

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



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

Test Report Prepared for  
Cooper Lighting Solutions  
(formerly Eaton)

Brand: STREETWORKS

Report Number: P800458

Luminaire Tested: **ARCH-S-PA2-50-730-24VDC-T2U**

Issue Date: 10/13/2021

**Test Information**

Test Method: LM-79-08  
Report Number: P800458  
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-PA2-50-730-24VDC-T2U  
Description: ARCHEON ROADWAY AND AREA LUMINAIRE  
(2) 70 CRI, 3000K, 520mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II U OPTICS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

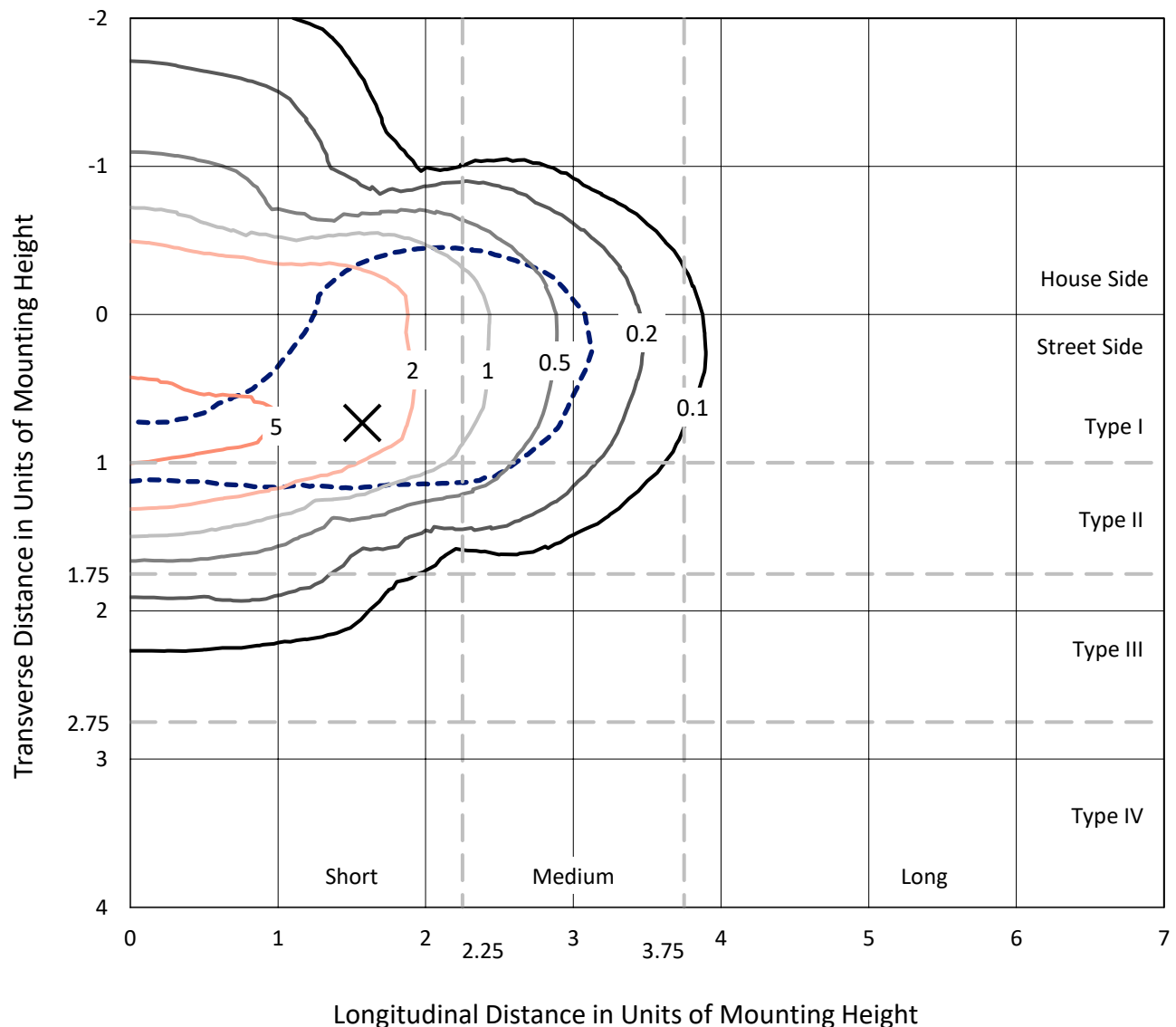
Lumens per Lamp: N/A  
Luminaire Lumens: 7210 lumens  
Efficiency: N/A  
Efficacy: 147.1 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 1' x H: 0')  
IES Classification: Type II - Short  
BUG Rating: B2 - U0 - G2

Input Watts (W): 49  
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

REPORT NUMBER: P800458  
 CATALOG NUMBER: ARCH-S-PA2-50-730-24VDC-T2U

## Iso-Footcandle Lines of Horizontal Illumination

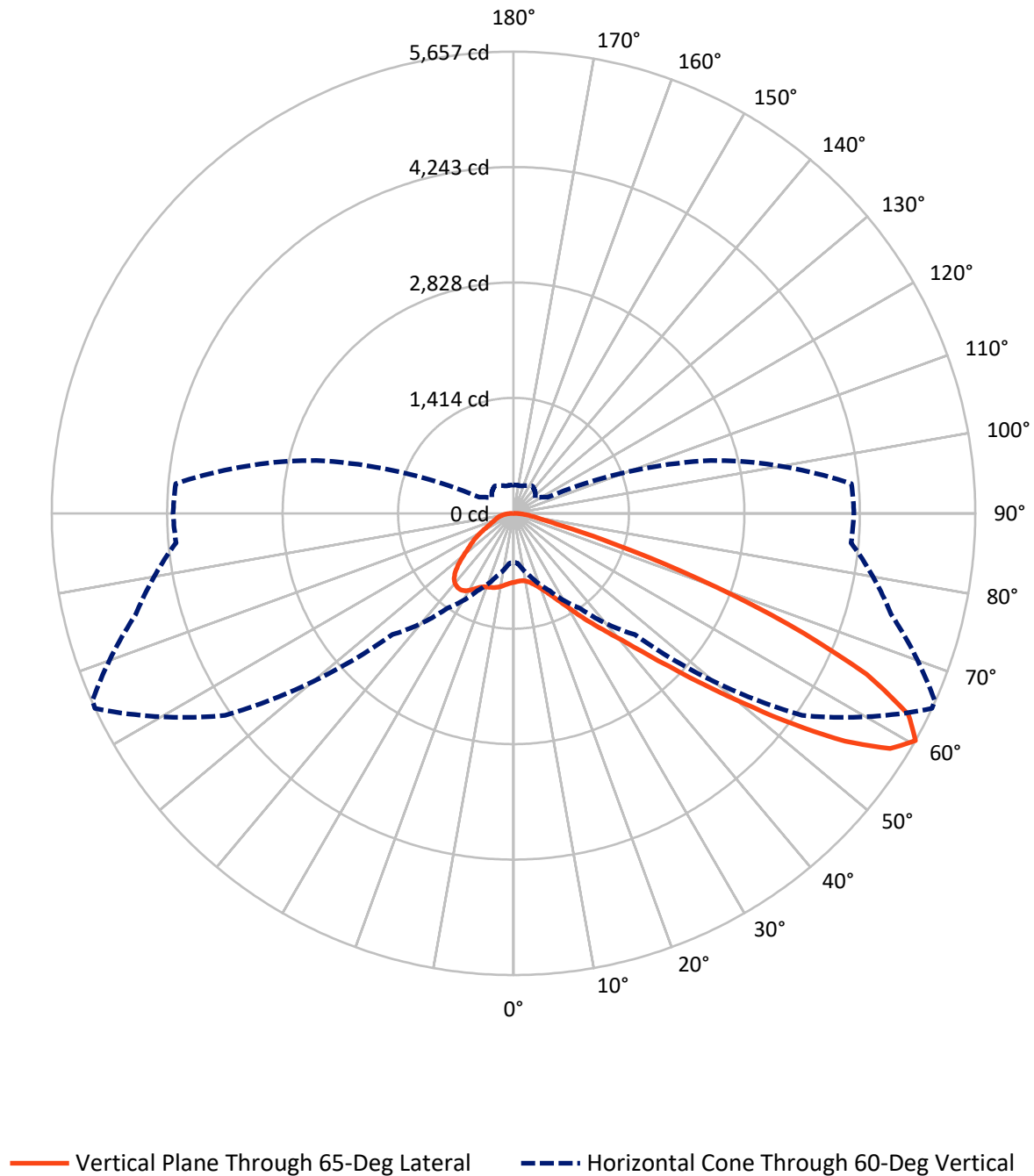
✕ Max cd  
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 6.7 fc  
 Type II - Short - N/A

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## Luminous Intensity Polar Plot



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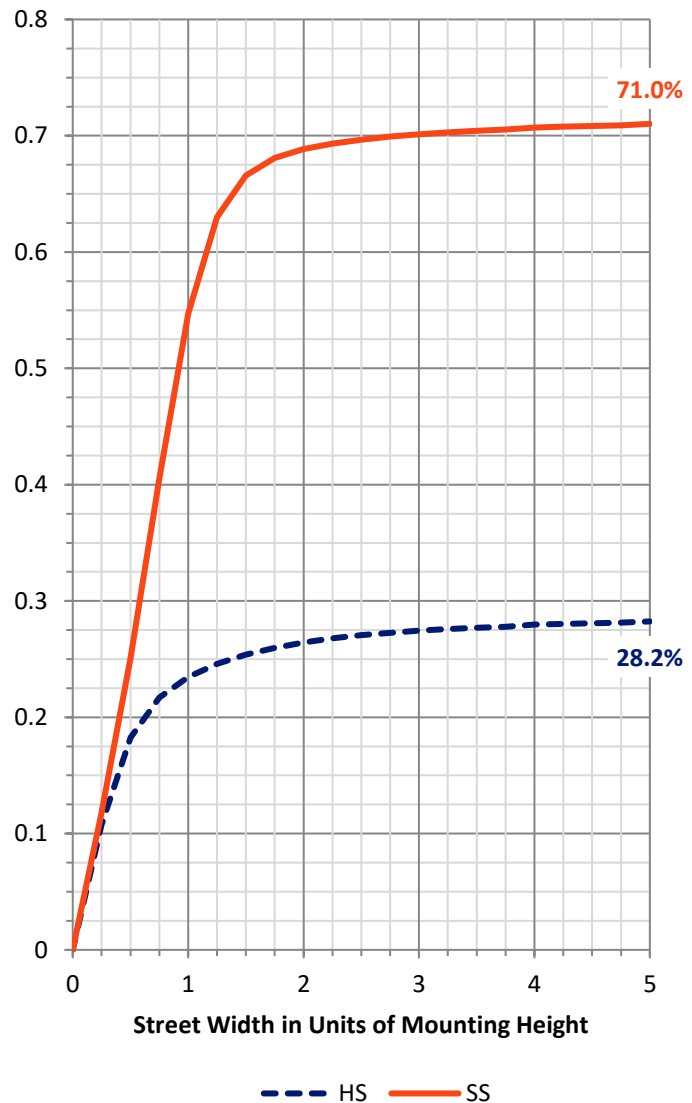
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 2064.0   | 0.0    | 2064.0 |
|                    | % Fixture | 28.6     | 0.0    | 28.6   |
| <b>Street Side</b> | Lumens    | 5146.0   | 0.0    | 5146.0 |
|                    | % Fixture | 71.4     | 0.0    | 71.4   |
| <b>Total</b>       | Lumens    | 7210.0   | 0.0    | 7210.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 81.7   | 1.1       |
| 10°-20°   | 263.0  | 3.6       |
| 20°-30°   | 504.3  | 7.0       |
| 30°-40°   | 875.8  | 12.1      |
| 40°-50°   | 1485.3 | 20.6      |
| 50°-60°   | 1849.5 | 25.7      |
| 60°-70°   | 1490.4 | 20.7      |
| 70°-80°   | 564.3  | 7.8       |
| 80°-90°   | 95.7   | 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°    | 7210.0 | 100.0     |
| 0°-180°   | 7210.0 | 100.0     |

**Coefficient of Utilization**



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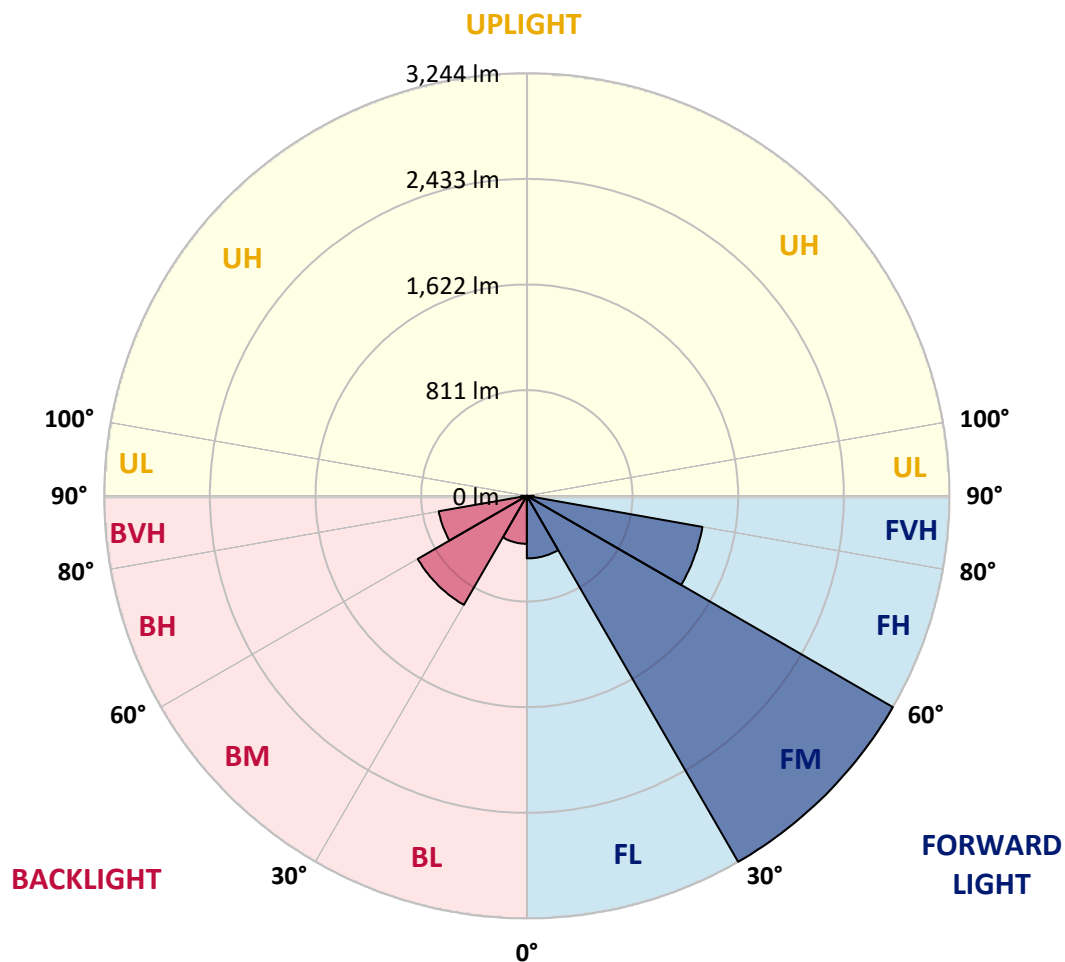
CATALOG NUMBER: ARCH-S-PA2-50-730-24VDC-T2U

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 480.7  | 6.7       |                         |      |         |
| FM   | (30°-60°)   | 3243.8 | 45.0      |                         |      |         |
| FH   | (60°-80°)   | 1368.4 | 19.0      |                         |      | G1/1800 |
| FVH  | (80°-90°)   | 53.1   | 0.7       |                         |      | G1/100  |
| BL   | (0°-30°)    | 368.4  | 5.1       | B1/500                  |      |         |
| BM   | (30°-60°)   | 966.8  | 13.4      | B1/1000                 |      |         |
| BH   | (60°-80°)   | 686.3  | 9.5       | B2/1000                 |      | G2/1000 |
| BVH  | (80°-90°)   | 42.6   | 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°    | 845.9  | 845.9  | 845.9  | 845.9  | 845.9  | 845.9  | 845.9  | 845.9  | 845.9  | 845.9  | 845.9  |
| 2.5°  | 826.2  | 826.2  | 826.2  | 828.2  | 830.1  | 832.1  | 836.1  | 836.1  | 836.1  | 838.0  | 842.0  |
| 5°    | 810.4  | 808.4  | 810.4  | 812.3  | 816.3  | 820.3  | 828.2  | 832.1  | 832.1  | 840.0  | 847.9  |
| 7.5°  | 812.3  | 808.4  | 808.4  | 810.4  | 814.3  | 818.3  | 826.2  | 832.1  | 834.1  | 844.0  | 857.8  |
| 10°   | 832.1  | 826.2  | 826.2  | 828.2  | 828.2  | 832.1  | 838.0  | 845.9  | 847.9  | 857.8  | 871.6  |
| 12.5° | 873.6  | 867.7  | 865.7  | 859.8  | 853.9  | 857.8  | 863.7  | 865.7  | 867.7  | 873.6  | 887.5  |
| 15°   | 960.6  | 950.7  | 934.9  | 923.0  | 907.2  | 897.3  | 895.4  | 897.3  | 897.3  | 899.3  | 907.2  |
| 17.5° | 1085.1 | 1073.2 | 1049.5 | 1023.8 | 986.3  | 954.7  | 944.8  | 936.9  | 936.9  | 930.9  | 930.9  |
| 20°   | 1237.3 | 1219.5 | 1191.8 | 1154.3 | 1098.9 | 1041.6 | 1008.0 | 990.2  | 984.3  | 974.4  | 960.6  |
| 22.5° | 1413.2 | 1401.4 | 1365.8 | 1308.5 | 1225.4 | 1148.4 | 1093.0 | 1053.5 | 1053.5 | 1029.8 | 1000.1 |
| 25°   | 1620.7 | 1599.0 | 1557.5 | 1490.3 | 1377.6 | 1266.9 | 1191.8 | 1134.5 | 1128.6 | 1091.0 | 1043.6 |
| 27.5° | 1822.3 | 1808.5 | 1757.1 | 1668.2 | 1533.8 | 1405.3 | 1300.5 | 1233.3 | 1223.5 | 1164.2 | 1091.0 |
| 30°   | 2067.4 | 2051.6 | 1974.5 | 1850.0 | 1705.7 | 1559.5 | 1436.9 | 1350.0 | 1340.1 | 1259.0 | 1156.3 |
| 32.5° | 2371.8 | 2318.5 | 2223.6 | 2081.3 | 1895.5 | 1731.4 | 1591.1 | 1498.2 | 1486.3 | 1393.4 | 1270.9 |
| 35°   | 2741.4 | 2696.0 | 2531.9 | 2381.7 | 2160.3 | 1944.9 | 1776.9 | 1654.3 | 1638.5 | 1527.8 | 1373.7 |
| 37.5° | 3002.3 | 2980.6 | 2867.9 | 2749.3 | 2496.3 | 2205.8 | 2000.2 | 1830.3 | 1814.4 | 1668.2 | 1468.6 |
| 40°   | 3166.4 | 3144.6 | 3113.0 | 3079.4 | 2939.1 | 2611.0 | 2269.0 | 2037.8 | 2012.1 | 1873.7 | 1658.3 |
| 42.5° | 3251.4 | 3233.6 | 3239.5 | 3306.7 | 3346.2 | 3294.9 | 2652.5 | 2314.5 | 2296.7 | 2128.7 | 1889.6 |
| 45°   | 3202.0 | 3190.1 | 3247.4 | 3425.3 | 3619.0 | 3998.5 | 3144.6 | 2678.2 | 2630.7 | 2431.1 | 2170.2 |
| 47.5° | 2964.8 | 2929.2 | 3063.6 | 3366.0 | 3781.1 | 4334.5 | 3737.6 | 3126.9 | 3075.5 | 2788.9 | 2454.8 |
| 50°   | 2476.6 | 2466.7 | 2650.5 | 3034.0 | 3717.8 | 4466.9 | 4372.1 | 3656.6 | 3619.0 | 3174.3 | 2771.1 |
| 52.5° | 2022.0 | 2018.0 | 2160.3 | 2512.2 | 3314.6 | 4374.0 | 4832.6 | 4287.1 | 4174.4 | 3561.7 | 3115.0 |
| 55°   | 1569.4 | 1567.4 | 1693.9 | 1956.8 | 2644.6 | 3937.2 | 5050.0 | 4929.4 | 4846.4 | 3984.7 | 3468.8 |
| 57.5° | 1073.2 | 1059.4 | 1223.5 | 1423.1 | 1986.4 | 3118.9 | 4907.7 | 5437.4 | 5386.0 | 4433.3 | 3844.3 |
| 60°   | 596.9  | 616.7  | 798.5  | 1045.6 | 1421.1 | 2101.0 | 4314.7 | 5656.8 | 5648.9 | 4791.1 | 4150.7 |
| 62.5° | 423.0  | 430.9  | 508.0  | 743.2  | 934.9  | 1203.7 | 3328.5 | 5429.5 | 5492.7 | 4988.7 | 4324.6 |
| 65°   | 351.8  | 355.8  | 393.3  | 549.5  | 683.9  | 695.7  | 2075.3 | 4755.5 | 4838.5 | 4927.5 | 4362.2 |
| 67.5° | 332.1  | 334.0  | 353.8  | 405.2  | 535.6  | 504.0  | 927.0  | 3630.9 | 3806.8 | 4433.3 | 4117.1 |
| 70°   | 302.4  | 304.4  | 334.0  | 357.7  | 432.9  | 397.3  | 476.3  | 2411.4 | 2648.5 | 3504.4 | 3549.8 |
| 72.5° | 258.9  | 264.9  | 288.6  | 336.0  | 351.8  | 330.1  | 367.6  | 1288.7 | 1523.9 | 2344.2 | 2741.4 |
| 75°   | 223.3  | 227.3  | 245.1  | 284.6  | 330.1  | 262.9  | 312.3  | 587.0  | 687.8  | 1375.7 | 1735.4 |
| 77.5° | 179.9  | 181.8  | 207.5  | 233.2  | 276.7  | 213.5  | 243.1  | 351.8  | 369.6  | 672.0  | 784.7  |
| 80°   | 136.4  | 136.4  | 154.2  | 185.8  | 205.6  | 205.6  | 177.9  | 245.1  | 255.0  | 320.2  | 310.3  |
| 82.5° | 104.8  | 102.8  | 116.6  | 130.5  | 148.2  | 172.0  | 134.4  | 162.1  | 166.0  | 193.7  | 166.0  |
| 85°   | 69.2   | 69.2   | 77.1   | 88.9   | 98.8   | 94.9   | 104.8  | 94.9   | 98.8   | 120.6  | 90.9   |
| 87.5° | 29.6   | 29.6   | 41.5   | 39.5   | 43.5   | 45.5   | 51.4   | 45.5   | 45.5   | 55.3   | 41.5   |
| 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-PA2-50-730-24VDC-T2U

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°   | 115°   | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 845.9  | 845.9  | 845.9  | 845.9  | 845.9 | 845.9 | 845.9 | 845.9 | 845.9 | 845.9 | 845.9 |
| 2.5°  | 844.0  | 845.9  | 849.9  | 851.9  | 857.8 | 859.8 | 859.8 | 863.7 | 863.7 | 867.7 | 867.7 |
| 5°    | 849.9  | 855.8  | 861.8  | 867.7  | 873.6 | 875.6 | 879.6 | 881.5 | 881.5 | 885.5 | 883.5 |
| 7.5°  | 861.8  | 867.7  | 879.6  | 885.5  | 893.4 | 897.3 | 895.4 | 897.3 | 895.4 | 897.3 | 897.3 |
| 10°   | 877.6  | 885.5  | 899.3  | 907.2  | 913.2 | 915.1 | 909.2 | 903.3 | 895.4 | 895.4 | 895.4 |
| 12.5° | 895.4  | 901.3  | 919.1  | 925.0  | 929.0 | 923.0 | 907.2 | 895.4 | 889.4 | 891.4 | 889.4 |
| 15°   | 913.2  | 919.1  | 932.9  | 938.8  | 938.8 | 921.1 | 907.2 | 903.3 | 901.3 | 903.3 | 903.3 |
| 17.5° | 930.9  | 936.9  | 948.7  | 948.7  | 942.8 | 929.0 | 915.1 | 901.3 | 891.4 | 885.5 | 885.5 |
| 20°   | 954.7  | 954.7  | 958.6  | 958.6  | 956.6 | 934.9 | 901.3 | 867.7 | 847.9 | 836.1 | 834.1 |
| 22.5° | 986.3  | 978.4  | 970.5  | 970.5  | 978.4 | 921.1 | 855.8 | 804.4 | 772.8 | 768.9 | 761.0 |
| 25°   | 1019.9 | 1002.1 | 982.3  | 996.2  | 982.3 | 885.5 | 792.6 | 723.4 | 685.9 | 672.0 | 676.0 |
| 27.5° | 1055.5 | 1027.8 | 998.1  | 1037.7 | 962.6 | 816.3 | 703.6 | 626.6 | 591.0 | 581.1 | 581.1 |
| 30°   | 1104.9 | 1063.4 | 1019.9 | 1081.2 | 925.0 | 737.2 | 598.9 | 543.5 | 523.8 | 515.9 | 513.9 |
| 32.5° | 1199.7 | 1136.5 | 1073.2 | 1120.7 | 883.5 | 634.5 | 527.7 | 494.1 | 470.4 | 462.5 | 468.4 |
| 35°   | 1284.7 | 1195.8 | 1154.3 | 1138.5 | 818.3 | 551.4 | 484.2 | 454.6 | 434.8 | 425.0 | 425.0 |
| 37.5° | 1361.8 | 1276.8 | 1245.2 | 1138.5 | 733.3 | 500.1 | 456.6 | 432.9 | 407.2 | 399.3 | 399.3 |
| 40°   | 1529.8 | 1417.2 | 1361.8 | 1122.7 | 628.5 | 474.4 | 442.7 | 415.1 | 393.3 | 385.4 | 383.4 |
| 42.5° | 1761.1 | 1608.9 | 1482.4 | 1087.1 | 539.6 | 462.5 | 434.8 | 403.2 | 385.4 | 379.5 | 377.5 |
| 45°   | 2006.2 | 1871.8 | 1597.0 | 1023.8 | 482.3 | 450.6 | 432.9 | 399.3 | 377.5 | 371.6 | 369.6 |
| 47.5° | 2302.6 | 2164.3 | 1729.5 | 927.0  | 442.7 | 442.7 | 430.9 | 393.3 | 373.6 | 367.6 | 367.6 |
| 50°   | 2630.7 | 2516.1 | 1897.5 | 816.3  | 413.1 | 436.8 | 426.9 | 393.3 | 371.6 | 365.7 | 363.7 |
| 52.5° | 2966.8 | 2913.4 | 2073.4 | 707.6  | 383.4 | 428.9 | 425.0 | 393.3 | 367.6 | 361.7 | 361.7 |
| 55°   | 3393.7 | 3350.2 | 2276.9 | 626.6  | 359.7 | 413.1 | 425.0 | 389.4 | 361.7 | 357.7 | 357.7 |
| 57.5° | 3812.7 | 3796.9 | 2435.1 | 555.4  | 341.9 | 393.3 | 419.0 | 383.4 | 355.8 | 353.8 | 353.8 |
| 60°   | 4170.5 | 4154.6 | 2502.3 | 466.5  | 324.1 | 373.6 | 407.2 | 373.6 | 345.9 | 347.9 | 347.9 |
| 62.5° | 4391.8 | 4300.9 | 2452.9 | 385.4  | 306.4 | 355.8 | 393.3 | 361.7 | 336.0 | 341.9 | 340.0 |
| 65°   | 4431.4 | 4219.9 | 2261.1 | 322.2  | 286.6 | 336.0 | 377.5 | 347.9 | 322.2 | 336.0 | 334.0 |
| 67.5° | 4140.8 | 3789.0 | 1901.4 | 280.7  | 266.8 | 314.3 | 359.7 | 328.1 | 306.4 | 326.1 | 320.2 |
| 70°   | 3512.3 | 3077.4 | 1407.3 | 249.0  | 247.1 | 288.6 | 336.0 | 304.4 | 284.6 | 294.5 | 286.6 |
| 72.5° | 2614.9 | 2221.6 | 911.2  | 225.3  | 225.3 | 258.9 | 302.4 | 274.7 | 255.0 | 256.9 | 249.0 |
| 75°   | 1630.6 | 1365.8 | 517.8  | 203.6  | 203.6 | 229.3 | 268.8 | 241.1 | 227.3 | 219.4 | 229.3 |
| 77.5° | 741.2  | 600.9  | 272.8  | 181.8  | 183.8 | 195.7 | 231.3 | 205.6 | 189.7 | 177.9 | 183.8 |
| 80°   | 274.7  | 245.1  | 177.9  | 156.1  | 160.1 | 162.1 | 185.8 | 164.1 | 150.2 | 142.3 | 138.4 |
| 82.5° | 142.3  | 132.4  | 120.6  | 124.5  | 130.5 | 124.5 | 144.3 | 122.5 | 106.7 | 100.8 | 85.0  |
| 85°   | 71.2   | 69.2   | 73.1   | 83.0   | 90.9  | 77.1  | 87.0  | 79.1  | 65.2  | 47.4  | 47.4  |
| 87.5° | 27.7   | 29.6   | 27.7   | 37.6   | 41.5  | 35.6  | 39.5  | 27.7  | 19.8  | 9.9   | 7.9   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |



Report 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

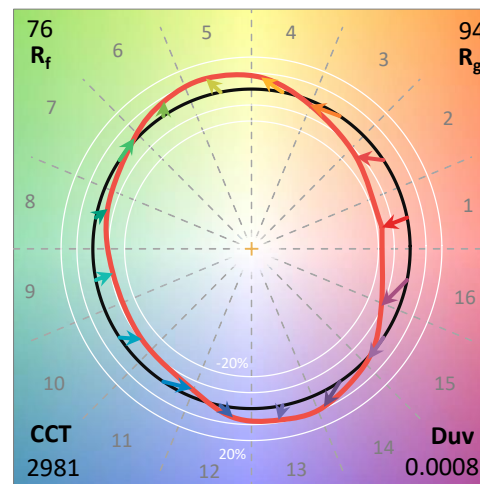
### Test Information

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

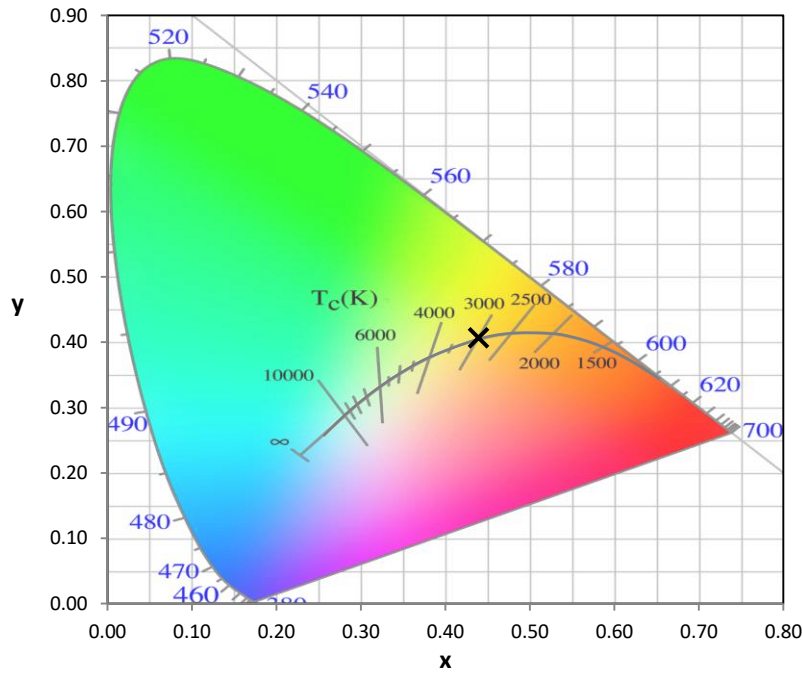
Stabilization Time: 64M  
 Operation Time: 12H  
 Room Temperature (°C) / RH%: 25.0/30%  
 Sphere Temperature (°C): 24.1

REPORT NUMBER: SP1-2101-121-6

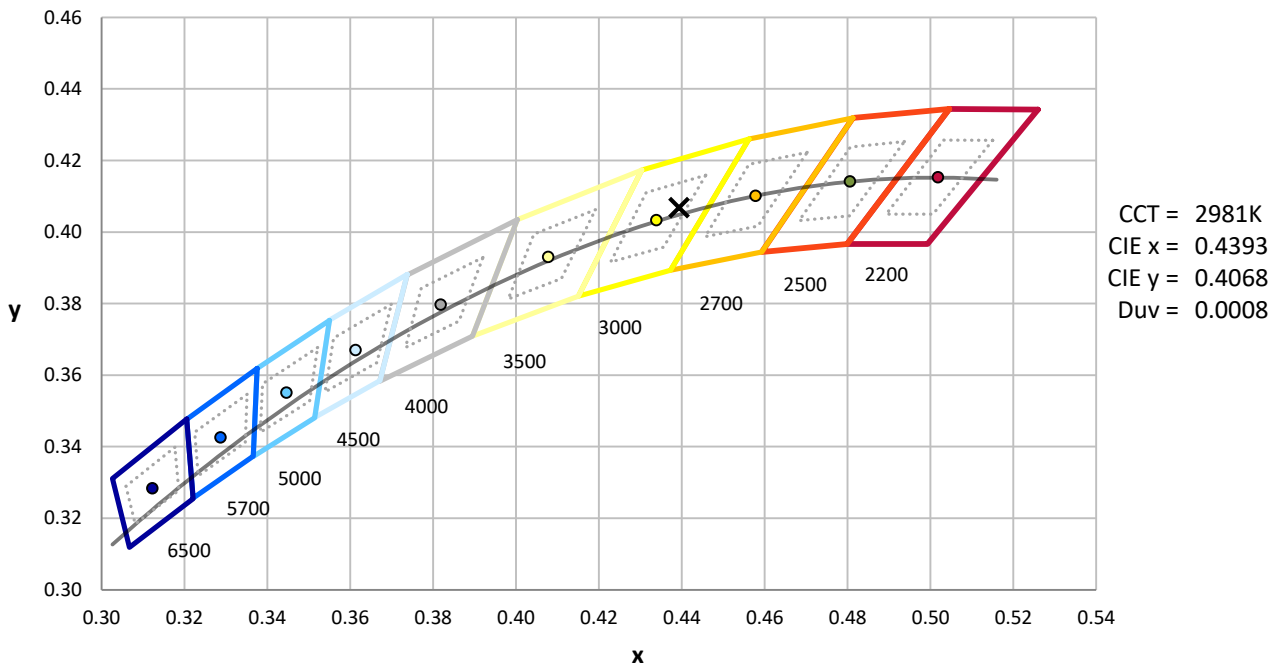
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| 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**



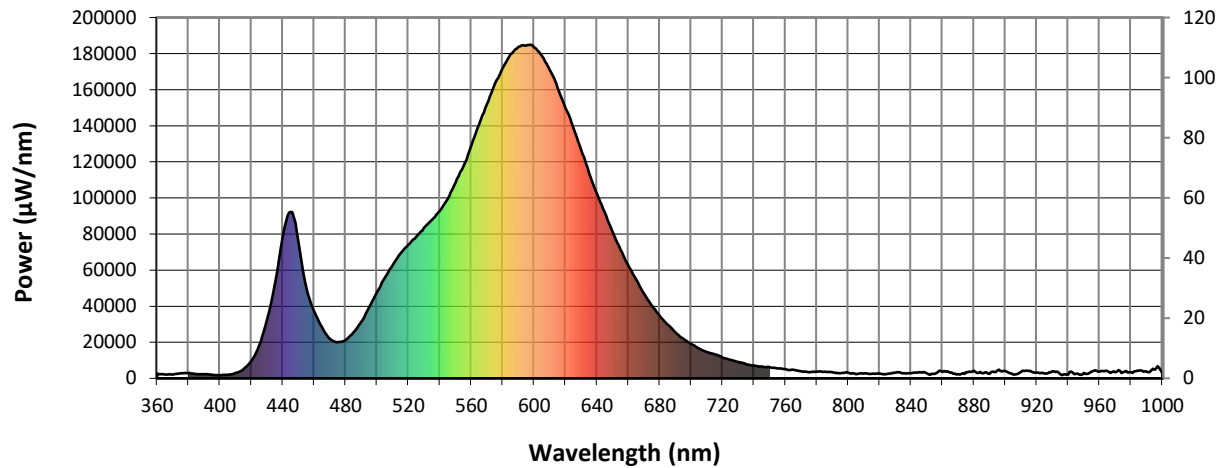
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 3000K 4-step quadrangle

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### Photopic Flux vs. Wavelength

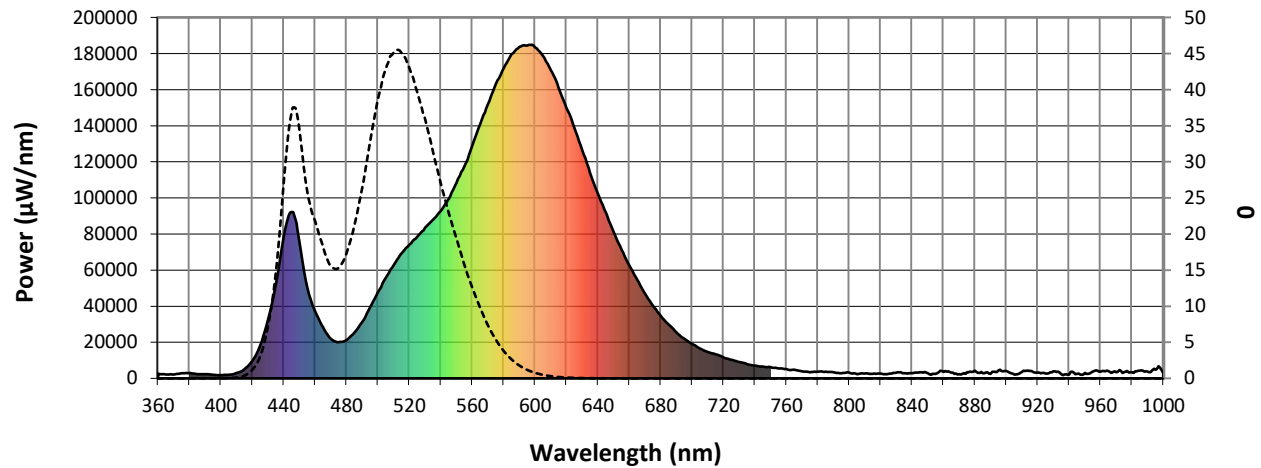


#####

| 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              |           |                  |                  |

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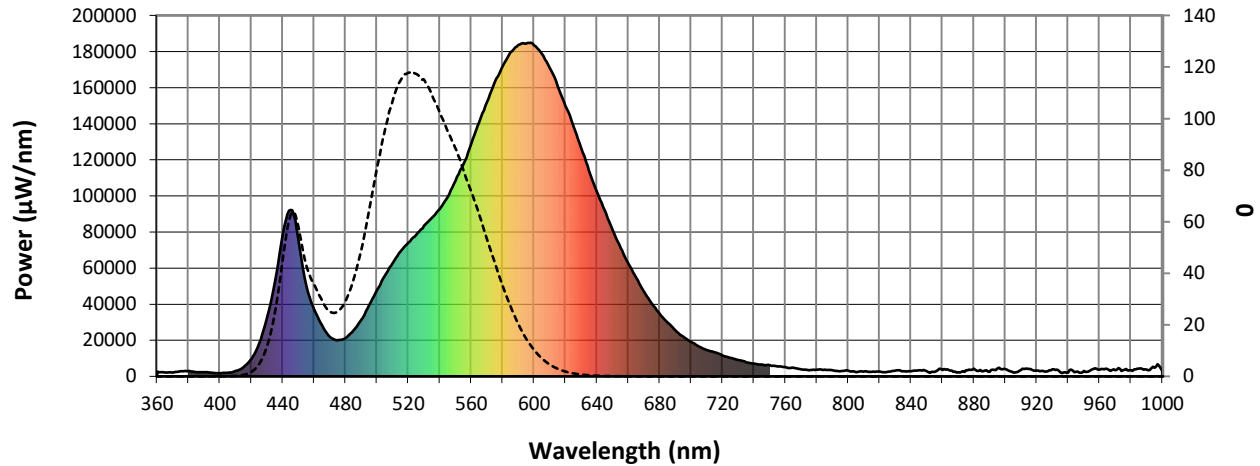
### Scotopic Flux vs. Wavelength


**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              |           |                  |                  |

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### Melanopic Flux vs. Wavelength



**Melanopic Lumens: 3860**

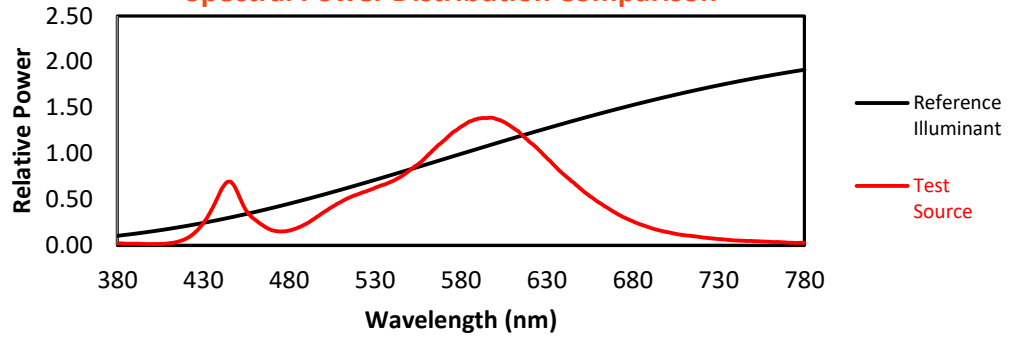
**M/P: 0.44**

| 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              |           |                  |                  |

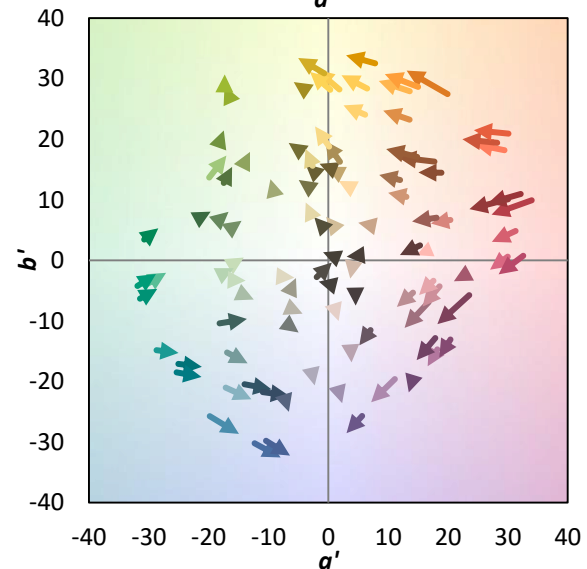
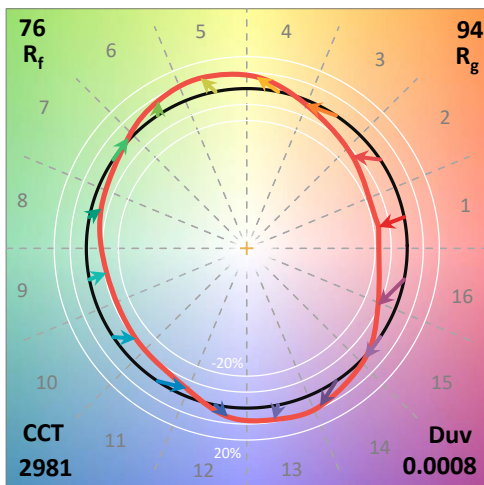
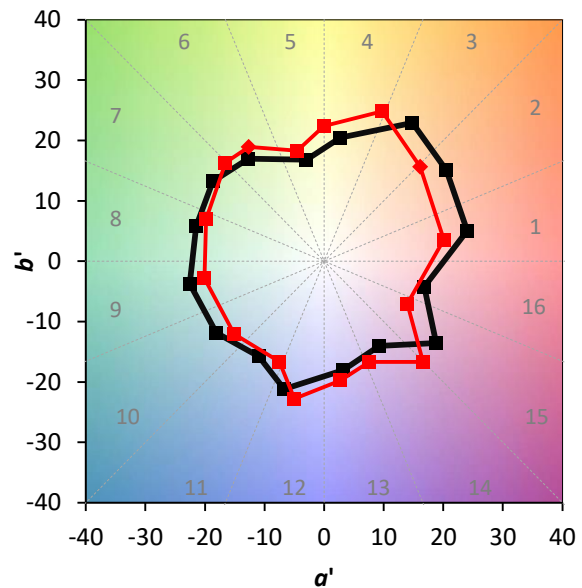
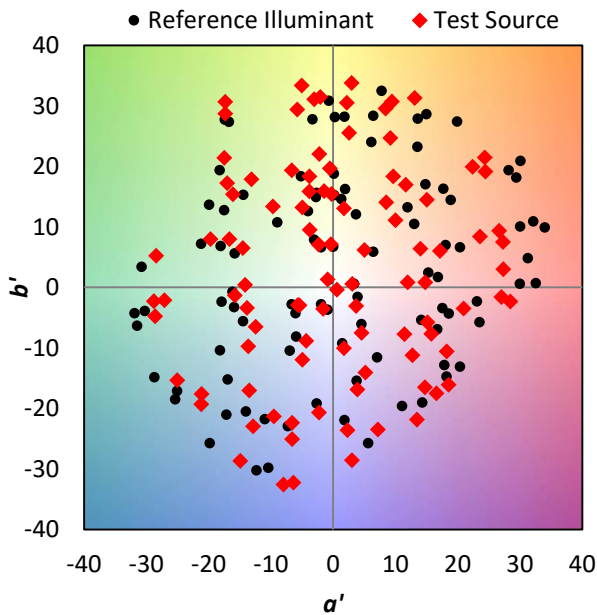
### Summary

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

### Spectral Power Distribution Comparison



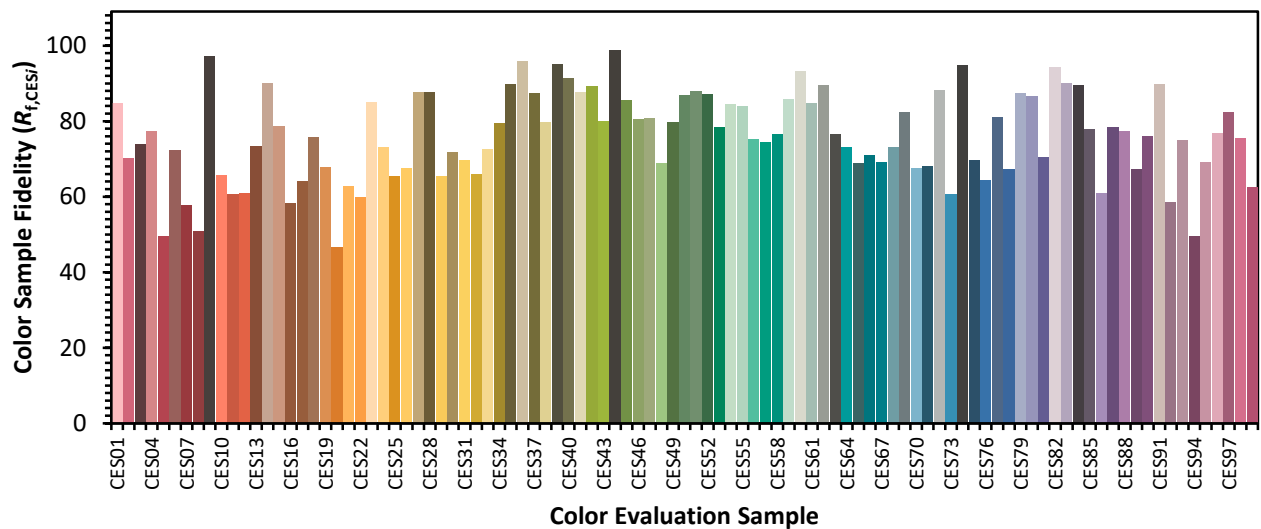
### Color Vector Graphics

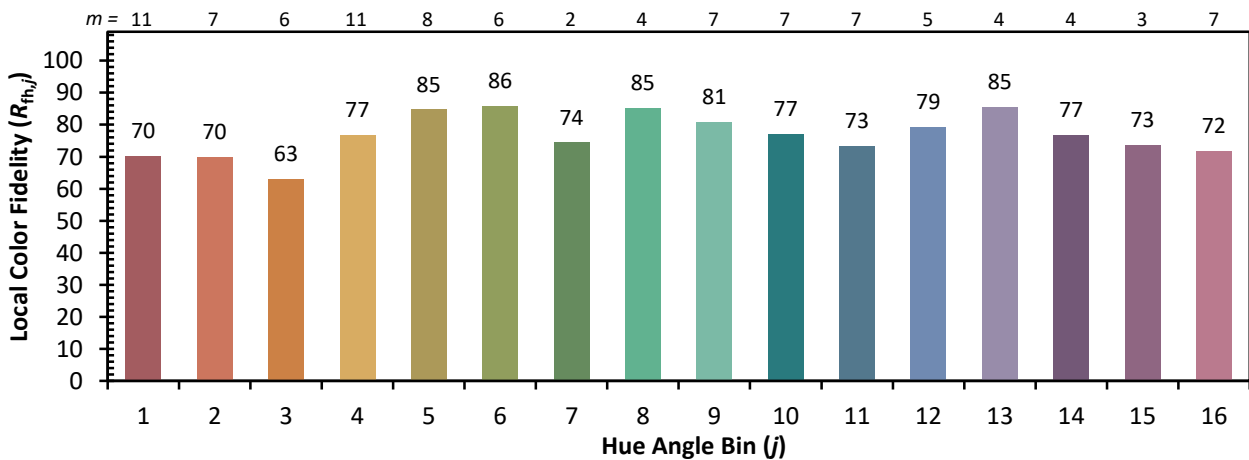
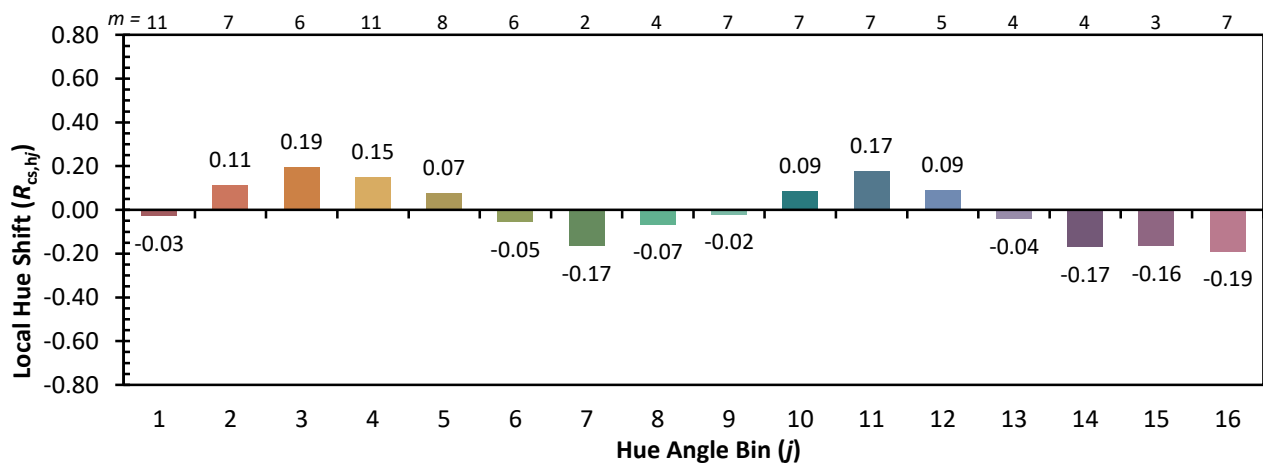
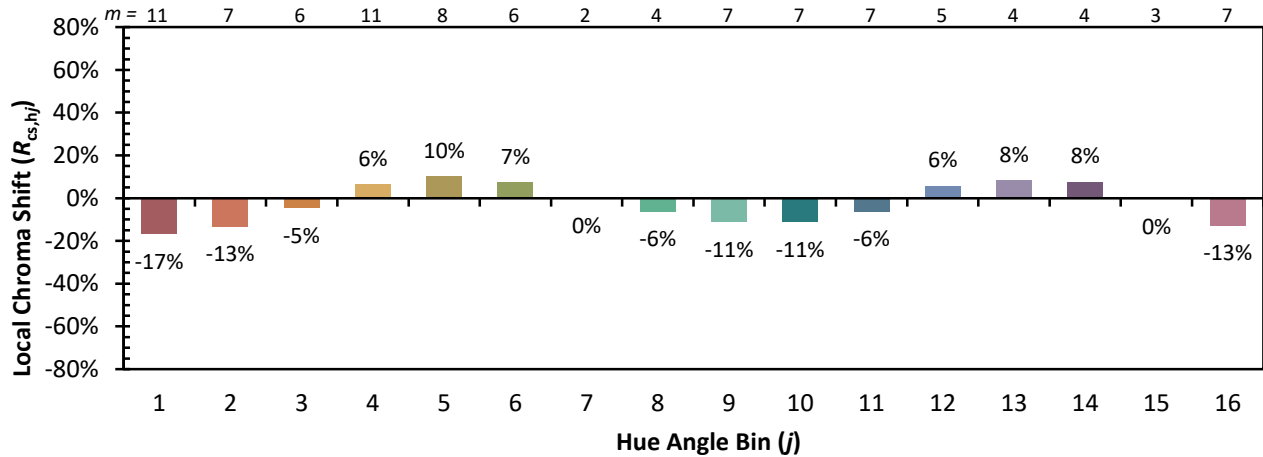




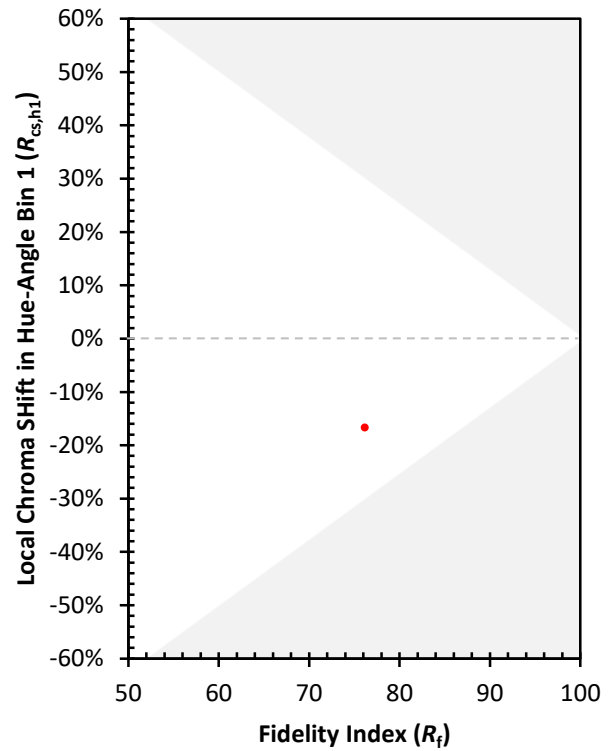
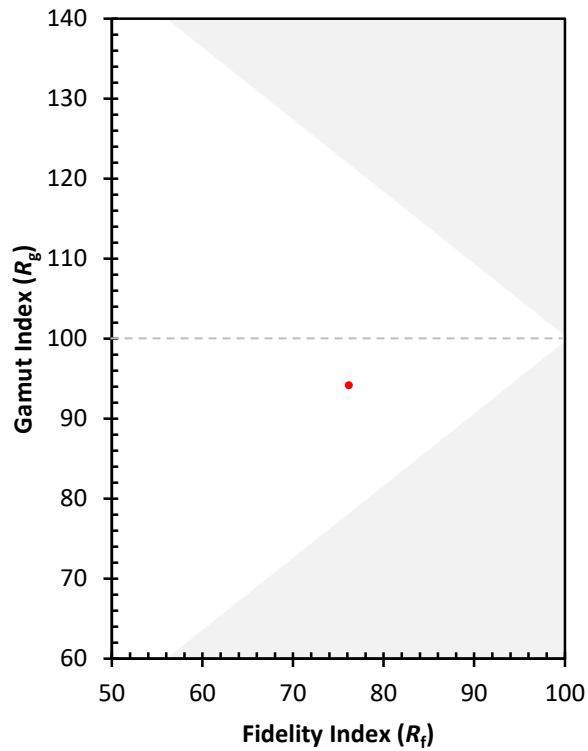
Individual Sample Fidelity Index ( $R_{f,i}$ )

|            |            |            |            |
|------------|------------|------------|------------|
| 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)