

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: P634915

Luminaire Tested: GWS-SA3C-760-U-T2-W-HSS

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P634915
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-22)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA3C-760-U-T2-W-HSS
Description: GALLEON WALL SLIM LUMINAIRE. (3) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II OPTICS WITH HOUSE SIDE SHIELD
Light Source: (48) 5700K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 10542 lumens
Efficiency: N/A
Efficacy: 113.4 lumens/watt
Luminous Opening: Rectangular (W 1.5' x L: 0.5' x H: 0')
IES Classification: Type II - Short
BUG Rating: B1 - U0 - G2

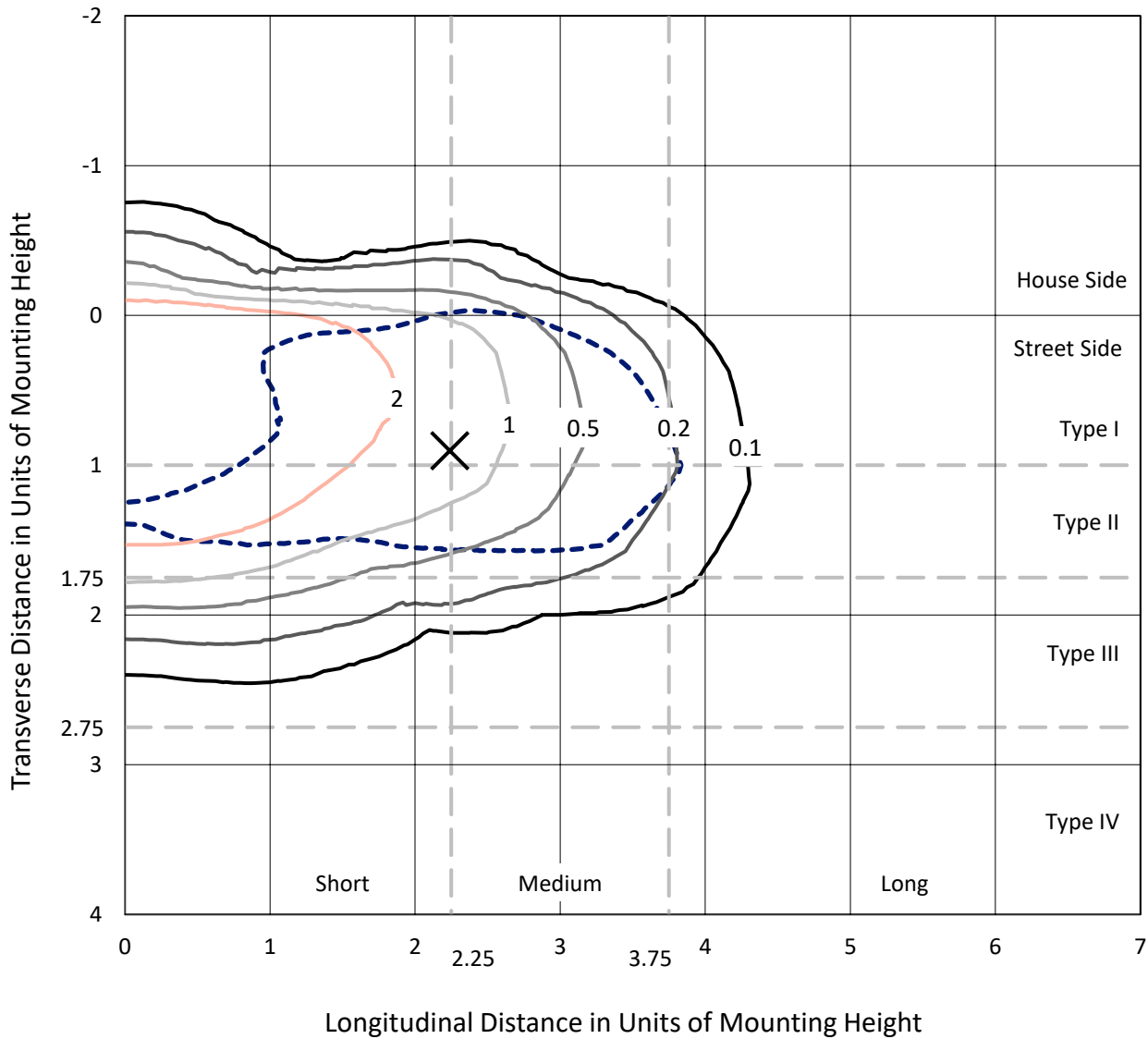
Input Watts (W): 93
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

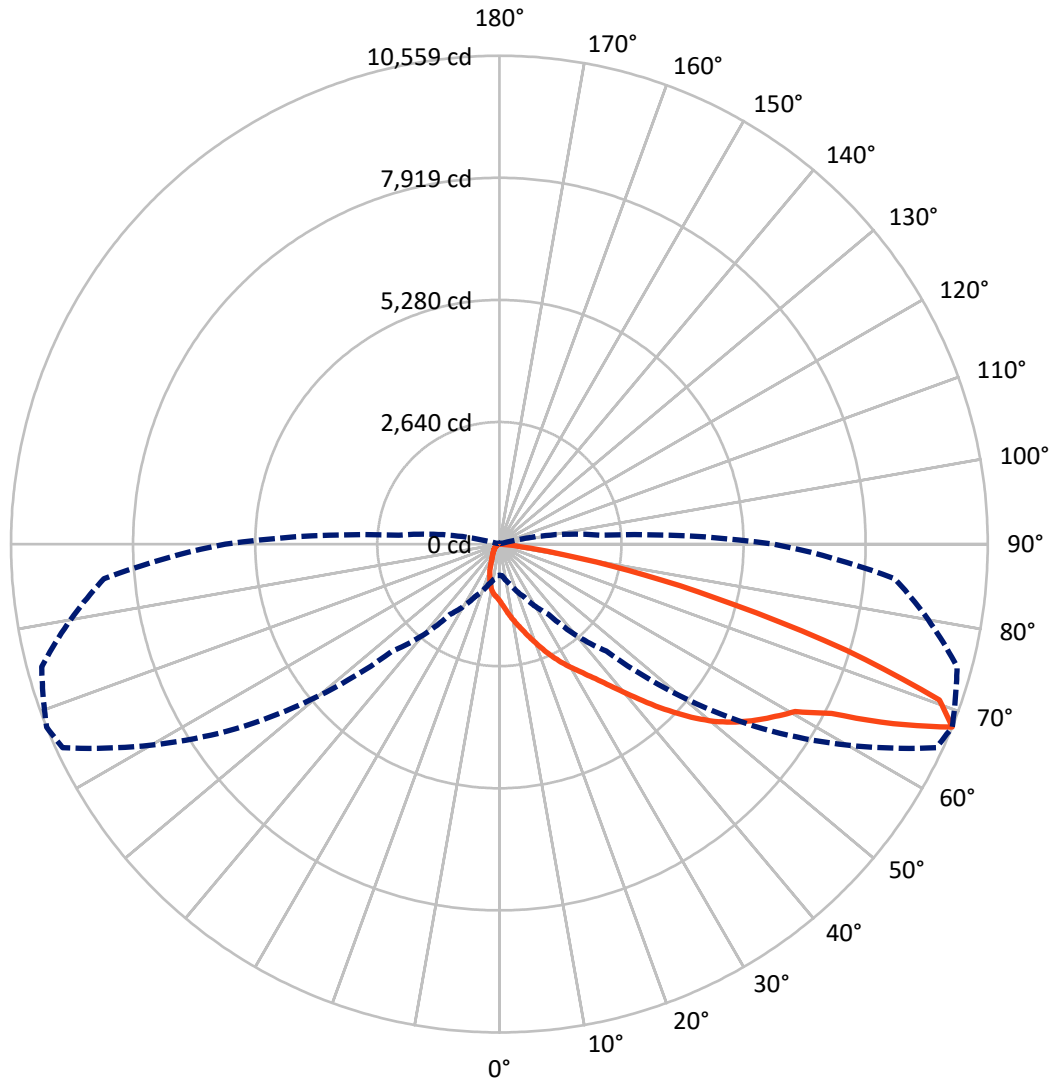
✕ Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 4.9 fc
 Type II - Short - N/A

REPORT NUMBER: P634915
CATALOG NUMBER: GWS-SA3C-760-U-T2-W-HSS

Luminous Intensity Polar Plot



— Vertical Plane Through 68-Deg Lateral - - - Horizontal Cone Through 67.5-Deg Vertical

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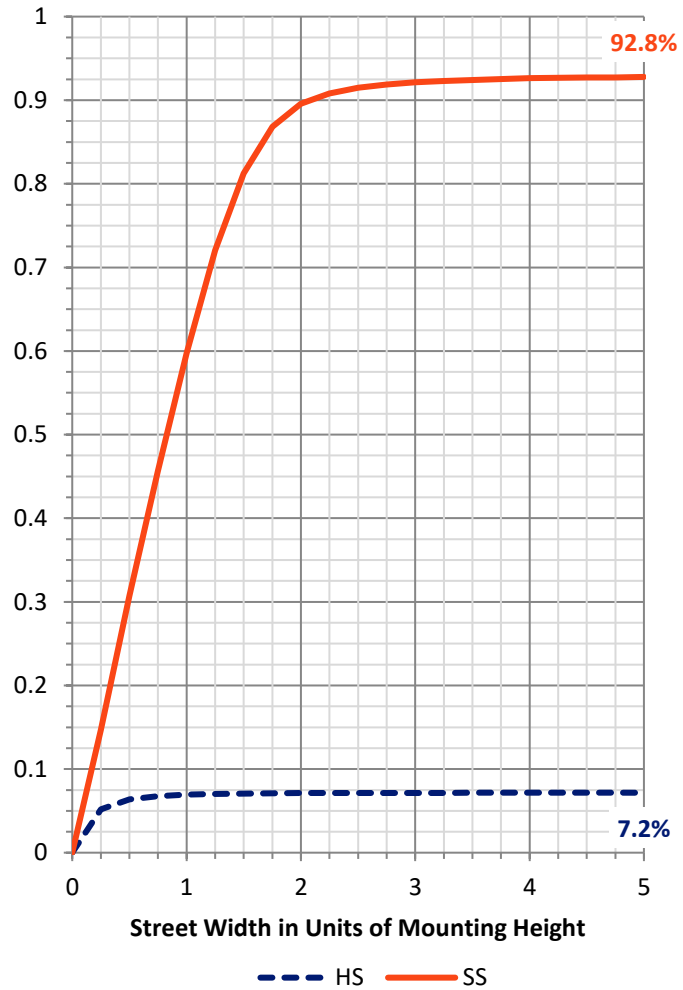
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 761.3 | 0.0 | 761.3 |
| | % Fixture | 7.2 | 0.0 | 7.2 |
| Street Side | Lumens | 9780.7 | 0.0 | 9780.7 |
| | % Fixture | 92.8 | 0.0 | 92.8 |
| Total | Lumens | 10542.0 | 0.0 | 10542.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 119.7 | 1.1 |
| 10°-20° | 343.6 | 3.3 |
| 20°-30° | 590.5 | 5.6 |
| 30°-40° | 1026.6 | 9.7 |
| 40°-50° | 1791.4 | 17.0 |
| 50°-60° | 2701.8 | 25.6 |
| 60°-70° | 2709.3 | 25.7 |
| 70°-80° | 1195.3 | 11.3 |
| 80°-90° | 63.8 | 0.6 |
| 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° | 10542.0 | 100.0 |
| 0°-180° | 10542.0 | 100.0 |

Coefficient of Utilization



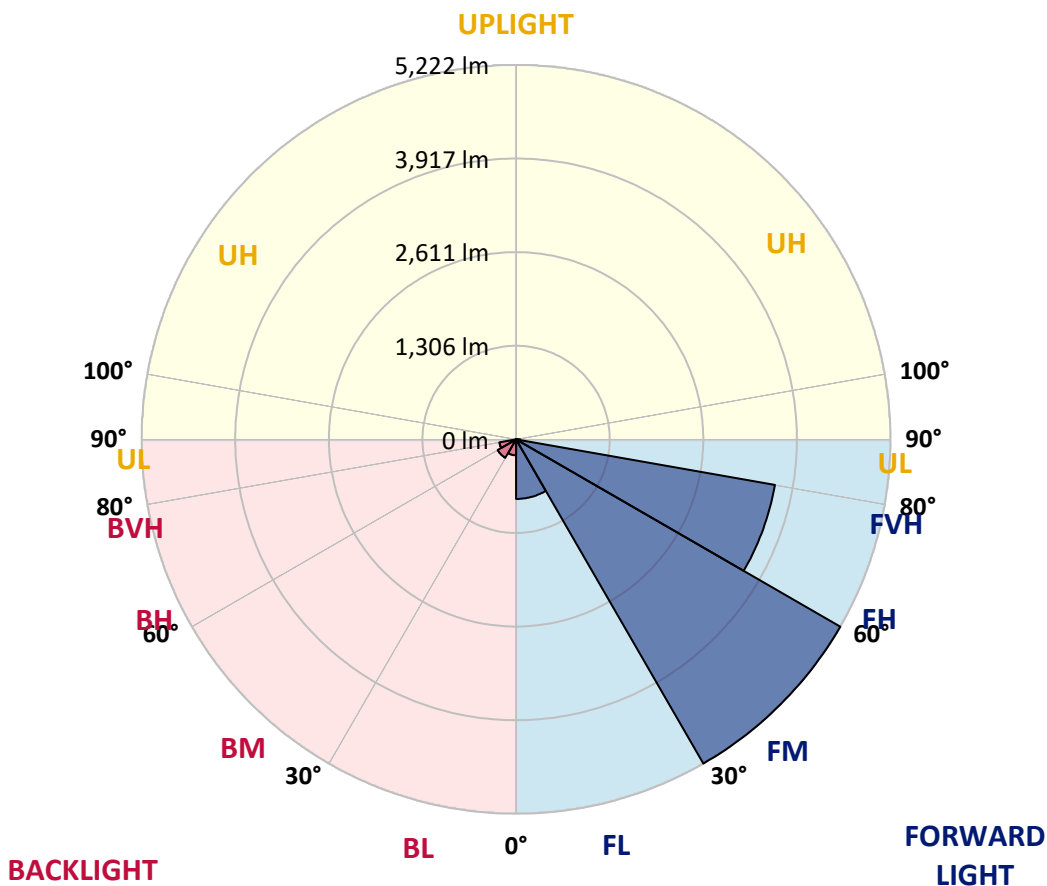
REPORT NUMBER: P634915

CATALOG NUMBER: GWS-SA3C-760-U-T2-W-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 831.0 | 7.9 | | | |
| FM (30°-60°) | 5222.5 | 49.5 | | | |
| FH (60°-80°) | 3667.0 | 34.8 | | | G2/5000 |
| FVH (80°-90°) | 60.2 | 0.6 | | | G1/100 |
| BL (0°-30°) | 222.7 | 2.1 | B1/500 | | |
| BM (30°-60°) | 297.4 | 2.8 | B1/1000 | | |
| BH (60°-80°) | 237.6 | 2.3 | B1/500 | | G1/500 |
| BVH (80°-90°) | 3.6 | 0.0 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G2
 Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 68° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|--------|
| 0° | 1226.8 | 1226.8 | 1226.8 | 1226.8 | 1226.8 | 1226.8 | 1226.8 | 1226.8 | 1226.8 | 1226.8 | 1226.8 |
| 2.5° | 1428.6 | 1437.7 | 1428.6 | 1430.6 | 1404.4 | 1392.3 | 1366.0 | 1329.7 | 1320.6 | 1297.4 | 1262.1 |
| 5° | 1603.1 | 1611.2 | 1602.1 | 1600.1 | 1569.8 | 1547.7 | 1504.3 | 1441.7 | 1423.6 | 1378.2 | 1308.5 |
| 7.5° | 1698.0 | 1703.0 | 1706.0 | 1711.1 | 1700.0 | 1681.8 | 1642.5 | 1564.8 | 1545.6 | 1472.0 | 1374.1 |
| 10° | 1708.1 | 1712.1 | 1727.2 | 1757.5 | 1779.7 | 1790.8 | 1768.6 | 1697.0 | 1666.7 | 1595.1 | 1454.8 |
| 12.5° | 1679.8 | 1685.9 | 1710.1 | 1760.5 | 1822.1 | 1878.6 | 1892.7 | 1830.1 | 1802.9 | 1711.1 | 1549.7 |
| 15° | 1642.5 | 1647.5 | 1680.8 | 1749.4 | 1842.2 | 1946.2 | 2004.7 | 1977.4 | 1947.2 | 1851.3 | 1654.6 |
| 17.5° | 1585.0 | 1592.0 | 1638.5 | 1731.3 | 1851.3 | 1999.6 | 2125.7 | 2134.8 | 2113.6 | 2009.7 | 1770.6 |
| 20° | 1552.7 | 1557.7 | 1599.1 | 1694.9 | 1845.3 | 2039.0 | 2238.7 | 2324.5 | 2301.3 | 2192.3 | 1903.8 |
| 22.5° | 1579.9 | 1584.0 | 1611.2 | 1685.9 | 1825.1 | 2061.2 | 2343.7 | 2514.2 | 2501.1 | 2388.1 | 2044.0 |
| 25° | 1723.2 | 1736.3 | 1720.2 | 1733.3 | 1834.2 | 2073.3 | 2428.4 | 2703.8 | 2706.9 | 2592.9 | 2189.3 |
| 27.5° | 2013.8 | 1996.6 | 1958.3 | 1892.7 | 1904.8 | 2105.6 | 2501.1 | 2882.4 | 2908.7 | 2792.6 | 2318.4 |
| 30° | 2309.4 | 2299.3 | 2276.1 | 2174.2 | 2089.4 | 2177.2 | 2562.6 | 3065.0 | 3106.4 | 2989.4 | 2433.5 |
| 32.5° | 2641.3 | 2651.4 | 2610.0 | 2487.9 | 2343.7 | 2322.5 | 2626.2 | 3238.6 | 3316.2 | 3212.3 | 2568.7 |
| 35° | 3037.8 | 3040.8 | 2959.1 | 2823.9 | 2660.5 | 2562.6 | 2740.2 | 3430.3 | 3573.5 | 3496.8 | 2749.2 |
| 37.5° | 3424.2 | 3442.4 | 3398.0 | 3185.1 | 3039.8 | 2861.2 | 2928.8 | 3676.4 | 3878.2 | 3847.9 | 2976.3 |
| 40° | 3766.2 | 3794.5 | 3780.3 | 3574.5 | 3383.8 | 3233.5 | 3221.4 | 3965.0 | 4246.5 | 4280.8 | 3275.9 |
| 42.5° | 4038.6 | 4056.8 | 4067.9 | 3921.6 | 3753.1 | 3668.4 | 3582.6 | 4299.9 | 4681.3 | 4821.5 | 3643.1 |
| 45° | 4326.2 | 4332.2 | 4355.4 | 4256.5 | 4109.2 | 4116.3 | 4009.4 | 4706.5 | 5139.3 | 5420.8 | 4064.9 |
| 47.5° | 4692.4 | 4712.6 | 4701.5 | 4597.6 | 4464.4 | 4544.1 | 4450.3 | 5125.2 | 5591.3 | 6060.5 | 4496.7 |
| 50° | 5138.3 | 5159.5 | 5149.4 | 5028.4 | 4880.0 | 4913.3 | 4854.8 | 5531.8 | 6027.2 | 6663.8 | 4855.8 |
| 52.5° | 5368.3 | 5385.5 | 5510.6 | 5565.1 | 5487.4 | 5275.5 | 5199.9 | 5978.7 | 6395.4 | 7160.2 | 5185.7 |
| 55° | 5257.4 | 5269.5 | 5541.9 | 5771.9 | 6056.4 | 5844.5 | 5546.9 | 6323.8 | 6720.3 | 7547.6 | 5430.9 |
| 57.5° | 4797.3 | 4862.9 | 5233.2 | 5622.6 | 6220.9 | 6406.5 | 6109.9 | 6699.1 | 7033.0 | 7816.9 | 5672.0 |
| 60° | 3854.0 | 3851.0 | 4381.6 | 5080.8 | 5900.0 | 6560.9 | 6904.9 | 7206.6 | 7346.8 | 8023.8 | 5994.9 |
| 62.5° | 2129.8 | 2149.0 | 2855.2 | 3776.3 | 5008.2 | 6161.3 | 7501.2 | 8083.3 | 8062.1 | 8385.0 | 6500.3 |
| 65° | 1060.4 | 1098.7 | 1482.1 | 2163.1 | 3332.4 | 5091.9 | 7604.1 | 9421.1 | 9360.6 | 9235.5 | 7544.5 |
| 67.5° | 672.9 | 688.1 | 899.9 | 1257.1 | 1852.3 | 3272.9 | 6963.4 | 10418.9 | 10559.1 | 10244.4 | 8580.7 |
| 70° | 435.8 | 461.1 | 625.5 | 859.6 | 1117.9 | 1686.9 | 5101.0 | 9772.2 | 10094.0 | 10133.4 | 7935.0 |
| 72.5° | 237.1 | 255.3 | 399.5 | 613.4 | 807.1 | 843.4 | 2865.3 | 7333.7 | 7851.2 | 8595.8 | 6207.8 |
| 75° | 135.2 | 148.3 | 218.9 | 416.7 | 592.2 | 513.5 | 1270.2 | 4909.3 | 5239.2 | 6143.2 | 4448.2 |
| 77.5° | 81.7 | 92.8 | 123.1 | 202.8 | 371.3 | 343.0 | 480.2 | 2988.4 | 3198.2 | 3665.3 | 2334.6 |
| 80° | 37.3 | 44.4 | 77.7 | 112.0 | 202.8 | 162.4 | 183.6 | 1393.3 | 1438.7 | 1504.3 | 772.8 |
| 82.5° | 17.2 | 20.2 | 35.3 | 66.6 | 115.0 | 93.8 | 70.6 | 321.8 | 453.0 | 428.8 | 196.7 |
| 85° | 2.0 | 2.0 | 13.1 | 27.2 | 32.3 | 24.2 | 29.3 | 72.6 | 91.8 | 129.1 | 56.5 |
| 87.5° | 0.0 | 0.0 | 1.0 | 1.0 | 2.0 | 3.0 | 6.1 | 9.1 | 13.1 | 21.2 | 14.1 |
| 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: P634915
 CATALOG NUMBER: GWS-SA3C-760-U-T2-W-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1226.8 | 1226.8 | 1226.8 | 1226.8 | 1226.8 | 1226.8 | 1226.8 | 1226.8 | 1226.8 | 1226.8 | 1226.8 |
| 2.5° | 1246.0 | 1217.7 | 1192.5 | 1155.2 | 1130.0 | 1101.7 | 1082.5 | 1059.3 | 1050.3 | 1043.2 | 1033.1 |
| 5° | 1274.2 | 1228.8 | 1167.3 | 1098.7 | 1042.2 | 988.7 | 939.3 | 907.0 | 878.8 | 874.7 | 860.6 |
| 7.5° | 1320.6 | 1253.1 | 1149.1 | 1037.1 | 941.3 | 852.5 | 782.9 | 726.4 | 698.2 | 689.1 | 672.9 |
| 10° | 1382.2 | 1289.4 | 1121.9 | 950.4 | 812.2 | 706.2 | 627.5 | 564.0 | 519.6 | 503.4 | 491.3 |
| 12.5° | 1450.8 | 1322.7 | 1078.5 | 843.4 | 686.1 | 565.0 | 465.1 | 397.5 | 369.3 | 359.2 | 350.1 |
| 15° | 1529.5 | 1353.9 | 1009.9 | 736.5 | 563.0 | 415.7 | 345.0 | 315.8 | 303.7 | 300.7 | 297.6 |
| 17.5° | 1605.2 | 1374.1 | 928.2 | 625.5 | 432.8 | 322.8 | 289.6 | 278.5 | 275.4 | 272.4 | 270.4 |
| 20° | 1690.9 | 1388.2 | 832.3 | 520.6 | 336.0 | 273.4 | 257.3 | 249.2 | 243.1 | 237.1 | 236.1 |
| 22.5° | 1778.7 | 1388.2 | 728.4 | 417.7 | 281.5 | 245.2 | 227.0 | 211.9 | 200.8 | 194.7 | 192.7 |
| 25° | 1862.4 | 1369.1 | 625.5 | 333.9 | 248.2 | 217.9 | 194.7 | 177.6 | 162.4 | 155.4 | 153.4 |
| 27.5° | 1922.0 | 1319.6 | 535.7 | 282.5 | 225.0 | 193.7 | 165.5 | 146.3 | 134.2 | 127.1 | 126.1 |
| 30° | 1959.3 | 1246.0 | 453.0 | 252.2 | 204.8 | 168.5 | 140.2 | 124.1 | 115.0 | 110.0 | 108.0 |
| 32.5° | 1987.5 | 1155.2 | 379.3 | 231.0 | 185.6 | 146.3 | 122.1 | 109.0 | 100.9 | 96.9 | 95.8 |
| 35° | 2044.0 | 1069.4 | 324.9 | 211.9 | 165.5 | 128.1 | 106.9 | 96.9 | 90.8 | 85.8 | 84.7 |
| 37.5° | 2122.7 | 997.8 | 281.5 | 194.7 | 146.3 | 114.0 | 96.9 | 87.8 | 82.7 | 77.7 | 76.7 |
| 40° | 2238.7 | 952.4 | 249.2 | 177.6 | 129.1 | 102.9 | 88.8 | 80.7 | 73.6 | 68.6 | 67.6 |
| 42.5° | 2417.3 | 931.2 | 228.0 | 160.4 | 114.0 | 92.8 | 81.7 | 71.6 | 64.6 | 59.5 | 58.5 |
| 45° | 2630.2 | 942.3 | 209.9 | 143.3 | 103.9 | 85.8 | 72.6 | 62.6 | 55.5 | 50.4 | 49.4 |
| 47.5° | 2858.2 | 981.7 | 194.7 | 127.1 | 93.8 | 78.7 | 64.6 | 53.5 | 47.4 | 42.4 | 41.4 |
| 50° | 3096.3 | 1046.2 | 181.6 | 112.0 | 85.8 | 70.6 | 55.5 | 46.4 | 40.4 | 36.3 | 35.3 |
| 52.5° | 3303.1 | 1134.0 | 168.5 | 100.9 | 78.7 | 62.6 | 48.4 | 40.4 | 34.3 | 30.3 | 29.3 |
| 55° | 3500.9 | 1216.7 | 158.4 | 90.8 | 70.6 | 54.5 | 42.4 | 34.3 | 29.3 | 25.2 | 24.2 |
| 57.5° | 3715.8 | 1304.5 | 146.3 | 81.7 | 63.6 | 48.4 | 37.3 | 29.3 | 25.2 | 21.2 | 20.2 |
| 60° | 4028.5 | 1434.7 | 128.1 | 74.7 | 55.5 | 42.4 | 32.3 | 26.2 | 22.2 | 17.2 | 16.1 |
| 62.5° | 4479.5 | 1671.7 | 108.0 | 64.6 | 47.4 | 36.3 | 27.2 | 22.2 | 18.2 | 14.1 | 12.1 |
| 65° | 5322.9 | 2075.3 | 88.8 | 53.5 | 38.3 | 30.3 | 23.2 | 18.2 | 14.1 | 10.1 | 9.1 |
| 67.5° | 5930.3 | 2180.2 | 71.6 | 43.4 | 31.3 | 23.2 | 19.2 | 14.1 | 10.1 | 7.1 | 6.1 |
| 70° | 5184.7 | 1565.8 | 55.5 | 35.3 | 26.2 | 18.2 | 15.1 | 11.1 | 7.1 | 5.0 | 4.0 |
| 72.5° | 3906.5 | 1023.0 | 41.4 | 27.2 | 20.2 | 15.1 | 11.1 | 9.1 | 6.1 | 4.0 | 3.0 |
| 75° | 2753.3 | 591.2 | 30.3 | 20.2 | 14.1 | 11.1 | 9.1 | 7.1 | 5.0 | 3.0 | 3.0 |
| 77.5° | 1411.4 | 244.2 | 21.2 | 14.1 | 10.1 | 7.1 | 6.1 | 4.0 | 4.0 | 3.0 | 2.0 |
| 80° | 428.8 | 80.7 | 12.1 | 9.1 | 7.1 | 5.0 | 3.0 | 3.0 | 3.0 | 2.0 | 1.0 |
| 82.5° | 97.9 | 26.2 | 7.1 | 7.1 | 5.0 | 4.0 | 3.0 | 1.0 | 1.0 | 0.0 | 0.0 |
| 85° | 25.2 | 8.1 | 6.1 | 5.0 | 5.0 | 4.0 | 2.0 | 1.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 9.1 | 5.0 | 5.0 | 5.0 | 4.0 | 3.0 | 2.0 | 0.0 | 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 |

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 .

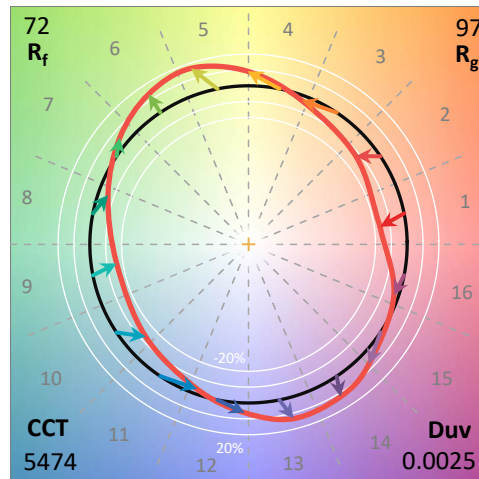
Test Information

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

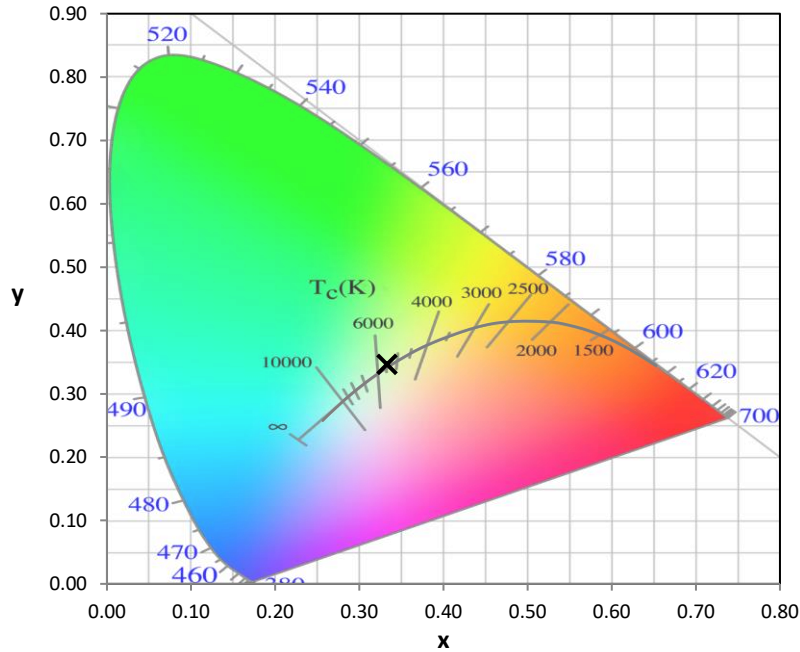
Stabilization Time: 240M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 24.6/31%
 Sphere Temperature (°C): 25.9

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 |

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

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

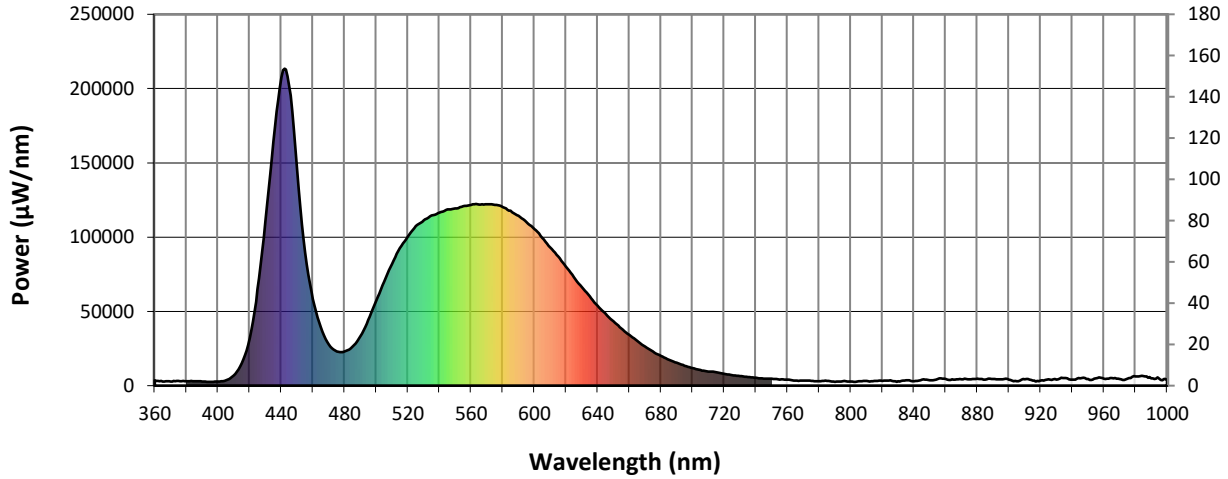


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| λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | 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 | | | |

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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

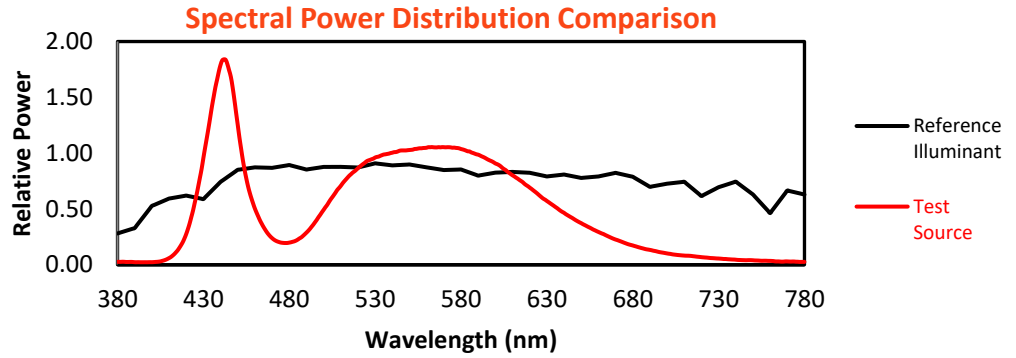
| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|--------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

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

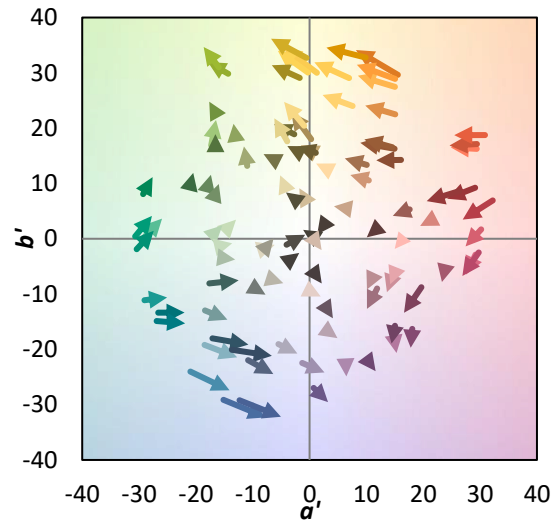
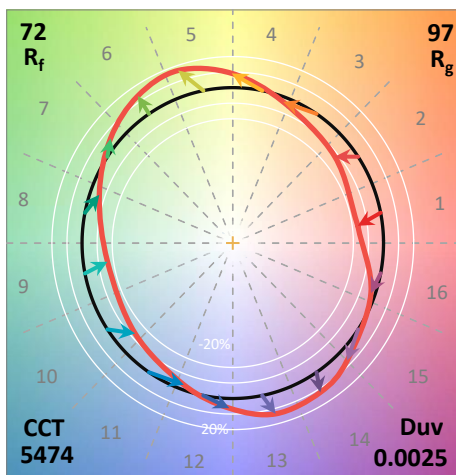
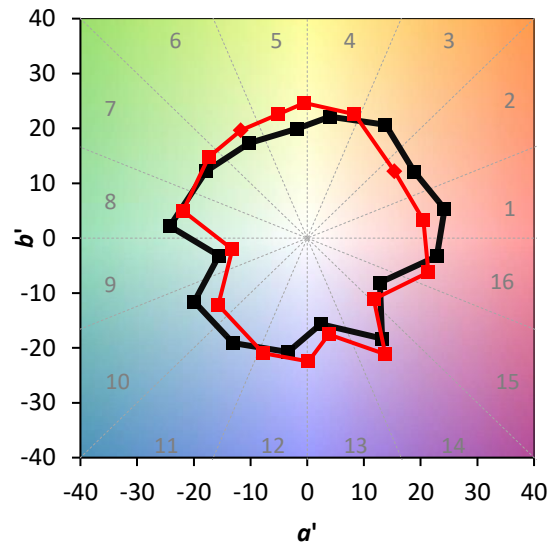
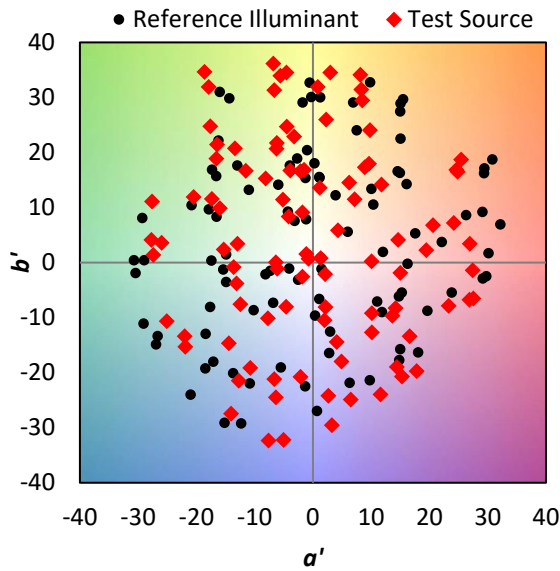
TM-30-18

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 ($R_{f,i}$)

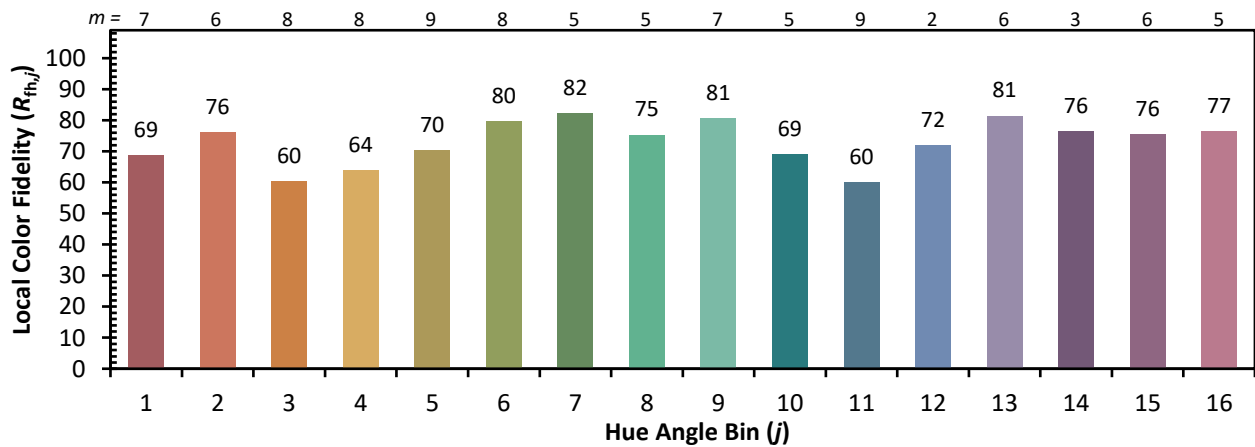
| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 54 | CES51 = 88 | CES76 = 43 |
| CES02 = 59 | CES27 = 79 | CES52 = 90 | CES77 = 64 |
| CES03 = 30 | CES28 = 77 | CES53 = 77 | CES78 = 46 |
| CES04 = 69 | CES29 = 50 | CES54 = 81 | CES79 = 74 |
| CES05 = 46 | CES30 = 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)