

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: P633373

Luminaire Tested: GWS-SA2E-750-U-T2-W-GRSBK

Issue Date: 1/10/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P633373  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-20)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 1/10/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: McGRAW-EDISON  
Catalog Number: GWS-SA2E-750-U-T2-W-GRSBK  
Description: GALLEON WALL SLIM LUMINAIRE. (2) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II OPTICS W/ FACTORY INSTALLED GLARE SHIELD, BK  
Light Source: (32) 5000K CCT, 70 CRI LEDS  
Ballast/Driver: -

**Summary**

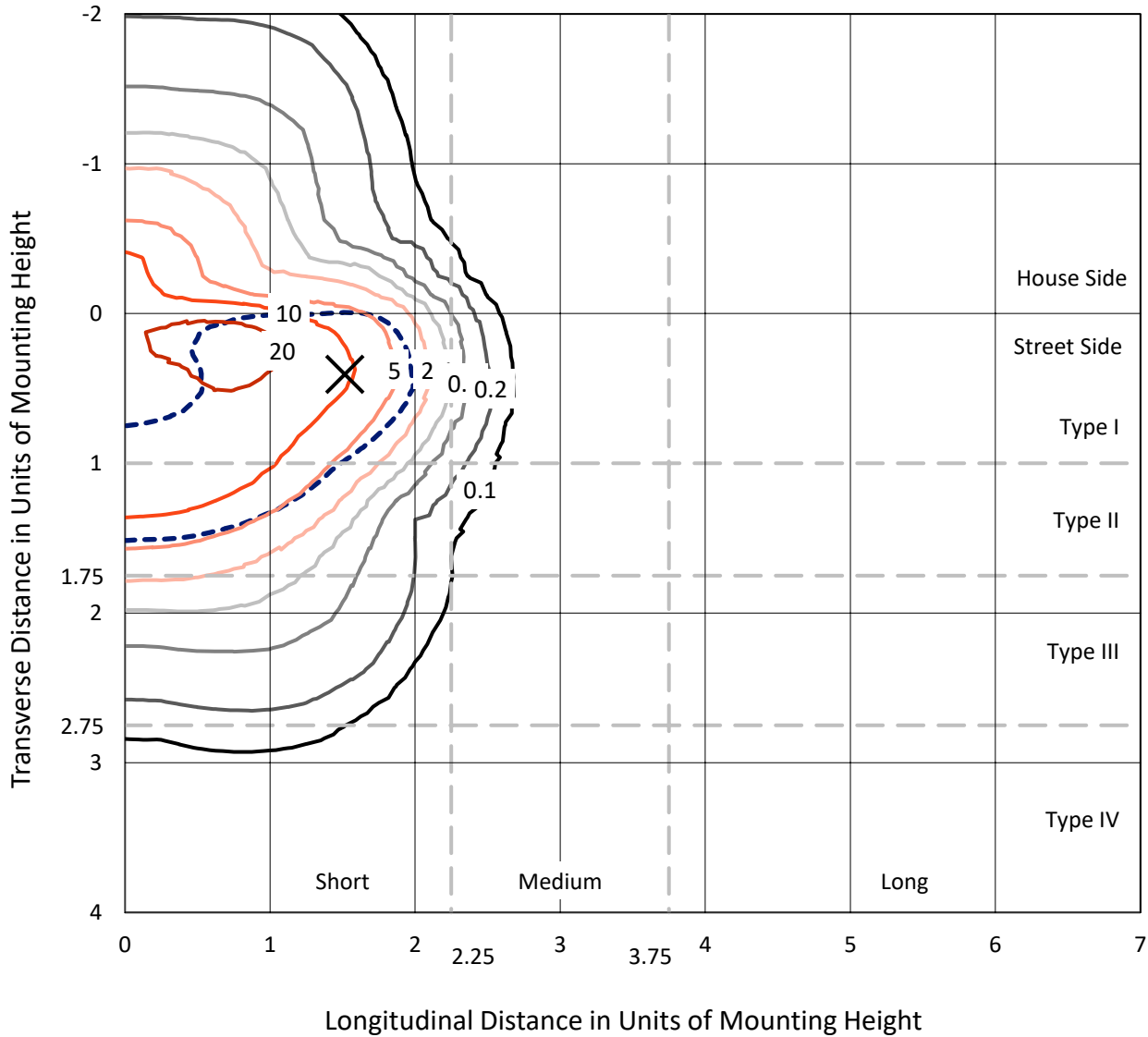
Lumens per Lamp: N/A  
Luminaire Lumens: 8865.7 lumens  
Efficiency: N/A  
Efficacy: 81.9 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 0.5' x H: 0')  
IES Classification: Type II - Short  
BUG Rating: B1 - U0 - G1  
  
Input Watts (W): 108.2  
Input Voltage (V): 120  
Input Current (Ain): NR  
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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 CATALOG NUMBER: GWS-SA2E-750-U-T2-W-GRSBK

### Iso-Footcandle Lines of Horizontal Illumination

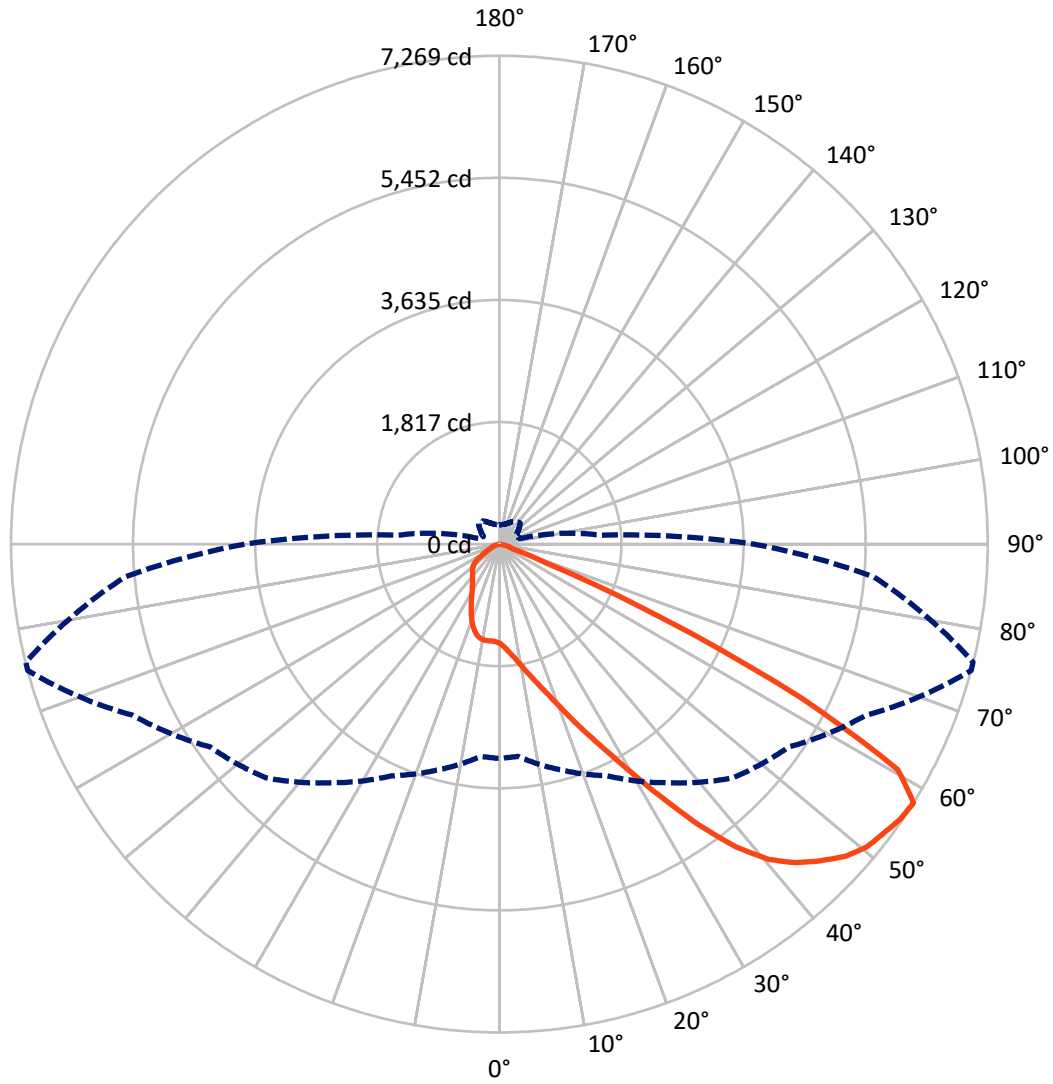
✕ Max cd  
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 27.6 fc  
 Type II - Short - N/A

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### Luminous Intensity Polar Plot



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

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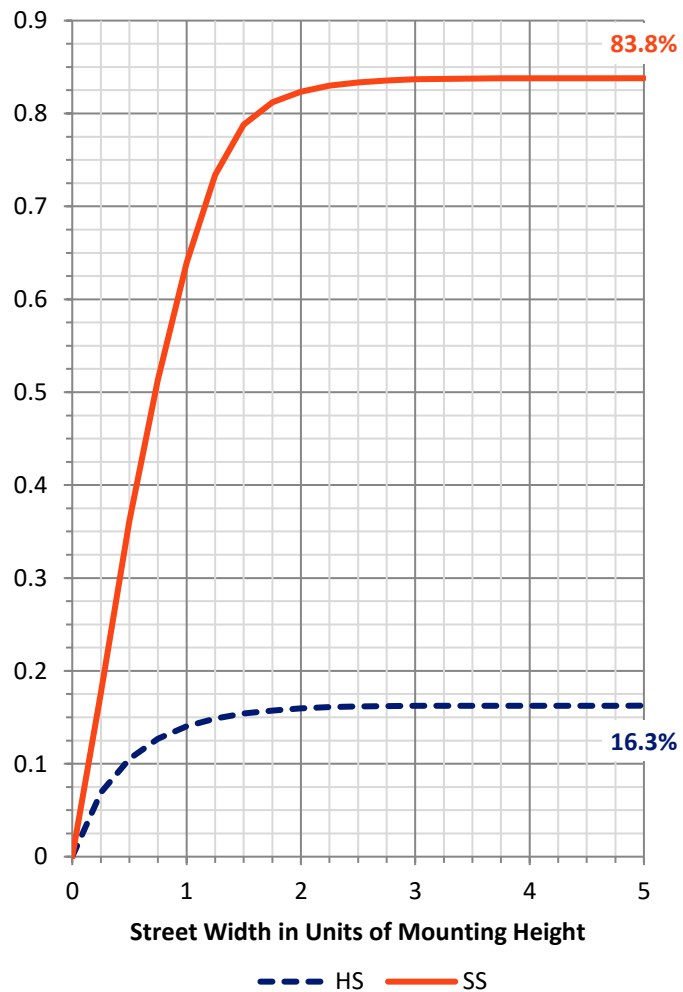
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 1448.2   | 0.0    | 1448.2 |
|                    | % Fixture | 16.3     | 0.0    | 16.3   |
| <b>Street Side</b> | Lumens    | 7417.5   | 0.0    | 7417.5 |
|                    | % Fixture | 83.7     | 0.0    | 83.7   |
| <b>Total</b>       | Lumens    | 8865.7   | 0.0    | 8865.7 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 150.5  | 1.7       |
| 10°-20°   | 488.8  | 5.5       |
| 20°-30°   | 895.1  | 10.1      |
| 30°-40°   | 1485.0 | 16.8      |
| 40°-50°   | 2268.0 | 25.6      |
| 50°-60°   | 2548.5 | 28.7      |
| 60°-70°   | 940.0  | 10.6      |
| 70°-80°   | 89.9   | 1.0       |
| 80°-90°   | 0.1    | 0.0       |
| 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°    | 8865.7 | 100.0     |
| 0°-180°   | 8865.7 | 100.0     |

**Coefficient of Utilization**



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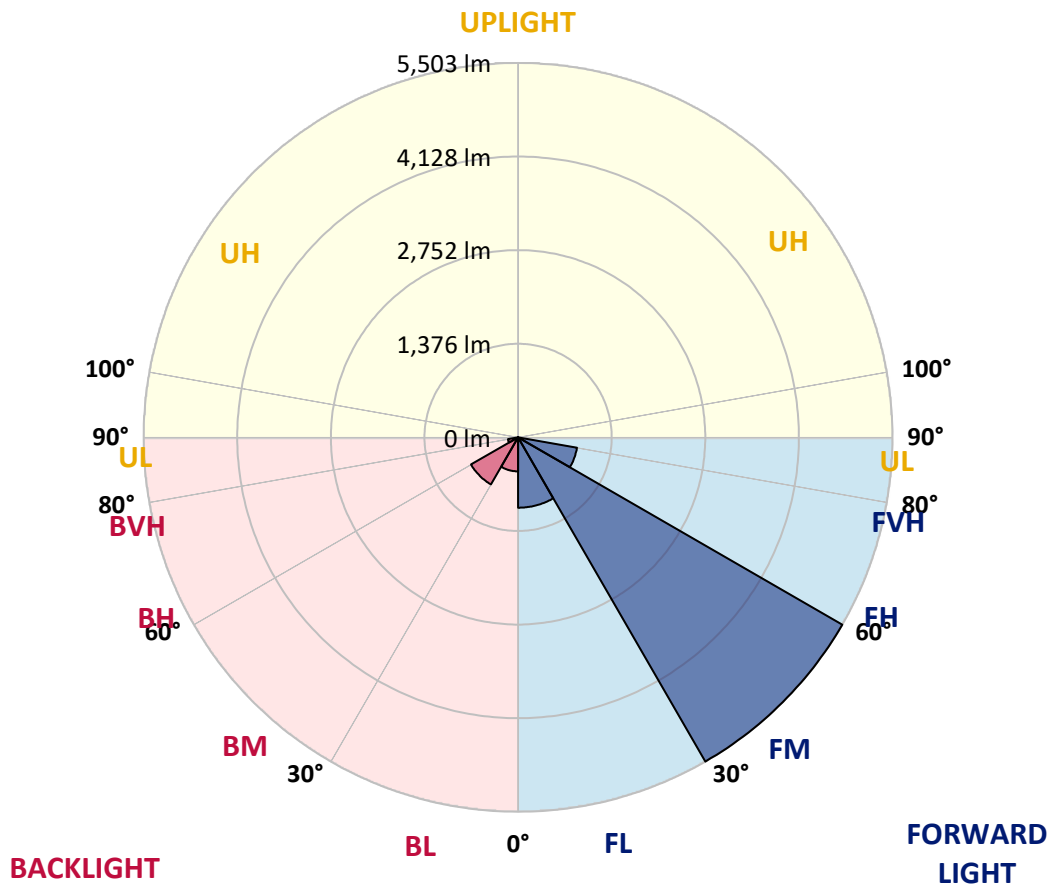
CATALOG NUMBER: GWS-SA2E-750-U-T2-W-GRSBK

**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone           | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|----------------|--------|-----------|-------------------------|------|---------|
|                |        |           | B                       | U    | G       |
| FL (0°-30°)    | 1034.6 | 11.7      |                         |      |         |
| FM (30°-60°)   | 5503.4 | 62.1      |                         |      |         |
| FH (60°-80°)   | 879.4  | 9.9       |                         |      | G1/1800 |
| FVH (80°-90°)  | 0.0    | 0.0       |                         |      | G0/10   |
| BL (0°-30°)    | 499.7  | 5.6       | B1/500                  |      |         |
| BM (30°-60°)   | 798.0  | 9.0       | B1/1000                 |      |         |
| BH (60°-80°)   | 150.4  | 1.7       | B1/500                  |      | G1/500  |
| BVH (80°-90°)  | 0.0    | 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-G1**

Type II Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 65°    | 75°    | 76°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 1478.7 | 1478.7 | 1478.7 | 1478.7 | 1478.7 | 1478.7 | 1478.7 | 1478.7 | 1478.7 | 1478.7 | 1478.7 |
| 2.5°  | 1652.0 | 1669.1 | 1663.8 | 1653.1 | 1646.7 | 1624.2 | 1610.3 | 1569.6 | 1540.7 | 1537.5 | 1510.8 |
| 5°    | 1860.6 | 1857.4 | 1853.2 | 1840.3 | 1829.6 | 1794.3 | 1752.6 | 1684.1 | 1623.1 | 1615.6 | 1558.9 |
| 7.5°  | 1975.1 | 1977.3 | 1979.4 | 1977.3 | 1969.8 | 1943.0 | 1897.0 | 1816.8 | 1723.7 | 1717.3 | 1627.4 |
| 10°   | 2022.2 | 2026.5 | 2037.2 | 2057.5 | 2075.7 | 2073.6 | 2046.8 | 1964.4 | 1849.9 | 1839.2 | 1718.3 |
| 12.5° | 2044.7 | 2050.0 | 2067.1 | 2105.7 | 2154.9 | 2193.4 | 2197.7 | 2123.9 | 1997.6 | 1980.5 | 1826.4 |
| 15°   | 2075.7 | 2081.1 | 2102.5 | 2152.7 | 2224.4 | 2300.4 | 2349.6 | 2302.5 | 2161.3 | 2143.1 | 1945.2 |
| 17.5° | 2089.6 | 2097.1 | 2128.1 | 2194.5 | 2287.6 | 2404.2 | 2515.5 | 2511.2 | 2355.0 | 2341.1 | 2083.2 |
| 20°   | 2116.4 | 2121.7 | 2149.5 | 2221.2 | 2333.6 | 2501.6 | 2688.8 | 2756.2 | 2591.4 | 2571.1 | 2250.1 |
| 22.5° | 2200.9 | 2203.0 | 2215.9 | 2260.8 | 2365.7 | 2572.2 | 2865.3 | 3041.9 | 2870.7 | 2843.9 | 2437.4 |
| 25°   | 2338.9 | 2337.8 | 2343.2 | 2350.7 | 2427.7 | 2643.9 | 3035.5 | 3363.9 | 3190.6 | 3161.7 | 2649.2 |
| 27.5° | 2514.4 | 2514.4 | 2527.2 | 2505.8 | 2536.9 | 2732.7 | 3203.4 | 3734.1 | 3562.9 | 3522.3 | 2881.4 |
| 30°   | 2720.9 | 2719.8 | 2749.8 | 2715.5 | 2725.2 | 2872.8 | 3384.3 | 4137.5 | 4012.3 | 3962.0 | 3148.9 |
| 32.5° | 3001.2 | 2994.8 | 3029.0 | 2982.0 | 2949.9 | 3084.7 | 3604.7 | 4559.1 | 4550.5 | 4473.5 | 3484.8 |
| 35°   | 3355.4 | 3344.7 | 3355.4 | 3309.4 | 3251.6 | 3381.1 | 3893.6 | 4979.6 | 5147.5 | 5066.2 | 3885.0 |
| 37.5° | 3707.4 | 3741.6 | 3753.4 | 3674.2 | 3627.1 | 3756.6 | 4241.3 | 5356.2 | 5717.8 | 5633.3 | 4301.2 |
| 40°   | 4122.5 | 4111.8 | 4152.5 | 4063.7 | 4033.7 | 4177.1 | 4581.5 | 5636.5 | 6169.4 | 6089.1 | 4671.4 |
| 42.5° | 4428.5 | 4447.8 | 4498.1 | 4448.9 | 4425.3 | 4560.1 | 4867.2 | 5800.2 | 6482.8 | 6403.7 | 4935.7 |
| 45°   | 4795.5 | 4809.4 | 4828.7 | 4788.0 | 4763.4 | 4896.1 | 5073.7 | 5871.9 | 6721.4 | 6635.8 | 5113.3 |
| 47.5° | 5192.5 | 5203.2 | 5203.2 | 5119.7 | 5040.5 | 5095.1 | 5211.7 | 5912.6 | 6940.8 | 6858.4 | 5244.9 |
| 50°   | 5477.1 | 5482.4 | 5529.5 | 5470.7 | 5298.4 | 5213.9 | 5274.9 | 5952.1 | 7086.3 | 7009.3 | 5287.7 |
| 52.5° | 5224.6 | 5218.2 | 5373.3 | 5495.3 | 5541.3 | 5373.3 | 5384.0 | 6009.9 | 7156.9 | 7090.6 | 5321.9 |
| 55°   | 4399.6 | 4388.9 | 4607.2 | 4903.6 | 5309.1 | 5524.2 | 5515.6 | 6044.2 | 7235.0 | 7194.4 | 5446.1 |
| 57.5° | 3189.5 | 3171.3 | 3475.2 | 3804.8 | 4336.5 | 4919.6 | 5262.0 | 6024.9 | 7269.3 | 7266.1 | 5590.5 |
| 60°   | 1917.4 | 1902.4 | 2189.1 | 2535.8 | 2946.7 | 3533.0 | 4101.1 | 5396.8 | 6811.3 | 6817.7 | 5215.0 |
| 62.5° | 1180.2 | 1194.1 | 1453.0 | 1629.5 | 1782.5 | 1959.1 | 2287.6 | 3630.4 | 5045.9 | 5087.6 | 3664.6 |
| 65°   | 793.9  | 804.6  | 1044.3 | 1266.8 | 1266.8 | 1035.7 | 889.1  | 1735.5 | 2692.0 | 2621.4 | 1733.3 |
| 67.5° | 532.8  | 544.6  | 734.0  | 994.0  | 1031.4 | 722.2  | 360.6  | 517.9  | 750.0  | 727.6  | 429.1  |
| 70°   | 313.5  | 326.3  | 489.0  | 681.6  | 751.1  | 502.9  | 240.7  | 219.3  | 212.9  | 206.5  | 166.9  |
| 72.5° | 140.2  | 145.5  | 249.3  | 346.7  | 316.7  | 211.9  | 170.1  | 175.5  | 165.8  | 162.6  | 135.9  |
| 75°   | 42.8   | 44.9   | 64.2   | 74.9   | 76.0   | 76.0   | 102.7  | 138.0  | 130.5  | 131.6  | 104.9  |
| 77.5° | 10.7   | 10.7   | 17.1   | 16.0   | 8.6    | 7.5    | 19.3   | 31.0   | 32.1   | 28.9   | 21.4   |
| 80°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    |
| 82.5° | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 85°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 87.5° | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 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    |



REPORT NUMBER: P633373

CATALOG NUMBER: GWS-SA2E-750-U-T2-W-GRSBK

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 1478.7 | 1478.7 | 1478.7 | 1478.7 | 1478.7 | 1478.7 | 1478.7 | 1478.7 | 1478.7 | 1478.7 | 1478.7 |
| 2.5°  | 1499.0 | 1471.2 | 1453.0 | 1427.3 | 1409.1 | 1389.9 | 1372.7 | 1358.8 | 1351.4 | 1349.2 | 1350.3 |
| 5°    | 1533.2 | 1489.4 | 1446.6 | 1397.4 | 1363.1 | 1331.0 | 1305.3 | 1285.0 | 1275.4 | 1272.2 | 1272.2 |
| 7.5°  | 1585.7 | 1524.7 | 1448.7 | 1371.7 | 1313.9 | 1263.6 | 1233.7 | 1211.2 | 1202.6 | 1200.5 | 1194.1 |
| 10°   | 1654.1 | 1570.7 | 1445.5 | 1325.7 | 1244.4 | 1191.9 | 1170.5 | 1164.1 | 1167.3 | 1168.4 | 1167.3 |
| 12.5° | 1736.5 | 1618.8 | 1425.2 | 1258.3 | 1170.5 | 1138.4 | 1140.6 | 1157.7 | 1176.9 | 1186.6 | 1188.7 |
| 15°   | 1824.3 | 1662.7 | 1379.2 | 1178.0 | 1107.4 | 1106.3 | 1137.4 | 1176.9 | 1214.4 | 1230.4 | 1234.7 |
| 17.5° | 1922.7 | 1698.0 | 1308.6 | 1092.4 | 1052.8 | 1083.9 | 1139.5 | 1200.5 | 1250.8 | 1277.5 | 1282.9 |
| 20°   | 2030.8 | 1726.9 | 1218.7 | 1012.2 | 1004.7 | 1060.3 | 1137.4 | 1212.3 | 1274.3 | 1304.3 | 1309.6 |
| 22.5° | 2143.1 | 1747.2 | 1114.9 | 938.3  | 960.8  | 1033.6 | 1117.0 | 1189.8 | 1248.6 | 1282.9 | 1287.2 |
| 25°   | 2271.5 | 1749.4 | 1009.0 | 876.3  | 920.2  | 997.2  | 1067.8 | 1127.7 | 1176.9 | 1206.9 | 1210.1 |
| 27.5° | 2383.9 | 1723.7 | 914.8  | 826.0  | 882.7  | 952.3  | 999.3  | 1032.5 | 1066.7 | 1083.9 | 1084.9 |
| 30°   | 2513.3 | 1678.8 | 826.0  | 785.3  | 844.2  | 896.6  | 920.2  | 927.6  | 930.9  | 934.1  | 929.8  |
| 32.5° | 2667.4 | 1624.2 | 759.7  | 745.8  | 800.3  | 835.6  | 842.1  | 827.1  | 808.9  | 783.2  | 776.8  |
| 35°   | 2856.8 | 1575.0 | 705.1  | 707.2  | 752.2  | 773.6  | 768.2  | 736.1  | 700.8  | 669.8  | 664.4  |
| 37.5° | 3062.2 | 1533.2 | 663.4  | 669.8  | 699.7  | 714.7  | 698.7  | 663.4  | 647.3  | 620.6  | 621.6  |
| 40°   | 3244.1 | 1499.0 | 625.9  | 632.3  | 646.3  | 660.2  | 634.5  | 610.9  | 640.9  | 638.8  | 640.9  |
| 42.5° | 3373.6 | 1470.1 | 593.8  | 590.6  | 600.2  | 609.9  | 590.6  | 578.8  | 629.1  | 615.2  | 622.7  |
| 45°   | 3449.5 | 1443.4 | 567.1  | 547.8  | 562.8  | 579.9  | 567.1  | 552.1  | 569.2  | 505.0  | 499.7  |
| 47.5° | 3500.9 | 1428.4 | 543.5  | 506.1  | 532.8  | 562.8  | 536.0  | 499.7  | 475.1  | 419.4  | 415.1  |
| 50°   | 3506.2 | 1420.9 | 515.7  | 463.3  | 497.5  | 529.6  | 498.6  | 448.3  | 413.0  | 388.4  | 385.2  |
| 52.5° | 3534.1 | 1435.9 | 477.2  | 408.7  | 446.2  | 497.5  | 476.1  | 425.8  | 377.7  | 356.3  | 352.0  |
| 55°   | 3658.2 | 1499.0 | 413.0  | 333.8  | 388.4  | 472.9  | 457.9  | 379.8  | 333.8  | 321.0  | 317.8  |
| 57.5° | 3786.6 | 1511.8 | 325.3  | 264.3  | 338.1  | 437.6  | 418.4  | 349.9  | 304.9  | 290.0  | 286.7  |
| 60°   | 3462.4 | 1245.4 | 243.9  | 218.3  | 298.5  | 404.4  | 387.3  | 331.7  | 279.3  | 261.1  | 257.9  |
| 62.5° | 2274.7 | 673.0  | 193.7  | 185.1  | 251.4  | 342.4  | 353.1  | 299.6  | 249.3  | 230.0  | 229.0  |
| 65°   | 1048.6 | 312.4  | 148.7  | 146.6  | 196.9  | 272.8  | 303.9  | 262.1  | 210.8  | 193.7  | 193.7  |
| 67.5° | 285.7  | 155.1  | 116.6  | 108.1  | 133.7  | 183.0  | 221.5  | 195.8  | 149.8  | 129.5  | 128.4  |
| 70°   | 142.3  | 125.2  | 104.9  | 93.1   | 96.3   | 113.4  | 130.5  | 109.1  | 76.0   | 62.1   | 61.0   |
| 72.5° | 116.6  | 102.7  | 88.8   | 79.2   | 72.8   | 69.5   | 67.4   | 54.6   | 35.3   | 26.7   | 25.7   |
| 75°   | 86.7   | 73.8   | 63.1   | 51.4   | 43.9   | 40.7   | 36.4   | 26.7   | 15.0   | 8.6    | 7.5    |
| 77.5° | 19.3   | 18.2   | 17.1   | 12.8   | 11.8   | 9.6    | 7.5    | 5.3    | 2.1    | 0.0    | 0.0    |
| 80°   | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 82.5° | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 85°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 87.5° | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 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  
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LM-79-2008: Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGRAW-EDISON

Report Number: SP1-1908-441-4-R4

Test Date: 10/02/2019

Luminaire Tested: SA1C-750-U-5WQ

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

**Test Information**

Test Method: LM-79-2008  
 Report Number: SP1-1908-441-4-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-750-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):                  | 4884   | CRI (Ra): | 73.5 | R9:  | -28.4 |
| CIE u':                   | 0.2101 | R1:       | 70.5 | R10: | 48.6  |
| CIE v':                   | 0.4904 | R2:       | 77.7 | R11: | 73.2  |
| Duv:                      | 0.0037 | R3:       | 84.6 | R12: | 50.7  |
| CIE x:                    | 0.3493 | R4:       | 74.7 | R13: | 71.2  |
| CIE y:                    | 0.3624 | R5:       | 71.9 | R14: | 91.4  |
| CIE z:                    | 0.2884 | R6:       | 70.7 |      |       |
| Peak Wavelength (nm):     | 444    | R7:       | 81.2 |      |       |
| Dominant Wavelength (nm): | 571    | R8:       | 56.9 |      |       |
| Purity:                   | 13.7   |           |      |      |       |
| Rf:                       | 74.9   |           |      |      |       |
| Rg:                       | 96.3   |           |      |      |       |



**Test Conditions**

Stabilization Time: 240M  
 Operation Time: 12H  
 Room Temperature (°C) / RH%: 25.0./44%  
 Sphere Temperature (°C): 25.7

REPORT NUMBER: SP1-1908-441-4-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 5000K 4-step quadrangle

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**Photopic Flux vs. Wavelength**



#####

| 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    | 2945          | NR            | 490    | 37941         | NR            | 620    | 88803         | NR            | 750    | 3908          | NR            | 880    | 2997          | NR            |
| 365    | 2596          | NR            | 495    | 48525         | NR            | 625    | 80578         | NR            | 755    | 3988          | NR            | 885    | 2927          | NR            |
| 370    | 2732          | NR            | 500    | 60609         | NR            | 630    | 73127         | NR            | 760    | 3335          | NR            | 890    | 2649          | NR            |
| 375    | 2894          | NR            | 505    | 72036         | NR            | 635    | 66244         | NR            | 765    | 3438          | NR            | 895    | 2828          | NR            |
| 380    | 2822          | NR            | 510    | 82168         | NR            | 640    | 59440         | NR            | 770    | 3427          | NR            | 900    | 1407          | NR            |
| 385    | 2394          | NR            | 515    | 90898         | NR            | 645    | 52864         | NR            | 775    | 2759          | NR            | 905    | 2224          | NR            |
| 390    | 2370          | NR            | 520    | 97142         | NR            | 650    | 47085         | NR            | 780    | 2340          | NR            | 910    | 2905          | NR            |
| 395    | 2267          | NR            | 525    | 103255        | NR            | 655    | 41789         | NR            | 785    | 2412          | NR            | 915    | 3350          | NR            |
| 400    | 2262          | NR            | 530    | 106697        | NR            | 660    | 37064         | NR            | 790    | 1999          | NR            | 920    | 3114          | NR            |
| 405    | 3000          | NR            | 535    | 110081        | NR            | 665    | 32299         | NR            | 795    | 2054          | NR            | 925    | 2834          | NR            |
| 410    | 5324          | NR            | 540    | 112494        | NR            | 670    | 28142         | NR            | 800    | 2331          | NR            | 930    | 2271          | NR            |
| 415    | 10725         | NR            | 545    | 115513        | NR            | 675    | 24505         | NR            | 805    | 2648          | NR            | 935    | 2228          | NR            |
| 420    | 22128         | NR            | 550    | 117203        | NR            | 680    | 21162         | NR            | 810    | 2485          | NR            | 940    | 2833          | NR            |
| 425    | 44095         | NR            | 555    | 119753        | NR            | 685    | 18400         | NR            | 815    | 2409          | NR            | 945    | 2941          | NR            |
| 430    | 77002         | NR            | 560    | 122602        | NR            | 690    | 16065         | NR            | 820    | 2221          | NR            | 950    | 2323          | NR            |
| 435    | 119881        | NR            | 565    | 124314        | NR            | 695    | 13860         | NR            | 825    | 1562          | NR            | 955    | 1667          | NR            |
| 440    | 164454        | NR            | 570    | 126775        | NR            | 700    | 12177         | NR            | 830    | 2249          | NR            | 960    | 749           | NR            |
| 445    | 179997        | NR            | 575    | 127511        | NR            | 705    | 10757         | NR            | 835    | 2573          | NR            | 965    | 2669          | NR            |
| 450    | 142822        | NR            | 580    | 127577        | NR            | 710    | 9601          | NR            | 840    | 2764          | NR            | 970    | 3968          | NR            |
| 455    | 90008         | NR            | 585    | 126153        | NR            | 715    | 8944          | NR            | 845    | 3109          | NR            | 975    | 3886          | NR            |
| 460    | 60557         | NR            | 590    | 123678        | NR            | 720    | 7947          | NR            | 850    | 2963          | NR            | 980    | 2788          | NR            |
| 465    | 43305         | NR            | 595    | 119774        | NR            | 725    | 7062          | NR            | 855    | 2336          | NR            | 985    | 3496          | NR            |
| 470    | 31089         | NR            | 600    | 115733        | NR            | 730    | 6004          | NR            | 860    | 2118          | NR            | 990    | 2913          | NR            |
| 475    | 26278         | NR            | 605    | 109231        | NR            | 735    | 5594          | NR            | 865    | 3144          | NR            | 995    | 4659          | NR            |
| 480    | 27060         | NR            | 610    | 102408        | NR            | 740    | 5165          | NR            | 870    | 3069          | NR            | 1000   | 1308          | NR            |
| 485    | 30698         | NR            | 615    | 96015         | NR            | 745    | 4687          | NR            | 875    | 3311          | NR            |        |               |               |

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Scotopic Flux vs. Wavelength

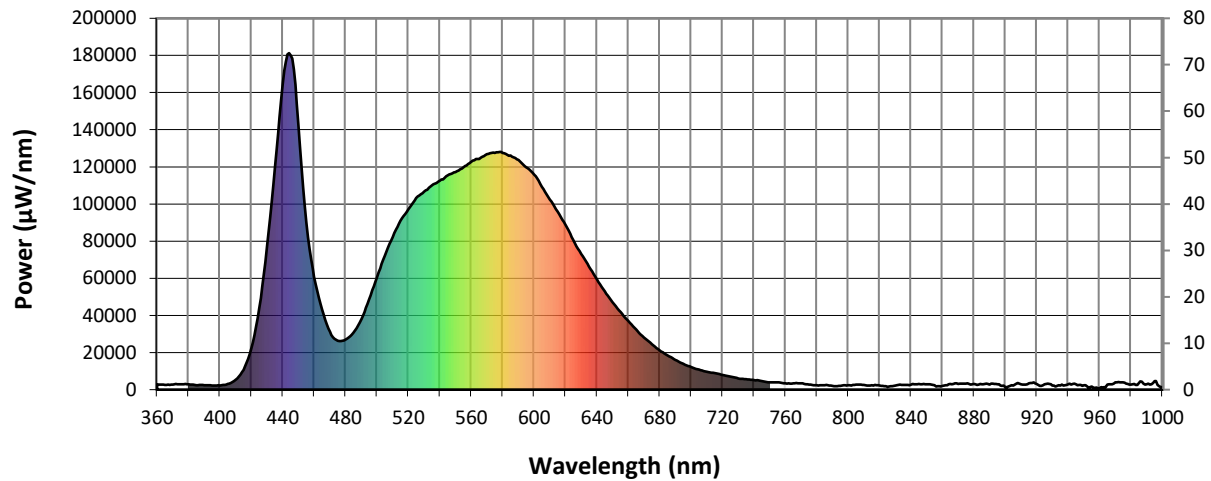


Scotopic Lumens: 13493.5 S/P: 1.77

| 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    | 2945          | NR            | 490    | 37941         | NR            | 620    | 88803         | NR            | 750    | 3908          | NR            | 880    | 2997          | NR            |
| 365    | 2596          | NR            | 495    | 48525         | NR            | 625    | 80578         | NR            | 755    | 3988          | NR            | 885    | 2927          | NR            |
| 370    | 2732          | NR            | 500    | 60609         | NR            | 630    | 73127         | NR            | 760    | 3335          | NR            | 890    | 2649          | NR            |
| 375    | 2894          | NR            | 505    | 72036         | NR            | 635    | 66244         | NR            | 765    | 3438          | NR            | 895    | 2828          | NR            |
| 380    | 2822          | NR            | 510    | 82168         | NR            | 640    | 59440         | NR            | 770    | 3427          | NR            | 900    | 1407          | NR            |
| 385    | 2394          | NR            | 515    | 90898         | NR            | 645    | 52864         | NR            | 775    | 2759          | NR            | 905    | 2224          | NR            |
| 390    | 2370          | NR            | 520    | 97142         | NR            | 650    | 47085         | NR            | 780    | 2340          | NR            | 910    | 2905          | NR            |
| 395    | 2267          | NR            | 525    | 103255        | NR            | 655    | 41789         | NR            | 785    | 2412          | NR            | 915    | 3350          | NR            |
| 400    | 2262          | NR            | 530    | 106697        | NR            | 660    | 37064         | NR            | 790    | 1999          | NR            | 920    | 3114          | NR            |
| 405    | 3000          | NR            | 535    | 110081        | NR            | 665    | 32299         | NR            | 795    | 2054          | NR            | 925    | 2834          | NR            |
| 410    | 5324          | NR            | 540    | 112494        | NR            | 670    | 28142         | NR            | 800    | 2331          | NR            | 930    | 2271          | NR            |
| 415    | 10725         | NR            | 545    | 115513        | NR            | 675    | 24505         | NR            | 805    | 2648          | NR            | 935    | 2228          | NR            |
| 420    | 22128         | NR            | 550    | 117203        | NR            | 680    | 21162         | NR            | 810    | 2485          | NR            | 940    | 2833          | NR            |
| 425    | 44095         | NR            | 555    | 119753        | NR            | 685    | 18400         | NR            | 815    | 2409          | NR            | 945    | 2941          | NR            |
| 430    | 77002         | NR            | 560    | 122602        | NR            | 690    | 16065         | NR            | 820    | 2221          | NR            | 950    | 2323          | NR            |
| 435    | 119881        | NR            | 565    | 124314        | NR            | 695    | 13860         | NR            | 825    | 1562          | NR            | 955    | 1667          | NR            |
| 440    | 164454        | NR            | 570    | 126775        | NR            | 700    | 12177         | NR            | 830    | 2249          | NR            | 960    | 749           | NR            |
| 445    | 179997        | NR            | 575    | 127511        | NR            | 705    | 10757         | NR            | 835    | 2573          | NR            | 965    | 2669          | NR            |
| 450    | 142822        | NR            | 580    | 127577        | NR            | 710    | 9601          | NR            | 840    | 2764          | NR            | 970    | 3968          | NR            |
| 455    | 90008         | NR            | 585    | 126153        | NR            | 715    | 8944          | NR            | 845    | 3109          | NR            | 975    | 3886          | NR            |
| 460    | 60557         | NR            | 590    | 123678        | NR            | 720    | 7947          | NR            | 850    | 2963          | NR            | 980    | 2788          | NR            |
| 465    | 43305         | NR            | 595    | 119774        | NR            | 725    | 7062          | NR            | 855    | 2336          | NR            | 985    | 3496          | NR            |
| 470    | 31089         | NR            | 600    | 115733        | NR            | 730    | 6004          | NR            | 860    | 2118          | NR            | 990    | 2913          | NR            |
| 475    | 26278         | NR            | 605    | 109231        | NR            | 735    | 5594          | NR            | 865    | 3144          | NR            | 995    | 4659          | NR            |
| 480    | 27060         | NR            | 610    | 102408        | NR            | 740    | 5165          | NR            | 870    | 3069          | NR            | 1000   | 1308          | NR            |
| 485    | 30698         | NR            | 615    | 96015         | NR            | 745    | 4687          | NR            | 875    | 3311          | NR            |        |               |               |

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**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: 5378.9 M/P: 0.71**

| 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    | 2945          | NR            | 490    | 37941         | NR            | 620    | 88803         | NR            | 750    | 3908          | NR            | 880    | 2997          | NR            |
| 365    | 2596          | NR            | 495    | 48525         | NR            | 625    | 80578         | NR            | 755    | 3988          | NR            | 885    | 2927          | NR            |
| 370    | 2732          | NR            | 500    | 60609         | NR            | 630    | 73127         | NR            | 760    | 3335          | NR            | 890    | 2649          | NR            |
| 375    | 2894          | NR            | 505    | 72036         | NR            | 635    | 66244         | NR            | 765    | 3438          | NR            | 895    | 2828          | NR            |
| 380    | 2822          | NR            | 510    | 82168         | NR            | 640    | 59440         | NR            | 770    | 3427          | NR            | 900    | 1407          | NR            |
| 385    | 2394          | NR            | 515    | 90898         | NR            | 645    | 52864         | NR            | 775    | 2759          | NR            | 905    | 2224          | NR            |
| 390    | 2370          | NR            | 520    | 97142         | NR            | 650    | 47085         | NR            | 780    | 2340          | NR            | 910    | 2905          | NR            |
| 395    | 2267          | NR            | 525    | 103255        | NR            | 655    | 41789         | NR            | 785    | 2412          | NR            | 915    | 3350          | NR            |
| 400    | 2262          | NR            | 530    | 106697        | NR            | 660    | 37064         | NR            | 790    | 1999          | NR            | 920    | 3114          | NR            |
| 405    | 3000          | NR            | 535    | 110081        | NR            | 665    | 32299         | NR            | 795    | 2054          | NR            | 925    | 2834          | NR            |
| 410    | 5324          | NR            | 540    | 112494        | NR            | 670    | 28142         | NR            | 800    | 2331          | NR            | 930    | 2271          | NR            |
| 415    | 10725         | NR            | 545    | 115513        | NR            | 675    | 24505         | NR            | 805    | 2648          | NR            | 935    | 2228          | NR            |
| 420    | 22128         | NR            | 550    | 117203        | NR            | 680    | 21162         | NR            | 810    | 2485          | NR            | 940    | 2833          | NR            |
| 425    | 44095         | NR            | 555    | 119753        | NR            | 685    | 18400         | NR            | 815    | 2409          | NR            | 945    | 2941          | NR            |
| 430    | 77002         | NR            | 560    | 122602        | NR            | 690    | 16065         | NR            | 820    | 2221          | NR            | 950    | 2323          | NR            |
| 435    | 119881        | NR            | 565    | 124314        | NR            | 695    | 13860         | NR            | 825    | 1562          | NR            | 955    | 1667          | NR            |
| 440    | 164454        | NR            | 570    | 126775        | NR            | 700    | 12177         | NR            | 830    | 2249          | NR            | 960    | 749           | NR            |
| 445    | 179997        | NR            | 575    | 127511        | NR            | 705    | 10757         | NR            | 835    | 2573          | NR            | 965    | 2669          | NR            |
| 450    | 142822        | NR            | 580    | 127577        | NR            | 710    | 9601          | NR            | 840    | 2764          | NR            | 970    | 3968          | NR            |
| 455    | 90008         | NR            | 585    | 126153        | NR            | 715    | 8944          | NR            | 845    | 3109          | NR            | 975    | 3886          | NR            |
| 460    | 60557         | NR            | 590    | 123678        | NR            | 720    | 7947          | NR            | 850    | 2963          | NR            | 980    | 2788          | NR            |
| 465    | 43305         | NR            | 595    | 119774        | NR            | 725    | 7062          | NR            | 855    | 2336          | NR            | 985    | 3496          | NR            |
| 470    | 31089         | NR            | 600    | 115733        | NR            | 730    | 6004          | NR            | 860    | 2118          | NR            | 990    | 2913          | NR            |
| 475    | 26278         | NR            | 605    | 109231        | NR            | 735    | 5594          | NR            | 865    | 3144          | NR            | 995    | 4659          | NR            |
| 480    | 27060         | NR            | 610    | 102408        | NR            | 740    | 5165          | NR            | 870    | 3069          | NR            | 1000   | 1308          | NR            |
| 485    | 30698         | NR            | 615    | 96015         | NR            | 745    | 4687          | NR            | 875    | 3311          | NR            |        |               |               |

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**Summary**

$R_f = 74.9$   
 $R_g = 96.3$   
 CIE  $R_a = 73.5$   
 $R_g = -28.4$



**Color Vector Graphics**





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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 61 | CES51 = 90 | CES76 = 52 |
| CES02 = 60 | CES27 = 84 | CES52 = 91 | CES77 = 71 |
| CES03 = 30 | CES28 = 81 | CES53 = 79 | CES78 = 54 |
| CES04 = 69 | CES29 = 58 | CES54 = 83 | CES79 = 80 |
| CES05 = 46 | CES30 = 67 | CES55 = 83 | CES80 = 77 |
| CES06 = 50 | CES31 = 63 | CES56 = 73 | CES81 = 77 |
| CES07 = 39 | CES32 = 59 | CES57 = 72 | CES82 = 90 |
| CES08 = 38 | CES33 = 69 | CES58 = 73 | CES83 = 86 |
| CES09 = 29 | CES34 = 69 | CES59 = 88 | CES84 = 88 |
| CES10 = 73 | CES35 = 83 | CES60 = 93 | CES85 = 84 |
| CES11 = 56 | CES36 = 95 | CES61 = 88 | CES86 = 75 |
| CES12 = 61 | CES37 = 78 | CES62 = 85 | CES87 = 78 |
| CES13 = 41 | CES38 = 76 | CES63 = 77 | CES88 = 79 |
| CES14 = 74 | CES39 = 93 | CES64 = 74 | CES89 = 75 |
| CES15 = 70 | CES40 = 86 | CES65 = 67 | CES90 = 77 |
| CES16 = 46 | CES41 = 87 | CES66 = 69 | CES91 = 89 |
| CES17 = 49 | CES42 = 78 | CES67 = 67 | CES92 = 66 |
| CES18 = 55 | CES43 = 75 | CES68 = 73 | CES93 = 80 |
| CES19 = 71 | CES44 = 99 | CES69 = 81 | CES94 = 57 |
| CES20 = 64 | CES45 = 83 | CES70 = 63 | CES95 = 71 |
| CES21 = 85 | CES46 = 81 | CES71 = 60 | CES96 = 78 |
| CES22 = 77 | CES47 = 80 | CES72 = 86 | CES97 = 85 |
| CES23 = 91 | CES48 = 72 | CES73 = 53 | CES98 = 75 |
| CES24 = 90 | CES49 = 81 | CES74 = 96 | CES99 = 62 |
| CES25 = 71 | CES50 = 89 | CES75 = 58 |            |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)