

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: P640968

Luminaire Tested: GWS-SA5E-830-U-T2R-W-GRSWH

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P640968
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-13)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA5E-830-U-T2R-W-GRSWH
Description: GALLEON WALL SLIM LUMINAIRE. (5) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II ROADWAY OPTICS W/ FACTORY INSTALLED GLARE SHIELD, WH
Light Source: (80) 3000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 26246.3 lumens
Efficiency: N/A
Efficacy: 97.4 lumens/watt
Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')
IES Classification: Type II - Short
BUG Rating: B3 - U0 - G3

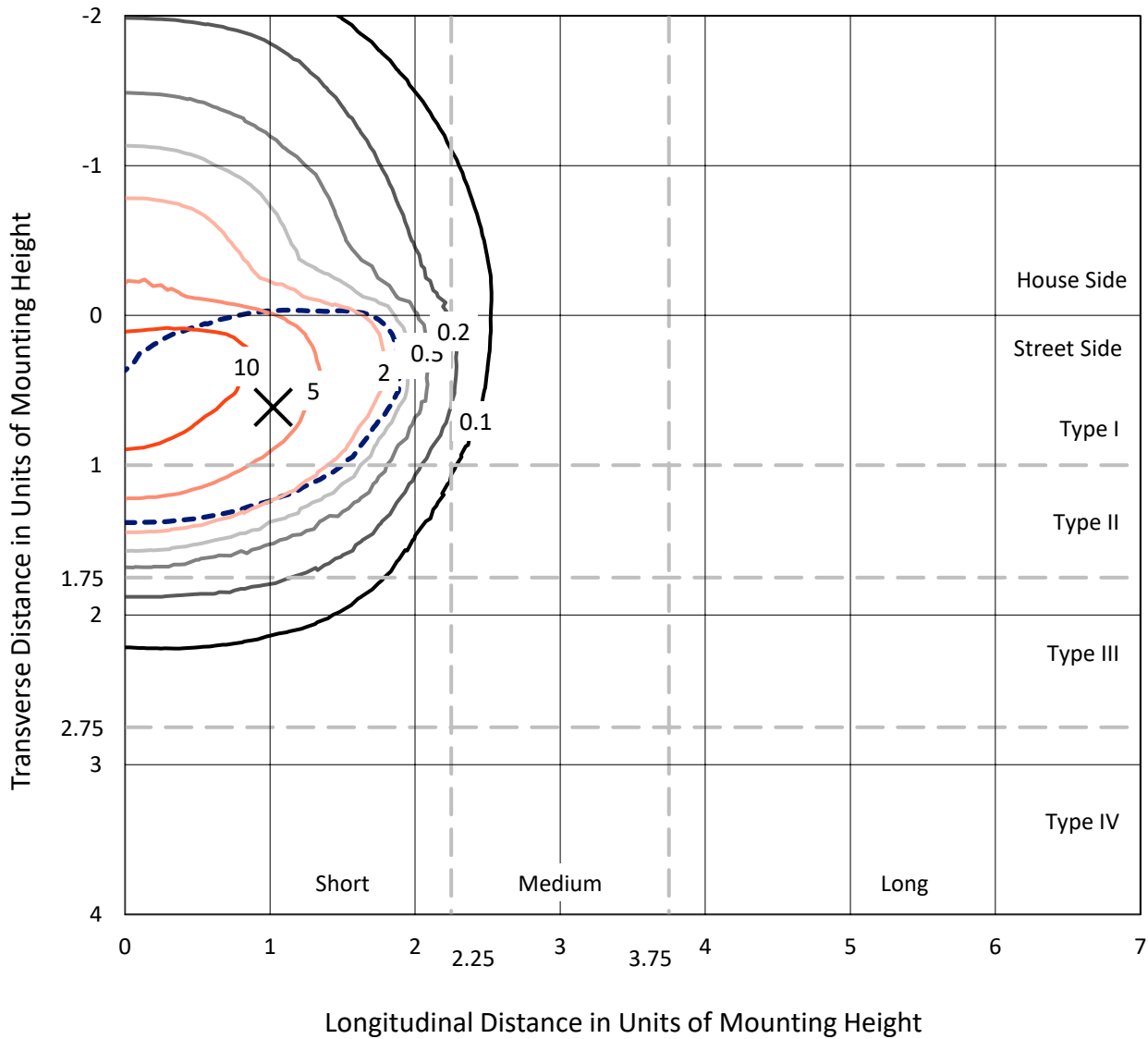
Input Watts (W): 269.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P640968
 CATALOG NUMBER: GWS-SA5E-830-U-T2R-W-GRSWH

Iso-Footcandle Lines of Horizontal Illumination

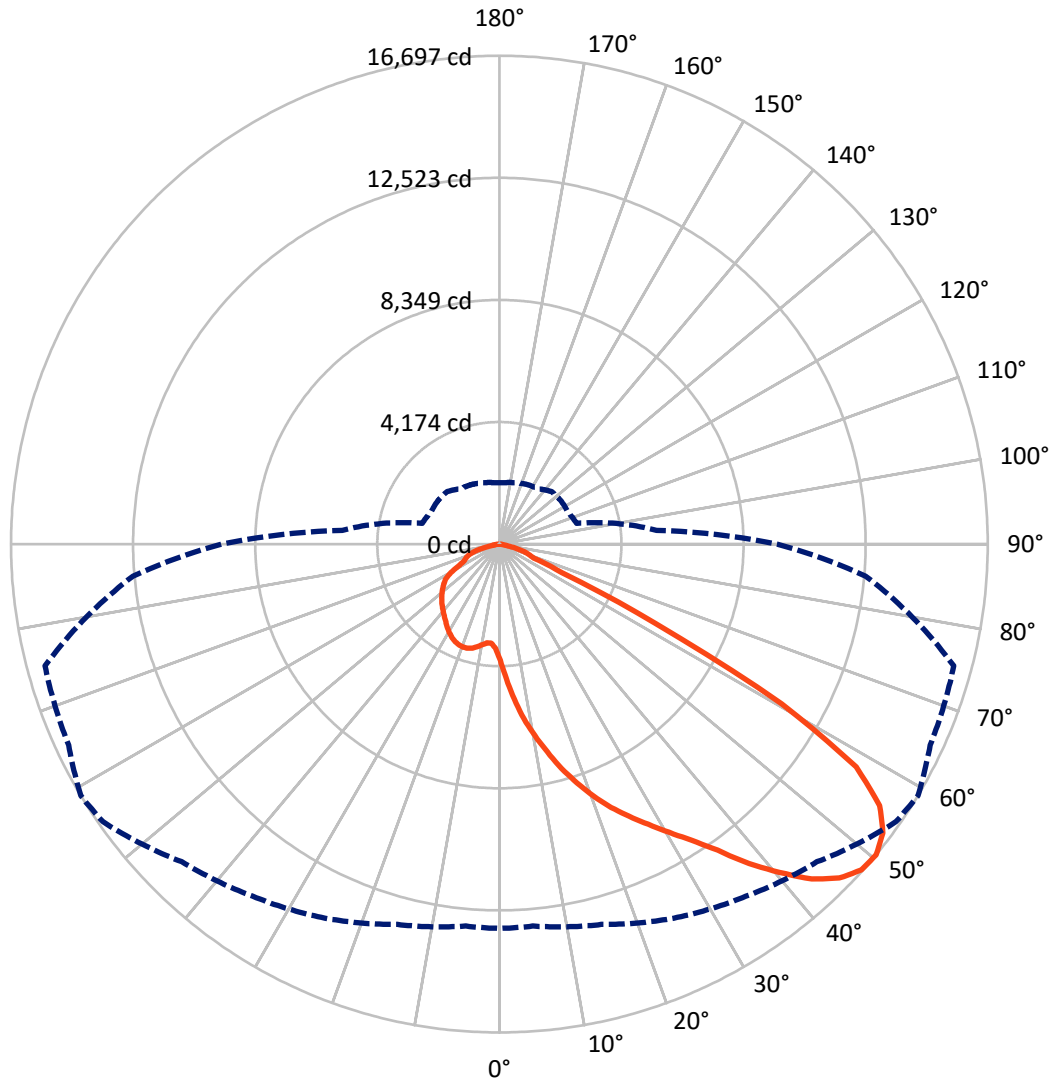
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 12.6 fc
 Type II - Short - N/A

REPORT NUMBER: P640968
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Luminous Intensity Polar Plot



— Vertical Plane Through 59-Deg Lateral - - - Horizontal Cone Through 50-Deg Vertical

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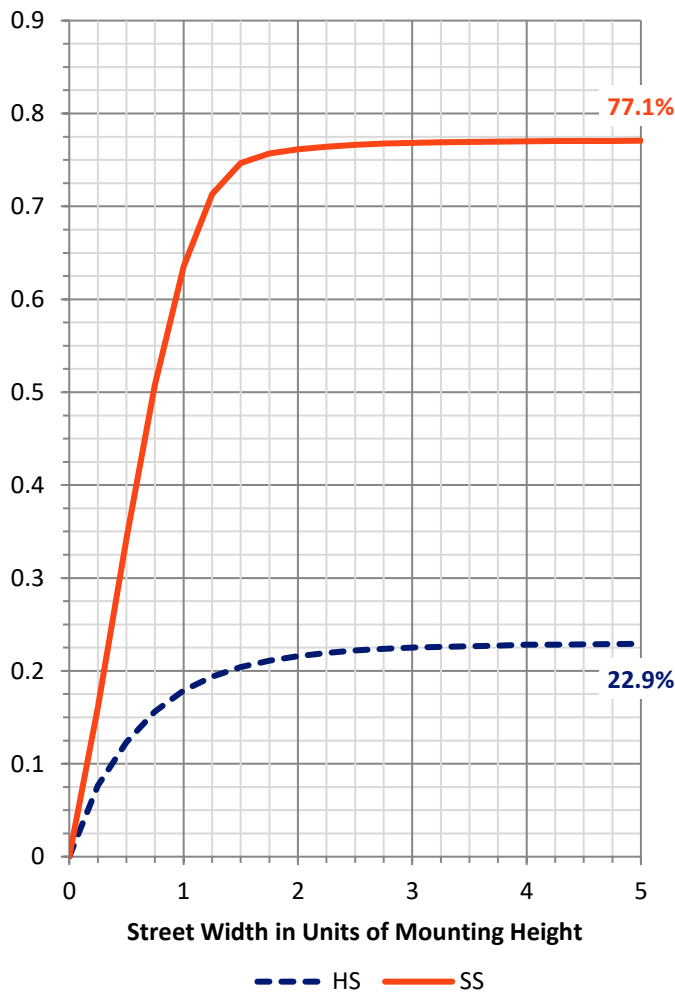
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 6037.1 | 0.0 | 6037.1 |
| | % Fixture | 23.0 | 0.0 | 23.0 |
| Street Side | Lumens | 20209.1 | 0.0 | 20209.1 |
| | % Fixture | 77.0 | 0.0 | 77.0 |
| Total | Lumens | 26246.3 | 0.0 | 26246.3 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 446.1 | 1.7 |
| 10°-20° | 1619.4 | 6.2 |
| 20°-30° | 3066.5 | 11.7 |
| 30°-40° | 5085.2 | 19.4 |
| 40°-50° | 6946.7 | 26.5 |
| 50°-60° | 6305.8 | 24.0 |
| 60°-70° | 2099.9 | 8.0 |
| 70°-80° | 612.5 | 2.3 |
| 80°-90° | 64.3 | 0.2 |
| 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° | 26246.3 | 100.0 |
| 0°-180° | 26246.3 | 100.0 |

Coefficient of Utilization



REPORT NUMBER: P640968

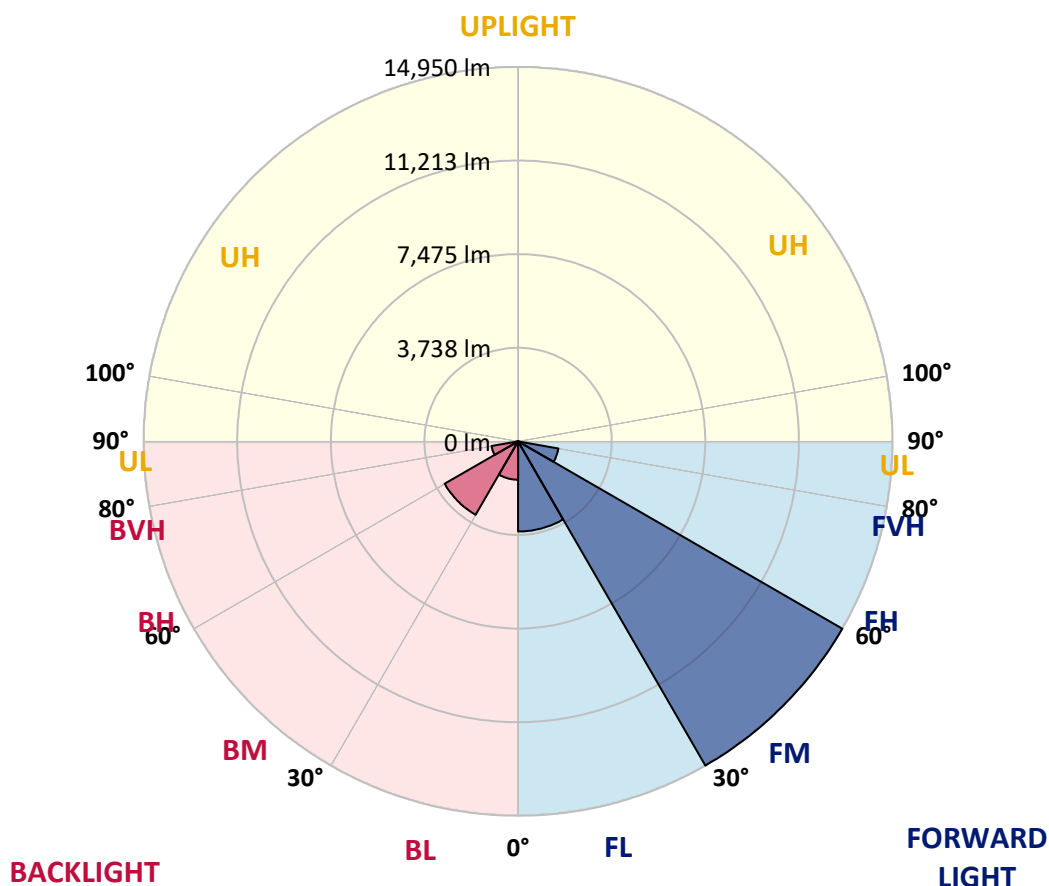
CATALOG NUMBER: GWS-SA5E-830-U-T2R-W-GRSWH

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|---------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 3599.0 | 13.7 | | | |
| FM (30°-60°) | 14950.2 | 57.0 | | | |
| FH (60°-80°) | 1634.8 | 6.2 | | | G1/1800 |
| FVH (80°-90°) | 25.2 | 0.1 | | | G1/100 |
| BL (0°-30°) | 1533.0 | 5.8 | B3/2500 | | |
| BM (30°-60°) | 3387.4 | 12.9 | B3/5000 | | |
| BH (60°-80°) | 1077.6 | 4.1 | B3/2500 | | G3/2500 |
| BVH (80°-90°) | 39.2 | 0.1 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B3-U0-G3

Type II Short





REPORT NUMBER: P640968

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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 59° | 65° | 75° | 85° |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 3976.5 | 3976.5 | 3976.5 | 3976.5 | 3976.5 | 3976.5 | 3976.5 | 3976.5 | 3976.5 | 3976.5 | 3976.5 |
| 2.5° | 5152.3 | 5190.8 | 5131.0 | 5135.2 | 4985.6 | 4917.2 | 4724.8 | 4611.5 | 4536.6 | 4327.1 | 4136.8 |
| 5° | 6191.4 | 6146.5 | 6099.4 | 6071.6 | 5941.2 | 5757.4 | 5517.9 | 5327.7 | 5152.3 | 4741.9 | 4346.4 |
| 7.5° | 6828.5 | 6804.9 | 6772.9 | 6755.8 | 6627.5 | 6435.1 | 6195.6 | 6033.2 | 5778.8 | 5222.9 | 4600.8 |
| 10° | 7369.4 | 7341.6 | 7322.3 | 7335.1 | 7230.4 | 7106.4 | 6845.6 | 6659.6 | 6373.1 | 5731.7 | 4908.6 |
| 12.5° | 7788.4 | 7803.3 | 7809.8 | 7878.2 | 7833.3 | 7758.5 | 7489.1 | 7292.4 | 6973.8 | 6268.3 | 5269.9 |
| 15° | 8119.8 | 8115.5 | 8190.3 | 8320.7 | 8393.4 | 8346.4 | 8130.4 | 7965.8 | 7576.7 | 6796.4 | 5659.0 |
| 17.5° | 8196.7 | 8201.0 | 8318.6 | 8547.3 | 8784.6 | 8900.1 | 8778.2 | 8581.5 | 8196.7 | 7318.0 | 6063.1 |
| 20° | 8258.7 | 8267.3 | 8389.1 | 8650.0 | 8996.3 | 9319.1 | 9338.4 | 9197.3 | 8865.9 | 7882.4 | 6473.6 |
| 22.5° | 8650.0 | 8669.2 | 8701.3 | 8865.9 | 9178.0 | 9586.4 | 9810.8 | 9780.9 | 9503.0 | 8474.6 | 6916.1 |
| 25° | 9678.3 | 9620.6 | 9464.5 | 9417.5 | 9537.2 | 9868.6 | 10251.2 | 10309.0 | 10172.1 | 9126.7 | 7392.9 |
| 27.5° | 10948.2 | 10886.2 | 10655.3 | 10411.6 | 10152.9 | 10268.3 | 10676.7 | 10849.9 | 10852.0 | 9845.0 | 7871.8 |
| 30° | 12100.5 | 12051.4 | 11863.2 | 11514.7 | 11067.9 | 10901.2 | 11202.6 | 11435.6 | 11574.6 | 10674.6 | 8416.9 |
| 32.5° | 13086.1 | 13041.2 | 12786.8 | 12502.5 | 12066.3 | 11730.7 | 11839.7 | 12064.2 | 12389.1 | 11747.8 | 9094.6 |
| 35° | 13915.6 | 13870.7 | 13627.0 | 13340.5 | 12936.5 | 12735.5 | 12697.0 | 12850.9 | 13272.1 | 12868.0 | 9872.8 |
| 37.5° | 14589.1 | 14544.2 | 14289.7 | 14020.4 | 13712.5 | 13725.3 | 13783.1 | 13857.9 | 14099.5 | 14067.4 | 10704.5 |
| 40° | 15025.2 | 14978.2 | 14796.4 | 14604.0 | 14409.5 | 14563.4 | 14849.9 | 14760.1 | 14888.4 | 15035.9 | 11469.9 |
| 42.5° | 15219.7 | 15159.9 | 15055.1 | 15012.4 | 14952.5 | 15191.9 | 15743.5 | 15653.7 | 15499.8 | 15681.5 | 12038.5 |
| 45° | 15025.2 | 14973.9 | 14971.7 | 15102.1 | 15241.1 | 15549.0 | 16361.4 | 16288.7 | 15899.6 | 15993.7 | 12378.5 |
| 47.5° | 14428.7 | 14383.8 | 14505.7 | 14847.7 | 15189.8 | 15638.8 | 16637.2 | 16650.0 | 16183.9 | 16124.1 | 12598.7 |
| 50° | 13139.6 | 13109.6 | 13462.4 | 14110.2 | 14700.2 | 15358.7 | 16549.5 | 16697.0 | 16252.3 | 16083.4 | 12570.9 |
| 52.5° | 10518.5 | 10657.4 | 11425.0 | 12506.7 | 13652.7 | 14867.0 | 16224.5 | 16417.0 | 15923.1 | 15816.2 | 12421.2 |
| 55° | 7200.5 | 7264.6 | 8032.1 | 9612.0 | 11429.2 | 13802.3 | 15478.4 | 15775.6 | 15534.0 | 15771.3 | 12577.3 |
| 57.5° | 3728.5 | 3779.8 | 4384.8 | 5787.3 | 7752.0 | 10907.6 | 13406.8 | 14381.7 | 14749.4 | 15997.9 | 13062.6 |
| 60° | 1530.7 | 1573.5 | 1823.6 | 2501.3 | 3910.2 | 6351.7 | 9648.4 | 11093.6 | 11957.3 | 14610.4 | 11600.3 |
| 62.5° | 1111.7 | 1133.1 | 1252.8 | 1492.3 | 2048.1 | 3112.8 | 5460.2 | 5992.5 | 6599.7 | 9156.6 | 7365.1 |
| 65° | 936.4 | 959.9 | 1056.1 | 1201.5 | 1494.4 | 1909.1 | 2332.5 | 2345.3 | 2584.7 | 3730.6 | 2730.1 |
| 67.5° | 784.6 | 806.0 | 891.5 | 1015.5 | 1207.9 | 1355.4 | 1252.8 | 1254.9 | 1250.7 | 1353.3 | 1308.4 |
| 70° | 611.4 | 628.5 | 714.1 | 846.6 | 947.1 | 870.1 | 979.2 | 1083.9 | 1039.0 | 1079.6 | 1141.6 |
| 72.5° | 446.8 | 466.1 | 540.9 | 641.4 | 615.7 | 620.0 | 793.2 | 900.1 | 874.4 | 919.3 | 977.0 |
| 75° | 322.8 | 335.7 | 374.1 | 320.7 | 337.8 | 408.3 | 558.0 | 615.7 | 641.4 | 679.9 | 731.2 |
| 77.5° | 104.8 | 104.8 | 117.6 | 147.5 | 183.9 | 226.6 | 284.3 | 307.9 | 346.3 | 389.1 | 425.4 |
| 80° | 53.4 | 55.6 | 66.3 | 81.2 | 102.6 | 130.4 | 166.8 | 177.4 | 196.7 | 220.2 | 235.2 |
| 82.5° | 25.7 | 27.8 | 32.1 | 40.6 | 53.4 | 68.4 | 91.9 | 102.6 | 115.4 | 130.4 | 141.1 |
| 85° | 6.4 | 6.4 | 8.6 | 12.8 | 17.1 | 25.7 | 34.2 | 40.6 | 51.3 | 62.0 | 68.4 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.1 | 6.4 | 8.6 | 10.7 | 12.8 | 17.1 |
| 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: P640968

CATALOG NUMBER: GWS-SA5E-830-U-T2R-W-GRSWH

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 3976.5 | 3976.5 | 3976.5 | 3976.5 | 3976.5 | 3976.5 | 3976.5 | 3976.5 | 3976.5 | 3976.5 | 3976.5 |
| 2.5° | 4051.3 | 3931.6 | 3777.7 | 3647.3 | 3527.5 | 3435.6 | 3356.5 | 3318.0 | 3281.7 | 3256.0 | 3264.6 |
| 5° | 4162.5 | 3957.3 | 3670.8 | 3472.0 | 3350.1 | 3288.1 | 3245.3 | 3224.0 | 3219.7 | 3202.6 | 3196.2 |
| 7.5° | 4325.0 | 4032.1 | 3649.4 | 3448.4 | 3367.2 | 3335.1 | 3311.6 | 3298.8 | 3305.2 | 3288.1 | 3281.7 |
| 10° | 4525.9 | 4156.1 | 3702.8 | 3525.4 | 3454.9 | 3431.3 | 3405.7 | 3388.6 | 3380.0 | 3354.4 | 3350.1 |
| 12.5° | 4776.1 | 4310.0 | 3799.1 | 3623.7 | 3553.2 | 3512.6 | 3478.4 | 3448.4 | 3429.2 | 3397.1 | 3388.6 |
| 15° | 5045.5 | 4481.0 | 3912.4 | 3720.0 | 3636.6 | 3576.7 | 3521.1 | 3476.2 | 3442.0 | 3399.3 | 3392.9 |
| 17.5° | 5338.3 | 4660.6 | 4006.4 | 3786.2 | 3679.3 | 3600.2 | 3519.0 | 3452.7 | 3405.7 | 3350.1 | 3343.7 |
| 20° | 5644.1 | 4842.4 | 4077.0 | 3818.3 | 3681.5 | 3574.6 | 3465.5 | 3377.9 | 3318.0 | 3262.4 | 3258.2 |
| 22.5° | 5960.5 | 5009.1 | 4119.7 | 3809.7 | 3647.3 | 3514.7 | 3384.3 | 3286.0 | 3215.4 | 3149.1 | 3144.9 |
| 25° | 6279.0 | 5169.5 | 4130.4 | 3775.5 | 3578.9 | 3424.9 | 3294.5 | 3179.1 | 3100.0 | 3025.1 | 3016.6 |
| 27.5° | 6601.8 | 5304.1 | 4104.8 | 3707.1 | 3486.9 | 3320.2 | 3189.8 | 3076.4 | 2995.2 | 2920.4 | 2907.5 |
| 30° | 6946.0 | 5419.6 | 4049.2 | 3617.3 | 3380.0 | 3209.0 | 3080.7 | 2995.2 | 2918.2 | 2843.4 | 2830.6 |
| 32.5° | 7313.8 | 5520.1 | 3970.1 | 3508.3 | 3256.0 | 3097.8 | 3003.8 | 2926.8 | 2849.8 | 2783.6 | 2770.7 |
| 35° | 7752.0 | 5586.3 | 3852.5 | 3367.2 | 3140.6 | 3016.6 | 2952.4 | 2862.7 | 2768.6 | 2695.9 | 2689.5 |
| 37.5° | 8205.3 | 5637.7 | 3711.4 | 3232.5 | 3040.1 | 2969.5 | 2916.1 | 2794.2 | 2676.7 | 2589.0 | 2578.3 |
| 40° | 8643.5 | 5680.4 | 3536.1 | 3106.4 | 2948.2 | 2935.3 | 2862.7 | 2710.9 | 2507.8 | 2409.4 | 2400.9 |
| 42.5° | 9051.9 | 5693.2 | 3352.2 | 2971.7 | 2864.8 | 2858.4 | 2777.1 | 2542.0 | 2385.9 | 2323.9 | 2315.3 |
| 45° | 9331.9 | 5682.5 | 3162.0 | 2845.5 | 2781.4 | 2747.2 | 2661.7 | 2420.1 | 2323.9 | 2268.3 | 2257.6 |
| 47.5° | 9539.3 | 5627.0 | 2948.2 | 2713.0 | 2687.3 | 2640.3 | 2456.5 | 2343.1 | 2253.4 | 2197.8 | 2187.1 |
| 50° | 9503.0 | 5396.1 | 2732.2 | 2584.7 | 2574.0 | 2533.4 | 2306.8 | 2246.9 | 2167.8 | 2108.0 | 2099.4 |
| 52.5° | 9314.8 | 4957.8 | 2512.0 | 2443.6 | 2465.0 | 2385.9 | 2199.9 | 2131.5 | 2063.1 | 1994.7 | 1979.7 |
| 55° | 9361.9 | 4641.4 | 2345.3 | 2306.8 | 2345.3 | 2165.7 | 2080.2 | 2007.5 | 1943.4 | 1877.1 | 1864.3 |
| 57.5° | 9567.1 | 4329.3 | 2167.8 | 2159.3 | 2199.9 | 1996.8 | 1926.3 | 1834.3 | 1742.4 | 1688.9 | 1688.9 |
| 60° | 8034.2 | 3155.5 | 1855.7 | 1877.1 | 1969.0 | 1860.0 | 1798.0 | 1703.9 | 1603.4 | 1556.4 | 1556.4 |
| 62.5° | 4750.4 | 1979.7 | 1539.3 | 1515.8 | 1573.5 | 1641.9 | 1676.1 | 1599.2 | 1479.4 | 1417.4 | 1419.6 |
| 65° | 2093.0 | 1440.9 | 1357.6 | 1338.3 | 1321.2 | 1368.3 | 1462.3 | 1468.7 | 1342.6 | 1269.9 | 1272.1 |
| 67.5° | 1289.2 | 1304.1 | 1269.9 | 1254.9 | 1240.0 | 1231.4 | 1222.9 | 1227.2 | 1193.0 | 1126.7 | 1124.5 |
| 70° | 1163.0 | 1203.6 | 1180.1 | 1167.3 | 1148.1 | 1133.1 | 1081.8 | 998.4 | 940.7 | 923.6 | 942.8 |
| 72.5° | 1000.5 | 1056.1 | 1043.3 | 1036.9 | 1013.4 | 977.0 | 908.6 | 827.4 | 759.0 | 716.2 | 724.7 |
| 75° | 754.7 | 799.6 | 806.0 | 808.1 | 782.5 | 748.3 | 677.7 | 609.3 | 549.4 | 504.5 | 515.2 |
| 77.5° | 434.0 | 459.6 | 466.1 | 472.5 | 453.2 | 440.4 | 393.4 | 344.2 | 312.1 | 265.1 | 277.9 |
| 80° | 241.6 | 252.3 | 252.3 | 254.4 | 243.7 | 228.8 | 196.7 | 168.9 | 153.9 | 132.6 | 134.7 |
| 82.5° | 145.4 | 149.7 | 151.8 | 153.9 | 147.5 | 132.6 | 109.0 | 89.8 | 81.2 | 70.6 | 68.4 |
| 85° | 70.6 | 74.8 | 74.8 | 77.0 | 66.3 | 57.7 | 44.9 | 34.2 | 29.9 | 21.4 | 23.5 |
| 87.5° | 17.1 | 19.2 | 19.2 | 17.1 | 15.0 | 10.7 | 6.4 | 2.1 | 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 |

REPORT NUMBER: SP1-2408-195-9

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)