

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: P641911

Luminaire Tested: GWS-SA6B-827-U-T3R-W-GRSWH

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P641911
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-SA6B-827-U-T3R-W-GRSWH
Description: GALLEON WALL SLIM LUMINAIRE. (6) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III ROADWAY OPTICS W/ FACTORY INSTALLED GLARE SHIELD, WH
Light Source: (96) 2700K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13645.7 lumens
Efficiency: N/A
Efficacy: 98.2 lumens/watt
Luminous Opening: Rectangular (W 2' x L: 1' x H: 0')
IES Classification: Type II - Short
BUG Rating: B3 - U0 - G2

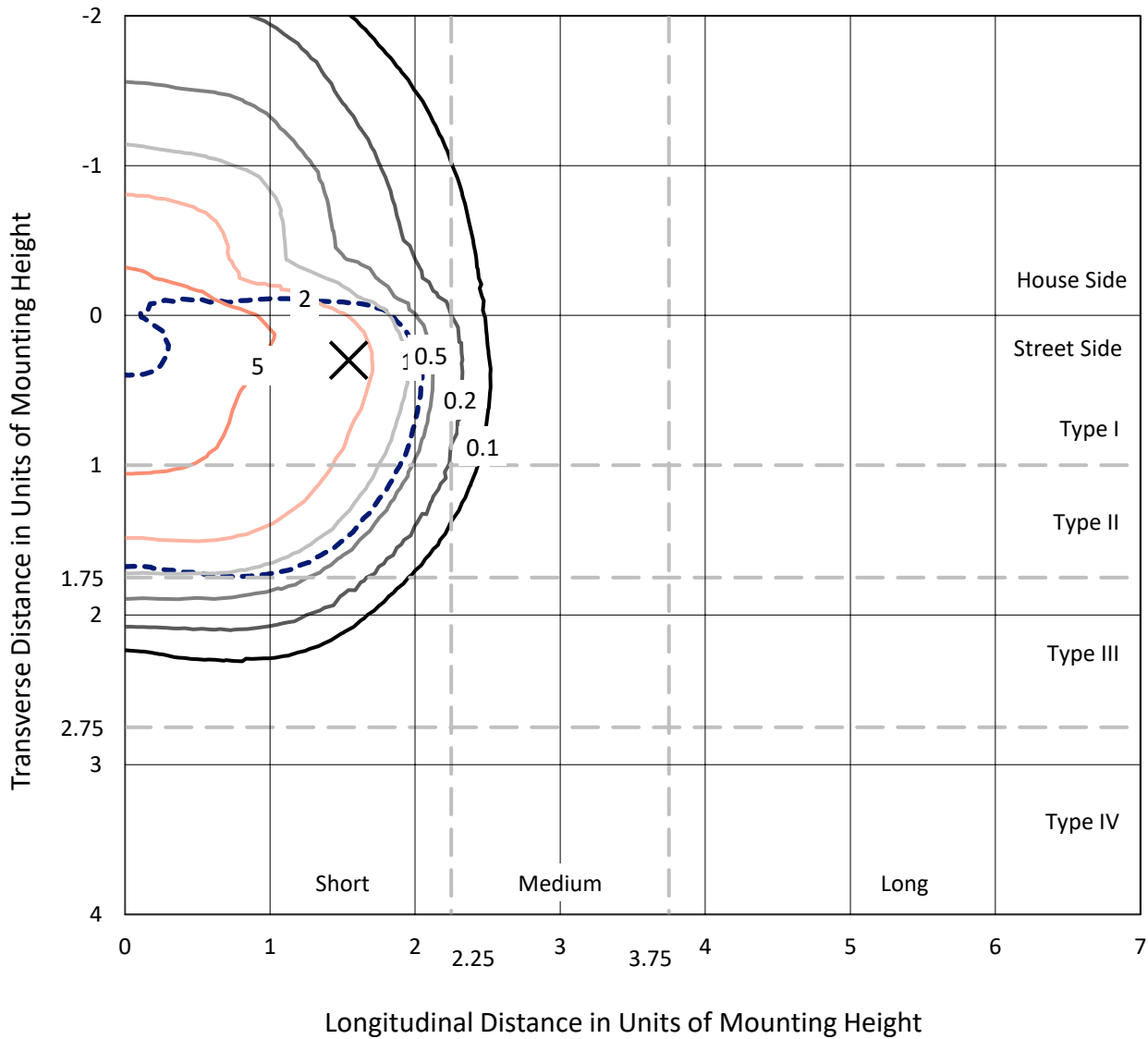
Input Watts (W): 138.9
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

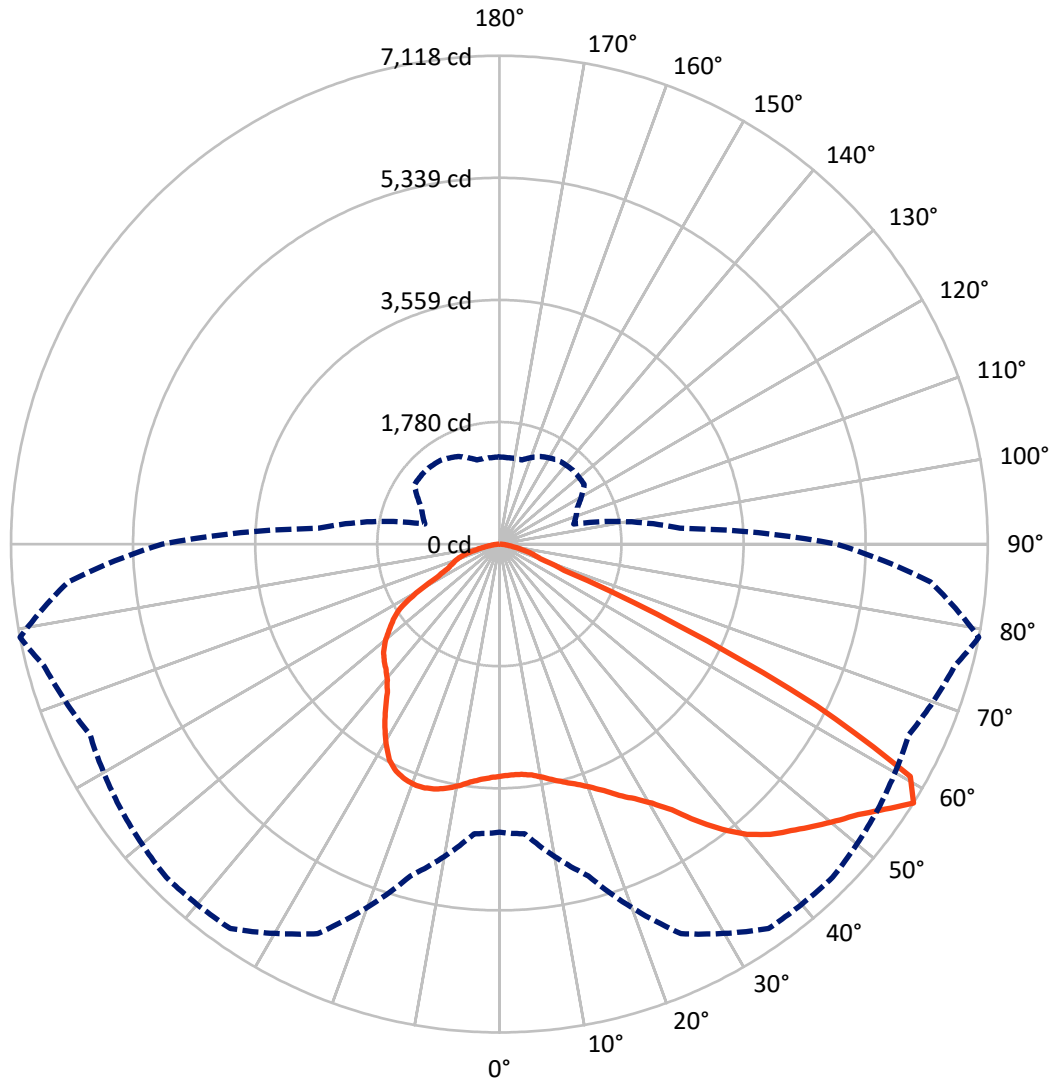
✕ Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 8.5 fc
 Type II - Short - N/A

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Luminous Intensity Polar Plot



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

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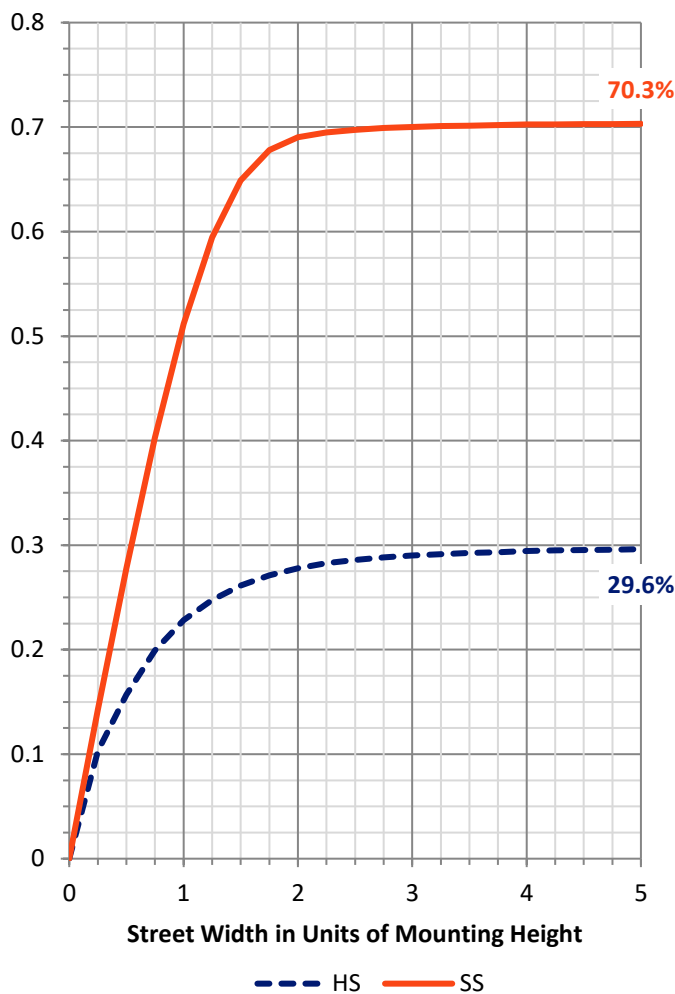
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 4056.2 | 0.0 | 4056.2 |
| | % Fixture | 29.7 | 0.0 | 29.7 |
| Street Side | Lumens | 9589.5 | 0.0 | 9589.5 |
| | % Fixture | 70.3 | 0.0 | 70.3 |
| Total | Lumens | 13645.7 | 0.0 | 13645.7 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 313.2 | 2.3 |
| 10°-20° | 870.3 | 6.4 |
| 20°-30° | 1475.2 | 10.8 |
| 30°-40° | 2258.0 | 16.5 |
| 40°-50° | 3010.9 | 22.1 |
| 50°-60° | 3477.3 | 25.5 |
| 60°-70° | 1806.9 | 13.2 |
| 70°-80° | 384.1 | 2.8 |
| 80°-90° | 49.7 | 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° | 13645.7 | 100.0 |
| 0°-180° | 13645.7 | 100.0 |

Coefficient of Utilization



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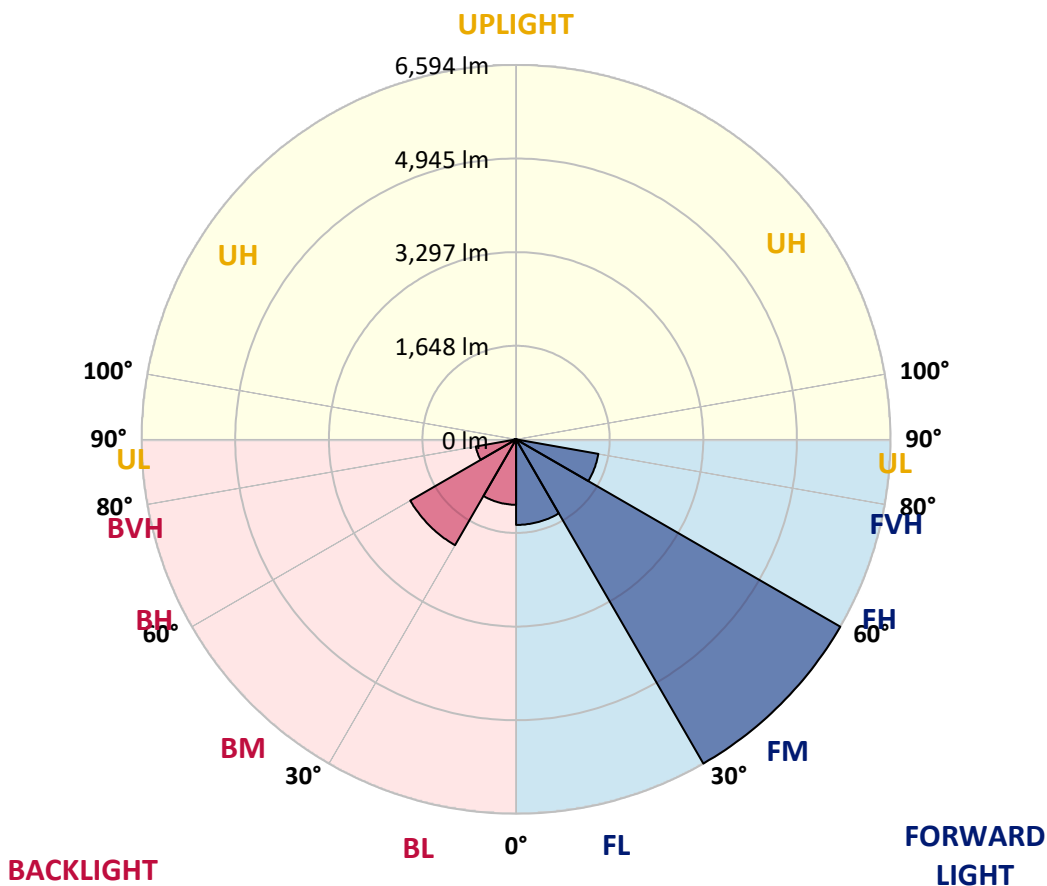
CATALOG NUMBER: GWS-SA6B-827-U-T3R-W-GRSWH

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1506.8 | 11.0 | | | |
| FM (30°-60°) | 6594.0 | 48.3 | | | |
| FH (60°-80°) | 1471.3 | 10.8 | | | G1/1800 |
| FVH (80°-90°) | 17.3 | 0.1 | | | G1/100 |
| BL (0°-30°) | 1151.9 | 8.4 | B3/2500 | | |
| BM (30°-60°) | 2152.2 | 15.8 | B2/2500 | | |
| BH (60°-80°) | 719.7 | 5.3 | B2/1000 | | G2/1000 |
| BVH (80°-90°) | 32.4 | 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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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 79° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 3381.7 | 3381.7 | 3381.7 | 3381.7 | 3381.7 | 3381.7 | 3381.7 | 3381.7 | 3381.7 | 3381.7 | 3381.7 |
| 2.5° | 3227.8 | 3221.1 | 3223.3 | 3232.2 | 3265.7 | 3290.2 | 3315.9 | 3339.3 | 3361.6 | 3368.3 | 3373.9 |
| 5° | 3112.8 | 3100.6 | 3103.9 | 3118.4 | 3157.5 | 3198.7 | 3244.5 | 3300.3 | 3353.8 | 3371.7 | 3395.1 |
| 7.5° | 3031.4 | 3029.2 | 3034.7 | 3057.0 | 3098.3 | 3137.4 | 3196.5 | 3275.7 | 3368.3 | 3398.5 | 3439.7 |
| 10° | 2923.2 | 2918.7 | 2941.0 | 2986.8 | 3054.8 | 3117.3 | 3187.6 | 3281.3 | 3410.7 | 3455.4 | 3519.0 |
| 12.5° | 2837.3 | 2835.0 | 2858.5 | 2922.0 | 3009.1 | 3108.4 | 3205.4 | 3310.3 | 3467.6 | 3529.0 | 3607.1 |
| 15° | 2887.5 | 2877.4 | 2878.5 | 2923.2 | 3001.3 | 3118.4 | 3250.1 | 3362.8 | 3524.5 | 3602.6 | 3703.0 |
| 17.5° | 3033.6 | 3015.8 | 3002.4 | 3010.2 | 3054.8 | 3176.4 | 3318.1 | 3433.0 | 3590.4 | 3681.8 | 3804.6 |
| 20° | 3235.6 | 3225.5 | 3188.7 | 3164.2 | 3174.2 | 3281.3 | 3425.2 | 3532.3 | 3676.3 | 3778.9 | 3910.6 |
| 22.5° | 3506.7 | 3482.1 | 3431.9 | 3392.9 | 3362.8 | 3446.4 | 3579.2 | 3671.8 | 3795.6 | 3902.8 | 4040.0 |
| 25° | 3842.5 | 3806.8 | 3727.6 | 3666.2 | 3601.5 | 3687.4 | 3805.7 | 3876.0 | 3959.7 | 4059.0 | 4189.5 |
| 27.5° | 4185.0 | 4154.9 | 4066.8 | 3984.2 | 3903.9 | 3957.4 | 4098.0 | 4138.2 | 4129.2 | 4201.8 | 4313.3 |
| 30° | 4549.9 | 4511.9 | 4428.3 | 4339.0 | 4235.2 | 4269.8 | 4395.9 | 4416.0 | 4321.1 | 4381.4 | 4457.3 |
| 32.5° | 4934.8 | 4898.0 | 4825.4 | 4721.7 | 4604.5 | 4617.9 | 4652.5 | 4671.5 | 4581.1 | 4615.7 | 4673.7 |
| 35° | 5326.4 | 5291.8 | 5218.2 | 5115.5 | 5029.6 | 4948.2 | 4861.2 | 4937.0 | 4884.6 | 4951.5 | 4947.1 |
| 37.5° | 5684.5 | 5650.0 | 5604.2 | 5525.0 | 5377.7 | 5217.1 | 5016.2 | 5110.0 | 5191.4 | 5276.2 | 5261.7 |
| 40° | 5926.7 | 5903.2 | 5914.4 | 5902.1 | 5712.4 | 5394.5 | 5092.1 | 5194.8 | 5416.8 | 5561.8 | 5554.0 |
| 42.5° | 6135.3 | 6111.9 | 6176.6 | 6223.4 | 6000.3 | 5558.5 | 5128.9 | 5227.1 | 5560.7 | 5787.2 | 5776.0 |
| 45° | 6227.9 | 6221.2 | 6328.3 | 6476.7 | 6263.6 | 5732.5 | 5223.8 | 5294.0 | 5670.0 | 5960.1 | 5917.7 |
| 47.5° | 6117.4 | 6140.9 | 6351.7 | 6602.8 | 6482.3 | 5938.9 | 5417.9 | 5435.7 | 5812.9 | 6147.6 | 6028.2 |
| 50° | 5897.6 | 5949.0 | 6233.5 | 6606.1 | 6641.8 | 6172.1 | 5686.8 | 5642.2 | 6004.8 | 6347.3 | 6086.2 |
| 52.5° | 5577.4 | 5631.0 | 6095.1 | 6580.5 | 6733.3 | 6442.1 | 6044.9 | 5981.3 | 6246.9 | 6547.0 | 6096.2 |
| 55° | 4842.2 | 4914.7 | 5778.3 | 6522.4 | 6822.6 | 6687.6 | 6448.8 | 6319.4 | 6559.3 | 6821.5 | 6195.5 |
| 57.5° | 4200.7 | 4238.6 | 5006.2 | 6264.7 | 6840.4 | 6868.3 | 6736.7 | 6582.7 | 6869.4 | 7118.2 | 6307.1 |
| 60° | 3082.7 | 3091.6 | 3782.3 | 5183.6 | 6292.6 | 6763.4 | 6713.2 | 6484.5 | 6722.2 | 6880.6 | 5796.1 |
| 62.5° | 1741.6 | 1742.7 | 2293.9 | 3459.8 | 4700.5 | 5512.7 | 5544.0 | 5342.0 | 5142.3 | 5189.2 | 4034.4 |
| 65° | 653.8 | 715.2 | 1047.7 | 1700.3 | 2710.1 | 3254.5 | 3384.0 | 3430.8 | 3098.3 | 2891.9 | 2163.4 |
| 67.5° | 437.4 | 451.9 | 611.4 | 874.7 | 1206.1 | 1392.4 | 1557.5 | 1562.0 | 1142.5 | 1018.6 | 852.4 |
| 70° | 333.6 | 348.1 | 480.9 | 625.9 | 611.4 | 564.5 | 610.3 | 593.6 | 613.6 | 630.4 | 648.2 |
| 72.5° | 248.8 | 263.3 | 372.6 | 441.8 | 367.1 | 361.5 | 409.5 | 455.2 | 497.6 | 515.5 | 543.4 |
| 75° | 165.1 | 176.3 | 251.0 | 236.5 | 203.1 | 239.9 | 299.0 | 344.8 | 369.3 | 390.5 | 411.7 |
| 77.5° | 104.9 | 112.7 | 133.9 | 108.2 | 112.7 | 140.6 | 174.1 | 215.3 | 238.8 | 260.0 | 271.1 |
| 80° | 48.0 | 46.9 | 45.7 | 51.3 | 63.6 | 82.6 | 104.9 | 129.4 | 147.3 | 156.2 | 162.9 |
| 82.5° | 19.0 | 21.2 | 23.4 | 27.9 | 34.6 | 44.6 | 59.1 | 75.9 | 90.4 | 92.6 | 98.2 |
| 85° | 7.8 | 8.9 | 10.0 | 12.3 | 15.6 | 20.1 | 24.5 | 34.6 | 43.5 | 46.9 | 50.2 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 2.2 | 3.3 | 5.6 | 10.0 | 11.2 | 12.3 |
| 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: P641911

CATALOG NUMBER: GWS-SA6B-827-U-T3R-W-GRSWH

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 3381.7 | 3381.7 | 3381.7 | 3381.7 | 3381.7 | 3381.7 | 3381.7 | 3381.7 | 3381.7 | 3381.7 | 3381.7 |
| 2.5° | 3404.0 | 3389.5 | 3414.1 | 3430.8 | 3446.4 | 3429.7 | 3424.1 | 3409.6 | 3407.4 | 3407.4 | 3415.2 |
| 5° | 3435.3 | 3425.2 | 3450.9 | 3460.9 | 3459.8 | 3423.0 | 3400.7 | 3371.7 | 3357.2 | 3357.2 | 3359.4 |
| 7.5° | 3491.1 | 3485.5 | 3500.0 | 3484.4 | 3448.7 | 3373.9 | 3300.3 | 3238.9 | 3197.6 | 3176.4 | 3183.1 |
| 10° | 3583.7 | 3577.0 | 3564.7 | 3506.7 | 3404.0 | 3249.0 | 3098.3 | 2986.8 | 2919.8 | 2881.9 | 2884.1 |
| 12.5° | 3674.0 | 3662.9 | 3619.4 | 3491.1 | 3280.2 | 3033.6 | 2836.1 | 2711.2 | 2637.5 | 2592.9 | 2582.9 |
| 15° | 3773.3 | 3744.3 | 3650.6 | 3410.7 | 3078.2 | 2770.3 | 2563.9 | 2428.9 | 2349.7 | 2322.9 | 2321.8 |
| 17.5° | 3868.2 | 3816.8 | 3647.3 | 3267.9 | 2836.1 | 2494.7 | 2287.2 | 2203.5 | 2190.1 | 2202.4 | 2205.8 |
| 20° | 3964.1 | 3881.6 | 3610.4 | 3070.4 | 2548.3 | 2220.3 | 2113.2 | 2147.7 | 2198.0 | 2231.4 | 2239.2 |
| 22.5° | 4063.4 | 3935.1 | 3526.8 | 2816.1 | 2244.8 | 2035.1 | 2079.7 | 2155.6 | 2218.0 | 2262.7 | 2267.1 |
| 25° | 4175.0 | 3985.3 | 3401.8 | 2504.8 | 2001.6 | 1983.7 | 2071.9 | 2152.2 | 2219.1 | 2270.5 | 2279.4 |
| 27.5° | 4238.6 | 3986.4 | 3226.6 | 2184.6 | 1890.0 | 1963.7 | 2052.9 | 2128.8 | 2195.7 | 2251.5 | 2261.5 |
| 30° | 4301.1 | 3956.3 | 2948.8 | 1924.6 | 1857.7 | 1940.2 | 2020.6 | 2090.8 | 2154.4 | 2209.1 | 2221.4 |
| 32.5° | 4389.2 | 3928.4 | 2628.6 | 1775.1 | 1838.7 | 1917.9 | 1983.7 | 2046.2 | 2095.3 | 2119.9 | 2126.5 |
| 35° | 4498.5 | 3892.7 | 2288.3 | 1710.4 | 1826.4 | 1900.1 | 1958.1 | 1991.5 | 1927.9 | 1914.6 | 1929.1 |
| 37.5° | 4651.4 | 3859.2 | 1949.1 | 1682.5 | 1818.6 | 1893.4 | 1944.7 | 1858.8 | 1780.7 | 1749.4 | 1760.6 |
| 40° | 4816.5 | 3840.3 | 1719.3 | 1660.2 | 1822.0 | 1900.1 | 1888.9 | 1761.7 | 1649.0 | 1583.2 | 1581.0 |
| 42.5° | 4957.1 | 3811.3 | 1572.0 | 1645.7 | 1830.9 | 1925.7 | 1813.0 | 1675.8 | 1508.4 | 1469.4 | 1470.5 |
| 45° | 5051.9 | 3737.6 | 1493.9 | 1630.1 | 1838.7 | 1931.3 | 1777.3 | 1557.5 | 1438.2 | 1413.6 | 1412.5 |
| 47.5° | 5091.0 | 3603.7 | 1443.7 | 1605.5 | 1837.6 | 1885.6 | 1704.8 | 1508.4 | 1389.1 | 1382.4 | 1386.8 |
| 50° | 5065.3 | 3384.0 | 1392.4 | 1557.5 | 1810.8 | 1837.6 | 1621.1 | 1464.9 | 1355.6 | 1392.4 | 1419.2 |
| 52.5° | 4970.5 | 3099.4 | 1331.0 | 1491.7 | 1762.8 | 1782.9 | 1578.7 | 1438.2 | 1331.0 | 1380.1 | 1401.3 |
| 55° | 4945.9 | 2868.5 | 1252.9 | 1405.8 | 1691.4 | 1685.8 | 1534.1 | 1424.8 | 1314.3 | 1295.3 | 1298.7 |
| 57.5° | 4913.6 | 2643.1 | 1123.5 | 1251.8 | 1510.7 | 1519.6 | 1491.7 | 1409.1 | 1270.8 | 1265.2 | 1270.8 |
| 60° | 4268.7 | 2026.1 | 1001.9 | 1080.0 | 1240.7 | 1288.6 | 1443.7 | 1380.1 | 1200.5 | 1177.1 | 1176.0 |
| 62.5° | 2788.2 | 1227.3 | 891.5 | 941.7 | 1010.8 | 1066.6 | 1316.5 | 1296.5 | 1123.5 | 1109.0 | 1119.1 |
| 65° | 1499.5 | 874.7 | 811.1 | 841.2 | 879.2 | 921.6 | 1091.2 | 1154.8 | 1015.3 | 964.0 | 965.1 |
| 67.5° | 766.5 | 744.2 | 750.9 | 772.1 | 801.1 | 822.3 | 880.3 | 936.1 | 865.8 | 822.3 | 821.2 |
| 70° | 656.0 | 673.9 | 683.9 | 696.2 | 715.2 | 711.8 | 717.4 | 727.4 | 721.9 | 700.7 | 699.6 |
| 72.5° | 559.0 | 586.9 | 589.1 | 591.3 | 598.0 | 582.4 | 572.4 | 555.6 | 556.7 | 560.1 | 561.2 |
| 75° | 425.1 | 451.9 | 458.6 | 455.2 | 461.9 | 441.8 | 428.4 | 411.7 | 391.6 | 388.3 | 390.5 |
| 77.5° | 276.7 | 297.9 | 307.9 | 305.7 | 309.1 | 293.4 | 286.7 | 268.9 | 245.5 | 236.5 | 236.5 |
| 80° | 167.4 | 179.6 | 187.4 | 189.7 | 193.0 | 181.9 | 170.7 | 155.1 | 145.0 | 135.0 | 135.0 |
| 82.5° | 101.5 | 109.3 | 114.9 | 114.9 | 118.3 | 106.0 | 97.1 | 85.9 | 81.4 | 72.5 | 72.5 |
| 85° | 51.3 | 56.9 | 59.1 | 58.0 | 55.8 | 45.7 | 42.4 | 36.8 | 34.6 | 30.1 | 30.1 |
| 87.5° | 12.3 | 15.6 | 15.6 | 11.2 | 11.2 | 5.6 | 3.3 | 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 |

REPORT NUMBER: SP1-2407-157-9

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 (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/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 (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/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 (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/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

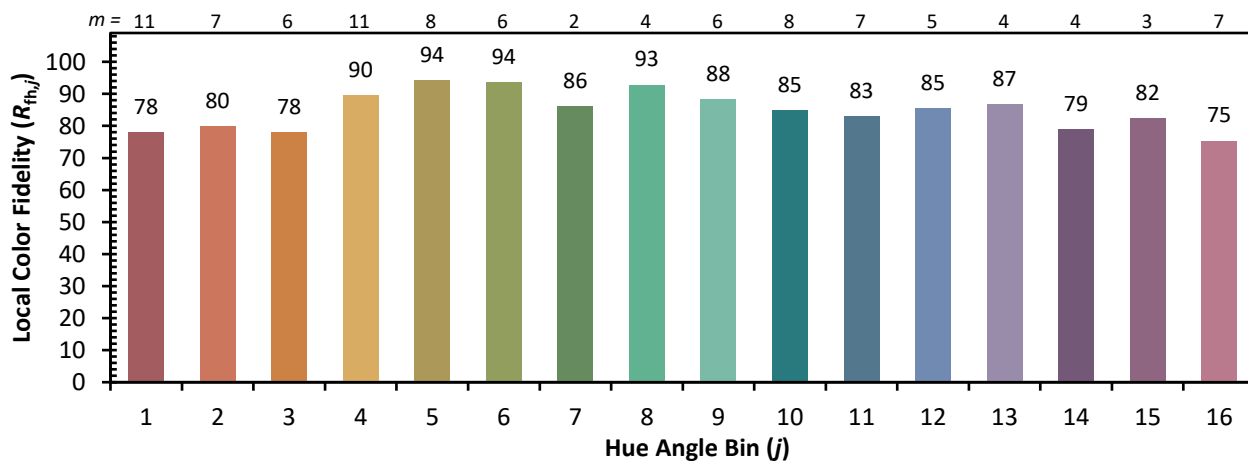


Individual Sample Fidelity Index ($R_{f,i}$)

| | | | |
|------------|------------|------------|------------|
| 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)