

Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions  
(formerly Eaton)

Brand: STREETWORKS

Report Number: P800467

Luminaire Tested: **ARCH-S-PA2-60-730-24VDC-T2U**

Issue Date: 10/13/2021

**Test Information**

Test Method: LM-79-08  
Report Number: P800467  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2108-332-15)  
Test Lab: INNOVATION CENTER  
Issue Date: 10/13/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: ARCH-S-PA2-60-730-24VDC-T2U  
Description: ARCHEON ROADWAY AND AREA LUMINAIRE  
(2) 70 CRI, 3000K, 625mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II U OPTICS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

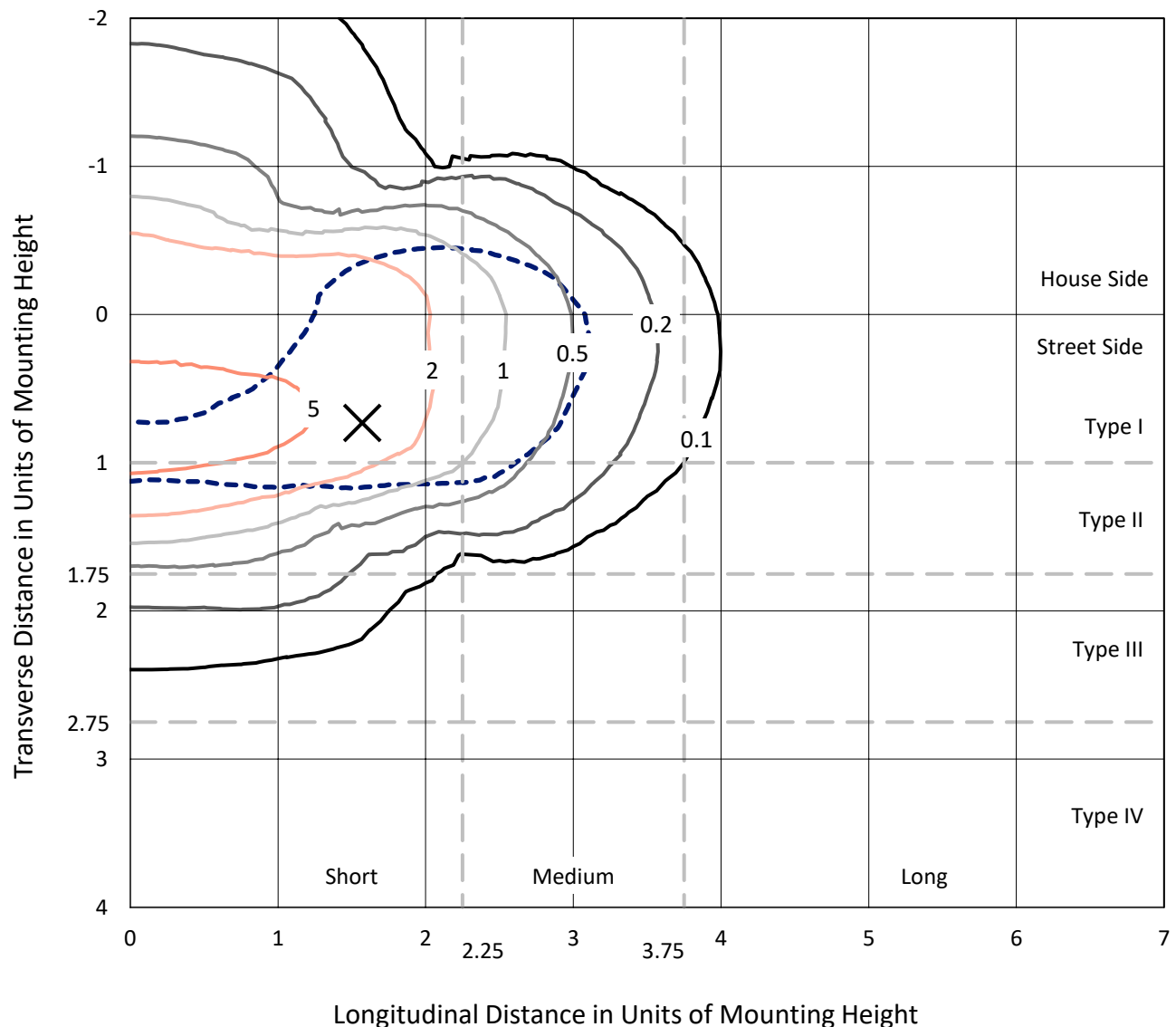
Lumens per Lamp: N/A  
Luminaire Lumens: 8512 lumens  
Efficiency: N/A  
Efficacy: 149.3 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 1' x H: 0')  
IES Classification: Type II - Short  
BUG Rating: B2 - U0 - G2

Input Watts (W): 57  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT

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## Iso-Footcandle Lines of Horizontal Illumination

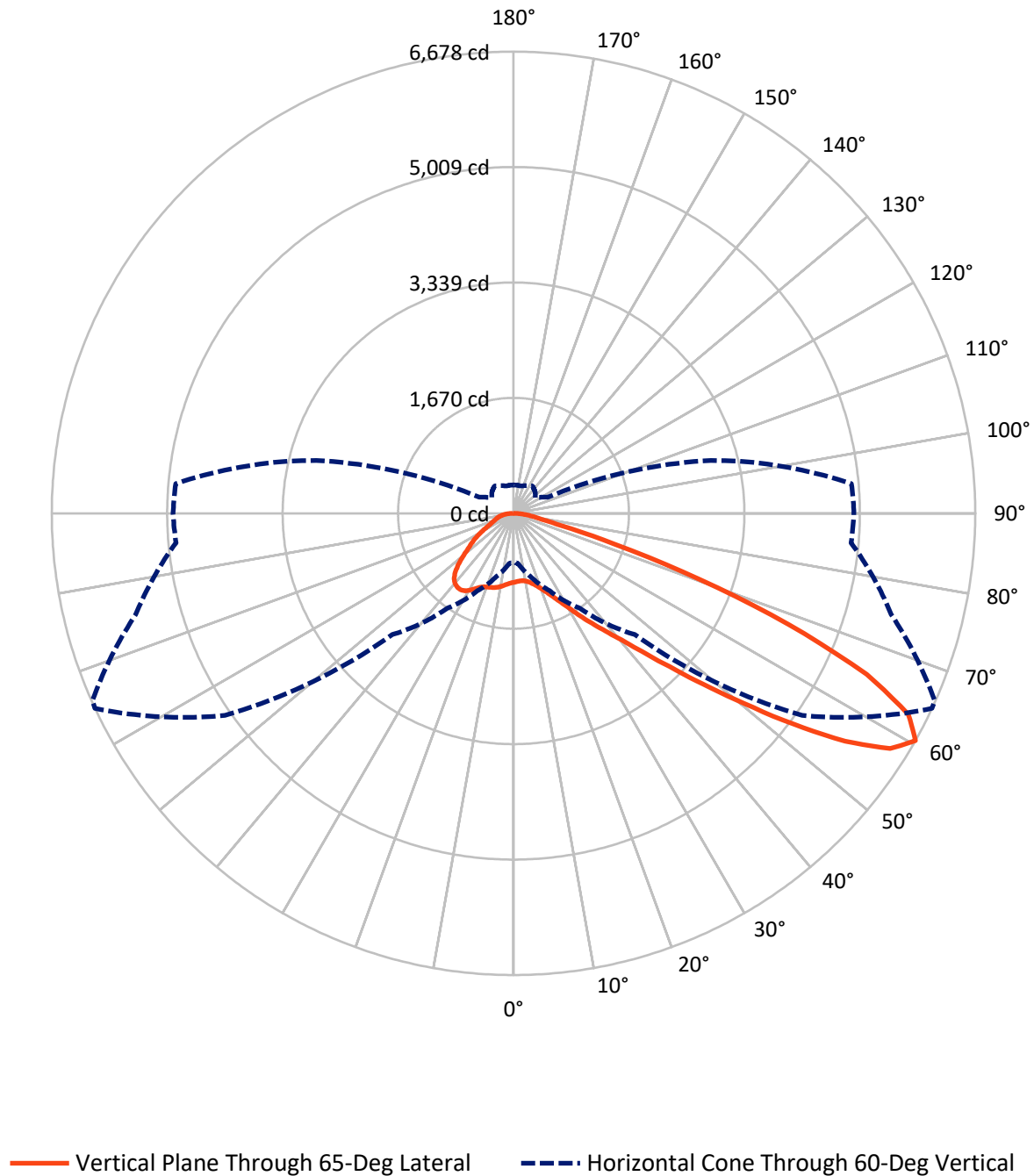
× Max cd  
 --- 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 7.9 fc  
 Type II - Short - N/A

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## Luminous Intensity Polar Plot



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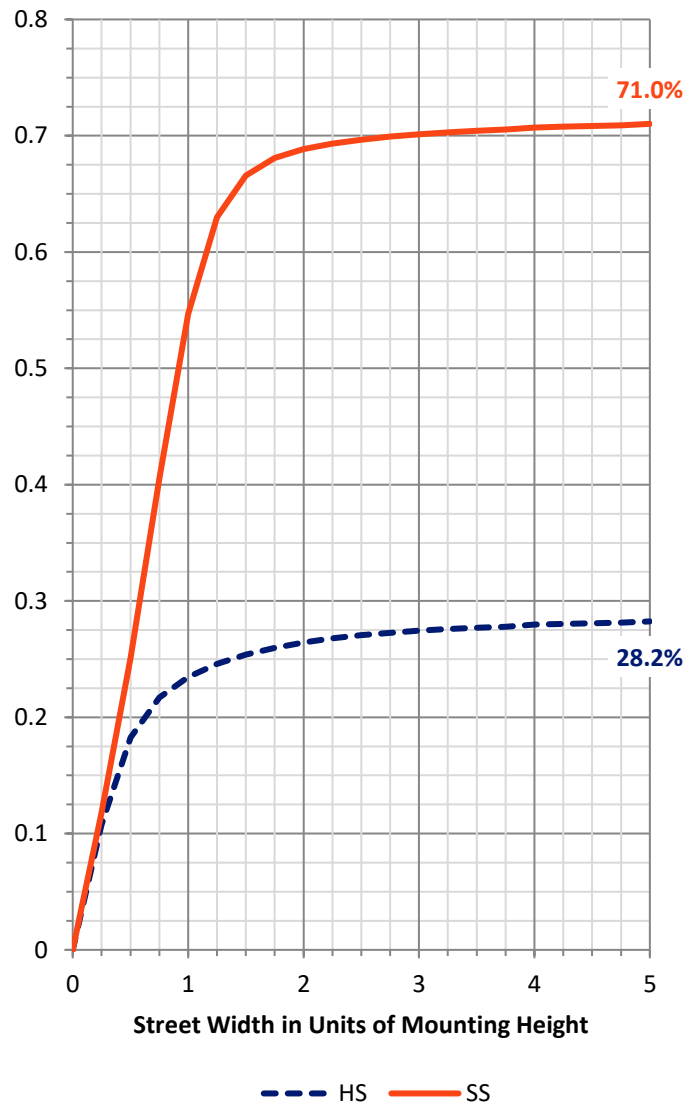
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 2436.7   | 0.0    | 2436.7 |
|                    | % Fixture | 28.6     | 0.0    | 28.6   |
| <b>Street Side</b> | Lumens    | 6075.3   | 0.0    | 6075.3 |
|                    | % Fixture | 71.4     | 0.0    | 71.4   |
| <b>Total</b>       | Lumens    | 8512.0   | 0.0    | 8512.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 96.5   | 1.1       |
| 10°-20°   | 310.5  | 3.6       |
| 20°-30°   | 595.3  | 7.0       |
| 30°-40°   | 1033.9 | 12.1      |
| 40°-50°   | 1753.5 | 20.6      |
| 50°-60°   | 2183.5 | 25.7      |
| 60°-70°   | 1759.5 | 20.7      |
| 70°-80°   | 666.3  | 7.8       |
| 80°-90°   | 113.0  | 1.3       |
| 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°    | 8512.0 | 100.0     |
| 0°-180°   | 8512.0 | 100.0     |



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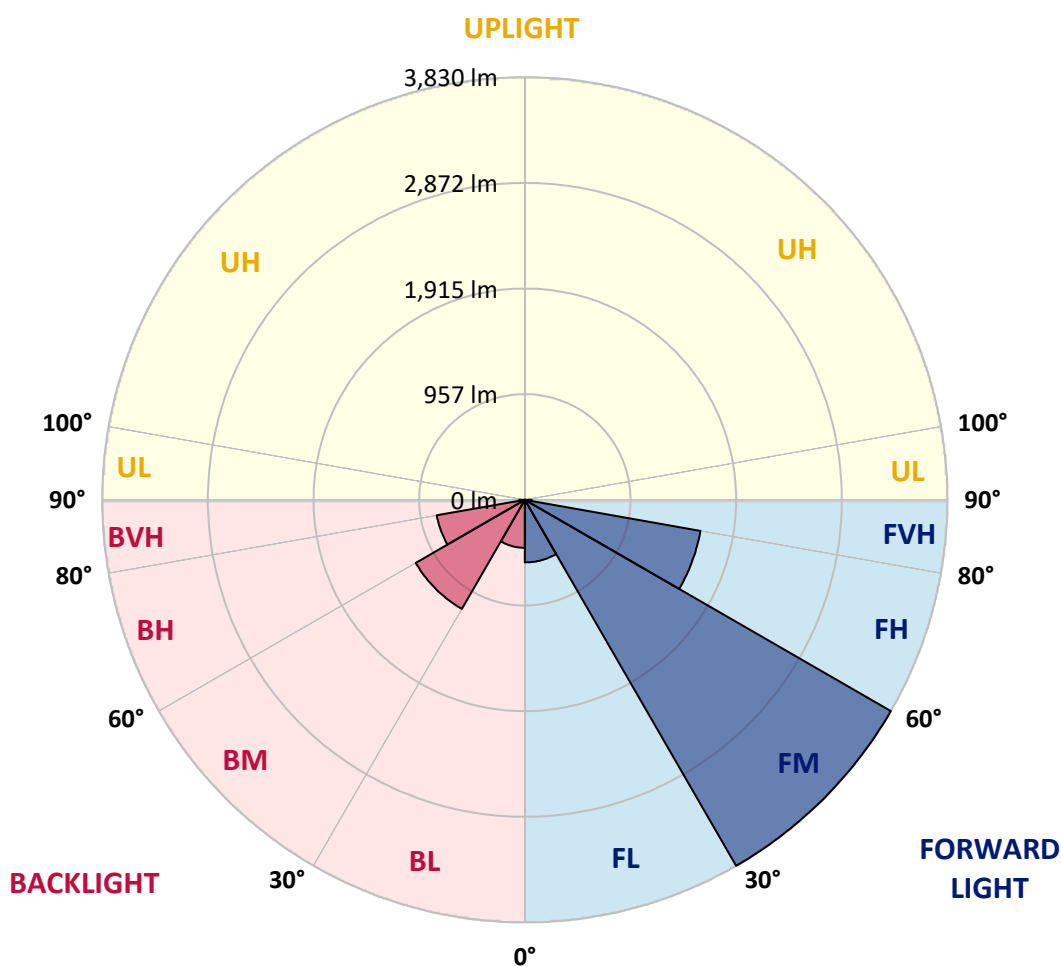
CATALOG NUMBER: ARCH-S-PA2-60-730-24VDC-T2U

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 567.5  | 6.7       |                         |      |         |
| FM   | (30°-60°)   | 3829.6 | 45.0      |                         |      |         |
| FH   | (60°-80°)   | 1615.5 | 19.0      |                         |      | G1/1800 |
| FVH  | (80°-90°)   | 62.7   | 0.7       |                         |      | G1/100  |
| BL   | (0°-30°)    | 434.9  | 5.1       | B1/500                  |      |         |
| BM   | (30°-60°)   | 1141.3 | 13.4      | B2/2500                 |      |         |
| BH   | (60°-80°)   | 810.2  | 9.5       | B2/1000                 |      | G2/1000 |
| BVH  | (80°-90°)   | 50.3   | 0.6       |                         |      | G1/100  |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B2-U0-G2**

Type II Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 65°    | 66°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 998.7  | 998.7  | 998.7  | 998.7  | 998.7  | 998.7  | 998.7  | 998.7  | 998.7  | 998.7  | 998.7  |
| 2.5°  | 975.4  | 975.4  | 975.4  | 977.7  | 980.0  | 982.4  | 987.0  | 987.0  | 987.0  | 989.4  | 994.0  |
| 5°    | 956.7  | 954.4  | 956.7  | 959.0  | 963.7  | 968.4  | 977.7  | 982.4  | 982.4  | 991.7  | 1001.0 |
| 7.5°  | 959.0  | 954.4  | 954.4  | 956.7  | 961.4  | 966.0  | 975.4  | 982.4  | 984.7  | 996.4  | 1012.7 |
| 10°   | 982.4  | 975.4  | 975.4  | 977.7  | 977.7  | 982.4  | 989.4  | 998.7  | 1001.0 | 1012.7 | 1029.0 |
| 12.5° | 1031.4 | 1024.4 | 1022.0 | 1015.0 | 1008.0 | 1012.7 | 1019.7 | 1022.0 | 1024.4 | 1031.4 | 1047.7 |
| 15°   | 1134.1 | 1122.4 | 1103.7 | 1089.7 | 1071.1 | 1059.4 | 1057.0 | 1059.4 | 1059.4 | 1061.7 | 1071.1 |
| 17.5° | 1281.1 | 1267.1 | 1239.1 | 1208.7 | 1164.4 | 1127.1 | 1115.4 | 1106.1 | 1106.1 | 1099.1 | 1099.1 |
| 20°   | 1460.7 | 1439.7 | 1407.1 | 1362.7 | 1297.4 | 1229.7 | 1190.1 | 1169.1 | 1162.1 | 1150.4 | 1134.1 |
| 22.5° | 1668.4 | 1654.4 | 1612.4 | 1544.7 | 1446.7 | 1355.7 | 1290.4 | 1243.7 | 1243.7 | 1215.7 | 1180.7 |
| 25°   | 1913.4 | 1887.8 | 1838.8 | 1759.4 | 1626.4 | 1495.7 | 1407.1 | 1339.4 | 1332.4 | 1288.1 | 1232.1 |
| 27.5° | 2151.4 | 2135.1 | 2074.4 | 1969.4 | 1810.8 | 1659.1 | 1535.4 | 1456.1 | 1444.4 | 1374.4 | 1288.1 |
| 30°   | 2440.8 | 2422.1 | 2331.1 | 2184.1 | 2013.8 | 1841.1 | 1696.4 | 1593.7 | 1582.1 | 1486.4 | 1365.1 |
| 32.5° | 2800.1 | 2737.1 | 2625.1 | 2457.1 | 2237.8 | 2044.1 | 1878.4 | 1768.7 | 1754.7 | 1645.1 | 1500.4 |
| 35°   | 3236.5 | 3182.8 | 2989.1 | 2811.8 | 2550.5 | 2296.1 | 2097.8 | 1953.1 | 1934.4 | 1803.8 | 1621.7 |
| 37.5° | 3544.5 | 3518.8 | 3385.8 | 3245.8 | 2947.1 | 2604.1 | 2361.4 | 2160.8 | 2142.1 | 1969.4 | 1733.7 |
| 40°   | 3738.2 | 3712.5 | 3675.2 | 3635.5 | 3469.8 | 3082.5 | 2678.8 | 2405.8 | 2375.4 | 2212.1 | 1957.8 |
| 42.5° | 3838.5 | 3817.5 | 3824.5 | 3903.9 | 3950.5 | 3889.8 | 3131.5 | 2732.5 | 2711.5 | 2513.1 | 2230.8 |
| 45°   | 3780.2 | 3766.2 | 3833.8 | 4043.9 | 4272.5 | 4720.6 | 3712.5 | 3161.8 | 3105.8 | 2870.1 | 2562.1 |
| 47.5° | 3500.2 | 3458.2 | 3616.8 | 3973.9 | 4463.9 | 5117.2 | 4412.5 | 3691.5 | 3630.8 | 3292.5 | 2898.1 |
| 50°   | 2923.8 | 2912.1 | 3129.1 | 3581.8 | 4389.2 | 5273.6 | 5161.6 | 4316.9 | 4272.5 | 3747.5 | 3271.5 |
| 52.5° | 2387.1 | 2382.4 | 2550.5 | 2965.8 | 3913.2 | 5163.9 | 5705.3 | 5061.2 | 4928.2 | 4204.9 | 3677.5 |
| 55°   | 1852.8 | 1850.4 | 1999.8 | 2310.1 | 3122.1 | 4648.2 | 5961.9 | 5819.6 | 5721.6 | 4704.2 | 4095.2 |
| 57.5° | 1267.1 | 1250.7 | 1444.4 | 1680.1 | 2345.1 | 3682.2 | 5793.9 | 6419.3 | 6358.6 | 5233.9 | 4538.5 |
| 60°   | 704.7  | 728.0  | 942.7  | 1234.4 | 1677.7 | 2480.4 | 5093.9 | 6678.3 | 6669.0 | 5656.3 | 4900.2 |
| 62.5° | 499.4  | 508.7  | 599.7  | 877.4  | 1103.7 | 1421.1 | 3929.5 | 6410.0 | 6484.6 | 5889.6 | 5105.6 |
| 65°   | 415.4  | 420.0  | 464.4  | 648.7  | 807.4  | 821.4  | 2450.1 | 5614.3 | 5712.3 | 5817.3 | 5149.9 |
| 67.5° | 392.0  | 394.4  | 417.7  | 478.4  | 632.4  | 595.0  | 1094.4 | 4286.5 | 4494.2 | 5233.9 | 4860.6 |
| 70°   | 357.0  | 359.4  | 394.4  | 422.4  | 511.0  | 469.0  | 562.4  | 2846.8 | 3126.8 | 4137.2 | 4190.9 |
| 72.5° | 305.7  | 312.7  | 340.7  | 396.7  | 415.4  | 389.7  | 434.0  | 1521.4 | 1799.1 | 2767.5 | 3236.5 |
| 75°   | 263.7  | 268.3  | 289.3  | 336.0  | 389.7  | 310.3  | 368.7  | 693.0  | 812.0  | 1624.1 | 2048.8 |
| 77.5° | 212.3  | 214.7  | 245.0  | 275.3  | 326.7  | 252.0  | 287.0  | 415.4  | 436.4  | 793.4  | 926.4  |
| 80°   | 161.0  | 161.0  | 182.0  | 219.3  | 242.7  | 242.7  | 210.0  | 289.3  | 301.0  | 378.0  | 366.4  |
| 82.5° | 123.7  | 121.3  | 137.7  | 154.0  | 175.0  | 203.0  | 158.7  | 191.3  | 196.0  | 228.7  | 196.0  |
| 85°   | 81.7   | 81.7   | 91.0   | 105.0  | 116.7  | 112.0  | 123.7  | 112.0  | 116.7  | 142.3  | 107.3  |
| 87.5° | 35.0   | 35.0   | 49.0   | 46.7   | 51.3   | 53.7   | 60.7   | 53.7   | 53.7   | 65.3   | 49.0   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |



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CATALOG NUMBER: ARCH-S-PA2-60-730-24VDC-T2U

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 998.7  | 998.7  | 998.7  | 998.7  | 998.7  | 998.7  | 998.7  | 998.7  | 998.7  | 998.7  | 998.7  |
| 2.5°  | 996.4  | 998.7  | 1003.4 | 1005.7 | 1012.7 | 1015.0 | 1015.0 | 1019.7 | 1019.7 | 1024.4 | 1024.4 |
| 5°    | 1003.4 | 1010.4 | 1017.4 | 1024.4 | 1031.4 | 1033.7 | 1038.4 | 1040.7 | 1040.7 | 1045.4 | 1043.0 |
| 7.5°  | 1017.4 | 1024.4 | 1038.4 | 1045.4 | 1054.7 | 1059.4 | 1057.0 | 1059.4 | 1057.0 | 1059.4 | 1059.4 |
| 10°   | 1036.0 | 1045.4 | 1061.7 | 1071.1 | 1078.1 | 1080.4 | 1073.4 | 1066.4 | 1057.0 | 1057.0 | 1057.0 |
| 12.5° | 1057.0 | 1064.0 | 1085.1 | 1092.1 | 1096.7 | 1089.7 | 1071.1 | 1057.0 | 1050.0 | 1052.4 | 1050.0 |
| 15°   | 1078.1 | 1085.1 | 1101.4 | 1108.4 | 1108.4 | 1087.4 | 1071.1 | 1066.4 | 1064.0 | 1066.4 | 1066.4 |
| 17.5° | 1099.1 | 1106.1 | 1120.1 | 1120.1 | 1113.1 | 1096.7 | 1080.4 | 1064.0 | 1052.4 | 1045.4 | 1045.4 |
| 20°   | 1127.1 | 1127.1 | 1131.7 | 1131.7 | 1129.4 | 1103.7 | 1064.0 | 1024.4 | 1001.0 | 987.0  | 984.7  |
| 22.5° | 1164.4 | 1155.1 | 1145.7 | 1145.7 | 1155.1 | 1087.4 | 1010.4 | 949.7  | 912.4  | 907.7  | 898.4  |
| 25°   | 1204.1 | 1183.1 | 1159.7 | 1176.1 | 1159.7 | 1045.4 | 935.7  | 854.0  | 809.7  | 793.4  | 798.0  |
| 27.5° | 1246.1 | 1213.4 | 1178.4 | 1225.1 | 1136.4 | 963.7  | 830.7  | 739.7  | 697.7  | 686.0  | 686.0  |
| 30°   | 1304.4 | 1255.4 | 1204.1 | 1276.4 | 1092.1 | 870.4  | 707.0  | 641.7  | 618.4  | 609.0  | 606.7  |
| 32.5° | 1416.4 | 1341.7 | 1267.1 | 1323.1 | 1043.0 | 749.0  | 623.0  | 583.4  | 555.4  | 546.0  | 553.0  |
| 35°   | 1516.7 | 1411.7 | 1362.7 | 1344.1 | 966.0  | 651.0  | 571.7  | 536.7  | 513.4  | 501.7  | 501.7  |
| 37.5° | 1607.7 | 1507.4 | 1470.1 | 1344.1 | 865.7  | 590.4  | 539.0  | 511.0  | 480.7  | 471.4  | 471.4  |
| 40°   | 1806.1 | 1673.1 | 1607.7 | 1325.4 | 742.0  | 560.0  | 522.7  | 490.0  | 464.4  | 455.0  | 452.7  |
| 42.5° | 2079.1 | 1899.4 | 1750.1 | 1283.4 | 637.0  | 546.0  | 513.4  | 476.0  | 455.0  | 448.0  | 445.7  |
| 45°   | 2368.4 | 2209.8 | 1885.4 | 1208.7 | 569.4  | 532.0  | 511.0  | 471.4  | 445.7  | 438.7  | 436.4  |
| 47.5° | 2718.5 | 2555.1 | 2041.8 | 1094.4 | 522.7  | 522.7  | 508.7  | 464.4  | 441.0  | 434.0  | 434.0  |
| 50°   | 3105.8 | 2970.5 | 2240.1 | 963.7  | 487.7  | 515.7  | 504.0  | 464.4  | 438.7  | 431.7  | 429.4  |
| 52.5° | 3502.5 | 3439.5 | 2447.8 | 835.4  | 452.7  | 506.4  | 501.7  | 464.4  | 434.0  | 427.0  | 427.0  |
| 55°   | 4006.5 | 3955.2 | 2688.1 | 739.7  | 424.7  | 487.7  | 501.7  | 459.7  | 427.0  | 422.4  | 422.4  |
| 57.5° | 4501.2 | 4482.5 | 2874.8 | 655.7  | 403.7  | 464.4  | 494.7  | 452.7  | 420.0  | 417.7  | 417.7  |
| 60°   | 4923.6 | 4904.9 | 2954.1 | 550.7  | 382.7  | 441.0  | 480.7  | 441.0  | 408.4  | 410.7  | 410.7  |
| 62.5° | 5184.9 | 5077.6 | 2895.8 | 455.0  | 361.7  | 420.0  | 464.4  | 427.0  | 396.7  | 403.7  | 401.4  |
| 65°   | 5231.6 | 4981.9 | 2669.5 | 380.4  | 338.3  | 396.7  | 445.7  | 410.7  | 380.4  | 396.7  | 394.4  |
| 67.5° | 4888.6 | 4473.2 | 2244.8 | 331.3  | 315.0  | 371.0  | 424.7  | 387.4  | 361.7  | 385.0  | 378.0  |
| 70°   | 4146.5 | 3633.2 | 1661.4 | 294.0  | 291.7  | 340.7  | 396.7  | 359.4  | 336.0  | 347.7  | 338.3  |
| 72.5° | 3087.1 | 2622.8 | 1075.7 | 266.0  | 266.0  | 305.7  | 357.0  | 324.3  | 301.0  | 303.3  | 294.0  |
| 75°   | 1925.1 | 1612.4 | 611.4  | 240.3  | 240.3  | 270.7  | 317.3  | 284.7  | 268.3  | 259.0  | 270.7  |
| 77.5° | 875.0  | 709.4  | 322.0  | 214.7  | 217.0  | 231.0  | 273.0  | 242.7  | 224.0  | 210.0  | 217.0  |
| 80°   | 324.3  | 289.3  | 210.0  | 184.3  | 189.0  | 191.3  | 219.3  | 193.7  | 177.3  | 168.0  | 163.3  |
| 82.5° | 168.0  | 156.3  | 142.3  | 147.0  | 154.0  | 147.0  | 170.3  | 144.7  | 126.0  | 119.0  | 100.3  |
| 85°   | 84.0   | 81.7   | 86.3   | 98.0   | 107.3  | 91.0   | 102.7  | 93.3   | 77.0   | 56.0   | 56.0   |
| 87.5° | 32.7   | 35.0   | 32.7   | 44.3   | 49.0   | 42.0   | 46.7   | 32.7   | 23.3   | 11.7   | 9.3    |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

STREETWORKS

Report Number: SP1-2101-121-6

Luminaire Tested: IFLD-S-SA2E-730-U-T2

Test Date: 03/04/2021

### Test Information

Test Method: LM-79-08  
 Report Number: SP1-2101-121-6  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1  
 Measurement Geometry:  $4\pi$   
 Issue Date: 03/04/2021  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: STREETWORKS  
 Catalog Number: **IFLD-S-SA2E-730-U-T2**  
 Description: STREETWORKS INF FLOOD

PROGRAMMED @ 615mA.

### Spectral Parameters

|                           |        |           |      |      |       |
|---------------------------|--------|-----------|------|------|-------|
| CCT (K):                  | 2981   | CRI (Ra): | 72.3 |      |       |
| CIE u':                   | 0.2509 | R1:       | 68.0 | R9:  | -36.9 |
| CIE v':                   | 0.5228 | R2:       | 82.9 | R10: | 62.7  |
| Duv:                      | 0.0008 | R3:       | 95.0 | R11: | 65.3  |
| CIE x:                    | 0.4393 | R4:       | 68.7 | R12: | 58.3  |
| CIE y:                    | 0.4068 | R5:       | 68.4 | R13: | 70.8  |
| CIE z:                    | 0.1540 | R6:       | 77.8 | R14: | 97.4  |
| Peak Wavelength (nm):     | 598    | R7:       | 76.5 |      |       |
| Dominant Wavelength (nm): | 582    | R8:       | 41.3 |      |       |
| Purity:                   | 54.3   |           |      |      |       |
| Rf:                       | 76.2   |           |      |      |       |
| Rg:                       | 94.1   |           |      |      |       |



### Test Conditions

Stabilization Time: 64M  
 Operation Time: 12H  
 Room Temperature (°C) / RH%: 25.0/30%  
 Sphere Temperature (°C): 24.1

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| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | IN0058                | 1/31/2021        | 7/31/2021            |
| Power Meter                    | IN0071                | 12/1/2020        | 12/1/2021            |
| AC Power Source                | IN0063                | 12/1/2020        | 12/1/2021            |
| DC Power Source                | IN0208                | 12/1/2020        | 12/1/2021            |
| Sphere Thermometer             | IN0085                | 12/1/2020        | 12/1/2021            |
| Room Thermometer               | IN0046                | 12/1/2020        | 12/1/2021            |

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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 3000K 4-step quadrangle

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### Photopic Flux vs. Wavelength



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| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) |
|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|
| 360       | 2718             | 0.0              | 490       | 31388            | 4.5              | 620       | 149681           | 39.0             | 750       | 6127             | 0.0              | 880       | 4244             | 0.0              |
| 365       | 2104             | 0.0              | 495       | 39325            | 7.1              | 625       | 139059           | 30.7             | 755       | 5537             | 0.0              | 885       | 2890             | 0.0              |
| 370       | 2172             | 0.0              | 500       | 47816            | 10.5             | 630       | 126485           | 22.9             | 760       | 5066             | 0.0              | 890       | 2506             | 0.0              |
| 375       | 2770             | 0.0              | 505       | 55667            | 15.6             | 635       | 114115           | 17.1             | 765       | 4739             | 0.0              | 895       | 4522             | 0.0              |
| 380       | 2942             | 0.0              | 510       | 62766            | 21.6             | 640       | 102385           | 12.2             | 770       | 3828             | 0.0              | 900       | 4104             | 0.0              |
| 385       | 2372             | 0.0              | 515       | 69117            | 28.6             | 645       | 91895            | 8.8              | 775       | 3411             | 0.0              | 905       | 2090             | 0.0              |
| 390       | 2265             | 0.0              | 520       | 74088            | 35.9             | 650       | 81196            | 5.9              | 780       | 3776             | 0.0              | 910       | 3618             | 0.0              |
| 395       | 2023             | 0.0              | 525       | 78477            | 42.1             | 655       | 71232            | 4.1              | 785       | 3744             | 0.0              | 915       | 4126             | 0.0              |
| 400       | 1804             | 0.0              | 530       | 83585            | 49.2             | 660       | 62529            | 2.6              | 790       | 3446             | 0.0              | 920       | 3214             | 0.0              |
| 405       | 2029             | 0.0              | 535       | 87899            | 54.5             | 665       | 54721            | 1.7              | 795       | 2834             | 0.0              | 925       | 2696             | 0.0              |
| 410       | 2968             | 0.0              | 540       | 92850            | 60.5             | 670       | 47069            | 1.0              | 800       | 3213             | 0.0              | 930       | 3892             | 0.0              |
| 415       | 5120             | 0.0              | 545       | 99487            | 66.2             | 675       | 40348            | 0.7              | 805       | 2357             | 0.0              | 935       | 2376             | 0.0              |
| 420       | 9660             | 0.0              | 550       | 108411           | 73.7             | 680       | 34816            | 0.4              | 810       | 2616             | 0.0              | 940       | 2172             | 0.0              |
| 425       | 18379            | 0.1              | 555       | 117570           | 80.3             | 685       | 29890            | 0.3              | 815       | 2510             | 0.0              | 945       | 2531             | 0.0              |
| 430       | 32455            | 0.3              | 560       | 128783           | 87.5             | 690       | 25584            | 0.1              | 820       | 2684             | 0.0              | 950       | 3041             | 0.0              |
| 435       | 52561            | 0.6              | 565       | 140888           | 93.7             | 695       | 21945            | 0.1              | 825       | 2434             | 0.0              | 955       | 3777             | 0.0              |
| 440       | 78320            | 1.2              | 570       | 151789           | 98.7             | 700       | 19163            | 0.1              | 830       | 3163             | 0.0              | 960       | 3733             | 0.0              |
| 445       | 92278            | 1.9              | 575       | 163210           | 101.6            | 705       | 16563            | 0.0              | 835       | 2905             | 0.0              | 965       | 4082             | 0.0              |
| 450       | 75996            | 2.0              | 580       | 171760           | 102.1            | 710       | 14632            | 0.0              | 840       | 2917             | 0.0              | 970       | 3333             | 0.0              |
| 455       | 50251            | 1.7              | 585       | 179606           | 99.8             | 715       | 13282            | 0.0              | 845       | 3384             | 0.0              | 975       | 3396             | 0.0              |
| 460       | 37320            | 1.5              | 590       | 183682           | 95.0             | 720       | 11587            | 0.0              | 850       | 2926             | 0.0              | 980       | 3415             | 0.0              |
| 465       | 28321            | 1.5              | 595       | 184440           | 87.4             | 725       | 10271            | 0.0              | 855       | 2420             | 0.0              | 985       | 4316             | 0.0              |
| 470       | 21814            | 1.4              | 600       | 183413           | 79.0             | 730       | 9052             | 0.0              | 860       | 3637             | 0.0              | 990       | 3771             | 0.0              |
| 475       | 19996            | 1.6              | 605       | 178745           | 69.2             | 735       | 7872             | 0.0              | 865       | 3162             | 0.0              | 995       | 4745             | 0.0              |
| 480       | 21364            | 2.0              | 610       | 170867           | 58.7             | 740       | 7066             | 0.0              | 870       | 2292             | 0.0              | 1000      | 2768             | 0.0              |
| 485       | 25425            | 3.0              | 615       | 161088           | 48.6             | 745       | 6501             | 0.0              | 875       | 3357             | 0.0              |           |                  |                  |

REPORT NUMBER: SP1-2101-121-6

### Scotopic Flux vs. Wavelength



Scotopic Lumens: 10635.1

S/P: 1.22

| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) |
|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|
| 360       | 2718             | 0.0              | 490       | 31388            | 48.3             | 620       | 149681           | 1.9              | 750       | 6127             | 0.0              | 880       | 4244             | 0.0              |
| 365       | 2104             | 0.0              | 495       | 39325            | 63.6             | 625       | 139059           | 1.2              | 755       | 5537             | 0.0              | 885       | 2890             | 0.0              |
| 370       | 2172             | 0.0              | 500       | 47816            | 80.0             | 630       | 126485           | 0.7              | 760       | 5066             | 0.0              | 890       | 2506             | 0.0              |
| 375       | 2770             | 0.0              | 505       | 55667            | 94.6             | 635       | 114115           | 0.4              | 765       | 4739             | 0.0              | 895       | 4522             | 0.0              |
| 380       | 2942             | 0.0              | 510       | 62766            | 106.4            | 640       | 102385           | 0.3              | 770       | 3828             | 0.0              | 900       | 4104             | 0.0              |
| 385       | 2372             | 0.0              | 515       | 69117            | 114.6            | 645       | 91895            | 0.2              | 775       | 3411             | 0.0              | 905       | 2090             | 0.0              |
| 390       | 2265             | 0.0              | 520       | 74088            | 117.8            | 650       | 81196            | 0.1              | 780       | 3776             | 0.0              | 910       | 3618             | 0.0              |
| 395       | 2023             | 0.0              | 525       | 78477            | 117.4            | 655       | 71232            | 0.1              | 785       | 3744             | 0.0              | 915       | 4126             | 0.0              |
| 400       | 1804             | 0.0              | 530       | 83585            | 115.2            | 660       | 62529            | 0.0              | 790       | 3446             | 0.0              | 920       | 3214             | 0.0              |
| 405       | 2029             | 0.1              | 535       | 87899            | 109.5            | 665       | 54721            | 0.0              | 795       | 2834             | 0.0              | 925       | 2696             | 0.0              |
| 410       | 2968             | 0.2              | 540       | 92850            | 102.6            | 670       | 47069            | 0.0              | 800       | 3213             | 0.0              | 930       | 3892             | 0.0              |
| 415       | 5120             | 0.5              | 545       | 99487            | 95.4             | 675       | 40348            | 0.0              | 805       | 2357             | 0.0              | 935       | 2376             | 0.0              |
| 420       | 9660             | 1.6              | 550       | 108411           | 88.6             | 680       | 34816            | 0.0              | 810       | 2616             | 0.0              | 940       | 2172             | 0.0              |
| 425       | 18379            | 4.5              | 555       | 117570           | 80.3             | 685       | 29890            | 0.0              | 815       | 2510             | 0.0              | 945       | 2531             | 0.0              |
| 430       | 32455            | 11.0             | 560       | 128783           | 72.0             | 690       | 25584            | 0.0              | 820       | 2684             | 0.0              | 950       | 3041             | 0.0              |
| 435       | 52561            | 23.5             | 565       | 140888           | 63.2             | 695       | 21945            | 0.0              | 825       | 2434             | 0.0              | 955       | 3777             | 0.0              |
| 440       | 78320            | 43.8             | 570       | 151789           | 53.6             | 700       | 19163            | 0.0              | 830       | 3163             | 0.0              | 960       | 3733             | 0.0              |
| 445       | 92278            | 61.8             | 575       | 163210           | 44.4             | 705       | 16563            | 0.0              | 835       | 2905             | 0.0              | 965       | 4082             | 0.0              |
| 450       | 75996            | 58.9             | 580       | 171760           | 35.4             | 710       | 14632            | 0.0              | 840       | 2917             | 0.0              | 970       | 3333             | 0.0              |
| 455       | 50251            | 43.9             | 585       | 179606           | 27.4             | 715       | 13282            | 0.0              | 845       | 3384             | 0.0              | 975       | 3396             | 0.0              |
| 460       | 37320            | 36.0             | 590       | 183682           | 20.5             | 720       | 11587            | 0.0              | 850       | 2926             | 0.0              | 980       | 3415             | 0.0              |
| 465       | 28321            | 29.9             | 595       | 184440           | 14.7             | 725       | 10271            | 0.0              | 855       | 2420             | 0.0              | 985       | 4316             | 0.0              |
| 470       | 21814            | 25.1             | 600       | 183413           | 10.3             | 730       | 9052             | 0.0              | 860       | 3637             | 0.0              | 990       | 3771             | 0.0              |
| 475       | 19996            | 25.0             | 605       | 178745           | 7.0              | 735       | 7872             | 0.0              | 865       | 3162             | 0.0              | 995       | 4745             | 0.0              |
| 480       | 21364            | 28.9             | 610       | 170867           | 4.6              | 740       | 7066             | 0.0              | 870       | 2292             | 0.0              | 1000      | 2768             | 0.0              |
| 485       | 25425            | 36.9             | 615       | 161088           | 3.0              | 745       | 6501             | 0.0              | 875       | 3357             | 0.0              |           |                  |                  |

REPORT NUMBER: SP1-2101-121-6

### Melanopic Flux vs. Wavelength


**Melanopic Lumens: 3860**
**M/P: 0.44**

| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) |
|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|
| 360       | 2718             | 0.0              | 490       | 31388            | 26.1             | 620       | 149681           | 0.1              | 750       | 6127             | 0.0              | 880       | 4244             | 0.0              |
| 365       | 2104             | 0.0              | 495       | 39325            | 32.5             | 625       | 139059           | 0.1              | 755       | 5537             | 0.0              | 885       | 2890             | 0.0              |
| 370       | 2172             | 0.0              | 500       | 47816            | 38.4             | 630       | 126485           | 0.0              | 760       | 5066             | 0.0              | 890       | 2506             | 0.0              |
| 375       | 2770             | 0.0              | 505       | 55667            | 42.7             | 635       | 114115           | 0.0              | 765       | 4739             | 0.0              | 895       | 4522             | 0.0              |
| 380       | 2942             | 0.0              | 510       | 62766            | 45.1             | 640       | 102385           | 0.0              | 770       | 3828             | 0.0              | 900       | 4104             | 0.0              |
| 385       | 2372             | 0.0              | 515       | 69117            | 45.2             | 645       | 91895            | 0.0              | 775       | 3411             | 0.0              | 905       | 2090             | 0.0              |
| 390       | 2265             | 0.0              | 520       | 74088            | 43.1             | 650       | 81196            | 0.0              | 780       | 3776             | 0.0              | 910       | 3618             | 0.0              |
| 395       | 2023             | 0.0              | 525       | 78477            | 39.8             | 655       | 71232            | 0.0              | 785       | 3744             | 0.0              | 915       | 4126             | 0.0              |
| 400       | 1804             | 0.0              | 530       | 83585            | 36.1             | 660       | 62529            | 0.0              | 790       | 3446             | 0.0              | 920       | 3214             | 0.0              |
| 405       | 2029             | 0.0              | 535       | 87899            | 31.6             | 665       | 54721            | 0.0              | 795       | 2834             | 0.0              | 925       | 2696             | 0.0              |
| 410       | 2968             | 0.1              | 540       | 92850            | 27.2             | 670       | 47069            | 0.0              | 800       | 3213             | 0.0              | 930       | 3892             | 0.0              |
| 415       | 5120             | 0.3              | 545       | 99487            | 23.1             | 675       | 40348            | 0.0              | 805       | 2357             | 0.0              | 935       | 2376             | 0.0              |
| 420       | 9660             | 1.1              | 550       | 108411           | 19.5             | 680       | 34816            | 0.0              | 810       | 2616             | 0.0              | 940       | 2172             | 0.0              |
| 425       | 18379            | 2.9              | 555       | 117570           | 15.9             | 685       | 29890            | 0.0              | 815       | 2510             | 0.0              | 945       | 2531             | 0.0              |
| 430       | 32455            | 6.9              | 560       | 128783           | 12.7             | 690       | 25584            | 0.0              | 820       | 2684             | 0.0              | 950       | 3041             | 0.0              |
| 435       | 52561            | 14.0             | 565       | 140888           | 9.9              | 695       | 21945            | 0.0              | 825       | 2434             | 0.0              | 955       | 3777             | 0.0              |
| 440       | 78320            | 26.2             | 570       | 151789           | 7.4              | 700       | 19163            | 0.0              | 830       | 3163             | 0.0              | 960       | 3733             | 0.0              |
| 445       | 92278            | 36.4             | 575       | 163210           | 5.4              | 705       | 16563            | 0.0              | 835       | 2905             | 0.0              | 965       | 4082             | 0.0              |
| 450       | 75996            | 35.0             | 580       | 171760           | 3.8              | 710       | 14632            | 0.0              | 840       | 2917             | 0.0              | 970       | 3333             | 0.0              |
| 455       | 50251            | 26.3             | 585       | 179606           | 2.7              | 715       | 13282            | 0.0              | 845       | 3384             | 0.0              | 975       | 3396             | 0.0              |
| 460       | 37320            | 22.0             | 590       | 183682           | 1.8              | 720       | 11587            | 0.0              | 850       | 2926             | 0.0              | 980       | 3415             | 0.0              |
| 465       | 28321            | 18.5             | 595       | 184440           | 1.2              | 725       | 10271            | 0.0              | 855       | 2420             | 0.0              | 985       | 4316             | 0.0              |
| 470       | 21814            | 15.6             | 600       | 183413           | 0.8              | 730       | 9052             | 0.0              | 860       | 3637             | 0.0              | 990       | 3771             | 0.0              |
| 475       | 19996            | 15.3             | 605       | 178745           | 0.5              | 735       | 7872             | 0.0              | 865       | 3162             | 0.0              | 995       | 4745             | 0.0              |
| 480       | 21364            | 17.2             | 610       | 170867           | 0.3              | 740       | 7066             | 0.0              | 870       | 2292             | 0.0              | 1000      | 2768             | 0.0              |
| 485       | 25425            | 21.0             | 615       | 161088           | 0.2              | 745       | 6501             | 0.0              | 875       | 3357             | 0.0              |           |                  |                  |

### Summary

$R_f = 76.2$   
 $R_g = 94.1$   
 CIE  $R_a = 72.3$   
 $R_g = -36.9$

### Spectral Power Distribution Comparison



### Color Vector Graphics

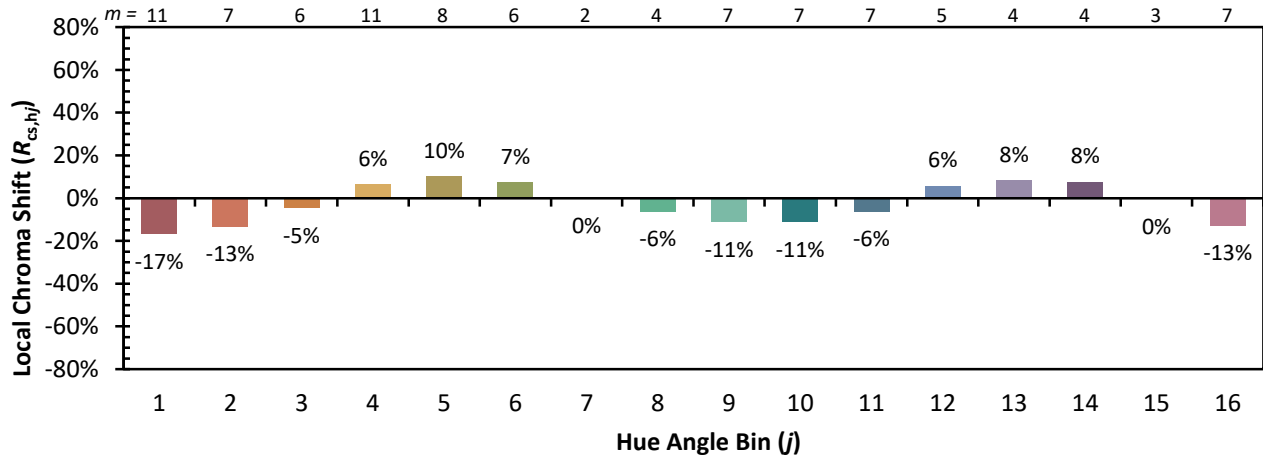


Individual Sample Fidelity Index ( $R_{f,i}$ )

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 67 | CES51 = 88 | CES76 = 64 |
| CES02 = 63 | CES27 = 88 | CES52 = 87 | CES77 = 81 |
| CES03 = 31 | CES28 = 88 | CES53 = 79 | CES78 = 67 |
| CES04 = 71 | CES29 = 66 | CES54 = 84 | CES79 = 87 |
| CES05 = 49 | CES30 = 72 | CES55 = 84 | CES80 = 87 |
| CES06 = 51 | CES31 = 70 | CES56 = 75 | CES81 = 71 |
| CES07 = 41 | CES32 = 66 | CES57 = 74 | CES82 = 94 |
| CES08 = 40 | CES33 = 73 | CES58 = 77 | CES83 = 90 |
| CES09 = 29 | CES34 = 80 | CES59 = 86 | CES84 = 90 |
| CES10 = 76 | CES35 = 90 | CES60 = 93 | CES85 = 78 |
| CES11 = 59 | CES36 = 96 | CES61 = 85 | CES86 = 61 |
| CES12 = 65 | CES37 = 88 | CES62 = 90 | CES87 = 79 |
| CES13 = 43 | CES38 = 80 | CES63 = 77 | CES88 = 77 |
| CES14 = 74 | CES39 = 95 | CES64 = 73 | CES89 = 67 |
| CES15 = 71 | CES40 = 91 | CES65 = 69 | CES90 = 76 |
| CES16 = 47 | CES41 = 88 | CES66 = 71 | CES91 = 90 |
| CES17 = 50 | CES42 = 89 | CES67 = 69 | CES92 = 59 |
| CES18 = 56 | CES43 = 80 | CES68 = 73 | CES93 = 75 |
| CES19 = 73 | CES44 = 99 | CES69 = 82 | CES94 = 50 |
| CES20 = 66 | CES45 = 85 | CES70 = 68 | CES95 = 69 |
| CES21 = 87 | CES46 = 80 | CES71 = 68 | CES96 = 77 |
| CES22 = 79 | CES47 = 81 | CES72 = 88 | CES97 = 83 |
| CES23 = 92 | CES48 = 69 | CES73 = 61 | CES98 = 75 |
| CES24 = 91 | CES49 = 80 | CES74 = 95 | CES99 = 63 |
| CES25 = 73 | CES50 = 87 | CES75 = 70 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)