

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: P639870

Luminaire Tested: GWS-SA5C-760-U-T2R-W

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P639870
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-11)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA5C-760-U-T2R-W
Description: GALLEON WALL SLIM LUMINAIRE. (5) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II ROADWAY OPTICS
Light Source: (80) 5700K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 24497.1 lumens
Efficiency: N/A
Efficacy: 155.5 lumens/watt
Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')
IES Classification: Type II - Short
BUG Rating: B3 - U0 - G3

Input Watts (W): 157.5
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

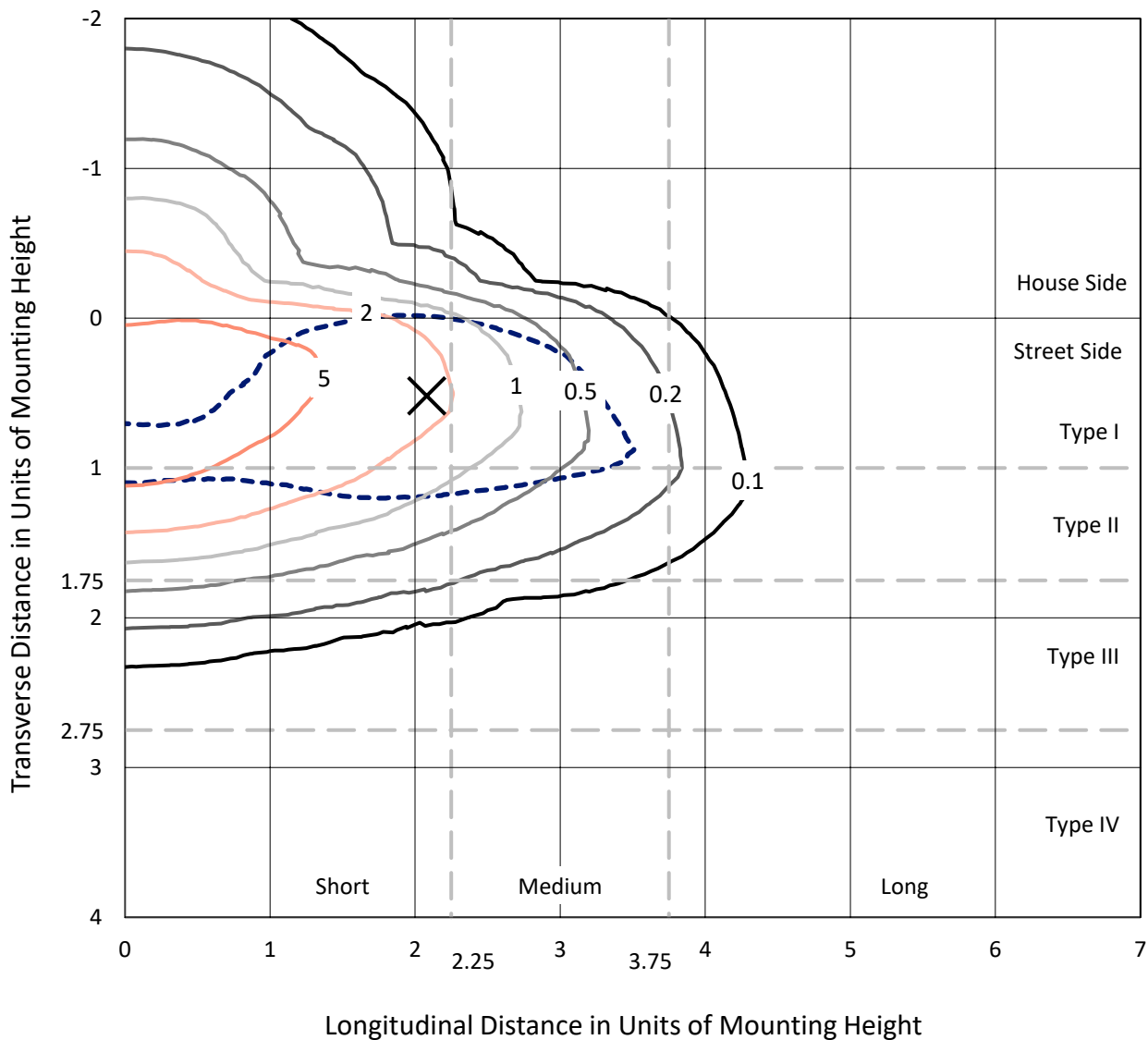


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Iso-Footcandle Lines of Horizontal Illumination

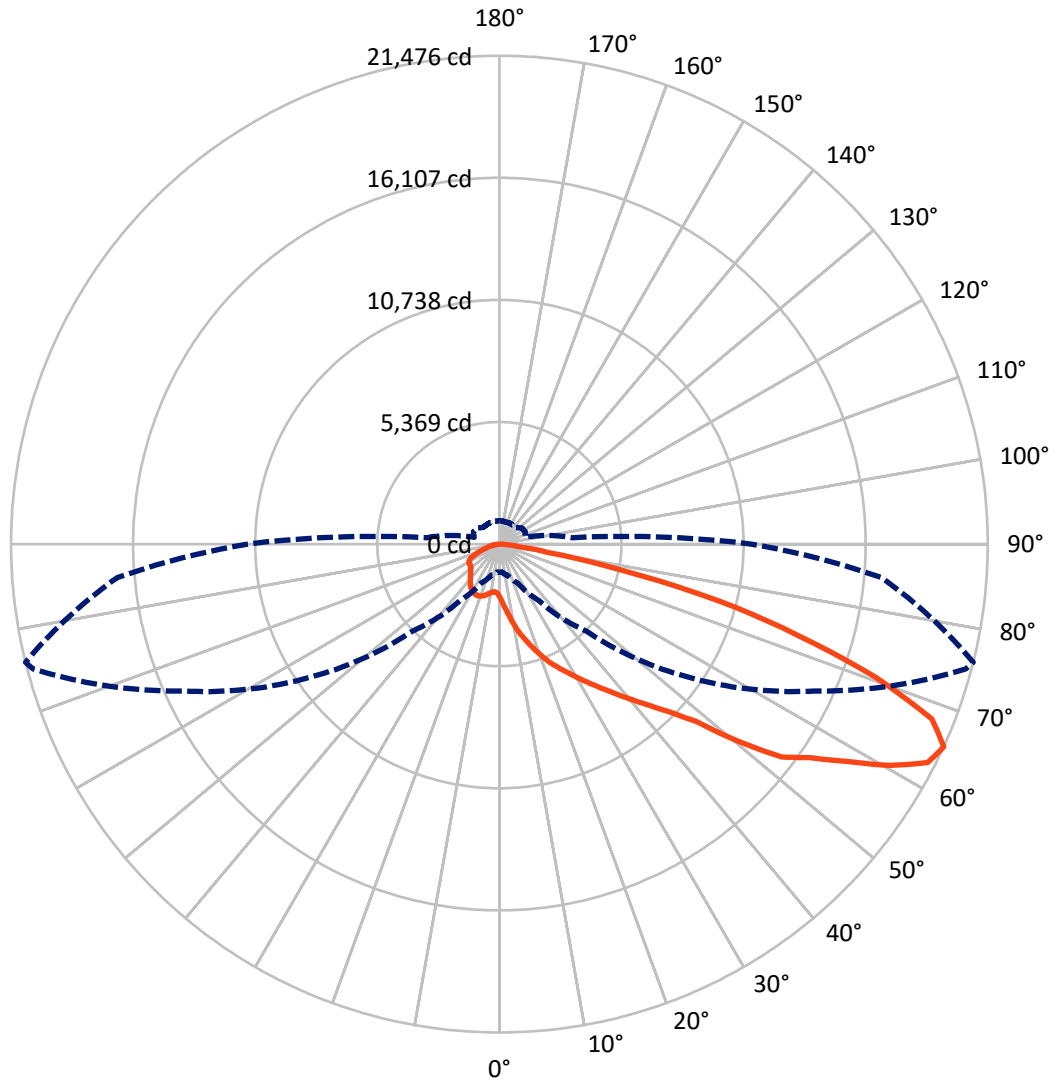
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 9.6 fc
 Type II - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 76-Deg Lateral - - - Horizontal Cone Through 65-Deg Vertical

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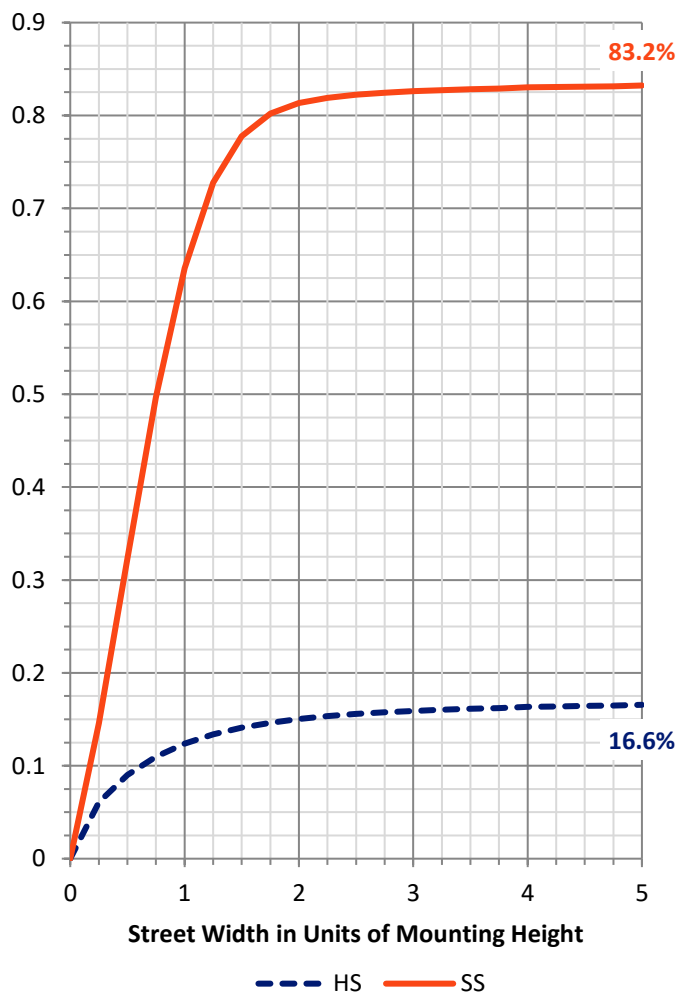
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 4094.7 | 0.0 | 4094.7 |
| | % Fixture | 16.7 | 0.0 | 16.7 |
| Street Side | Lumens | 20402.4 | 0.0 | 20402.4 |
| | % Fixture | 83.3 | 0.0 | 83.3 |
| Total | Lumens | 24497.1 | 0.0 | 24497.1 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 275.6 | 1.1 |
| 10°-20° | 1049.7 | 4.3 |
| 20°-30° | 2045.8 | 8.4 |
| 30°-40° | 3421.5 | 14.0 |
| 40°-50° | 4898.9 | 20.0 |
| 50°-60° | 5799.6 | 23.7 |
| 60°-70° | 4822.4 | 19.7 |
| 70°-80° | 1973.5 | 8.1 |
| 80°-90° | 210.1 | 0.9 |
| 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° | 24497.1 | 100.0 |
| 0°-180° | 24497.1 | 100.0 |

Coefficient of Utilization



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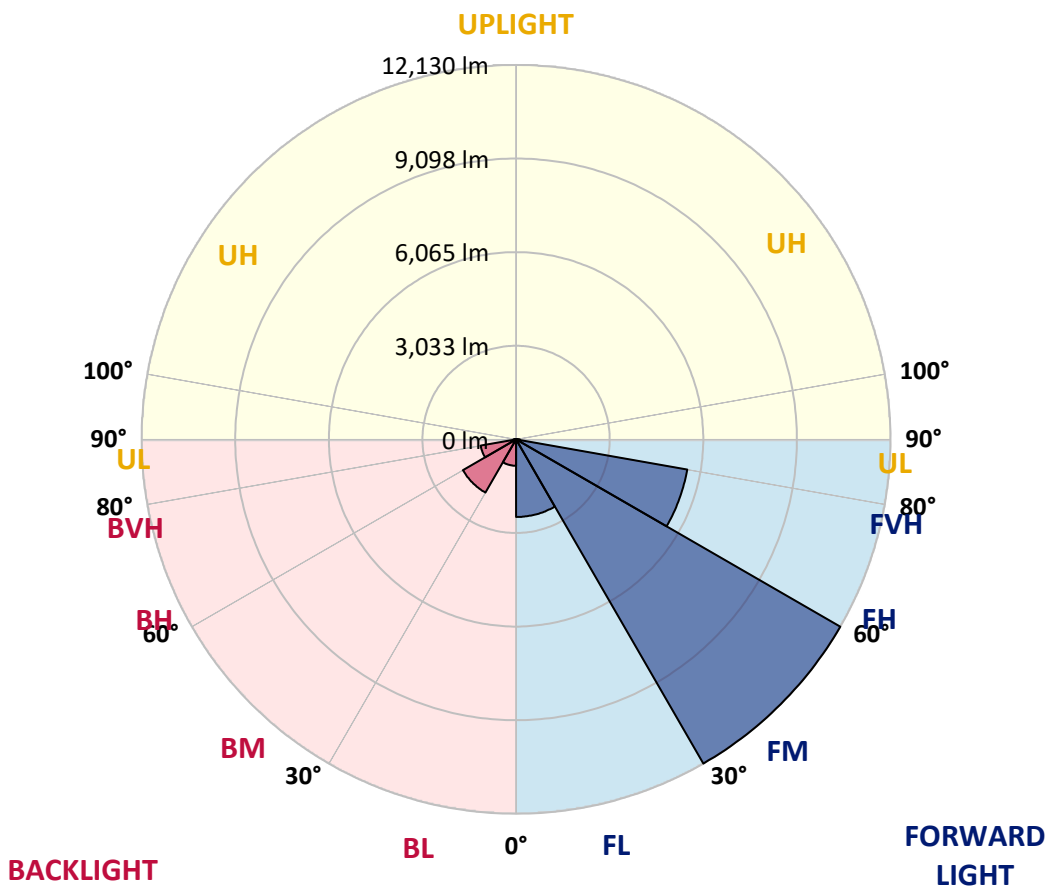
CATALOG NUMBER: GWS-SA5C-760-U-T2R-W

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|---------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 2514.5 | 10.3 | | | |
| FM (30°-60°) | 12130.0 | 49.5 | | | |
| FH (60°-80°) | 5632.5 | 23.0 | | | G3/7500 |
| FVH (80°-90°) | 125.3 | 0.5 | | | G2/225 |
| BL (0°-30°) | 856.6 | 3.5 | B2/1000 | | |
| BM (30°-60°) | 1989.9 | 8.1 | B2/2500 | | |
| BH (60°-80°) | 1163.4 | 4.7 | B3/2500 | | G3/2500 |
| BVH (80°-90°) | 84.8 | 0.3 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B3-U0-G3

Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 76° | 85° |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 2319.8 | 2319.8 | 2319.8 | 2319.8 | 2319.8 | 2319.8 | 2319.8 | 2319.8 | 2319.8 | 2319.8 | 2319.8 |
| 2.5° | 3251.5 | 3263.5 | 3223.9 | 3210.2 | 3117.2 | 2991.4 | 2886.4 | 2727.9 | 2581.6 | 2559.2 | 2428.3 |
| 5° | 4129.8 | 4078.1 | 4033.4 | 4004.1 | 3874.9 | 3732.0 | 3509.8 | 3211.9 | 2900.2 | 2862.3 | 2579.8 |
| 7.5° | 4651.6 | 4643.0 | 4587.9 | 4570.7 | 4470.8 | 4327.9 | 4098.8 | 3728.5 | 3275.6 | 3213.6 | 2784.8 |
| 10° | 5070.1 | 5064.9 | 5037.4 | 5052.9 | 4961.6 | 4822.1 | 4600.0 | 4217.6 | 3687.2 | 3625.2 | 3013.8 |
| 12.5° | 5435.2 | 5443.8 | 5438.7 | 5495.5 | 5449.0 | 5340.5 | 5109.7 | 4689.5 | 4098.8 | 4031.6 | 3292.8 |
| 15° | 5702.2 | 5709.0 | 5734.9 | 5858.9 | 5884.7 | 5862.3 | 5628.1 | 5152.8 | 4505.2 | 4408.8 | 3580.4 |
| 17.5° | 5777.9 | 5791.7 | 5853.7 | 6053.5 | 6193.0 | 6286.0 | 6112.0 | 5624.7 | 4904.8 | 4799.7 | 3873.2 |
| 20° | 5879.5 | 5895.0 | 5957.0 | 6165.4 | 6370.4 | 6582.2 | 6551.2 | 6103.4 | 5307.8 | 5221.7 | 4169.4 |
| 22.5° | 6349.7 | 6337.6 | 6310.1 | 6410.0 | 6556.4 | 6819.9 | 6897.4 | 6563.3 | 5724.5 | 5641.9 | 4496.6 |
| 25° | 7255.6 | 7233.2 | 7057.5 | 6966.2 | 6918.0 | 7078.2 | 7216.0 | 6981.7 | 6131.0 | 6007.0 | 4801.5 |
| 27.5° | 8254.4 | 8242.4 | 8018.5 | 7801.5 | 7505.3 | 7436.4 | 7517.3 | 7346.8 | 6525.4 | 6399.6 | 5066.7 |
| 30° | 9199.9 | 9163.8 | 8929.5 | 8657.4 | 8261.3 | 7965.1 | 7846.3 | 7705.1 | 6957.6 | 6826.7 | 5376.7 |
| 32.5° | 10045.5 | 9999.0 | 9723.5 | 9422.1 | 9007.0 | 8657.4 | 8302.7 | 8085.7 | 7446.7 | 7295.2 | 5693.5 |
| 35° | 10739.6 | 10693.1 | 10410.6 | 10090.3 | 9633.9 | 9375.6 | 8889.9 | 8499.0 | 7944.4 | 7791.2 | 6067.3 |
| 37.5° | 11276.9 | 11233.8 | 10939.3 | 10624.2 | 10226.3 | 10021.4 | 9599.5 | 8964.0 | 8517.9 | 8357.8 | 6463.4 |
| 40° | 11578.3 | 11547.3 | 11311.3 | 11061.6 | 10727.5 | 10550.1 | 10360.7 | 9551.2 | 9160.3 | 9000.1 | 6930.1 |
| 42.5° | 11669.5 | 11648.9 | 11483.5 | 11354.4 | 11128.8 | 10994.4 | 11102.9 | 10241.8 | 9845.7 | 9706.2 | 7455.3 |
| 45° | 11440.5 | 11440.5 | 11392.3 | 11457.7 | 11468.0 | 11466.3 | 11846.9 | 11022.0 | 10687.9 | 10534.6 | 8195.9 |
| 47.5° | 10854.9 | 10892.8 | 10963.4 | 11285.5 | 11624.8 | 11908.9 | 12716.6 | 12062.2 | 11771.1 | 11645.4 | 9244.7 |
| 50° | 9783.7 | 9887.1 | 10128.2 | 10756.8 | 11478.4 | 12201.7 | 13539.8 | 13600.1 | 13877.4 | 13655.2 | 10787.8 |
| 52.5° | 8214.8 | 8199.3 | 8814.1 | 9709.7 | 10810.2 | 12213.7 | 13992.8 | 14957.2 | 15702.9 | 15549.6 | 11934.8 |
| 55° | 6528.8 | 6503.0 | 7076.5 | 8311.3 | 9785.5 | 11752.2 | 14264.9 | 15578.9 | 16715.5 | 16577.8 | 12966.3 |
| 57.5° | 4999.5 | 4966.8 | 5476.6 | 6590.8 | 8338.8 | 10772.3 | 14213.2 | 16319.4 | 18108.8 | 18038.2 | 14368.2 |
| 60° | 3440.9 | 3401.3 | 3878.4 | 4853.1 | 6627.0 | 9274.0 | 13641.4 | 16700.0 | 19739.7 | 19763.8 | 15868.2 |
| 62.5° | 2066.6 | 2044.2 | 2390.4 | 3146.4 | 4767.0 | 7417.5 | 12303.3 | 16469.3 | 21038.2 | 21146.7 | 16832.6 |
| 65° | 1246.9 | 1231.4 | 1434.6 | 1877.2 | 3024.2 | 5412.8 | 10240.1 | 15289.6 | 21225.9 | 21475.7 | 16855.0 |
| 67.5° | 907.6 | 909.3 | 967.9 | 1143.5 | 1763.5 | 3496.0 | 7684.4 | 13174.7 | 20247.7 | 20506.1 | 15792.4 |
| 70° | 788.8 | 792.2 | 823.2 | 862.8 | 1066.0 | 2001.2 | 4996.1 | 10400.3 | 17356.2 | 17556.0 | 13245.3 |
| 72.5° | 700.9 | 700.9 | 721.6 | 742.3 | 833.5 | 1219.3 | 2676.3 | 7269.3 | 13698.3 | 13751.7 | 10109.2 |
| 75° | 616.5 | 611.4 | 621.7 | 632.0 | 723.3 | 852.5 | 1302.0 | 5064.9 | 10117.8 | 9993.8 | 6534.0 |
| 77.5° | 490.8 | 485.7 | 487.4 | 497.7 | 580.4 | 609.7 | 659.6 | 3163.7 | 5702.2 | 5381.8 | 2886.4 |
| 80° | 349.6 | 346.2 | 365.1 | 390.9 | 428.8 | 373.7 | 413.3 | 1531.0 | 2261.2 | 2104.5 | 1119.4 |
| 82.5° | 208.4 | 215.3 | 244.6 | 265.2 | 296.2 | 234.2 | 266.9 | 511.5 | 800.8 | 780.2 | 454.7 |
| 85° | 29.3 | 31.0 | 87.8 | 101.6 | 127.4 | 91.3 | 141.2 | 230.8 | 320.3 | 342.7 | 160.2 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.1 | 41.3 | 91.3 | 93.0 | 39.6 |
| 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: P639870
 CATALOG NUMBER: GWS-SA5C-760-U-T2R-W

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2319.8 | 2319.8 | 2319.8 | 2319.8 | 2319.8 | 2319.8 | 2319.8 | 2319.8 | 2319.8 | 2319.8 | 2319.8 |
| 2.5° | 2361.1 | 2280.2 | 2164.8 | 2068.3 | 1987.4 | 1922.0 | 1866.8 | 1825.5 | 1813.5 | 1796.2 | 1796.2 |
| 5° | 2447.2 | 2300.8 | 2094.2 | 1947.8 | 1863.4 | 1813.5 | 1779.0 | 1761.8 | 1753.2 | 1742.9 | 1737.7 |
| 7.5° | 2566.1 | 2361.1 | 2082.1 | 1934.0 | 1868.6 | 1837.6 | 1815.2 | 1804.9 | 1798.0 | 1787.6 | 1787.6 |
| 10° | 2729.7 | 2450.7 | 2120.0 | 1982.2 | 1930.6 | 1899.6 | 1873.7 | 1856.5 | 1841.0 | 1825.5 | 1822.1 |
| 12.5° | 2907.1 | 2567.8 | 2188.9 | 2047.7 | 1992.6 | 1954.7 | 1918.5 | 1892.7 | 1873.7 | 1854.8 | 1849.6 |
| 15° | 3103.4 | 2688.3 | 2263.0 | 2111.4 | 2042.5 | 1990.8 | 1947.8 | 1908.2 | 1882.3 | 1854.8 | 1851.4 |
| 17.5° | 3296.3 | 2810.6 | 2325.0 | 2154.5 | 2066.6 | 2002.9 | 1940.9 | 1889.2 | 1856.5 | 1825.5 | 1816.9 |
| 20° | 3527.0 | 2932.9 | 2368.0 | 2166.5 | 2061.5 | 1977.1 | 1903.0 | 1837.6 | 1801.4 | 1765.2 | 1760.1 |
| 22.5° | 3738.9 | 3046.5 | 2388.7 | 2149.3 | 2021.8 | 1922.0 | 1835.9 | 1765.2 | 1725.6 | 1689.5 | 1682.6 |
| 25° | 3943.8 | 3146.4 | 2380.1 | 2108.0 | 1961.6 | 1846.2 | 1756.6 | 1686.0 | 1648.1 | 1610.2 | 1599.9 |
| 27.5° | 4141.9 | 3213.6 | 2345.6 | 2044.2 | 1885.8 | 1761.8 | 1675.7 | 1612.0 | 1579.2 | 1546.5 | 1532.7 |
| 30° | 4336.5 | 3275.6 | 2292.2 | 1961.6 | 1789.4 | 1674.0 | 1603.4 | 1558.6 | 1525.9 | 1491.4 | 1481.1 |
| 32.5° | 4532.8 | 3320.4 | 2211.3 | 1865.1 | 1691.2 | 1596.5 | 1553.4 | 1520.7 | 1486.2 | 1451.8 | 1441.5 |
| 35° | 4730.8 | 3339.3 | 2113.1 | 1754.9 | 1608.5 | 1546.5 | 1531.0 | 1493.1 | 1446.6 | 1405.3 | 1391.5 |
| 37.5° | 4966.8 | 3356.5 | 1990.8 | 1646.4 | 1536.2 | 1522.4 | 1519.0 | 1462.1 | 1407.0 | 1350.2 | 1334.7 |
| 40° | 5250.9 | 3378.9 | 1865.1 | 1548.2 | 1477.6 | 1513.8 | 1500.0 | 1422.5 | 1312.3 | 1257.2 | 1240.0 |
| 42.5° | 5598.8 | 3420.3 | 1734.2 | 1458.7 | 1434.6 | 1481.1 | 1465.6 | 1326.1 | 1252.0 | 1221.0 | 1212.4 |
| 45° | 6110.3 | 3571.8 | 1603.4 | 1388.1 | 1401.9 | 1434.6 | 1410.5 | 1269.3 | 1240.0 | 1219.3 | 1209.0 |
| 47.5° | 7021.4 | 3804.3 | 1489.7 | 1334.7 | 1376.0 | 1393.2 | 1300.3 | 1253.8 | 1231.4 | 1203.8 | 1191.8 |
| 50° | 7968.6 | 3905.9 | 1398.4 | 1302.0 | 1346.7 | 1355.4 | 1240.0 | 1233.1 | 1217.6 | 1188.3 | 1176.3 |
| 52.5° | 8609.2 | 3892.1 | 1343.3 | 1289.9 | 1322.6 | 1289.9 | 1212.4 | 1210.7 | 1200.4 | 1165.9 | 1152.1 |
| 55° | 9332.5 | 3916.3 | 1319.2 | 1293.4 | 1312.3 | 1179.7 | 1178.0 | 1183.1 | 1178.0 | 1140.1 | 1133.2 |
| 57.5° | 10309.0 | 3990.3 | 1307.1 | 1305.4 | 1305.4 | 1126.3 | 1145.3 | 1152.1 | 1141.8 | 1124.6 | 1119.4 |
| 60° | 11247.6 | 3995.5 | 1284.8 | 1319.2 | 1300.3 | 1093.6 | 1107.4 | 1114.3 | 1102.2 | 1098.8 | 1097.0 |
| 62.5° | 11600.6 | 3747.5 | 1234.8 | 1308.9 | 1279.6 | 1057.4 | 1067.8 | 1071.2 | 1059.1 | 1067.8 | 1066.0 |
| 65° | 11075.4 | 3220.5 | 1152.1 | 1258.9 | 1215.9 | 1024.7 | 1017.8 | 1026.4 | 1005.8 | 1028.1 | 1029.9 |
| 67.5° | 9833.7 | 2559.2 | 1026.4 | 1164.2 | 1126.3 | 988.5 | 974.8 | 974.8 | 940.3 | 974.8 | 973.0 |
| 70° | 7928.9 | 1808.3 | 842.1 | 1012.6 | 1028.1 | 945.5 | 938.6 | 899.0 | 843.9 | 895.5 | 890.4 |
| 72.5° | 6010.4 | 1298.5 | 663.0 | 800.8 | 885.2 | 885.2 | 886.9 | 819.8 | 756.0 | 780.2 | 759.5 |
| 75° | 3807.8 | 914.5 | 530.4 | 613.1 | 694.0 | 776.7 | 816.3 | 692.3 | 635.5 | 625.2 | 614.8 |
| 77.5° | 1715.3 | 601.0 | 413.3 | 470.2 | 492.5 | 613.1 | 745.7 | 595.9 | 518.4 | 496.0 | 489.1 |
| 80° | 718.2 | 373.7 | 294.5 | 332.4 | 303.1 | 514.9 | 657.9 | 463.3 | 380.6 | 349.6 | 327.2 |
| 82.5° | 315.2 | 222.2 | 187.7 | 179.1 | 189.4 | 382.3 | 490.8 | 308.3 | 237.7 | 322.0 | 325.5 |
| 85° | 132.6 | 117.1 | 96.4 | 87.8 | 77.5 | 146.4 | 230.8 | 120.6 | 148.1 | 84.4 | 68.9 |
| 87.5° | 31.0 | 34.4 | 25.8 | 17.2 | 10.3 | 1.7 | 0.0 | 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

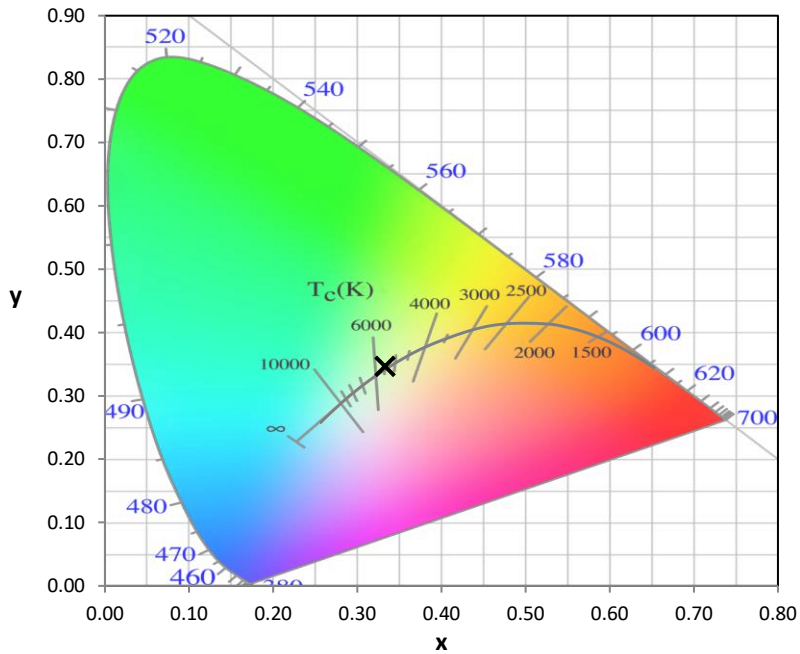
Stabilization Time: 240M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 24.6/31%
 Sphere Temperature (°C): 25.9

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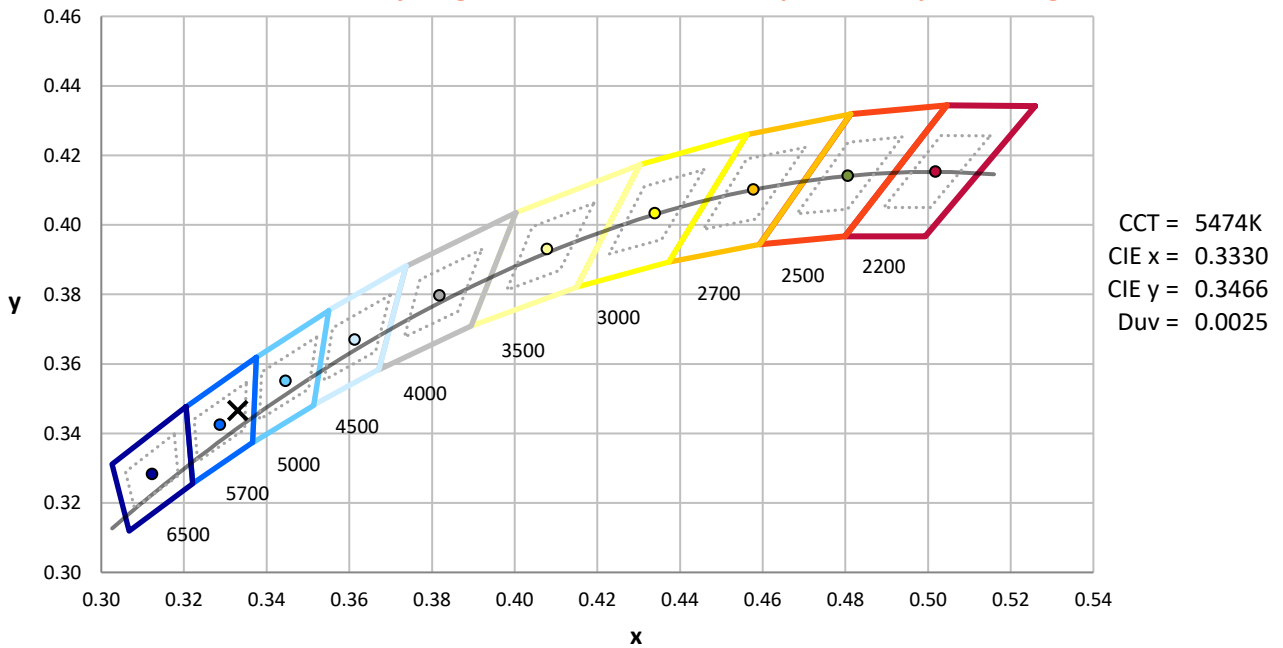
| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/28/2019 | 12/28/2019 |
| Power Meter | IN0071 | 12/5/2018 | 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)