Rating: B3 - U0 - G2

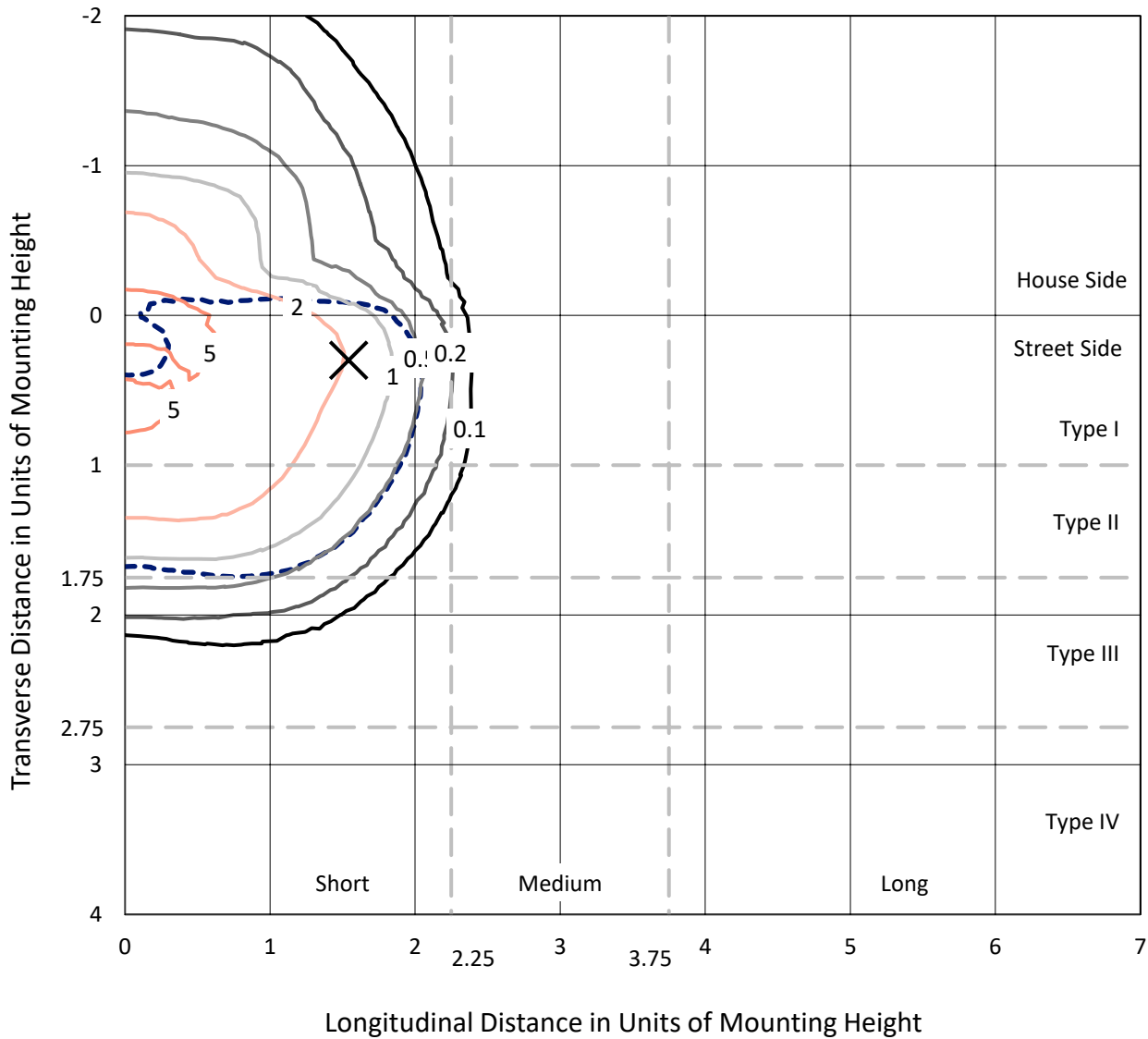
Input Watts (W): 159.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

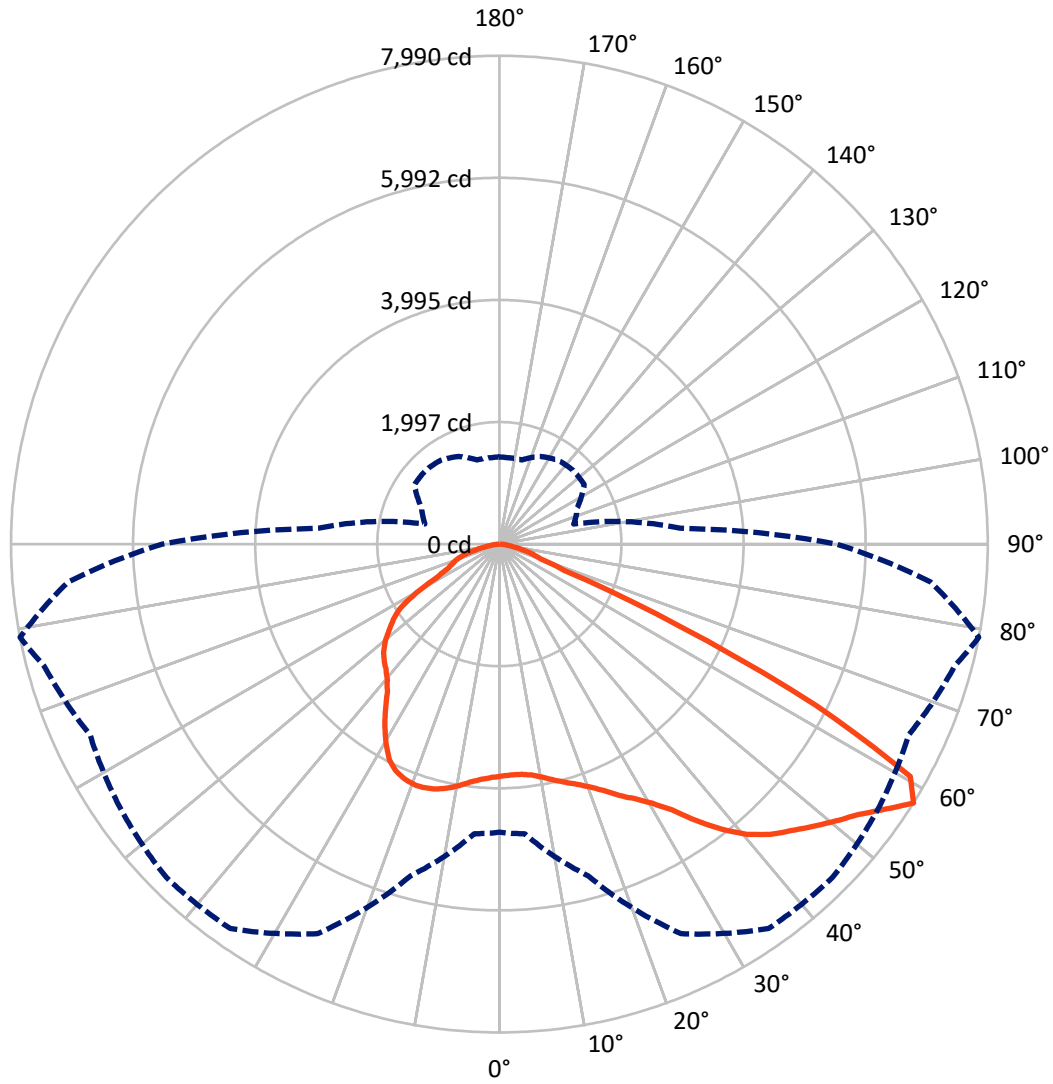
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 6.1 fc
 Type II - Short - N/A

REPORT NUMBER: P636026
CATALOG NUMBER: GWS-SA3E-830-U-T3R-W-GRSWH

Luminous Intensity Polar Plot



— Vertical Plane Through 79-Deg Lateral - - - Horizontal Cone Through 57.5-Deg Vertical

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CATALOG NUMBER: GWS-SA3E-830-U-T3R-W-GRSWH

FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 4552.8 | 0.0 | 4552.8 |
| | % Fixture | 29.7 | 0.0 | 29.7 |
| Street Side | Lumens | 10763.5 | 0.0 | 10763.5 |
| | % Fixture | 70.3 | 0.0 | 70.3 |
| Total | Lumens | 15316.4 | 0.0 | 15316.4 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 351.5 | 2.3 |
| 10°-20° | 976.9 | 6.4 |
| 20°-30° | 1655.8 | 10.8 |
| 30°-40° | 2534.5 | 16.5 |
| 40°-50° | 3379.5 | 22.1 |
| 50°-60° | 3903.0 | 25.5 |
| 60°-70° | 2028.2 | 13.2 |
| 70°-80° | 431.1 | 2.8 |
| 80°-90° | 55.8 | 0.4 |
| 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° | 15316.4 | 100.0 |
| 0°-180° | 15316.4 | 100.0 |

Coefficient of Utilization



REPORT NUMBER: P636026

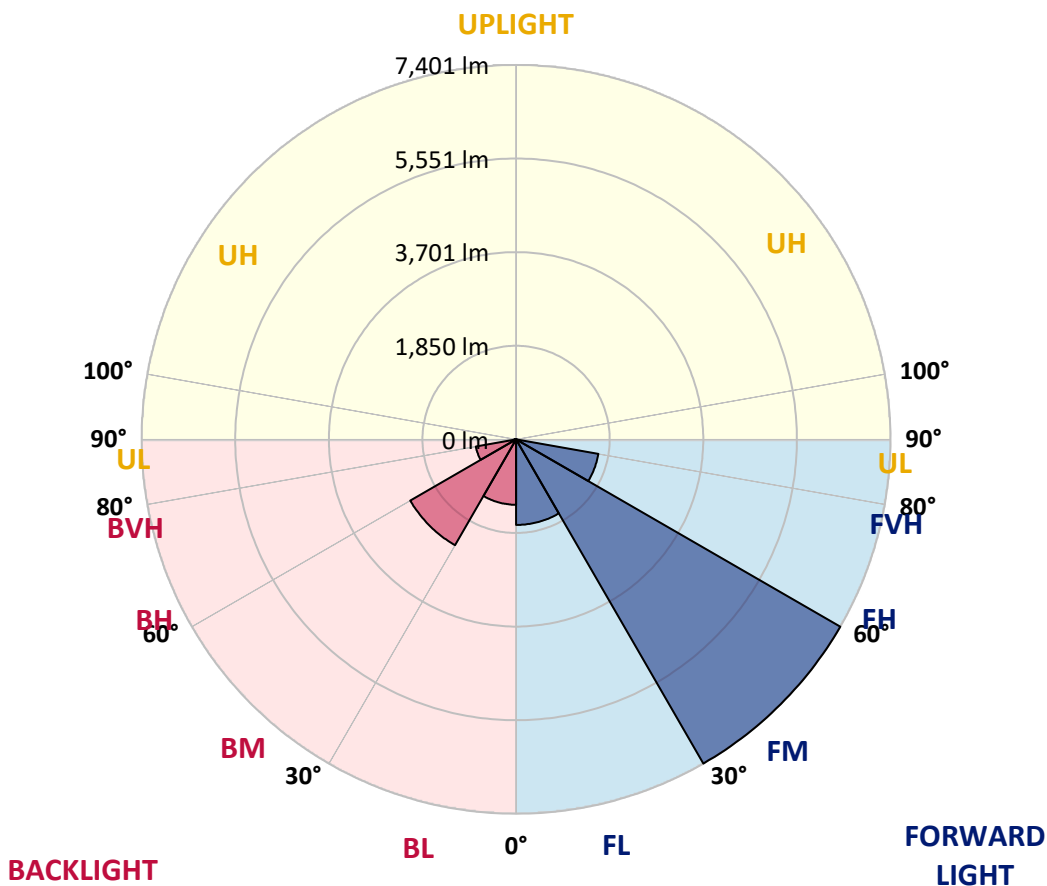
CATALOG NUMBER: GWS-SA3E-830-U-T3R-W-GRSWH

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1691.3 | 11.0 | | | |
| FM (30°-60°) | 7401.3 | 48.3 | | | |
| FH (60°-80°) | 1651.5 | 10.8 | | | G1/1800 |
| FVH (80°-90°) | 19.5 | 0.1 | | | G1/100 |
| BL (0°-30°) | 1293.0 | 8.4 | B3/2500 | | |
| BM (30°-60°) | 2415.7 | 15.8 | B2/2500 | | |
| BH (60°-80°) | 807.8 | 5.3 | B2/1000 | | G2/1000 |
| BVH (80°-90°) | 36.4 | 0.2 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B3-U0-G2

Type II Short





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CATALOG NUMBER: GWS-SA3E-830-U-T3R-W-GRSWH

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 79° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 3795.8 | 3795.8 | 3795.8 | 3795.8 | 3795.8 | 3795.8 | 3795.8 | 3795.8 | 3795.8 | 3795.8 | 3795.8 |
| 2.5° | 3622.9 | 3615.4 | 3617.9 | 3627.9 | 3665.5 | 3693.1 | 3721.9 | 3748.2 | 3773.2 | 3780.7 | 3787.0 |
| 5° | 3494.0 | 3480.2 | 3483.9 | 3500.2 | 3544.0 | 3590.4 | 3641.7 | 3704.3 | 3764.5 | 3784.5 | 3810.8 |
| 7.5° | 3402.5 | 3400.0 | 3406.3 | 3431.3 | 3477.7 | 3521.5 | 3587.9 | 3676.8 | 3780.7 | 3814.5 | 3860.9 |
| 10° | 3281.1 | 3276.0 | 3301.1 | 3352.4 | 3428.8 | 3499.0 | 3577.9 | 3683.0 | 3828.3 | 3878.4 | 3949.8 |
| 12.5° | 3184.6 | 3182.1 | 3208.4 | 3279.8 | 3377.5 | 3488.9 | 3597.9 | 3715.6 | 3892.2 | 3961.1 | 4048.7 |
| 15° | 3241.0 | 3229.7 | 3231.0 | 3281.1 | 3368.7 | 3500.2 | 3648.0 | 3774.5 | 3956.1 | 4043.7 | 4156.4 |
| 17.5° | 3405.0 | 3385.0 | 3370.0 | 3378.7 | 3428.8 | 3565.3 | 3724.4 | 3853.4 | 4029.9 | 4132.6 | 4270.4 |
| 20° | 3631.7 | 3620.4 | 3579.1 | 3551.6 | 3562.8 | 3683.0 | 3844.6 | 3964.8 | 4126.4 | 4241.6 | 4389.4 |
| 22.5° | 3936.0 | 3908.5 | 3852.1 | 3808.3 | 3774.5 | 3868.4 | 4017.4 | 4121.4 | 4260.4 | 4380.6 | 4534.6 |
| 25° | 4313.0 | 4272.9 | 4184.0 | 4115.1 | 4042.5 | 4138.9 | 4271.6 | 4350.5 | 4444.5 | 4555.9 | 4702.4 |
| 27.5° | 4697.4 | 4663.6 | 4564.7 | 4472.0 | 4381.8 | 4442.0 | 4599.7 | 4644.8 | 4634.8 | 4716.2 | 4841.4 |
| 30° | 5106.9 | 5064.4 | 4970.4 | 4870.2 | 4753.8 | 4792.6 | 4934.1 | 4956.7 | 4850.2 | 4917.8 | 5003.0 |
| 32.5° | 5539.0 | 5497.7 | 5416.2 | 5299.8 | 5168.3 | 5183.3 | 5222.1 | 5243.4 | 5142.0 | 5180.8 | 5245.9 |
| 35° | 5978.5 | 5939.7 | 5857.1 | 5741.9 | 5645.4 | 5554.0 | 5456.3 | 5541.5 | 5482.6 | 5557.8 | 5552.8 |
| 37.5° | 6380.5 | 6341.7 | 6290.4 | 6201.4 | 6036.1 | 5855.8 | 5630.4 | 5735.6 | 5827.0 | 5922.2 | 5905.9 |
| 40° | 6652.3 | 6626.0 | 6638.5 | 6624.7 | 6411.8 | 6054.9 | 5715.6 | 5830.8 | 6080.0 | 6242.8 | 6234.0 |
| 42.5° | 6886.5 | 6860.2 | 6932.8 | 6985.4 | 6734.9 | 6239.0 | 5756.9 | 5867.1 | 6241.5 | 6495.7 | 6483.2 |
| 45° | 6990.4 | 6982.9 | 7103.1 | 7269.7 | 7030.5 | 6434.4 | 5863.3 | 5942.2 | 6364.3 | 6689.9 | 6642.3 |
| 47.5° | 6866.4 | 6892.7 | 7129.4 | 7411.2 | 7275.9 | 6666.1 | 6081.2 | 6101.3 | 6524.5 | 6900.2 | 6766.2 |
| 50° | 6619.7 | 6677.3 | 6996.7 | 7414.9 | 7455.0 | 6927.8 | 6383.0 | 6332.9 | 6739.9 | 7124.4 | 6831.4 |
| 52.5° | 6260.3 | 6320.4 | 6841.4 | 7386.1 | 7557.7 | 7230.9 | 6785.0 | 6713.6 | 7011.7 | 7348.6 | 6842.6 |
| 55° | 5435.0 | 5516.4 | 6485.7 | 7321.0 | 7657.9 | 7506.4 | 7238.4 | 7093.1 | 7362.3 | 7656.6 | 6954.1 |
| 57.5° | 4715.0 | 4757.5 | 5619.1 | 7031.7 | 7677.9 | 7709.2 | 7561.5 | 7388.6 | 7710.5 | 7989.8 | 7079.3 |
| 60° | 3460.1 | 3470.2 | 4245.3 | 5818.2 | 7063.0 | 7591.5 | 7535.2 | 7278.4 | 7545.2 | 7723.0 | 6505.8 |
| 62.5° | 1954.9 | 1956.1 | 2574.8 | 3883.4 | 5276.0 | 6187.7 | 6222.7 | 5996.1 | 5771.9 | 5824.5 | 4528.4 |
| 65° | 733.9 | 802.7 | 1175.9 | 1908.5 | 3041.9 | 3653.0 | 3798.3 | 3850.9 | 3477.7 | 3246.0 | 2428.2 |
| 67.5° | 490.9 | 507.2 | 686.3 | 981.8 | 1353.7 | 1562.9 | 1748.2 | 1753.2 | 1282.4 | 1143.4 | 956.8 |
| 70° | 374.4 | 390.7 | 539.7 | 702.5 | 686.3 | 633.7 | 685.0 | 666.2 | 688.8 | 707.6 | 727.6 |
| 72.5° | 279.3 | 295.5 | 418.3 | 495.9 | 412.0 | 405.7 | 459.6 | 510.9 | 558.5 | 578.6 | 609.9 |
| 75° | 185.3 | 197.9 | 281.8 | 265.5 | 227.9 | 269.2 | 335.6 | 387.0 | 414.5 | 438.3 | 462.1 |
| 77.5° | 117.7 | 126.5 | 150.3 | 121.5 | 126.5 | 157.8 | 195.4 | 241.7 | 268.0 | 291.8 | 304.3 |
| 80° | 53.8 | 52.6 | 51.3 | 57.6 | 71.4 | 92.7 | 117.7 | 145.3 | 165.3 | 175.3 | 182.8 |
| 82.5° | 21.3 | 23.8 | 26.3 | 31.3 | 38.8 | 50.1 | 66.4 | 85.2 | 101.4 | 103.9 | 110.2 |
| 85° | 8.8 | 10.0 | 11.3 | 13.8 | 17.5 | 22.5 | 27.6 | 38.8 | 48.8 | 52.6 | 56.4 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 2.5 | 3.8 | 6.3 | 11.3 | 12.5 | 13.8 |
| 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: P636026

CATALOG NUMBER: GWS-SA3E-830-U-T3R-W-GRSWH

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 3795.8 | 3795.8 | 3795.8 | 3795.8 | 3795.8 | 3795.8 | 3795.8 | 3795.8 | 3795.8 | 3795.8 | 3795.8 |
| 2.5° | 3820.8 | 3804.5 | 3832.1 | 3850.9 | 3868.4 | 3849.6 | 3843.3 | 3827.1 | 3824.6 | 3824.6 | 3833.3 |
| 5° | 3855.9 | 3844.6 | 3873.4 | 3884.7 | 3883.4 | 3842.1 | 3817.0 | 3784.5 | 3768.2 | 3768.2 | 3770.7 |
| 7.5° | 3918.5 | 3912.2 | 3928.5 | 3911.0 | 3870.9 | 3787.0 | 3704.3 | 3635.5 | 3589.1 | 3565.3 | 3572.8 |
| 10° | 4022.4 | 4014.9 | 4001.1 | 3936.0 | 3820.8 | 3646.7 | 3477.7 | 3352.4 | 3277.3 | 3234.7 | 3237.2 |
| 12.5° | 4123.9 | 4111.3 | 4062.5 | 3918.5 | 3681.8 | 3405.0 | 3183.4 | 3043.1 | 2960.5 | 2910.4 | 2899.1 |
| 15° | 4235.3 | 4202.8 | 4097.6 | 3828.3 | 3455.1 | 3109.5 | 2877.8 | 2726.3 | 2637.4 | 2607.3 | 2606.1 |
| 17.5° | 4341.8 | 4284.2 | 4093.8 | 3668.0 | 3183.4 | 2800.2 | 2567.2 | 2473.3 | 2458.3 | 2472.1 | 2475.8 |
| 20° | 4449.5 | 4356.8 | 4052.5 | 3446.4 | 2860.3 | 2492.1 | 2371.9 | 2410.7 | 2467.1 | 2504.6 | 2513.4 |
| 22.5° | 4560.9 | 4416.9 | 3958.6 | 3160.8 | 2519.7 | 2284.2 | 2334.3 | 2419.5 | 2489.6 | 2539.7 | 2544.7 |
| 25° | 4686.2 | 4473.3 | 3818.3 | 2811.4 | 2246.6 | 2226.6 | 2325.5 | 2415.7 | 2490.8 | 2548.5 | 2558.5 |
| 27.5° | 4757.5 | 4474.5 | 3621.7 | 2452.0 | 2121.4 | 2204.1 | 2304.3 | 2389.4 | 2464.6 | 2527.2 | 2538.4 |
| 30° | 4827.7 | 4440.7 | 3309.9 | 2160.2 | 2085.1 | 2177.8 | 2267.9 | 2346.8 | 2418.2 | 2479.6 | 2493.4 |
| 32.5° | 4926.6 | 4409.4 | 2950.4 | 1992.4 | 2063.8 | 2152.7 | 2226.6 | 2296.7 | 2351.8 | 2379.4 | 2386.9 |
| 35° | 5049.3 | 4369.3 | 2568.5 | 1919.8 | 2050.0 | 2132.7 | 2197.8 | 2235.4 | 2164.0 | 2149.0 | 2165.2 |
| 37.5° | 5220.9 | 4331.7 | 2187.8 | 1888.5 | 2041.3 | 2125.2 | 2182.8 | 2086.4 | 1998.7 | 1963.6 | 1976.1 |
| 40° | 5406.2 | 4310.5 | 1929.8 | 1863.4 | 2045.0 | 2132.7 | 2120.2 | 1977.4 | 1850.9 | 1777.0 | 1774.5 |
| 42.5° | 5564.0 | 4277.9 | 1764.5 | 1847.2 | 2055.0 | 2161.5 | 2035.0 | 1881.0 | 1693.1 | 1649.3 | 1650.5 |
| 45° | 5670.5 | 4195.2 | 1676.8 | 1829.6 | 2063.8 | 2167.8 | 1994.9 | 1748.2 | 1614.2 | 1586.7 | 1585.4 |
| 47.5° | 5714.3 | 4045.0 | 1620.5 | 1802.1 | 2062.6 | 2116.4 | 1913.5 | 1693.1 | 1559.1 | 1551.6 | 1556.6 |
| 50° | 5685.5 | 3798.3 | 1562.9 | 1748.2 | 2032.5 | 2062.6 | 1819.6 | 1644.3 | 1521.6 | 1562.9 | 1592.9 |
| 52.5° | 5579.1 | 3478.9 | 1494.0 | 1674.3 | 1978.7 | 2001.2 | 1772.0 | 1614.2 | 1494.0 | 1549.1 | 1572.9 |
| 55° | 5551.5 | 3219.7 | 1406.3 | 1577.9 | 1898.5 | 1892.2 | 1721.9 | 1599.2 | 1475.2 | 1453.9 | 1457.7 |
| 57.5° | 5515.2 | 2966.7 | 1261.1 | 1405.1 | 1695.6 | 1705.6 | 1674.3 | 1581.7 | 1426.4 | 1420.1 | 1426.4 |
| 60° | 4791.3 | 2274.2 | 1124.6 | 1212.2 | 1392.6 | 1446.4 | 1620.5 | 1549.1 | 1347.5 | 1321.2 | 1319.9 |
| 62.5° | 3129.5 | 1377.5 | 1000.6 | 1057.0 | 1134.6 | 1197.2 | 1477.7 | 1455.2 | 1261.1 | 1244.8 | 1256.1 |
| 65° | 1683.1 | 981.8 | 910.4 | 944.2 | 986.8 | 1034.4 | 1224.8 | 1296.1 | 1139.6 | 1082.0 | 1083.2 |
| 67.5° | 860.3 | 835.3 | 842.8 | 866.6 | 899.2 | 923.0 | 988.1 | 1050.7 | 971.8 | 923.0 | 921.7 |
| 70° | 736.4 | 756.4 | 767.7 | 781.4 | 802.7 | 799.0 | 805.2 | 816.5 | 810.2 | 786.5 | 785.2 |
| 72.5° | 627.4 | 658.7 | 661.2 | 663.7 | 671.2 | 653.7 | 642.4 | 623.7 | 624.9 | 628.7 | 629.9 |
| 75° | 477.1 | 507.2 | 514.7 | 510.9 | 518.5 | 495.9 | 480.9 | 462.1 | 439.6 | 435.8 | 438.3 |
| 77.5° | 310.6 | 334.4 | 345.6 | 343.1 | 346.9 | 329.4 | 321.8 | 301.8 | 275.5 | 265.5 | 265.5 |
| 80° | 187.8 | 201.6 | 210.4 | 212.9 | 216.6 | 204.1 | 191.6 | 174.1 | 162.8 | 151.5 | 151.5 |
| 82.5° | 114.0 | 122.7 | 129.0 | 129.0 | 132.7 | 119.0 | 109.0 | 96.4 | 91.4 | 81.4 | 81.4 |
| 85° | 57.6 | 63.9 | 66.4 | 65.1 | 62.6 | 51.3 | 47.6 | 41.3 | 38.8 | 33.8 | 33.8 |
| 87.5° | 13.8 | 17.5 | 17.5 | 12.5 | 12.5 | 6.3 | 3.8 | 1.3 | 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

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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)