

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: P635878

Luminaire Tested: GWS-SA3E-760-U-AFL-W-GRSWH

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P635878
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-47)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA3E-760-U-AFL-W-GRSWH
Description: GALLEON WALL SLIM LUMINAIRE. (3) LIGHTSQUARES WITH 16 LEDS EACH AND AUTOMOTIVE FRONTLINE OPTICS W/ FACTORY INSTALLED GLARE SHIELD, WH
Light Source: (48) 5700K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 20128.2 lumens
Efficiency: N/A
Efficacy: 126.4 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

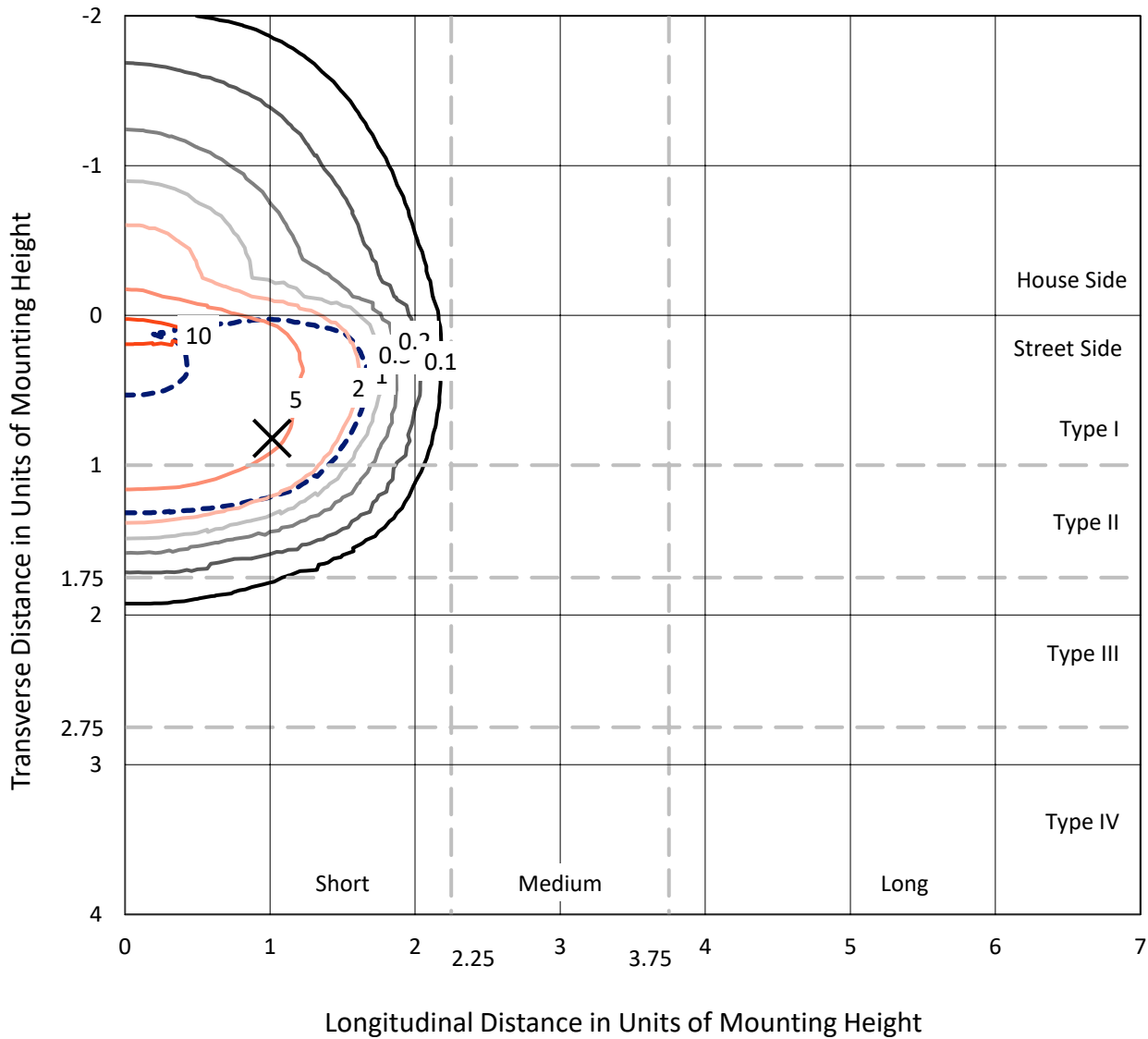
Input Watts (W): 159.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

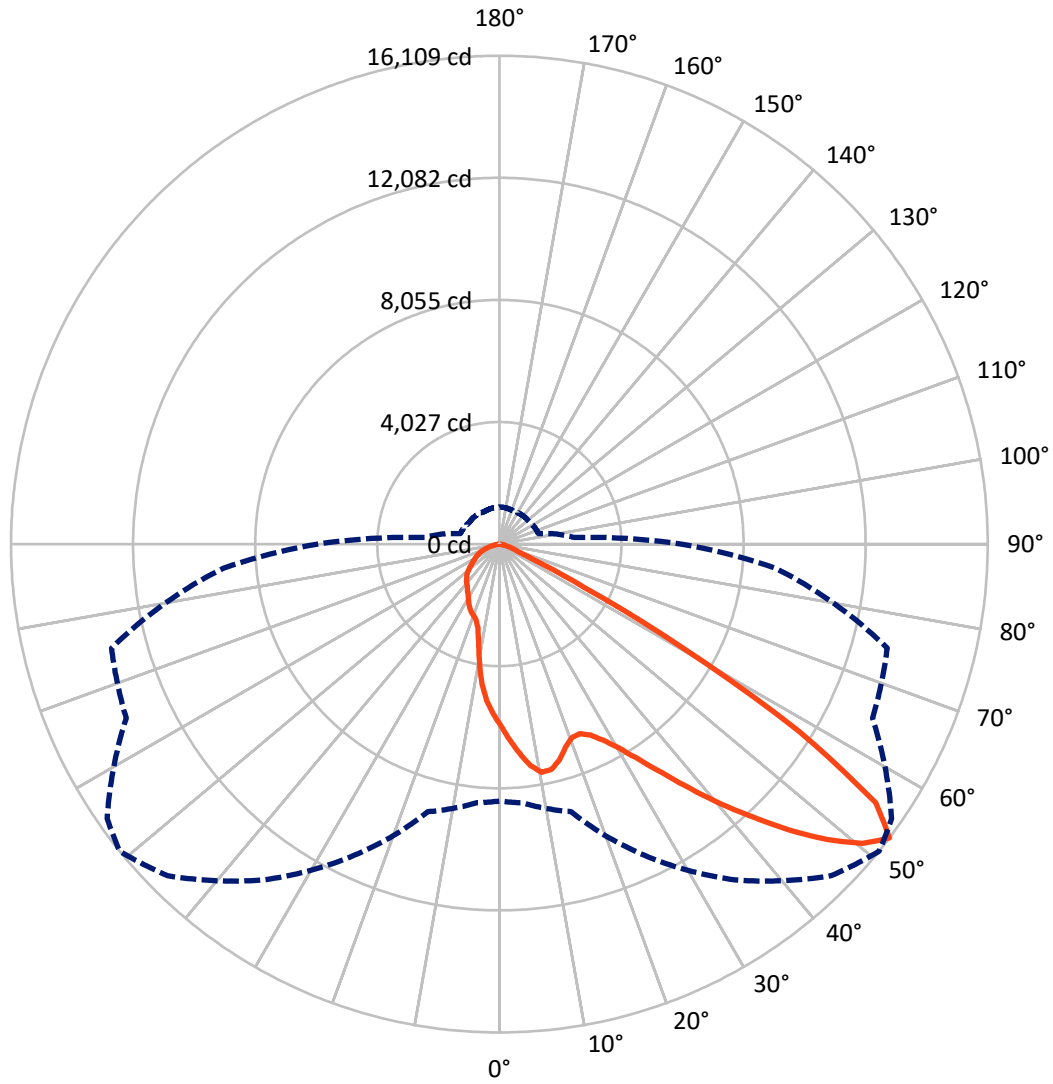
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 11.7 fc
 Type II - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 51-Deg Lateral - - - Horizontal Cone Through 52.5-Deg Vertical

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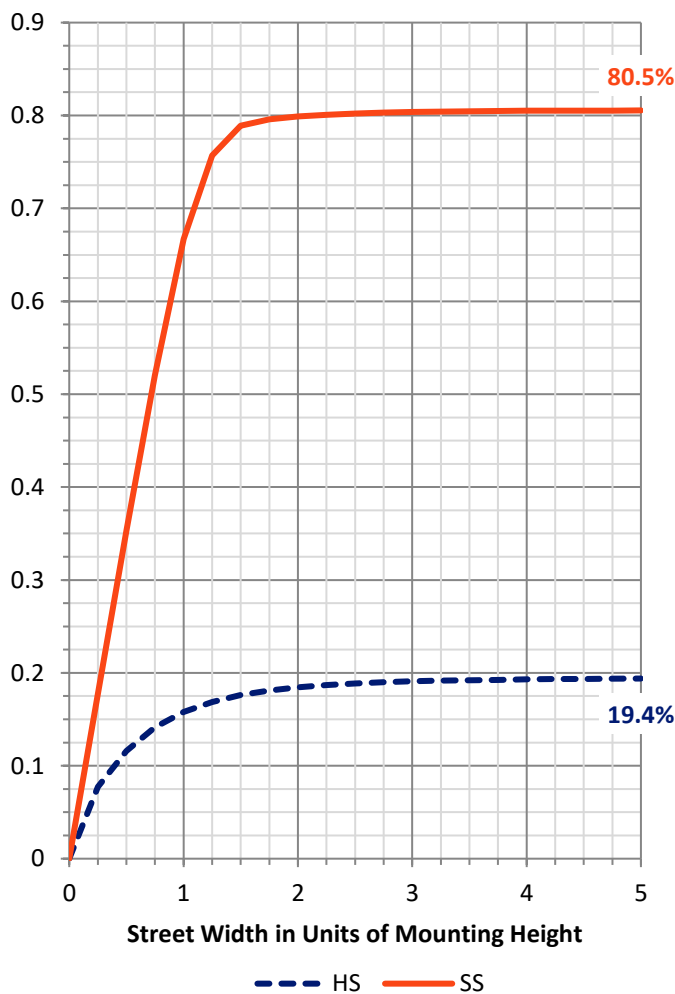
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 3921.8 | 0.0 | 3921.8 |
| | % Fixture | 19.5 | 0.0 | 19.5 |
| Street Side | Lumens | 16206.4 | 0.0 | 16206.4 |
| | % Fixture | 80.5 | 0.0 | 80.5 |
| Total | Lumens | 20128.2 | 0.0 | 20128.2 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 559.2 | 2.8 |
| 10°-20° | 1453.1 | 7.2 |
| 20°-30° | 2362.7 | 11.7 |
| 30°-40° | 3744.3 | 18.6 |
| 40°-50° | 5647.3 | 28.1 |
| 50°-60° | 4885.3 | 24.3 |
| 60°-70° | 1107.5 | 5.5 |
| 70°-80° | 326.6 | 1.6 |
| 80°-90° | 42.1 | 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° | 20128.2 | 100.0 |
| 0°-180° | 20128.2 | 100.0 |

Coefficient of Utilization



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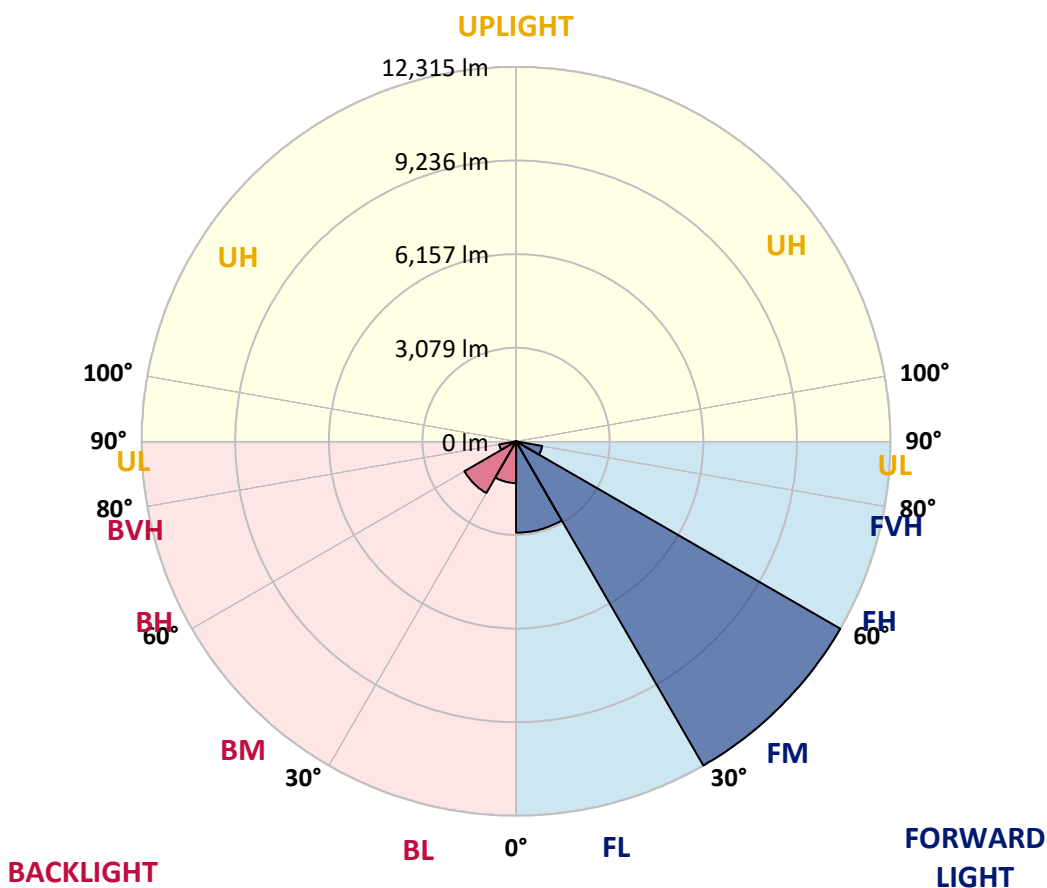
CATALOG NUMBER: GWS-SA3E-760-U-AFL-W-GRSWH

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|---------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 3004.2 | 14.9 | | | |
| FM (30°-60°) | 12314.7 | 61.2 | | | |
| FH (60°-80°) | 871.6 | 4.3 | | | G1/1800 |
| FVH (80°-90°) | 15.9 | 0.1 | | | G1/100 |
| BL (0°-30°) | 1370.9 | 6.8 | B3/2500 | | |
| BM (30°-60°) | 1962.2 | 9.7 | B2/2500 | | |
| BH (60°-80°) | 562.5 | 2.8 | B2/1000 | | G2/1000 |
| BVH (80°-90°) | 26.2 | 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-G2

Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 51° | 55° | 65° | 75° | 85° |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 5993.2 | 5993.2 | 5993.2 | 5993.2 | 5993.2 | 5993.2 | 5993.2 | 5993.2 | 5993.2 | 5993.2 | 5993.2 |
| 2.5° | 6678.7 | 6716.9 | 6658.0 | 6635.7 | 6599.2 | 6535.5 | 6462.4 | 6441.7 | 6284.2 | 6180.9 | 6064.7 |
| 5° | 7349.9 | 7370.6 | 7322.9 | 7275.1 | 7184.5 | 7071.6 | 6930.0 | 6899.8 | 6613.5 | 6376.5 | 6130.0 |
| 7.5° | 7499.4 | 7491.5 | 7532.8 | 7559.9 | 7548.7 | 7504.2 | 7378.5 | 7319.7 | 6977.7 | 6602.3 | 6238.1 |
| 10° | 6907.7 | 6863.2 | 7015.9 | 7197.2 | 7415.1 | 7666.4 | 7652.1 | 7647.3 | 7349.9 | 6906.1 | 6376.5 |
| 12.5° | 6123.6 | 6101.3 | 6225.4 | 6452.8 | 6864.8 | 7421.5 | 7629.8 | 7792.1 | 7685.5 | 7195.6 | 6530.8 |
| 15° | 5675.1 | 5667.1 | 5751.4 | 5915.2 | 6242.9 | 6945.9 | 7391.3 | 7712.5 | 7973.4 | 7505.8 | 6694.6 |
| 17.5° | 5593.9 | 5598.7 | 5627.3 | 5721.2 | 5956.6 | 6535.5 | 7050.9 | 7499.4 | 8197.7 | 7846.2 | 6899.8 |
| 20° | 5830.9 | 5862.7 | 5813.4 | 5827.8 | 5955.0 | 6387.6 | 6818.7 | 7284.7 | 8340.8 | 8188.1 | 7120.9 |
| 22.5° | 6357.4 | 6346.3 | 6238.1 | 6174.5 | 6176.1 | 6478.3 | 6793.2 | 7184.5 | 8434.7 | 8520.5 | 7321.3 |
| 25° | 6953.9 | 6941.1 | 6812.3 | 6670.7 | 6581.7 | 6724.8 | 6976.1 | 7291.1 | 8519.0 | 8824.3 | 7481.9 |
| 27.5° | 7658.5 | 7618.7 | 7475.6 | 7294.2 | 7097.0 | 7159.0 | 7329.2 | 7578.9 | 8649.4 | 9123.4 | 7588.5 |
| 30° | 8340.8 | 8386.9 | 8181.8 | 7967.0 | 7758.7 | 7720.5 | 7819.1 | 8045.0 | 8915.0 | 9473.3 | 7715.7 |
| 32.5° | 9245.8 | 9229.9 | 9002.5 | 8722.5 | 8425.1 | 8396.5 | 8474.4 | 8681.2 | 9392.2 | 9956.8 | 7909.8 |
| 35° | 10341.7 | 10344.9 | 10022.0 | 9643.5 | 9220.4 | 9144.0 | 9274.5 | 9474.9 | 10103.1 | 10612.1 | 8216.7 |
| 37.5° | 11480.5 | 11475.8 | 11194.2 | 10764.8 | 10187.4 | 10079.3 | 10228.8 | 10378.3 | 10992.2 | 11504.4 | 8693.9 |
| 40° | 12279.0 | 12310.8 | 12178.8 | 11952.9 | 11405.8 | 11141.8 | 11273.8 | 11377.2 | 11959.3 | 12554.2 | 9322.2 |
| 42.5° | 12732.3 | 12780.0 | 12808.6 | 12943.8 | 12656.0 | 12374.4 | 12326.7 | 12380.8 | 12823.0 | 13529.2 | 9912.3 |
| 45° | 12829.3 | 12892.9 | 13101.3 | 13602.3 | 13713.7 | 13634.1 | 13478.3 | 13347.8 | 13467.1 | 14221.1 | 10298.8 |
| 47.5° | 12401.5 | 12512.8 | 12958.2 | 13834.6 | 14485.1 | 14734.8 | 14561.4 | 14362.6 | 13839.3 | 14399.2 | 10259.0 |
| 50° | 10706.0 | 10836.4 | 11840.0 | 13360.6 | 14594.8 | 15504.6 | 15520.5 | 15226.3 | 13794.8 | 13885.4 | 9759.6 |
| 52.5° | 8476.0 | 8565.1 | 9139.3 | 11326.3 | 13518.0 | 15472.8 | 16109.0 | 15794.1 | 13580.1 | 13242.9 | 9134.5 |
| 55° | 5065.9 | 5209.0 | 5745.0 | 7472.4 | 10531.0 | 13713.7 | 15068.8 | 15221.5 | 13475.1 | 12703.7 | 8708.2 |
| 57.5° | 1709.8 | 1779.8 | 2292.0 | 3300.4 | 6206.3 | 10041.1 | 11642.8 | 12263.1 | 12232.9 | 11879.8 | 7876.4 |
| 60° | 814.4 | 830.3 | 933.6 | 1251.8 | 2484.4 | 5247.2 | 6891.8 | 7607.6 | 8259.7 | 8324.9 | 4900.5 |
| 62.5° | 620.3 | 629.9 | 682.3 | 750.7 | 998.9 | 2210.9 | 3158.8 | 3706.0 | 3958.9 | 3397.4 | 1784.6 |
| 65° | 518.5 | 526.5 | 566.2 | 609.2 | 679.2 | 957.5 | 1212.0 | 1398.1 | 1259.7 | 981.4 | 850.9 |
| 67.5° | 432.6 | 439.0 | 469.2 | 515.3 | 563.1 | 641.0 | 672.8 | 691.9 | 725.3 | 814.4 | 782.5 |
| 70° | 338.8 | 345.1 | 377.0 | 416.7 | 462.8 | 481.9 | 512.2 | 531.2 | 598.0 | 712.6 | 709.4 |
| 72.5° | 260.8 | 268.8 | 286.3 | 311.7 | 349.9 | 369.0 | 402.4 | 424.7 | 462.8 | 555.1 | 593.3 |
| 75° | 190.9 | 195.6 | 211.5 | 219.5 | 224.3 | 219.5 | 252.9 | 278.3 | 329.2 | 364.2 | 373.8 |
| 77.5° | 77.9 | 87.5 | 84.3 | 84.3 | 100.2 | 120.9 | 138.4 | 154.3 | 189.3 | 210.0 | 211.5 |
| 80° | 31.8 | 35.0 | 41.4 | 46.1 | 55.7 | 71.6 | 82.7 | 89.1 | 105.0 | 117.7 | 127.2 |
| 82.5° | 19.1 | 20.7 | 23.9 | 25.4 | 31.8 | 41.4 | 47.7 | 52.5 | 65.2 | 77.9 | 82.7 |
| 85° | 9.5 | 9.5 | 11.1 | 12.7 | 15.9 | 19.1 | 22.3 | 25.4 | 33.4 | 41.4 | 46.1 |
| 87.5° | 1.6 | 1.6 | 1.6 | 3.2 | 4.8 | 6.4 | 8.0 | 9.5 | 11.1 | 12.7 | 15.9 |
| 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: P635878

CATALOG NUMBER: GWS-SA3E-760-U-AFL-W-GRSWH

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 5993.2 | 5993.2 | 5993.2 | 5993.2 | 5993.2 | 5993.2 | 5993.2 | 5993.2 | 5993.2 | 5993.2 | 5993.2 |
| 2.5° | 5996.4 | 5910.5 | 5810.3 | 5730.7 | 5638.5 | 5570.1 | 5473.1 | 5412.6 | 5355.4 | 5307.6 | 5272.7 |
| 5° | 6002.7 | 5858.0 | 5649.6 | 5465.1 | 5274.2 | 5092.9 | 4906.8 | 4755.7 | 4620.5 | 4507.6 | 4498.1 |
| 7.5° | 6039.3 | 5830.9 | 5504.9 | 5182.0 | 4809.8 | 4450.3 | 4090.9 | 3798.2 | 3575.5 | 3459.4 | 3435.6 |
| 10° | 6101.3 | 5827.8 | 5357.0 | 4841.6 | 4207.0 | 3628.0 | 3201.8 | 2979.1 | 2850.3 | 2804.1 | 2788.2 |
| 12.5° | 6166.5 | 5819.8 | 5167.7 | 4361.3 | 3480.1 | 2972.7 | 2738.9 | 2711.9 | 2735.7 | 2738.9 | 2737.3 |
| 15° | 6246.1 | 5815.0 | 4929.1 | 3798.2 | 2948.9 | 2668.9 | 2684.8 | 2742.1 | 2797.8 | 2810.5 | 2810.5 |
| 17.5° | 6343.1 | 5803.9 | 4604.6 | 3247.9 | 2616.4 | 2610.1 | 2694.4 | 2770.7 | 2823.2 | 2832.8 | 2832.8 |
| 20° | 6444.9 | 5775.3 | 4205.4 | 2799.4 | 2481.2 | 2573.5 | 2664.2 | 2723.0 | 2759.6 | 2772.3 | 2773.9 |
| 22.5° | 6514.9 | 5698.9 | 3745.7 | 2466.9 | 2396.9 | 2503.5 | 2568.7 | 2629.2 | 2629.2 | 2597.4 | 2587.8 |
| 25° | 6529.2 | 5535.1 | 3247.9 | 2239.5 | 2296.7 | 2395.4 | 2462.2 | 2427.2 | 2362.0 | 2336.5 | 2334.9 |
| 27.5° | 6476.7 | 5296.5 | 2756.4 | 2077.3 | 2175.9 | 2274.5 | 2263.3 | 2212.4 | 2183.8 | 2158.4 | 2167.9 |
| 30° | 6413.1 | 5010.2 | 2330.1 | 1943.6 | 2035.9 | 2132.9 | 2094.7 | 2077.3 | 2056.6 | 2027.9 | 2034.3 |
| 32.5° | 6370.1 | 4690.5 | 2002.5 | 1840.3 | 1942.1 | 1958.0 | 1985.0 | 1983.4 | 1964.3 | 1910.2 | 1907.1 |
| 35° | 6382.9 | 4367.6 | 1783.0 | 1756.0 | 1864.1 | 1857.8 | 1908.7 | 1899.1 | 1767.1 | 1692.3 | 1687.6 |
| 37.5° | 6484.6 | 4057.5 | 1654.2 | 1689.2 | 1740.1 | 1779.8 | 1824.4 | 1709.8 | 1663.7 | 1616.0 | 1619.2 |
| 40° | 6678.7 | 3769.6 | 1584.2 | 1652.6 | 1665.3 | 1724.1 | 1620.8 | 1619.2 | 1598.5 | 1555.6 | 1554.0 |
| 42.5° | 6898.2 | 3526.2 | 1536.5 | 1635.1 | 1617.6 | 1628.7 | 1519.0 | 1531.7 | 1530.1 | 1503.1 | 1495.1 |
| 45° | 7031.8 | 3302.0 | 1498.3 | 1569.9 | 1574.6 | 1463.3 | 1429.9 | 1444.2 | 1452.2 | 1437.9 | 1436.3 |
| 47.5° | 6893.4 | 3044.3 | 1458.5 | 1469.7 | 1511.0 | 1388.5 | 1347.2 | 1348.8 | 1363.1 | 1364.7 | 1358.3 |
| 50° | 6505.3 | 2756.4 | 1410.8 | 1383.8 | 1356.7 | 1310.6 | 1272.4 | 1264.5 | 1278.8 | 1293.1 | 1297.9 |
| 52.5° | 6004.3 | 2481.2 | 1331.3 | 1289.9 | 1226.3 | 1226.3 | 1208.8 | 1183.4 | 1202.5 | 1221.5 | 1227.9 |
| 55° | 5636.9 | 2277.7 | 1218.4 | 1172.2 | 1102.2 | 1126.1 | 1122.9 | 1100.7 | 1126.1 | 1140.4 | 1145.2 |
| 57.5° | 4884.6 | 1830.7 | 1072.0 | 1057.7 | 998.9 | 1027.5 | 1033.9 | 1005.2 | 992.5 | 995.7 | 1000.5 |
| 60° | 2899.6 | 1181.8 | 967.1 | 965.5 | 913.0 | 946.4 | 965.5 | 936.8 | 898.7 | 903.4 | 909.8 |
| 62.5° | 1301.1 | 903.4 | 835.0 | 828.7 | 827.1 | 870.0 | 890.7 | 863.7 | 809.6 | 814.4 | 820.7 |
| 65° | 819.1 | 781.0 | 725.3 | 725.3 | 750.7 | 787.3 | 803.2 | 781.0 | 718.9 | 711.0 | 717.3 |
| 67.5° | 760.3 | 726.9 | 669.6 | 658.5 | 671.2 | 701.4 | 703.0 | 660.1 | 623.5 | 617.1 | 617.1 |
| 70° | 682.3 | 656.9 | 601.2 | 579.0 | 574.2 | 572.6 | 567.8 | 556.7 | 532.8 | 526.5 | 529.7 |
| 72.5° | 564.6 | 547.1 | 512.2 | 488.3 | 475.6 | 474.0 | 454.9 | 445.4 | 424.7 | 421.5 | 419.9 |
| 75° | 373.8 | 378.5 | 378.5 | 375.4 | 364.2 | 359.5 | 338.8 | 329.2 | 305.4 | 295.8 | 294.3 |
| 77.5° | 221.1 | 225.9 | 232.2 | 233.8 | 232.2 | 232.2 | 213.1 | 202.0 | 178.1 | 165.4 | 162.2 |
| 80° | 135.2 | 138.4 | 141.6 | 146.3 | 140.0 | 135.2 | 117.7 | 106.6 | 95.4 | 87.5 | 85.9 |
| 82.5° | 87.5 | 90.7 | 92.3 | 95.4 | 92.3 | 85.9 | 71.6 | 65.2 | 57.3 | 50.9 | 49.3 |
| 85° | 49.3 | 50.9 | 54.1 | 54.1 | 49.3 | 44.5 | 36.6 | 31.8 | 27.0 | 23.9 | 23.9 |
| 87.5° | 17.5 | 17.5 | 17.5 | 19.1 | 15.9 | 14.3 | 9.5 | 6.4 | 4.8 | 4.8 | 4.8 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



LM-79-2008: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGRAW-EDISON

Report Number: SP1-1908-441-9-R4

Test Date: 10/23/2019

Luminaire Tested: SA1C-760-U-5WQ

Data in this report applies to families of products SA1C-760-U-5WQ .

Test Information

Test Method: LM-79-2008
 Report Number: SP1-1908-441-9-R4
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 10/28/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: MCGRAW-EDISON
 Catalog Number: **SA1C-760-U-5WQ**
 Description: MCGRAW EDISON ROADWAY AND AREA LUMINAIRE

THIS IS A REVISION OF SP1-1908-441-4-R3. TO UPDATE THE CATALOG INFORMATION.TESTED IN SITU. ROADWAY AND AREA LUMINAIRE. (1) 70 CRI, 5000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

Spectral Parameters

| | | | | | |
|---------------------------|--------|-----------|------|------|-------|
| CCT (K): | 5474 | CRI (Ra): | 71.7 | R9: | -27.1 |
| CIE u': | 0.2052 | R1: | 70.6 | R10: | 40.8 |
| CIE v': | 0.4804 | R2: | 74.6 | R11: | 74.6 |
| Duv: | 0.0025 | R3: | 78.3 | R12: | 50.4 |
| CIE x: | 0.3330 | R4: | 73.8 | R13: | 70.0 |
| CIE y: | 0.3466 | R5: | 72.4 | R14: | 87.8 |
| CIE z: | 0.3204 | R6: | 67.5 | | |
| Peak Wavelength (nm): | 442 | R7: | 77.5 | | |
| Dominant Wavelength (nm): | 554 | R8: | 58.9 | | |
| Purity: | 4.1 | | | | |
| Rf: | 72.1 | | | | |
| Rg: | 97.2 | | | | |



Test Conditions

Stabilization Time: 240M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 24.6/31%
 Sphere Temperature (°C): 25.9

REPORT NUMBER: SP1-1908-441-9-R4

| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/28/2019 | 12/28/2019 |
| Power Meter | IN0071 | 12/5/2018 | 12/5/2019 |
| AC Power Source | IN0063 | 12/5/2018 | 12/5/2019 |
| DC Power Source | IN0208 | 12/5/2018 | 12/5/2019 |
| Sphere Thermometer | IN0085 | 12/5/2018 | 12/5/2019 |
| Room Thermometer | IN0046 | 12/5/2018 | 12/5/2019 |

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CIE 1931 Chromaticity Diagram



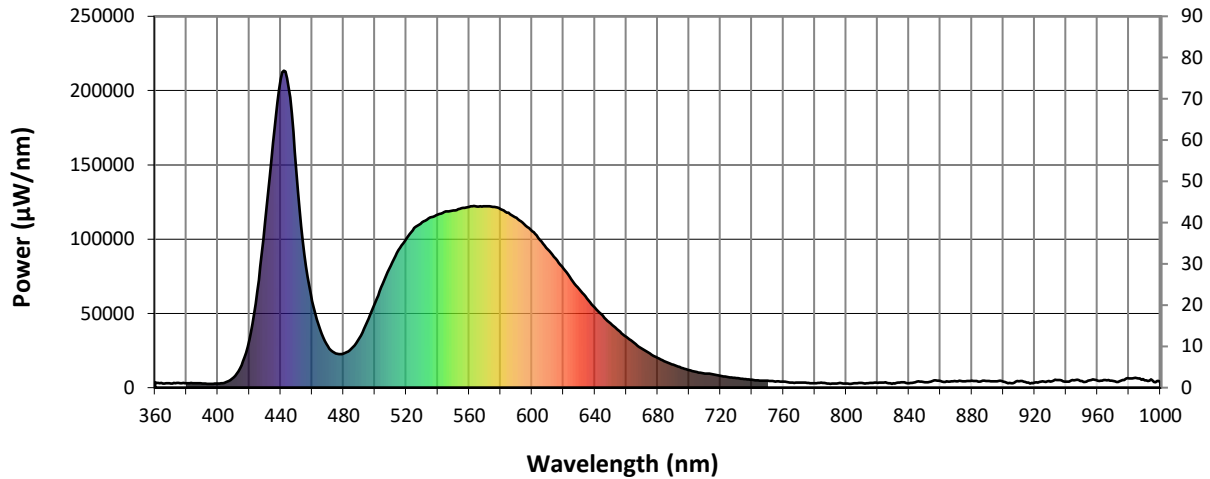
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 5700K 4-step quadrangle

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Photopic Flux vs. Wavelength



#####

| 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 | 3540 | NR | 490 | 33363 | NR | 620 | 80193 | NR | 750 | 4663 | NR | 880 | 4678 | NR |
| 365 | 2862 | NR | 495 | 44177 | NR | 625 | 73091 | NR | 755 | 4147 | NR | 885 | 4128 | NR |
| 370 | 2865 | NR | 500 | 57019 | NR | 630 | 66269 | NR | 760 | 4040 | NR | 890 | 4504 | NR |
| 375 | 3254 | NR | 505 | 70030 | NR | 635 | 60012 | NR | 765 | 3474 | NR | 895 | 4371 | NR |
| 380 | 3076 | NR | 510 | 81972 | NR | 640 | 53914 | NR | 770 | 3469 | NR | 900 | 4082 | NR |
| 385 | 2904 | NR | 515 | 92590 | NR | 645 | 48385 | NR | 775 | 3181 | NR | 905 | 2982 | NR |
| 390 | 2689 | NR | 520 | 100305 | NR | 650 | 43219 | NR | 780 | 2969 | NR | 910 | 4351 | NR |
| 395 | 2619 | NR | 525 | 107452 | NR | 655 | 38562 | NR | 785 | 3132 | NR | 915 | 3365 | NR |
| 400 | 2679 | NR | 530 | 111373 | NR | 660 | 34110 | NR | 790 | 2507 | NR | 920 | 3430 | NR |
| 405 | 3515 | NR | 535 | 114505 | NR | 665 | 30085 | NR | 795 | 2968 | NR | 925 | 4264 | NR |
| 410 | 6934 | NR | 540 | 116408 | NR | 670 | 26205 | NR | 800 | 2758 | NR | 930 | 4095 | NR |
| 415 | 14943 | NR | 545 | 118700 | NR | 675 | 22906 | NR | 805 | 2872 | NR | 935 | 5048 | NR |
| 420 | 31939 | NR | 550 | 119209 | NR | 680 | 20058 | NR | 810 | 3094 | NR | 940 | 4074 | NR |
| 425 | 64701 | NR | 555 | 120742 | NR | 685 | 17413 | NR | 815 | 3222 | NR | 945 | 4949 | NR |
| 430 | 110939 | NR | 560 | 121594 | NR | 690 | 15447 | NR | 820 | 3238 | NR | 950 | 4387 | NR |
| 435 | 164597 | NR | 565 | 121913 | NR | 695 | 13398 | NR | 825 | 3524 | NR | 955 | 4978 | NR |
| 440 | 207696 | NR | 570 | 122147 | NR | 700 | 11777 | NR | 830 | 2921 | NR | 960 | 4706 | NR |
| 445 | 201830 | NR | 575 | 121605 | NR | 705 | 10412 | NR | 835 | 3595 | NR | 965 | 5083 | NR |
| 450 | 145410 | NR | 580 | 120248 | NR | 710 | 9544 | NR | 840 | 3016 | NR | 970 | 4522 | NR |
| 455 | 89594 | NR | 585 | 117717 | NR | 715 | 8940 | NR | 845 | 4032 | NR | 975 | 4740 | NR |
| 460 | 58321 | NR | 590 | 114359 | NR | 720 | 7897 | NR | 850 | 3579 | NR | 980 | 6122 | NR |
| 465 | 39318 | NR | 595 | 109974 | NR | 725 | 7045 | NR | 855 | 4571 | NR | 985 | 6450 | NR |
| 470 | 27693 | NR | 600 | 105269 | NR | 730 | 6483 | NR | 860 | 4485 | NR | 990 | 4875 | NR |
| 475 | 23081 | NR | 605 | 99453 | NR | 735 | 5838 | NR | 865 | 3978 | NR | 995 | 4764 | NR |
| 480 | 23002 | NR | 610 | 92921 | NR | 740 | 5261 | NR | 870 | 4298 | NR | 1000 | 3640 | NR |
| 485 | 26201 | NR | 615 | 86989 | NR | 745 | 4760 | NR | 875 | 4356 | NR | | | |

REPORT NUMBER: SP1-1908-441-9-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 13759.3 S/P: 1.85

| 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 | 3540 | NR | 490 | 33363 | NR | 620 | 80193 | NR | 750 | 4663 | NR | 880 | 4678 | NR |
| 365 | 2862 | NR | 495 | 44177 | NR | 625 | 73091 | NR | 755 | 4147 | NR | 885 | 4128 | NR |
| 370 | 2865 | NR | 500 | 57019 | NR | 630 | 66269 | NR | 760 | 4040 | NR | 890 | 4504 | NR |
| 375 | 3254 | NR | 505 | 70030 | NR | 635 | 60012 | NR | 765 | 3474 | NR | 895 | 4371 | NR |
| 380 | 3076 | NR | 510 | 81972 | NR | 640 | 53914 | NR | 770 | 3469 | NR | 900 | 4082 | NR |
| 385 | 2904 | NR | 515 | 92590 | NR | 645 | 48385 | NR | 775 | 3181 | NR | 905 | 2982 | NR |
| 390 | 2689 | NR | 520 | 100305 | NR | 650 | 43219 | NR | 780 | 2969 | NR | 910 | 4351 | NR |
| 395 | 2619 | NR | 525 | 107452 | NR | 655 | 38562 | NR | 785 | 3132 | NR | 915 | 3365 | NR |
| 400 | 2679 | NR | 530 | 111373 | NR | 660 | 34110 | NR | 790 | 2507 | NR | 920 | 3430 | NR |
| 405 | 3515 | NR | 535 | 114505 | NR | 665 | 30085 | NR | 795 | 2968 | NR | 925 | 4264 | NR |
| 410 | 6934 | NR | 540 | 116408 | NR | 670 | 26205 | NR | 800 | 2758 | NR | 930 | 4095 | NR |
| 415 | 14943 | NR | 545 | 118700 | NR | 675 | 22906 | NR | 805 | 2872 | NR | 935 | 5048 | NR |
| 420 | 31939 | NR | 550 | 119209 | NR | 680 | 20058 | NR | 810 | 3094 | NR | 940 | 4074 | NR |
| 425 | 64701 | NR | 555 | 120742 | NR | 685 | 17413 | NR | 815 | 3222 | NR | 945 | 4949 | NR |
| 430 | 110939 | NR | 560 | 121594 | NR | 690 | 15447 | NR | 820 | 3238 | NR | 950 | 4387 | NR |
| 435 | 164597 | NR | 565 | 121913 | NR | 695 | 13398 | NR | 825 | 3524 | NR | 955 | 4978 | NR |
| 440 | 207696 | NR | 570 | 122147 | NR | 700 | 11777 | NR | 830 | 2921 | NR | 960 | 4706 | NR |
| 445 | 201830 | NR | 575 | 121605 | NR | 705 | 10412 | NR | 835 | 3595 | NR | 965 | 5083 | NR |
| 450 | 145410 | NR | 580 | 120248 | NR | 710 | 9544 | NR | 840 | 3016 | NR | 970 | 4522 | NR |
| 455 | 89594 | NR | 585 | 117717 | NR | 715 | 8940 | NR | 845 | 4032 | NR | 975 | 4740 | NR |
| 460 | 58321 | NR | 590 | 114359 | NR | 720 | 7897 | NR | 850 | 3579 | NR | 980 | 6122 | NR |
| 465 | 39318 | NR | 595 | 109974 | NR | 725 | 7045 | NR | 855 | 4571 | NR | 985 | 6450 | NR |
| 470 | 27693 | NR | 600 | 105269 | NR | 730 | 6483 | NR | 860 | 4485 | NR | 990 | 4875 | NR |
| 475 | 23081 | NR | 605 | 99453 | NR | 735 | 5838 | NR | 865 | 3978 | NR | 995 | 4764 | NR |
| 480 | 23002 | NR | 610 | 92921 | NR | 740 | 5261 | NR | 870 | 4298 | NR | 1000 | 3640 | NR |
| 485 | 26201 | NR | 615 | 86989 | NR | 745 | 4760 | NR | 875 | 4356 | NR | | | |

REPORT NUMBER: SP1-1908-441-9-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 5527.6 M/P: 0.74

| 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 | 3540 | NR | 490 | 33363 | NR | 620 | 80193 | NR | 750 | 4663 | NR | 880 | 4678 | NR |
| 365 | 2862 | NR | 495 | 44177 | NR | 625 | 73091 | NR | 755 | 4147 | NR | 885 | 4128 | NR |
| 370 | 2865 | NR | 500 | 57019 | NR | 630 | 66269 | NR | 760 | 4040 | NR | 890 | 4504 | NR |
| 375 | 3254 | NR | 505 | 70030 | NR | 635 | 60012 | NR | 765 | 3474 | NR | 895 | 4371 | NR |
| 380 | 3076 | NR | 510 | 81972 | NR | 640 | 53914 | NR | 770 | 3469 | NR | 900 | 4082 | NR |
| 385 | 2904 | NR | 515 | 92590 | NR | 645 | 48385 | NR | 775 | 3181 | NR | 905 | 2982 | NR |
| 390 | 2689 | NR | 520 | 100305 | NR | 650 | 43219 | NR | 780 | 2969 | NR | 910 | 4351 | NR |
| 395 | 2619 | NR | 525 | 107452 | NR | 655 | 38562 | NR | 785 | 3132 | NR | 915 | 3365 | NR |
| 400 | 2679 | NR | 530 | 111373 | NR | 660 | 34110 | NR | 790 | 2507 | NR | 920 | 3430 | NR |
| 405 | 3515 | NR | 535 | 114505 | NR | 665 | 30085 | NR | 795 | 2968 | NR | 925 | 4264 | NR |
| 410 | 6934 | NR | 540 | 116408 | NR | 670 | 26205 | NR | 800 | 2758 | NR | 930 | 4095 | NR |
| 415 | 14943 | NR | 545 | 118700 | NR | 675 | 22906 | NR | 805 | 2872 | NR | 935 | 5048 | NR |
| 420 | 31939 | NR | 550 | 119209 | NR | 680 | 20058 | NR | 810 | 3094 | NR | 940 | 4074 | NR |
| 425 | 64701 | NR | 555 | 120742 | NR | 685 | 17413 | NR | 815 | 3222 | NR | 945 | 4949 | NR |
| 430 | 110939 | NR | 560 | 121594 | NR | 690 | 15447 | NR | 820 | 3238 | NR | 950 | 4387 | NR |
| 435 | 164597 | NR | 565 | 121913 | NR | 695 | 13398 | NR | 825 | 3524 | NR | 955 | 4978 | NR |
| 440 | 207696 | NR | 570 | 122147 | NR | 700 | 11777 | NR | 830 | 2921 | NR | 960 | 4706 | NR |
| 445 | 201830 | NR | 575 | 121605 | NR | 705 | 10412 | NR | 835 | 3595 | NR | 965 | 5083 | NR |
| 450 | 145410 | NR | 580 | 120248 | NR | 710 | 9544 | NR | 840 | 3016 | NR | 970 | 4522 | NR |
| 455 | 89594 | NR | 585 | 117717 | NR | 715 | 8940 | NR | 845 | 4032 | NR | 975 | 4740 | NR |
| 460 | 58321 | NR | 590 | 114359 | NR | 720 | 7897 | NR | 850 | 3579 | NR | 980 | 6122 | NR |
| 465 | 39318 | NR | 595 | 109974 | NR | 725 | 7045 | NR | 855 | 4571 | NR | 985 | 6450 | NR |
| 470 | 27693 | NR | 600 | 105269 | NR | 730 | 6483 | NR | 860 | 4485 | NR | 990 | 4875 | NR |
| 475 | 23081 | NR | 605 | 99453 | NR | 735 | 5838 | NR | 865 | 3978 | NR | 995 | 4764 | NR |
| 480 | 23002 | NR | 610 | 92921 | NR | 740 | 5261 | NR | 870 | 4298 | NR | 1000 | 3640 | NR |
| 485 | 26201 | NR | 615 | 86989 | NR | 745 | 4760 | NR | 875 | 4356 | NR | | | |

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Summary

$R_f = 72.1$
 $R_g = 97.2$
 CIE $R_a = 71.7$
 $R_g = -27.1$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 54 | CES51 = 88 | CES76 = 43 |
| CES02 = 59 | CES27 = 79 | CES52 = 90 | CES77 = 64 |
| CES03 = 30 | CES28 = 77 | CES53 = 77 | CES78 = 46 |
| CES04 = 69 | CES29 = 50 | CES54 = 81 | CES79 = 74 |
| CES05 = 46 | CES30 = 59 | CES55 = 80 | CES80 = 70 |
| CES06 = 50 | CES31 = 55 | CES56 = 70 | CES81 = 71 |
| CES07 = 38 | CES32 = 52 | CES57 = 68 | CES82 = 88 |
| CES08 = 38 | CES33 = 63 | CES58 = 70 | CES83 = 82 |
| CES09 = 29 | CES34 = 63 | CES59 = 88 | CES84 = 87 |
| CES10 = 72 | CES35 = 79 | CES60 = 92 | CES85 = 84 |
| CES11 = 55 | CES36 = 90 | CES61 = 88 | CES86 = 76 |
| CES12 = 61 | CES37 = 72 | CES62 = 81 | CES87 = 75 |
| CES13 = 41 | CES38 = 68 | CES63 = 75 | CES88 = 77 |
| CES14 = 74 | CES39 = 91 | CES64 = 72 | CES89 = 76 |
| CES15 = 70 | CES40 = 83 | CES65 = 65 | CES90 = 76 |
| CES16 = 46 | CES41 = 84 | CES66 = 66 | CES91 = 92 |
| CES17 = 48 | CES42 = 70 | CES67 = 64 | CES92 = 70 |
| CES18 = 55 | CES43 = 69 | CES68 = 71 | CES93 = 83 |
| CES19 = 70 | CES44 = 98 | CES69 = 80 | CES94 = 60 |
| CES20 = 64 | CES45 = 79 | CES70 = 58 | CES95 = 73 |
| CES21 = 85 | CES46 = 78 | CES71 = 55 | CES96 = 79 |
| CES22 = 77 | CES47 = 76 | CES72 = 84 | CES97 = 84 |
| CES23 = 91 | CES48 = 68 | CES73 = 47 | CES98 = 73 |
| CES24 = 90 | CES49 = 78 | CES74 = 94 | CES99 = 62 |
| CES25 = 71 | CES50 = 87 | CES75 = 51 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)