

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: P641899

Luminaire Tested: GWS-SA6B-827-U-T2-W-GRSWH

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P641899
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-21)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA6B-827-U-T2-W-GRSWH
Description: GALLEON WALL SLIM LUMINAIRE. (6) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II OPTICS W/ FACTORY INSALLED GLARE SHIELD, WH
Light Source: (96) 2700K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 12976.3 lumens
Efficiency: N/A
Efficacy: 93.4 lumens/watt
Luminous Opening: Rectangular (W 2' x L: 1' x H: 0')
IES Classification: Type II - Short
BUG Rating: B2 - U0 - G2

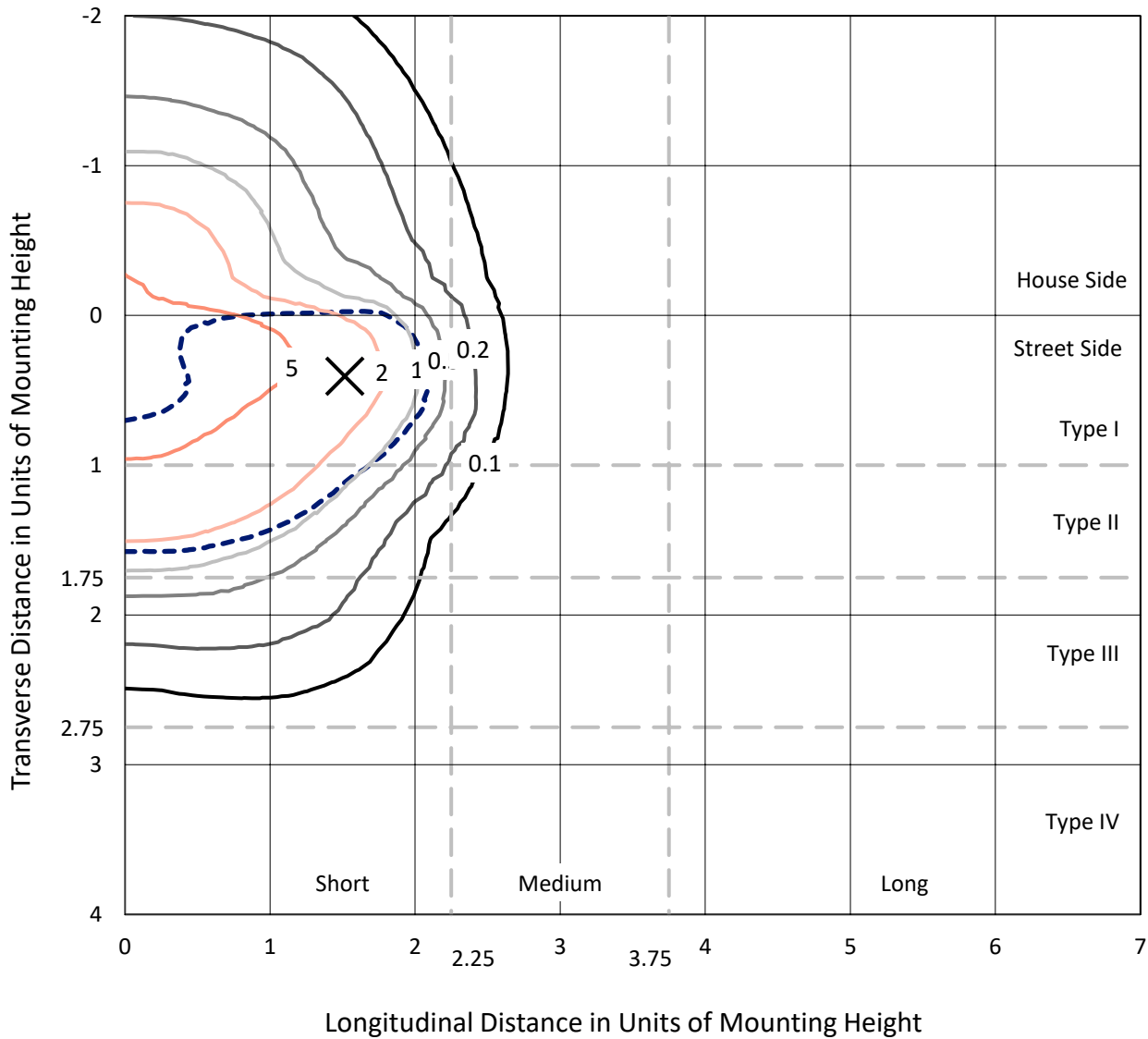
Input Watts (W): 138.9
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

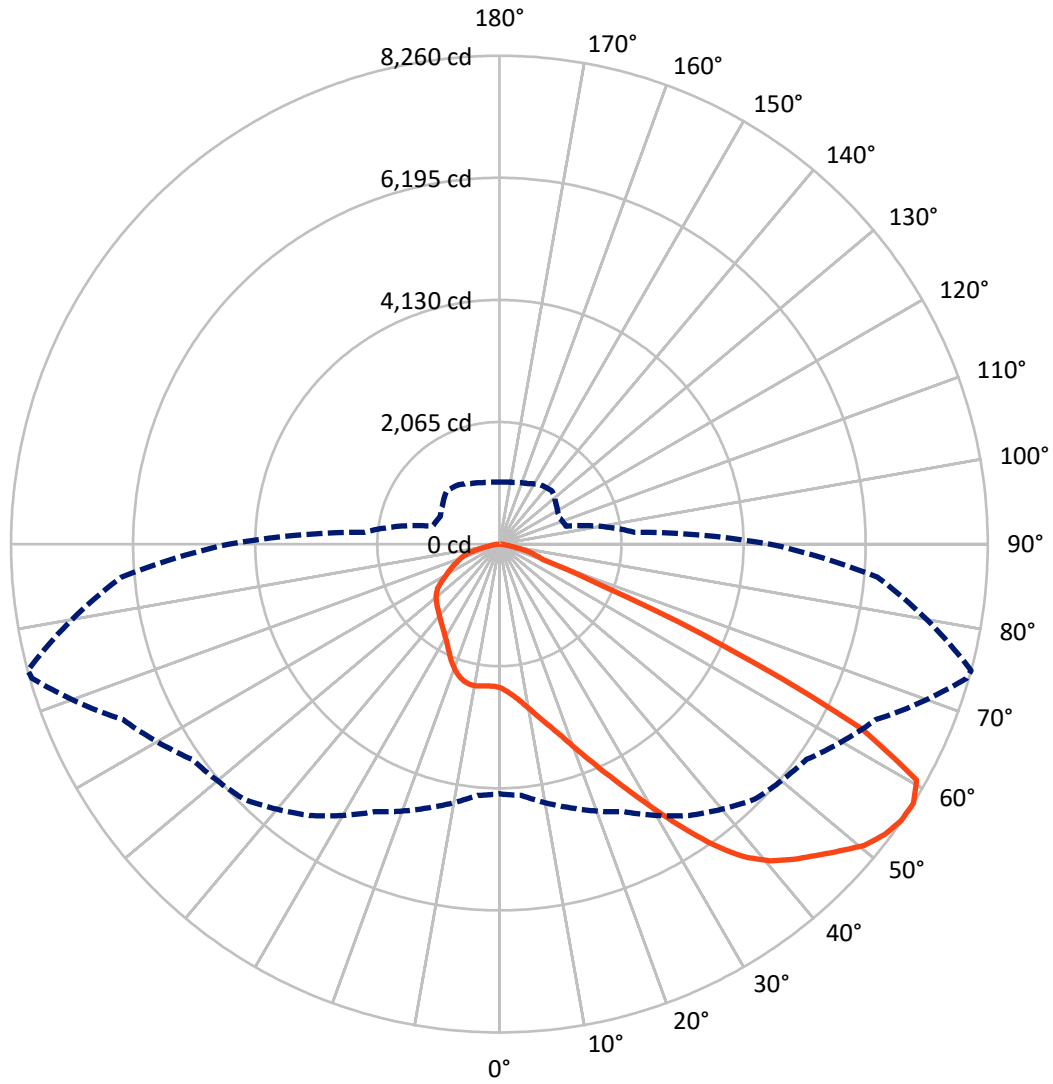
✕ Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 8.6 fc
 Type II - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 75-Deg Lateral - - - Horizontal Cone Through 57.5-Deg Vertical

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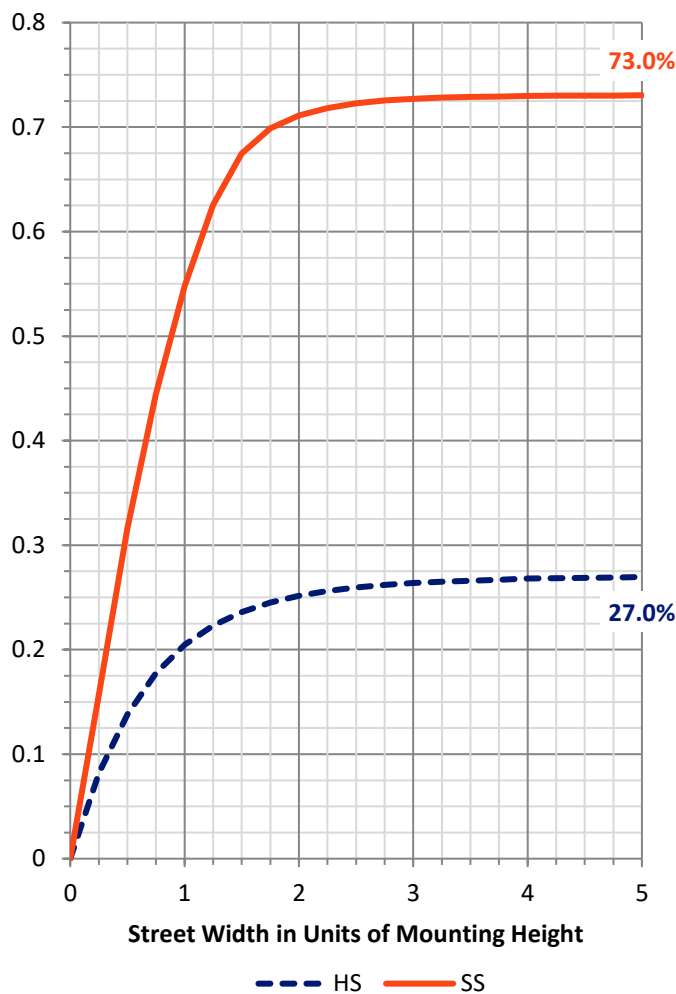
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 3510.3 | 0.0 | 3510.3 |
| | % Fixture | 27.1 | 0.0 | 27.1 |
| Street Side | Lumens | 9466.0 | 0.0 | 9466.0 |
| | % Fixture | 72.9 | 0.0 | 72.9 |
| Total | Lumens | 12976.3 | 0.0 | 12976.3 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 243.2 | 1.9 |
| 10°-20° | 774.2 | 6.0 |
| 20°-30° | 1373.1 | 10.6 |
| 30°-40° | 2102.0 | 16.2 |
| 40°-50° | 2926.8 | 22.6 |
| 50°-60° | 3353.6 | 25.8 |
| 60°-70° | 1723.1 | 13.3 |
| 70°-80° | 433.8 | 3.3 |
| 80°-90° | 46.4 | 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° | 12976.3 | 100.0 |
| 0°-180° | 12976.3 | 100.0 |

Coefficient of Utilization



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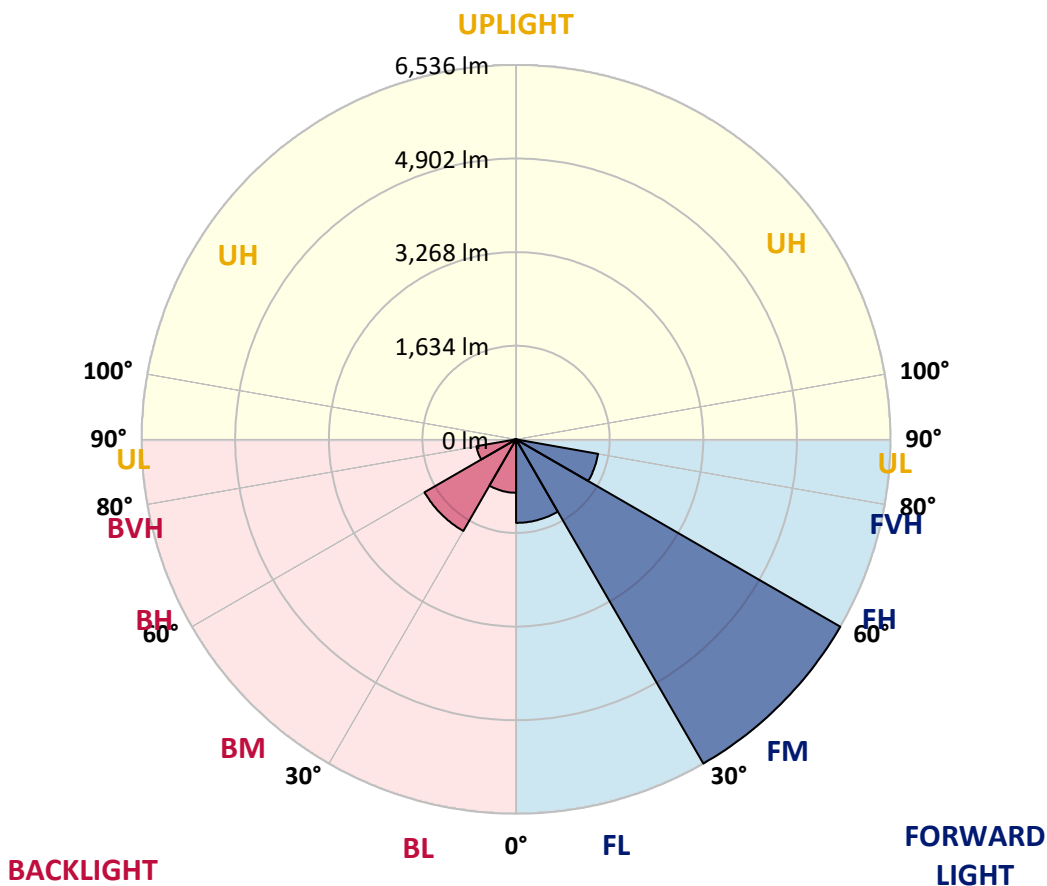
CATALOG NUMBER: GWS-SA6B-827-U-T2-W-GRSWH

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1458.0 | 11.2 | | | |
| FM (30°-60°) | 6536.3 | 50.4 | | | |
| FH (60°-80°) | 1454.5 | 11.2 | | | G1/1800 |
| FVH (80°-90°) | 17.2 | 0.1 | | | G1/100 |
| BL (0°-30°) | 932.6 | 7.2 | B2/1000 | | |
| BM (30°-60°) | 1846.1 | 14.2 | B2/2500 | | |
| BH (60°-80°) | 702.4 | 5.4 | B2/1000 | | G2/1000 |
| BVH (80°-90°) | 29.2 | 0.2 | | | 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 II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 74° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2430.1 | 2430.1 | 2430.1 | 2430.1 | 2430.1 | 2430.1 | 2430.1 | 2430.1 | 2430.1 | 2430.1 | 2430.1 |
| 2.5° | 2610.9 | 2617.6 | 2610.9 | 2622.1 | 2599.7 | 2589.7 | 2565.2 | 2528.3 | 2499.3 | 2494.9 | 2462.5 |
| 5° | 2814.0 | 2828.5 | 2819.6 | 2815.1 | 2785.0 | 2762.6 | 2725.8 | 2652.2 | 2591.9 | 2583.0 | 2519.4 |
| 7.5° | 2944.5 | 2954.6 | 2954.6 | 2957.9 | 2946.8 | 2921.1 | 2882.0 | 2795.0 | 2710.2 | 2696.8 | 2600.9 |
| 10° | 2988.0 | 2995.8 | 3010.4 | 3038.2 | 3060.6 | 3068.4 | 3042.7 | 2959.0 | 2855.3 | 2841.9 | 2708.0 |
| 12.5° | 2998.1 | 3007.0 | 3029.3 | 3080.6 | 3142.0 | 3197.8 | 3202.3 | 3140.9 | 3024.9 | 3010.4 | 2831.8 |
| 15° | 3017.0 | 3026.0 | 3056.1 | 3119.7 | 3210.1 | 3317.2 | 3383.0 | 3340.6 | 3212.3 | 3196.7 | 2972.4 |
| 17.5° | 3014.8 | 3024.9 | 3069.5 | 3154.3 | 3275.9 | 3431.0 | 3558.2 | 3576.0 | 3443.3 | 3416.5 | 3132.0 |
| 20° | 3009.2 | 3018.2 | 3066.1 | 3169.9 | 3320.5 | 3533.6 | 3763.5 | 3856.1 | 3713.3 | 3688.7 | 3318.3 |
| 22.5° | 3053.9 | 3063.9 | 3100.7 | 3186.6 | 3344.0 | 3612.9 | 3953.2 | 4176.3 | 4033.5 | 3998.9 | 3532.5 |
| 25° | 3154.3 | 3168.8 | 3191.1 | 3250.2 | 3386.4 | 3683.2 | 4147.3 | 4539.0 | 4392.8 | 4351.5 | 3765.7 |
| 27.5° | 3309.4 | 3327.2 | 3358.5 | 3386.4 | 3481.2 | 3772.4 | 4340.3 | 4945.1 | 4798.9 | 4755.4 | 4012.3 |
| 30° | 3499.1 | 3522.5 | 3562.7 | 3581.6 | 3646.3 | 3904.1 | 4550.1 | 5363.5 | 5278.7 | 5218.5 | 4290.1 |
| 32.5° | 3761.3 | 3793.6 | 3831.6 | 3837.1 | 3876.2 | 4103.8 | 4757.6 | 5778.6 | 5777.5 | 5735.1 | 4605.9 |
| 35° | 4102.7 | 4137.3 | 4145.1 | 4152.9 | 4171.9 | 4378.3 | 5008.7 | 6156.8 | 6303.0 | 6253.9 | 4949.6 |
| 37.5° | 4475.4 | 4525.6 | 4537.8 | 4503.3 | 4530.0 | 4708.6 | 5291.0 | 6460.3 | 6760.5 | 6708.0 | 5282.1 |
| 40° | 4873.7 | 4893.8 | 4927.2 | 4872.6 | 4906.0 | 5086.8 | 5567.7 | 6654.5 | 7101.9 | 7046.1 | 5544.3 |
| 42.5° | 5159.3 | 5196.1 | 5246.4 | 5226.3 | 5245.2 | 5410.4 | 5761.8 | 6748.2 | 7345.1 | 7289.3 | 5732.8 |
| 45° | 5469.5 | 5480.7 | 5513.0 | 5508.6 | 5519.7 | 5673.7 | 5901.3 | 6789.5 | 7562.7 | 7512.5 | 5893.5 |
| 47.5° | 5739.5 | 5756.3 | 5777.5 | 5752.9 | 5728.4 | 5828.8 | 6015.1 | 6825.2 | 7813.7 | 7753.5 | 6062.0 |
| 50° | 5999.5 | 6014.0 | 6039.7 | 5968.3 | 5876.8 | 5902.4 | 6070.9 | 6874.3 | 8049.2 | 8006.8 | 6194.8 |
| 52.5° | 6047.5 | 6063.1 | 6183.6 | 6198.1 | 6081.0 | 5990.6 | 6169.1 | 6982.5 | 8187.5 | 8160.7 | 6242.7 |
| 55° | 5443.8 | 5471.7 | 5711.6 | 5987.2 | 6276.2 | 6247.2 | 6326.4 | 7039.4 | 8242.2 | 8248.9 | 6328.7 |
| 57.5° | 4225.4 | 4265.6 | 4615.9 | 4994.2 | 5602.3 | 6105.5 | 6346.5 | 7024.9 | 8223.2 | 8260.1 | 6416.8 |
| 60° | 2771.6 | 2795.0 | 3210.1 | 3634.1 | 4264.5 | 4960.7 | 5680.4 | 6763.8 | 8054.8 | 8107.2 | 6394.5 |
| 62.5° | 1673.7 | 1700.4 | 2034.1 | 2355.4 | 2726.9 | 3192.2 | 3852.8 | 5436.0 | 6751.5 | 6868.7 | 5121.4 |
| 65° | 1168.2 | 1203.9 | 1496.2 | 1760.7 | 1889.0 | 1793.0 | 1951.5 | 3036.0 | 4206.5 | 4255.6 | 3129.7 |
| 67.5° | 846.9 | 871.4 | 1111.3 | 1426.0 | 1567.7 | 1266.4 | 965.1 | 1344.5 | 1832.1 | 1849.9 | 1290.9 |
| 70° | 554.5 | 582.4 | 800.0 | 1085.6 | 1279.8 | 1026.5 | 721.9 | 727.5 | 771.0 | 779.9 | 749.8 |
| 72.5° | 304.6 | 321.3 | 494.3 | 720.8 | 756.5 | 613.7 | 563.5 | 604.7 | 634.9 | 634.9 | 642.7 |
| 75° | 157.3 | 171.8 | 202.0 | 237.7 | 286.8 | 335.8 | 406.1 | 467.5 | 499.9 | 502.1 | 498.7 |
| 77.5° | 80.3 | 85.9 | 108.2 | 117.2 | 128.3 | 149.5 | 194.1 | 248.8 | 277.8 | 289.0 | 286.8 |
| 80° | 37.9 | 40.2 | 45.7 | 53.6 | 65.8 | 83.7 | 104.9 | 125.0 | 142.8 | 145.1 | 157.3 |
| 82.5° | 20.1 | 22.3 | 24.5 | 29.0 | 35.7 | 44.6 | 61.4 | 73.6 | 84.8 | 87.0 | 97.1 |
| 85° | 7.8 | 8.9 | 10.0 | 11.2 | 15.6 | 19.0 | 25.7 | 34.6 | 42.4 | 42.4 | 50.2 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 2.2 | 4.5 | 5.6 | 7.8 | 7.8 | 13.4 |
| 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: P641899

CATALOG NUMBER: GWS-SA6B-827-U-T2-W-GRSWH

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2430.1 | 2430.1 | 2430.1 | 2430.1 | 2430.1 | 2430.1 | 2430.1 | 2430.1 | 2430.1 | 2430.1 | 2430.1 |
| 2.5° | 2454.7 | 2422.3 | 2407.8 | 2384.4 | 2365.4 | 2344.2 | 2327.5 | 2315.2 | 2307.4 | 2303.0 | 2298.5 |
| 5° | 2494.9 | 2445.8 | 2406.7 | 2359.9 | 2327.5 | 2296.3 | 2270.6 | 2252.7 | 2243.8 | 2237.1 | 2232.7 |
| 7.5° | 2557.3 | 2491.5 | 2417.9 | 2345.4 | 2288.4 | 2238.2 | 2205.9 | 2186.9 | 2174.6 | 2170.2 | 2166.8 |
| 10° | 2643.3 | 2551.8 | 2430.1 | 2315.2 | 2230.4 | 2175.8 | 2153.4 | 2144.5 | 2145.6 | 2143.4 | 2142.3 |
| 12.5° | 2740.3 | 2615.4 | 2426.8 | 2261.7 | 2167.9 | 2135.6 | 2136.7 | 2151.2 | 2167.9 | 2172.4 | 2173.5 |
| 15° | 2845.2 | 2677.9 | 2394.4 | 2192.5 | 2118.8 | 2122.2 | 2151.2 | 2185.8 | 2217.0 | 2229.3 | 2231.5 |
| 17.5° | 2959.0 | 2730.3 | 2335.3 | 2116.6 | 2078.7 | 2114.4 | 2167.9 | 2224.8 | 2270.6 | 2290.7 | 2296.3 |
| 20° | 3086.2 | 2774.9 | 2251.6 | 2041.9 | 2040.7 | 2099.9 | 2178.0 | 2252.7 | 2310.8 | 2337.5 | 2342.0 |
| 22.5° | 3221.2 | 2802.8 | 2149.0 | 1972.7 | 2001.7 | 2080.9 | 2170.2 | 2248.3 | 2309.6 | 2336.4 | 2342.0 |
| 25° | 3357.4 | 2811.7 | 2036.3 | 1909.1 | 1961.5 | 2050.8 | 2132.2 | 2194.7 | 2252.7 | 2276.2 | 2280.6 |
| 27.5° | 3484.6 | 2786.1 | 1929.2 | 1854.4 | 1924.7 | 2006.2 | 2060.8 | 2094.3 | 2134.5 | 2152.3 | 2155.7 |
| 30° | 3614.0 | 2734.8 | 1838.8 | 1810.9 | 1883.4 | 1944.8 | 1969.3 | 1971.6 | 1987.2 | 1987.2 | 1989.4 |
| 32.5° | 3744.5 | 2658.9 | 1759.6 | 1768.5 | 1832.1 | 1872.3 | 1875.6 | 1849.9 | 1831.0 | 1799.7 | 1798.6 |
| 35° | 3895.2 | 2581.9 | 1694.9 | 1720.5 | 1771.8 | 1796.4 | 1786.3 | 1737.3 | 1691.5 | 1640.2 | 1638.0 |
| 37.5° | 4034.6 | 2502.7 | 1640.2 | 1671.4 | 1703.8 | 1721.6 | 1698.2 | 1639.1 | 1601.1 | 1548.7 | 1540.9 |
| 40° | 4149.6 | 2431.3 | 1587.7 | 1620.1 | 1635.7 | 1651.3 | 1613.4 | 1565.4 | 1571.0 | 1542.0 | 1540.9 |
| 42.5° | 4216.5 | 2362.1 | 1538.6 | 1563.2 | 1573.2 | 1584.4 | 1550.9 | 1515.2 | 1545.3 | 1523.0 | 1524.1 |
| 45° | 4265.6 | 2301.8 | 1494.0 | 1502.9 | 1527.5 | 1544.2 | 1513.0 | 1472.8 | 1479.5 | 1393.6 | 1373.5 |
| 47.5° | 4321.4 | 2268.4 | 1451.6 | 1442.7 | 1486.2 | 1515.2 | 1467.2 | 1409.2 | 1369.1 | 1284.3 | 1276.4 |
| 50° | 4380.5 | 2256.1 | 1407.0 | 1382.4 | 1434.9 | 1462.8 | 1407.0 | 1334.5 | 1282.0 | 1236.3 | 1231.8 |
| 52.5° | 4400.6 | 2255.0 | 1351.2 | 1309.9 | 1362.4 | 1401.4 | 1354.5 | 1280.9 | 1218.4 | 1173.8 | 1171.6 |
| 55° | 4479.8 | 2287.3 | 1279.8 | 1210.6 | 1259.7 | 1340.0 | 1305.5 | 1199.5 | 1149.2 | 1129.2 | 1126.9 |
| 57.5° | 4572.4 | 2292.9 | 1167.1 | 1102.4 | 1170.4 | 1265.3 | 1221.8 | 1130.3 | 1075.6 | 1051.1 | 1048.8 |
| 60° | 4534.5 | 2155.7 | 1046.6 | 1019.8 | 1094.6 | 1195.0 | 1154.8 | 1075.6 | 1012.0 | 988.6 | 986.3 |
| 62.5° | 3455.5 | 1521.9 | 958.4 | 948.4 | 1013.1 | 1093.5 | 1085.6 | 1003.1 | 942.8 | 926.1 | 923.9 |
| 65° | 2078.7 | 1068.9 | 873.6 | 872.5 | 918.3 | 995.3 | 1005.3 | 938.4 | 874.8 | 851.3 | 851.3 |
| 67.5° | 1027.6 | 817.9 | 777.7 | 772.1 | 801.1 | 855.8 | 898.2 | 843.5 | 790.0 | 767.7 | 764.3 |
| 70° | 726.4 | 720.8 | 707.4 | 691.8 | 697.4 | 719.7 | 737.5 | 691.8 | 634.9 | 612.6 | 608.1 |
| 72.5° | 628.2 | 629.3 | 620.4 | 608.1 | 603.6 | 588.0 | 572.4 | 538.9 | 504.3 | 480.9 | 483.1 |
| 75° | 487.6 | 489.8 | 495.4 | 490.9 | 478.7 | 461.9 | 445.2 | 402.8 | 374.9 | 352.6 | 348.1 |
| 77.5° | 284.5 | 295.7 | 313.5 | 309.1 | 311.3 | 287.9 | 281.2 | 239.9 | 214.2 | 198.6 | 195.3 |
| 80° | 160.7 | 167.4 | 175.2 | 180.8 | 174.1 | 164.0 | 149.5 | 127.2 | 119.4 | 108.2 | 106.0 |
| 82.5° | 97.1 | 103.8 | 107.1 | 111.6 | 109.3 | 96.0 | 84.8 | 70.3 | 63.6 | 58.0 | 56.9 |
| 85° | 49.1 | 53.6 | 56.9 | 59.1 | 52.4 | 43.5 | 39.1 | 31.2 | 26.8 | 23.4 | 23.4 |
| 87.5° | 12.3 | 13.4 | 15.6 | 13.4 | 12.3 | 5.6 | 4.5 | 1.1 | 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

Invue

Report Number: SP1-2407-157-9

Test Date: 10/03/2024

Luminaire Tested: EMM2-HTN-SA1A-827-U-5WQ

Data applicable to all product families utilizing light square engine

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-157-9
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 10/03/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: Invue
 Catalog Number: **EMM2-HTN-SA1A-827-U-5WQ**
 Description: Epic Modern Light Square 40W 5WQ Optic

Spectral Parameters

CCT (K): 2764
 CIE u': 0.2591
 CIE v': 0.5290
 Duv: 0.0020
 CIE x: 0.4581
 CIE y: 0.4156
 CIE z: 0.1263
 Peak Wavelength (nm): 603
 Dominant Wavelength (nm): 583
 Purity: 62.2537
 Rf: 84.7
 Rg: 94.6

| | | | |
|-----------|------|------|------|
| CRI (Ra): | 80.9 | | |
| R1: | 78.8 | R9: | -1.5 |
| R2: | 89.9 | R10: | 77.9 |
| R3: | 96.2 | R11: | 78.9 |
| R4: | 79.1 | R12: | 71.6 |
| R5: | 79.1 | R13: | 81.2 |
| R6: | 88.8 | R14: | 98.5 |
| R7: | 81.3 | R15: | 69.9 |
| R8: | 54.3 | | |



Test Conditions

Stabilization Time: 81M
 Operation Time: 2H 21M
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-157-9

| 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 2700K 4-step quadrangle

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Photopic Flux vs. Wavelength



Photopic Lumens: 4337.9

| λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360 | 0 | 0.0 | 490 | 18018 | 2.6 | 620 | 87426 | 22.8 | 750 | 2680 | 0.0 | 880 | 58 | 0.0 |
| 365 | 0 | 0.0 | 495 | 22295 | 3.9 | 625 | 83013 | 18.2 | 755 | 2287 | 0.0 | 885 | 46 | 0.0 |
| 370 | 0 | 0.0 | 500 | 26478 | 5.8 | 630 | 78077 | 14.1 | 760 | 1944 | 0.0 | 890 | 45 | 0.0 |
| 375 | 0 | 0.0 | 505 | 30524 | 8.5 | 635 | 72080 | 10.7 | 765 | 1653 | 0.0 | 895 | 41 | 0.0 |
| 380 | 0 | 0.0 | 510 | 33611 | 11.5 | 640 | 66249 | 7.9 | 770 | 1413 | 0.0 | 900 | 38 | 0.0 |
| 385 | 0 | 0.0 | 515 | 36490 | 15.2 | 645 | 59973 | 5.7 | 775 | 1198 | 0.0 | 905 | 33 | 0.0 |
| 390 | 0 | 0.0 | 520 | 38610 | 18.7 | 650 | 53972 | 3.9 | 780 | 1025 | 0.0 | 910 | 30 | 0.0 |
| 395 | 0 | 0.0 | 525 | 40511 | 21.9 | 655 | 48369 | 2.7 | 785 | 874 | 0.0 | 915 | 23 | 0.0 |
| 400 | 48 | 0.0 | 530 | 42223 | 24.9 | 660 | 42641 | 1.8 | 790 | 747 | 0.0 | 920 | 24 | 0.0 |
| 405 | 201 | 0.0 | 535 | 44137 | 27.6 | 665 | 37602 | 1.1 | 795 | 639 | 0.0 | 925 | 22 | 0.0 |
| 410 | 457 | 0.0 | 540 | 46032 | 30.0 | 670 | 32798 | 0.7 | 800 | 547 | 0.0 | 930 | 22 | 0.0 |
| 415 | 925 | 0.0 | 545 | 48553 | 32.5 | 675 | 28558 | 0.5 | 805 | 473 | 0.0 | 935 | 17 | 0.0 |
| 420 | 1816 | 0.0 | 550 | 51408 | 34.9 | 680 | 24782 | 0.3 | 810 | 401 | 0.0 | 940 | 13 | 0.0 |
| 425 | 3217 | 0.0 | 555 | 54711 | 37.4 | 685 | 21386 | 0.2 | 815 | 351 | 0.0 | 945 | 6 | 0.0 |
| 430 | 5520 | 0.0 | 560 | 58847 | 40.0 | 690 | 18413 | 0.1 | 820 | 307 | 0.0 | 950 | 10 | 0.0 |
| 435 | 9225 | 0.1 | 565 | 63386 | 42.4 | 695 | 15721 | 0.1 | 825 | 261 | 0.0 | 955 | 11 | 0.0 |
| 440 | 15522 | 0.2 | 570 | 68196 | 44.3 | 700 | 13432 | 0.0 | 830 | 228 | 0.0 | 960 | 8 | 0.0 |
| 445 | 27642 | 0.6 | 575 | 73613 | 46.0 | 705 | 11513 | 0.0 | 835 | 193 | 0.0 | 965 | 12 | 0.0 |
| 450 | 36602 | 0.9 | 580 | 79207 | 47.1 | 710 | 9780 | 0.0 | 840 | 174 | 0.0 | 970 | 3 | 0.0 |
| 455 | 28292 | 0.9 | 585 | 84248 | 47.0 | 715 | 8356 | 0.0 | 845 | 151 | 0.0 | 975 | 8 | 0.0 |
| 460 | 21166 | 0.9 | 590 | 88397 | 45.7 | 720 | 7161 | 0.0 | 850 | 123 | 0.0 | 980 | 2 | 0.0 |
| 465 | 19092 | 1.0 | 595 | 91428 | 43.4 | 725 | 6067 | 0.0 | 855 | 106 | 0.0 | 985 | 13 | 0.0 |
| 470 | 14951 | 0.9 | 600 | 93452 | 40.3 | 730 | 5164 | 0.0 | 860 | 95 | 0.0 | 990 | 16 | 0.0 |
| 475 | 12606 | 1.0 | 605 | 93959 | 36.4 | 735 | 4393 | 0.0 | 865 | 82 | 0.0 | 995 | 20 | 0.0 |
| 480 | 13323 | 1.3 | 610 | 93079 | 32.0 | 740 | 3694 | 0.0 | 870 | 77 | 0.0 | 1000 | 0 | 0.0 |
| 485 | 15164 | 1.8 | 615 | 90707 | 27.3 | 745 | 3157 | 0.0 | 875 | 65 | 0.0 | | | |

REPORT NUMBER: SP1-2407-157-9

Scotopic Flux vs. Wavelength



Scotopic Lumens: 5286.7

S/P: 1.22

| λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360 | 0 | 0.0 | 490 | 18018 | 75.9 | 620 | 87426 | 0.4 | 750 | 2680 | 0.0 | 880 | 58 | 0.0 |
| 365 | 0 | 0.0 | 495 | 22295 | 93.2 | 625 | 83013 | 0.2 | 755 | 2287 | 0.0 | 885 | 46 | 0.0 |
| 370 | 0 | 0.0 | 500 | 26478 | 107.8 | 630 | 78077 | 0.1 | 760 | 1944 | 0.0 | 890 | 45 | 0.0 |
| 375 | 0 | 0.0 | 505 | 30524 | 118.7 | 635 | 72080 | 0.1 | 765 | 1653 | 0.0 | 895 | 41 | 0.0 |
| 380 | 0 | 0.0 | 510 | 33611 | 122.2 | 640 | 66249 | 0.1 | 770 | 1413 | 0.0 | 900 | 38 | 0.0 |
| 385 | 0 | 0.0 | 515 | 36490 | 120.8 | 645 | 59973 | 0.0 | 775 | 1198 | 0.0 | 905 | 33 | 0.0 |
| 390 | 0 | 0.0 | 520 | 38610 | 113.9 | 650 | 53972 | 0.0 | 780 | 1025 | 0.0 | 910 | 30 | 0.0 |
| 395 | 0 | 0.0 | 525 | 40511 | 104.1 | 655 | 48369 | 0.0 | 785 | 874 | 0.0 | 915 | 23 | 0.0 |
| 400 | 48 | 0.0 | 530 | 42223 | 92.4 | 660 | 42641 | 0.0 | 790 | 747 | 0.0 | 920 | 24 | 0.0 |
| 405 | 201 | 0.0 | 535 | 44137 | 80.5 | 665 | 37602 | 0.0 | 795 | 639 | 0.0 | 925 | 22 | 0.0 |
| 410 | 457 | 0.1 | 540 | 46032 | 68.2 | 670 | 32798 | 0.0 | 800 | 547 | 0.0 | 930 | 22 | 0.0 |
| 415 | 925 | 0.3 | 545 | 48553 | 57.1 | 675 | 28558 | 0.0 | 805 | 473 | 0.0 | 935 | 17 | 0.0 |
| 420 | 1816 | 1.1 | 550 | 51408 | 46.7 | 680 | 24782 | 0.0 | 810 | 401 | 0.0 | 940 | 13 | 0.0 |
| 425 | 3217 | 2.5 | 555 | 54711 | 37.4 | 685 | 21386 | 0.0 | 815 | 351 | 0.0 | 945 | 6 | 0.0 |
| 430 | 5520 | 5.9 | 560 | 58847 | 29.4 | 690 | 18413 | 0.0 | 820 | 307 | 0.0 | 950 | 10 | 0.0 |
| 435 | 9225 | 12.5 | 565 | 63386 | 22.5 | 695 | 15721 | 0.0 | 825 | 261 | 0.0 | 955 | 11 | 0.0 |
| 440 | 15522 | 26.3 | 570 | 68196 | 16.9 | 700 | 13432 | 0.0 | 830 | 228 | 0.0 | 960 | 8 | 0.0 |
| 445 | 27642 | 55.2 | 575 | 73613 | 12.4 | 705 | 11513 | 0.0 | 835 | 193 | 0.0 | 965 | 12 | 0.0 |
| 450 | 36602 | 85.4 | 580 | 79207 | 9.0 | 710 | 9780 | 0.0 | 840 | 174 | 0.0 | 970 | 3 | 0.0 |
| 455 | 28292 | 75.1 | 585 | 84248 | 6.3 | 715 | 8356 | 0.0 | 845 | 151 | 0.0 | 975 | 8 | 0.0 |
| 460 | 21166 | 63.2 | 590 | 88397 | 4.4 | 720 | 7161 | 0.0 | 850 | 123 | 0.0 | 980 | 2 | 0.0 |
| 465 | 19092 | 63.2 | 595 | 91428 | 3.0 | 725 | 6067 | 0.0 | 855 | 106 | 0.0 | 985 | 13 | 0.0 |
| 470 | 14951 | 54.2 | 600 | 93452 | 2.0 | 730 | 5164 | 0.0 | 860 | 95 | 0.0 | 990 | 16 | 0.0 |
| 475 | 12606 | 48.8 | 605 | 93959 | 1.3 | 735 | 4393 | 0.0 | 865 | 82 | 0.0 | 995 | 20 | 0.0 |
| 480 | 13323 | 54.2 | 610 | 93079 | 0.9 | 740 | 3694 | 0.0 | 870 | 77 | 0.0 | 1000 | 0 | 0.0 |
| 485 | 15164 | 63.3 | 615 | 90707 | 0.5 | 745 | 3157 | 0.0 | 875 | 65 | 0.0 | | | |

REPORT NUMBER: SP1-2407-157-9

Melanopic Flux vs. Wavelength



Melanopic Lumens: 9797

M/P: 2.26

| λ (nm) | Power (μ W/nm) | Lumens (ϕ /nm) | λ (nm) | Power (μ W/nm) | Lumens (ϕ /nm) | λ (nm) | Power (μ W/nm) | Lumens (ϕ /nm) | λ (nm) | Power (μ W/nm) | Lumens (ϕ /nm) | λ (nm) | Power (μ W/nm) | Lumens (ϕ /nm) |
|-------------------|------------------------|-------------------------|-------------------|------------------------|-------------------------|-------------------|------------------------|-------------------------|-------------------|------------------------|-------------------------|-------------------|------------------------|-------------------------|
| 360 | 0 | 0.0 | 490 | 18018 | 27.7 | 620 | 87426 | 1.1 | 750 | 2680 | 0.0 | 880 | 58 | 0.0 |
| 365 | 0 | 0.0 | 495 | 22295 | 36.0 | 625 | 83013 | 0.7 | 755 | 2287 | 0.0 | 885 | 46 | 0.0 |
| 370 | 0 | 0.0 | 500 | 26478 | 44.2 | 630 | 78077 | 0.4 | 760 | 1944 | 0.0 | 890 | 45 | 0.0 |
| 375 | 0 | 0.0 | 505 | 30524 | 51.8 | 635 | 72080 | 0.3 | 765 | 1653 | 0.0 | 895 | 41 | 0.0 |
| 380 | 0 | 0.0 | 510 | 33611 | 57.0 | 640 | 66249 | 0.2 | 770 | 1413 | 0.0 | 900 | 38 | 0.0 |
| 385 | 0 | 0.0 | 515 | 36490 | 60.5 | 645 | 59973 | 0.1 | 775 | 1198 | 0.0 | 905 | 33 | 0.0 |
| 390 | 0 | 0.0 | 520 | 38610 | 61.4 | 650 | 53972 | 0.1 | 780 | 1025 | 0.0 | 910 | 30 | 0.0 |
| 395 | 0 | 0.0 | 525 | 40511 | 60.6 | 655 | 48369 | 0.0 | 785 | 874 | 0.0 | 915 | 23 | 0.0 |
| 400 | 48 | 0.0 | 530 | 42223 | 58.2 | 660 | 42641 | 0.0 | 790 | 747 | 0.0 | 920 | 24 | 0.0 |
| 405 | 201 | 0.0 | 535 | 44137 | 55.0 | 665 | 37602 | 0.0 | 795 | 639 | 0.0 | 925 | 22 | 0.0 |
| 410 | 457 | 0.0 | 540 | 46032 | 50.9 | 670 | 32798 | 0.0 | 800 | 547 | 0.0 | 930 | 22 | 0.0 |
| 415 | 925 | 0.1 | 545 | 48553 | 46.6 | 675 | 28558 | 0.0 | 805 | 473 | 0.0 | 935 | 17 | 0.0 |
| 420 | 1816 | 0.3 | 550 | 51408 | 42.0 | 680 | 24782 | 0.0 | 810 | 401 | 0.0 | 940 | 13 | 0.0 |
| 425 | 3217 | 0.8 | 555 | 54711 | 37.4 | 685 | 21386 | 0.0 | 815 | 351 | 0.0 | 945 | 6 | 0.0 |
| 430 | 5520 | 1.9 | 560 | 58847 | 32.9 | 690 | 18413 | 0.0 | 820 | 307 | 0.0 | 950 | 10 | 0.0 |
| 435 | 9225 | 4.1 | 565 | 63386 | 28.4 | 695 | 15721 | 0.0 | 825 | 261 | 0.0 | 955 | 11 | 0.0 |
| 440 | 15522 | 8.7 | 570 | 68196 | 24.1 | 700 | 13432 | 0.0 | 830 | 228 | 0.0 | 960 | 8 | 0.0 |
| 445 | 27642 | 18.5 | 575 | 73613 | 20.0 | 705 | 11513 | 0.0 | 835 | 193 | 0.0 | 965 | 12 | 0.0 |
| 450 | 36602 | 28.3 | 580 | 79207 | 16.3 | 710 | 9780 | 0.0 | 840 | 174 | 0.0 | 970 | 3 | 0.0 |
| 455 | 28292 | 24.7 | 585 | 84248 | 12.9 | 715 | 8356 | 0.0 | 845 | 151 | 0.0 | 975 | 8 | 0.0 |
| 460 | 21166 | 20.4 | 590 | 88397 | 9.8 | 720 | 7161 | 0.0 | 850 | 123 | 0.0 | 980 | 2 | 0.0 |
| 465 | 19092 | 20.1 | 595 | 91428 | 7.3 | 725 | 6067 | 0.0 | 855 | 106 | 0.0 | 985 | 13 | 0.0 |
| 470 | 14951 | 17.2 | 600 | 93452 | 5.3 | 730 | 5164 | 0.0 | 860 | 95 | 0.0 | 990 | 16 | 0.0 |
| 475 | 12606 | 15.7 | 605 | 93959 | 3.7 | 735 | 4393 | 0.0 | 865 | 82 | 0.0 | 995 | 20 | 0.0 |
| 480 | 13323 | 18.0 | 610 | 93079 | 2.5 | 740 | 3694 | 0.0 | 870 | 77 | 0.0 | 1000 | 0 | 0.0 |
| 485 | 15164 | 21.9 | 615 | 90707 | 1.7 | 745 | 3157 | 0.0 | 875 | 65 | 0.0 | | | |

Summary

$R_f = 84.7$
 $R_g = 94.6$
 CIE $R_a = 80.9$
 $R_g = -1.5$



Color Vector Graphics



Individual Sample Fidelity Index ($R_{f,i}$)

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 84 | CES51 = 95 | CES76 = 81 |
| CES02 = 63 | CES27 = 95 | CES52 = 94 | CES77 = 84 |
| CES03 = 31 | CES28 = 94 | CES53 = 89 | CES78 = 81 |
| CES04 = 71 | CES29 = 87 | CES54 = 91 | CES79 = 89 |
| CES05 = 50 | CES30 = 94 | CES55 = 90 | CES80 = 89 |
| CES06 = 52 | CES31 = 89 | CES56 = 86 | CES81 = 69 |
| CES07 = 43 | CES32 = 82 | CES57 = 85 | CES82 = 96 |
| CES08 = 41 | CES33 = 91 | CES58 = 86 | CES83 = 93 |
| CES09 = 29 | CES34 = 92 | CES59 = 91 | CES84 = 92 |
| CES10 = 77 | CES35 = 96 | CES60 = 94 | CES85 = 76 |
| CES11 = 60 | CES36 = 90 | CES61 = 89 | CES86 = 65 |
| CES12 = 66 | CES37 = 96 | CES62 = 94 | CES87 = 84 |
| CES13 = 44 | CES38 = 98 | CES63 = 87 | CES88 = 86 |
| CES14 = 74 | CES39 = 98 | CES64 = 82 | CES89 = 73 |
| CES15 = 72 | CES40 = 95 | CES65 = 78 | CES90 = 88 |
| CES16 = 48 | CES41 = 96 | CES66 = 81 | CES91 = 82 |
| CES17 = 50 | CES42 = 97 | CES67 = 80 | CES92 = 64 |
| CES18 = 57 | CES43 = 91 | CES68 = 83 | CES93 = 78 |
| CES19 = 73 | CES44 = 99 | CES69 = 88 | CES94 = 59 |
| CES20 = 67 | CES45 = 93 | CES70 = 80 | CES95 = 74 |
| CES21 = 87 | CES46 = 89 | CES71 = 79 | CES96 = 83 |
| CES22 = 79 | CES47 = 92 | CES72 = 92 | CES97 = 88 |
| CES23 = 92 | CES48 = 83 | CES73 = 75 | CES98 = 83 |
| CES24 = 91 | CES49 = 90 | CES74 = 91 | CES99 = 74 |
| CES25 = 72 | CES50 = 94 | CES75 = 81 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)