

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: P1386441

Luminaire Tested: **VAL-T-SB1C-727-U-T2R**

Issue Date: 02/18/2026

This test was performed under the Supervised Manufacturer's Testing Program. The results of this test have not been  
influenced by sources from within Cooper Lighting Solutions or from external interests.

**Test Information**

Test Method: LM-79-08  
 Report Number: P1386441  
 Test Lab: INNOVATION CENTER(G1)  
 Issue Date: 02/18/2026  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: STREETWORKS  
 Catalog Number: VAL-T-SB1C-727-U-T2R  
 Description: GALLEON II WALL SLIM HIGH DENSITY LED ARRAYS 15 SQUARE 52W 70CRI  
 2700K FIXTURE w/ TYPE II ROADWAY DISTRIBUTION OPTIC  
 Light Source: (26) 2700K CCT, 70 CRI LEDS  
 Ballast/Driver: ELECTRONIC DRIVER  
 Luminaire Equipment:

| <u>Sample No.</u> | <u>Condition</u> | <u>Description</u> |
|-------------------|------------------|--------------------|
| a                 | good             | reflector          |
| b                 | good             | lens               |
| c                 | good             | housing            |
| d                 | good             | cord               |

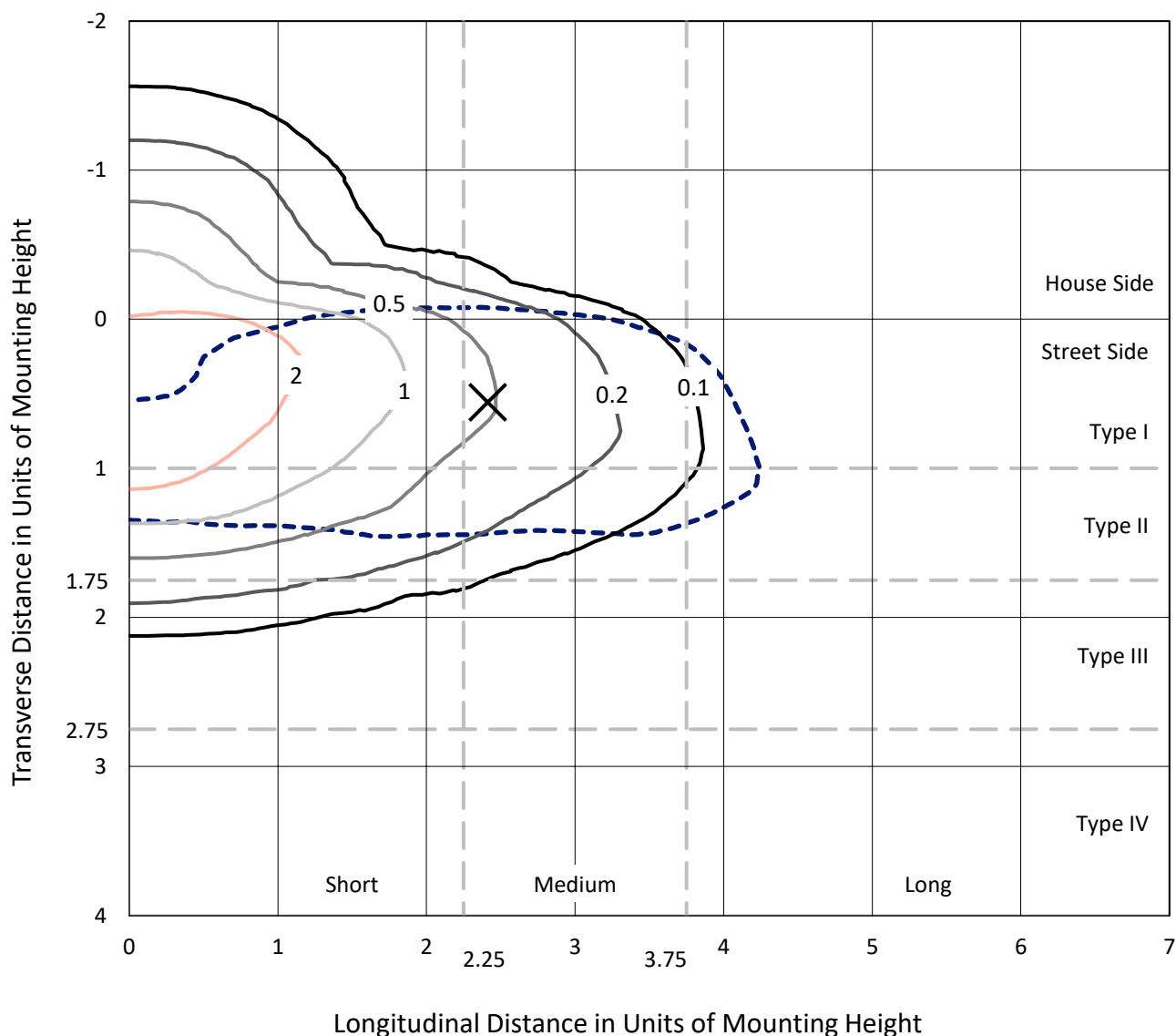
**Summary**

Lumens per Lamp: N/A  
 Luminaire Lumens: 6303.7 lumens  
 Efficiency: N/A  
 Efficacy: 121.2 lumens/watt  
 Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')  
 IES Classification: Type II - Medium  
 BUG Rating: B1 - U0 - G1  
  
 Input Watts (W): 52  
 Input Voltage (V): 120  
 Input Current (A<sub>in</sub>): NR  
 Voltage Rise (V): NR  
 Power Factor: 0.98  
 Total Harmonic Distortion (THDi): 10.1%  
 Frequency (hertz): 60  
 Stabilization Time: NR  
 Operation Time: NR  
 Ambient Temperature (°C): NR  
 Test Distance: 28.75 FT

REPORT NUMBER: P1386441  
 CATALOG NUMBER: VAL-T-SB1C-727-U-T2R

## Iso-Footcandle Lines of Horizontal Illumination

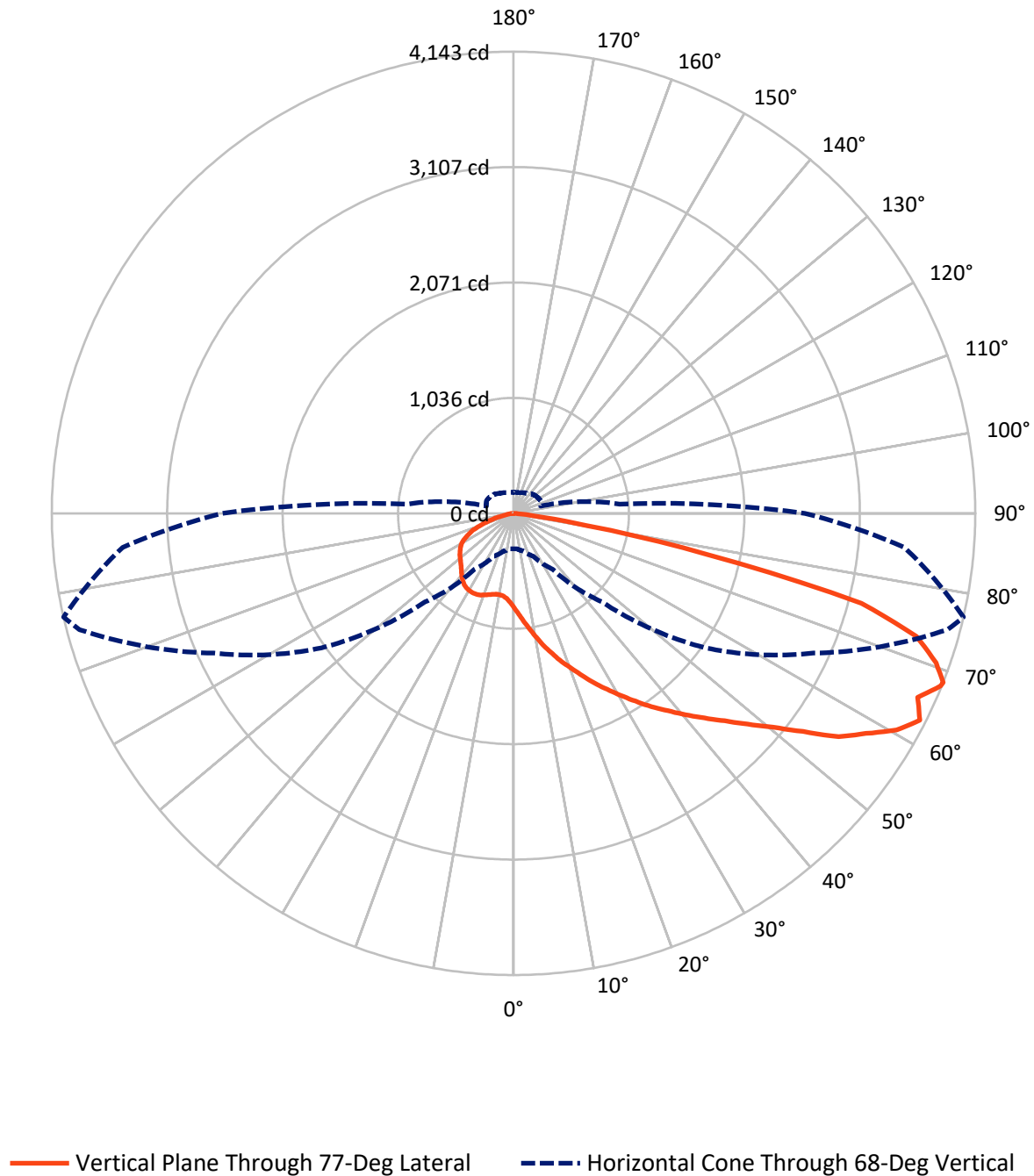
× Max cd  
 --- 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 3.7 fc  
 Type II - Medium - N/A

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## Luminous Intensity Polar Plot



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CATALOG NUMBER: VAL-T-SB1C-727-U-T2R

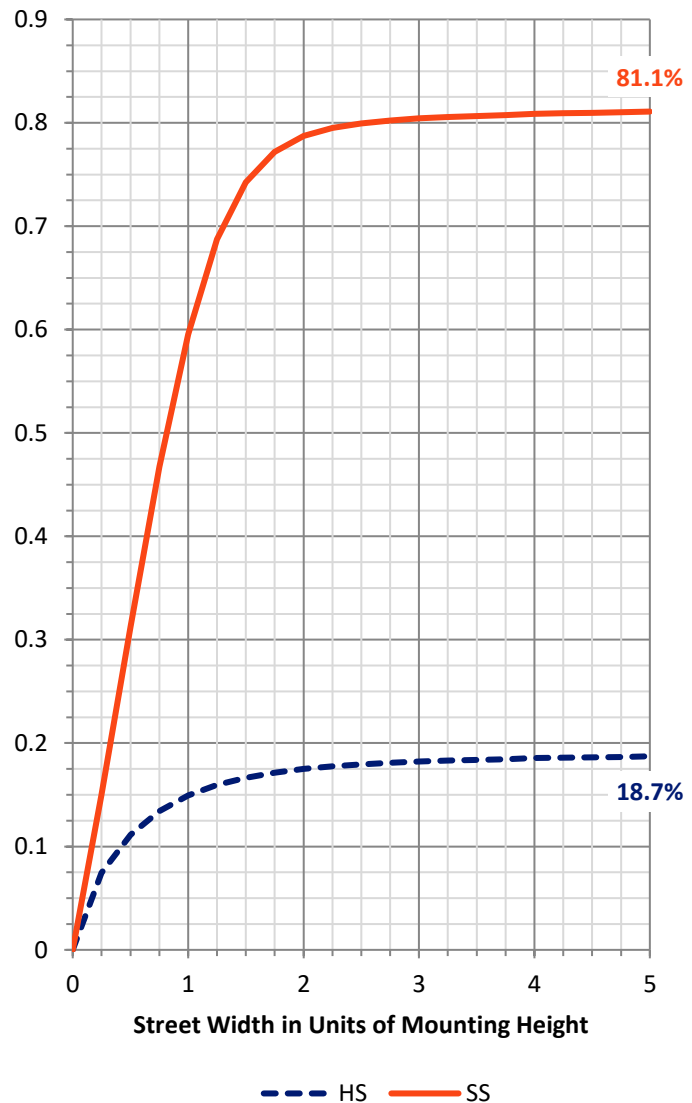
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 1189.9   | 0.0    | 1189.9 |
|                    | % Fixture | 18.9     | 0.0    | 18.9   |
| <b>Street Side</b> | Lumens    | 5113.7   | 0.0    | 5113.7 |
|                    | % Fixture | 81.1     | 0.0    | 81.1   |
| <b>Total</b>       | Lumens    | 6303.7   | 0.0    | 6303.7 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 87.0   | 1.4       |
| 10°-20°   | 305.5  | 4.8       |
| 20°-30°   | 558.5  | 8.9       |
| 30°-40°   | 905.0  | 14.4      |
| 40°-50°   | 1244.7 | 19.7      |
| 50°-60°   | 1395.6 | 22.1      |
| 60°-70°   | 1176.2 | 18.7      |
| 70°-80°   | 583.0  | 9.2       |
| 80°-90°   | 48.1   | 0.8       |
| 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°    | 6303.7 | 100.0     |
| 0°-180°   | 6303.7 | 100.0     |

**Coefficient of Utilization**



REPORT NUMBER: P1386441

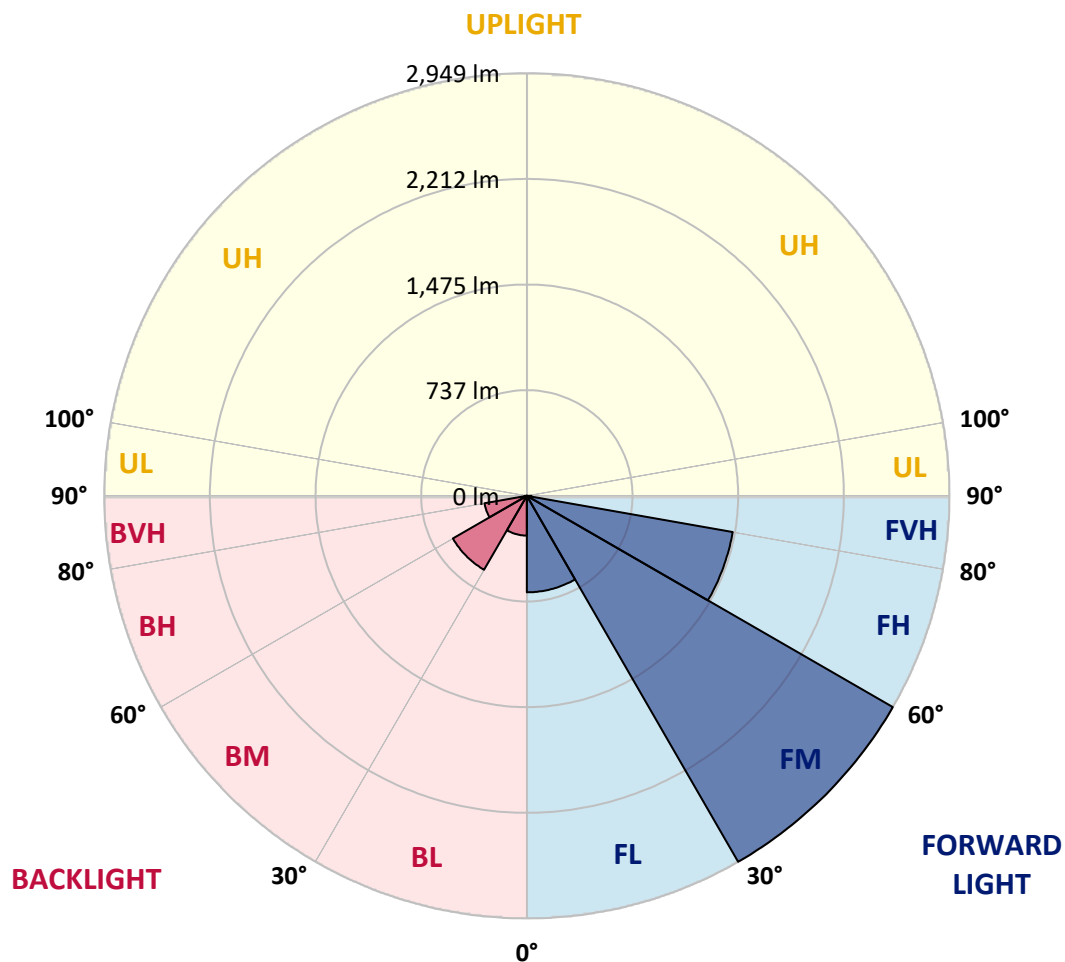
CATALOG NUMBER: VAL-T-SB1C-727-U-T2R

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 673.6  | 10.7      |                         |      |         |
| FM   | (30°-60°)   | 2949.4 | 46.8      |                         |      |         |
| FH   | (60°-80°)   | 1459.0 | 23.1      |                         |      | G1/1800 |
| FVH  | (80°-90°)   | 31.6   | 0.5       |                         |      | G1/100  |
| BL   | (0°-30°)    | 277.4  | 4.4       | B1/500                  |      |         |
| BM   | (30°-60°)   | 595.8  | 9.5       | B1/1000                 |      |         |
| BH   | (60°-80°)   | 300.2  | 4.8       | B1/500                  |      | G1/500  |
| BVH  | (80°-90°)   | 16.5   | 0.3       |                         |      | G1/100  |
| 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 Medium





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 65°    | 75°    | 77°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 848.1  | 848.1  | 848.1  | 848.1  | 848.1  | 848.1  | 848.1  | 848.1  | 848.1  | 848.1  | 848.1  |
| 2.5°  | 1057.9 | 1052.1 | 1047.7 | 1033.1 | 1024.4 | 1001.1 | 982.1  | 950.1  | 909.3  | 906.3  | 874.3  |
| 5°    | 1219.6 | 1212.4 | 1206.5 | 1186.1 | 1177.4 | 1136.6 | 1100.2 | 1043.3 | 985.0  | 974.8  | 910.7  |
| 7.5°  | 1350.8 | 1342.0 | 1336.2 | 1317.3 | 1299.8 | 1267.7 | 1221.1 | 1152.6 | 1068.1 | 1049.2 | 964.6  |
| 10°   | 1442.6 | 1442.6 | 1441.1 | 1429.5 | 1419.3 | 1388.7 | 1334.8 | 1254.6 | 1154.1 | 1132.2 | 1021.5 |
| 12.5° | 1514.0 | 1509.6 | 1515.4 | 1522.7 | 1524.2 | 1506.7 | 1457.2 | 1366.8 | 1245.9 | 1224.0 | 1081.2 |
| 15°   | 1519.8 | 1521.3 | 1543.1 | 1572.3 | 1608.7 | 1614.5 | 1573.7 | 1479.0 | 1334.8 | 1305.6 | 1151.2 |
| 17.5° | 1490.7 | 1498.0 | 1528.6 | 1576.6 | 1646.6 | 1688.8 | 1680.1 | 1595.6 | 1430.9 | 1400.3 | 1215.3 |
| 20°   | 1481.9 | 1490.7 | 1521.3 | 1581.0 | 1664.1 | 1734.0 | 1760.2 | 1699.0 | 1527.1 | 1484.8 | 1285.2 |
| 22.5° | 1534.4 | 1537.3 | 1559.2 | 1608.7 | 1688.8 | 1769.0 | 1827.3 | 1798.1 | 1629.1 | 1582.5 | 1365.4 |
| 25°   | 1677.2 | 1674.3 | 1672.8 | 1684.5 | 1744.2 | 1814.2 | 1885.6 | 1891.4 | 1735.5 | 1688.8 | 1441.1 |
| 27.5° | 1914.7 | 1926.4 | 1892.8 | 1828.7 | 1834.6 | 1888.5 | 1943.8 | 1974.4 | 1838.9 | 1787.9 | 1516.9 |
| 30°   | 2210.5 | 2209.0 | 2149.3 | 2045.8 | 1967.2 | 1986.1 | 2016.7 | 2053.1 | 1942.4 | 1895.8 | 1601.4 |
| 32.5° | 2462.6 | 2456.8 | 2392.6 | 2273.2 | 2149.3 | 2108.5 | 2120.2 | 2127.4 | 2061.9 | 2009.4 | 1687.4 |
| 35°   | 2624.3 | 2625.8 | 2564.6 | 2461.1 | 2322.7 | 2255.7 | 2226.5 | 2209.0 | 2181.4 | 2130.4 | 1789.4 |
| 37.5° | 2786.1 | 2777.3 | 2700.1 | 2577.7 | 2462.6 | 2407.2 | 2373.7 | 2299.4 | 2292.1 | 2246.9 | 1879.7 |
| 40°   | 2907.0 | 2898.3 | 2819.6 | 2679.7 | 2574.8 | 2529.6 | 2516.5 | 2404.3 | 2416.0 | 2376.6 | 1980.3 |
| 42.5° | 2962.4 | 2963.9 | 2892.4 | 2765.7 | 2657.8 | 2636.0 | 2662.2 | 2525.2 | 2547.1 | 2510.7 | 2089.6 |
| 45°   | 2963.9 | 2956.6 | 2907.0 | 2806.5 | 2724.9 | 2707.4 | 2778.8 | 2662.2 | 2689.9 | 2656.4 | 2216.3 |
| 47.5° | 2883.7 | 2883.7 | 2863.3 | 2803.6 | 2759.8 | 2761.3 | 2876.4 | 2800.6 | 2850.2 | 2825.4 | 2363.5 |
| 50°   | 2708.8 | 2723.4 | 2732.2 | 2743.8 | 2742.4 | 2799.2 | 2955.1 | 2944.9 | 3022.1 | 3014.9 | 2528.2 |
| 52.5° | 2175.5 | 2236.7 | 2456.8 | 2598.1 | 2688.4 | 2794.8 | 3041.1 | 3093.5 | 3239.3 | 3252.4 | 2765.7 |
| 55°   | 1735.5 | 1750.0 | 1935.1 | 2299.4 | 2567.5 | 2758.4 | 3071.7 | 3261.1 | 3517.6 | 3538.0 | 2982.8 |
| 57.5° | 1409.1 | 1444.0 | 1556.2 | 1904.5 | 2303.8 | 2676.8 | 3092.1 | 3351.5 | 3693.9 | 3727.4 | 3162.0 |
| 60°   | 1041.9 | 1062.3 | 1170.1 | 1458.6 | 1929.3 | 2485.9 | 3103.7 | 3434.5 | 3899.3 | 3947.4 | 3395.2 |
| 62.5° | 766.5  | 767.9  | 836.4  | 1018.6 | 1522.7 | 2172.6 | 3013.4 | 3501.5 | 4034.9 | 4090.2 | 3469.5 |
| 65°   | 495.4  | 501.3  | 569.7  | 727.1  | 1028.8 | 1780.6 | 2805.0 | 3239.3 | 3902.3 | 3983.9 | 3424.3 |
| 67.5° | 333.7  | 343.9  | 384.7  | 463.4  | 689.2  | 1270.6 | 2188.6 | 2998.8 | 4024.7 | 4132.5 | 3533.6 |
| 68°   | 317.7  | 319.1  | 351.2  | 426.9  | 613.5  | 1124.9 | 2104.1 | 2968.2 | 4030.5 | 4142.7 | 3520.5 |
| 70°   | 252.1  | 255.0  | 275.4  | 316.2  | 416.7  | 689.2  | 1699.0 | 2711.8 | 3922.7 | 4021.7 | 3329.6 |
| 72.5° | 192.3  | 196.7  | 209.8  | 225.9  | 271.0  | 422.6  | 993.8  | 2209.0 | 3638.5 | 3779.9 | 3014.9 |
| 75°   | 163.2  | 164.7  | 174.9  | 180.7  | 177.8  | 256.5  | 558.1  | 1728.2 | 3095.0 | 3224.7 | 2475.7 |
| 77.5° | 128.2  | 132.6  | 147.2  | 150.1  | 135.5  | 177.8  | 292.9  | 986.5  | 1817.1 | 1774.8 | 1192.0 |
| 80°   | 91.8   | 94.7   | 106.4  | 100.5  | 106.4  | 122.4  | 138.4  | 354.1  | 756.3  | 660.1  | 279.8  |
| 82.5° | 32.1   | 36.4   | 72.9   | 69.9   | 69.9   | 55.4   | 62.7   | 154.5  | 196.7  | 171.9  | 69.9   |
| 85°   | 5.8    | 7.3    | 20.4   | 29.1   | 26.2   | 20.4   | 26.2   | 48.1   | 39.3   | 33.5   | 20.4   |
| 87.5° | 1.5    | 1.5    | 2.9    | 2.9    | 2.9    | 4.4    | 7.3    | 10.2   | 11.7   | 11.7   | 11.7   |
| 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: VAL-T-SB1C-727-U-T2R

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 848.1  | 848.1  | 848.1 | 848.1 | 848.1 | 848.1 | 848.1 | 848.1 | 848.1 | 848.1 | 848.1 |
| 2.5°  | 856.8  | 834.9  | 792.7 | 754.8 | 724.2 | 695.1 | 671.7 | 655.7 | 644.1 | 638.2 | 638.2 |
| 5°    | 875.7  | 829.1  | 751.9 | 683.4 | 630.9 | 596.0 | 574.1 | 561.0 | 559.5 | 558.1 | 558.1 |
| 7.5°  | 904.9  | 839.3  | 724.2 | 638.2 | 593.1 | 574.1 | 568.3 | 566.8 | 566.8 | 569.7 | 569.7 |
| 10°   | 944.2  | 856.8  | 712.5 | 622.2 | 597.4 | 591.6 | 588.7 | 593.1 | 594.5 | 596.0 | 597.4 |
| 12.5° | 990.9  | 878.7  | 706.7 | 629.5 | 614.9 | 612.0 | 613.5 | 612.0 | 616.4 | 619.3 | 617.8 |
| 15°   | 1036.0 | 906.3  | 712.5 | 644.1 | 632.4 | 630.9 | 626.6 | 629.5 | 628.0 | 626.6 | 626.6 |
| 17.5° | 1087.0 | 938.4  | 718.4 | 655.7 | 644.1 | 638.2 | 632.4 | 629.5 | 623.7 | 622.2 | 620.7 |
| 20°   | 1142.4 | 970.5  | 728.6 | 665.9 | 647.0 | 633.9 | 623.7 | 612.0 | 603.3 | 598.9 | 598.9 |
| 22.5° | 1199.2 | 1004.0 | 737.3 | 667.4 | 641.1 | 617.8 | 600.3 | 585.8 | 572.7 | 563.9 | 559.5 |
| 25°   | 1257.5 | 1037.5 | 740.2 | 661.5 | 623.7 | 596.0 | 572.7 | 555.2 | 537.7 | 528.9 | 526.0 |
| 27.5° | 1317.3 | 1066.6 | 735.9 | 647.0 | 600.3 | 569.7 | 543.5 | 524.6 | 510.0 | 499.8 | 499.8 |
| 30°   | 1375.6 | 1094.3 | 724.2 | 626.6 | 575.6 | 545.0 | 518.7 | 501.3 | 488.1 | 479.4 | 477.9 |
| 32.5° | 1442.6 | 1122.0 | 709.6 | 600.3 | 550.8 | 523.1 | 496.9 | 480.9 | 469.2 | 464.8 | 466.3 |
| 35°   | 1509.6 | 1146.8 | 686.3 | 575.6 | 524.6 | 501.3 | 476.5 | 463.4 | 459.0 | 456.1 | 454.6 |
| 37.5° | 1575.2 | 1164.3 | 655.7 | 545.0 | 502.7 | 475.0 | 463.4 | 450.3 | 438.6 | 424.0 | 422.6 |
| 40°   | 1642.2 | 1178.8 | 616.4 | 514.4 | 477.9 | 456.1 | 450.3 | 432.8 | 405.1 | 380.3 | 380.3 |
| 42.5° | 1719.4 | 1193.4 | 574.1 | 485.2 | 447.3 | 437.1 | 435.7 | 408.0 | 367.2 | 349.7 | 348.3 |
| 45°   | 1811.2 | 1203.6 | 536.2 | 457.5 | 415.3 | 410.9 | 422.6 | 386.1 | 352.6 | 338.1 | 339.5 |
| 47.5° | 1917.6 | 1226.9 | 502.7 | 426.9 | 384.7 | 392.0 | 393.4 | 365.7 | 339.5 | 322.0 | 322.0 |
| 50°   | 2054.6 | 1267.7 | 467.7 | 387.6 | 362.8 | 378.9 | 365.7 | 345.3 | 317.7 | 307.5 | 306.0 |
| 52.5° | 2236.7 | 1301.2 | 438.6 | 355.5 | 348.3 | 364.3 | 346.8 | 324.9 | 301.6 | 287.1 | 285.6 |
| 55°   | 2375.2 | 1302.7 | 410.9 | 330.8 | 338.1 | 335.1 | 327.9 | 304.5 | 287.1 | 269.6 | 269.6 |
| 57.5° | 2523.8 | 1294.0 | 386.1 | 316.2 | 327.9 | 314.7 | 308.9 | 284.1 | 266.7 | 253.5 | 250.6 |
| 60°   | 2684.1 | 1277.9 | 359.9 | 306.0 | 319.1 | 300.2 | 287.1 | 266.7 | 252.1 | 241.9 | 241.9 |
| 62.5° | 2711.8 | 1200.7 | 327.9 | 303.1 | 308.9 | 285.6 | 265.2 | 249.2 | 234.6 | 228.8 | 228.8 |
| 65°   | 2660.8 | 1119.1 | 291.4 | 288.5 | 292.9 | 268.1 | 244.8 | 230.2 | 218.6 | 212.7 | 211.3 |
| 67.5° | 2662.2 | 986.5  | 262.3 | 271.0 | 263.7 | 247.7 | 224.4 | 211.3 | 196.7 | 192.3 | 192.3 |
| 68°   | 2615.6 | 954.4  | 252.1 | 268.1 | 257.9 | 241.9 | 218.6 | 204.0 | 190.9 | 189.4 | 189.4 |
| 70°   | 2397.0 | 773.7  | 215.7 | 247.7 | 240.4 | 221.5 | 192.3 | 185.1 | 176.3 | 174.9 | 176.3 |
| 72.5° | 2093.9 | 571.2  | 173.4 | 208.4 | 214.2 | 171.9 | 169.0 | 166.1 | 155.9 | 155.9 | 154.5 |
| 75°   | 1637.8 | 416.7  | 131.1 | 164.7 | 158.8 | 157.4 | 144.3 | 142.8 | 134.1 | 132.6 | 129.7 |
| 77.5° | 743.1  | 212.7  | 88.9  | 109.3 | 126.8 | 139.9 | 120.9 | 116.6 | 110.7 | 110.7 | 109.3 |
| 80°   | 208.4  | 109.3  | 59.7  | 62.7  | 77.2  | 113.7 | 94.7  | 86.0  | 90.3  | 87.4  | 75.8  |
| 82.5° | 64.1   | 45.2   | 36.4  | 39.3  | 36.4  | 65.6  | 69.9  | 53.9  | 48.1  | 51.0  | 53.9  |
| 85°   | 21.9   | 20.4   | 17.5  | 18.9  | 16.0  | 26.2  | 30.6  | 20.4  | 21.9  | 21.9  | 18.9  |
| 87.5° | 11.7   | 11.7   | 8.7   | 7.3   | 5.8   | 4.4   | 2.9   | 2.9   | 1.5   | 1.5   | 1.5   |
| 90°   | 0.0    | 0.0    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |



LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-3

Test Date: 10/09/2024

Luminaire Tested: GSS-SB1A-727-U-5WQ

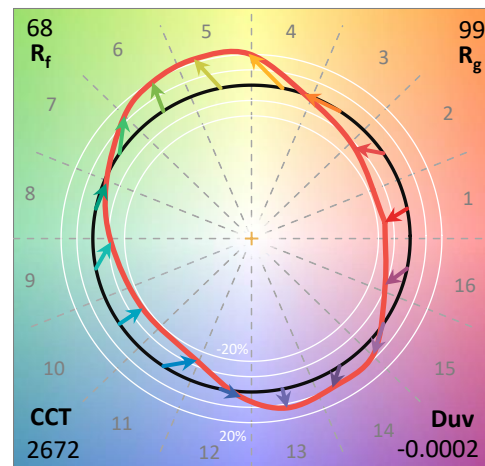
Data in this report applies to families of products including GSS-SB1A-727-U-5WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-3  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 10/15/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: McGraw-Edison  
 Catalog Number: **GSS-SB1A-727-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI  
 2700K CCT 26 LEDS

### Spectral Parameters

|                           |          |           |      |      |       |
|---------------------------|----------|-----------|------|------|-------|
| CCT (K):                  | 2672     | CRI (Ra): | 71.1 |      |       |
| CIE u':                   | 0.2638   | R1:       | 68.3 | R9:  | -27.8 |
| CIE v':                   | 0.5276   | R2:       | 79.8 | R10: | 54.4  |
| Duv:                      | -0.0002  | R3:       | 91.2 | R11: | 65.8  |
| CIE x:                    | 0.4619   | R4:       | 69.4 | R12: | 45.6  |
| CIE y:                    | 0.4106   | R5:       | 66.5 | R13: | 69.8  |
| CIE z:                    | 0.1275   | R6:       | 72.6 | R14: | 94.5  |
| Peak Wavelength (nm):     | 601      | R7:       | 77.0 | R15: | 60.1  |
| Dominant Wavelength (nm): | 584      | R8:       | 44.1 |      |       |
| Purity:                   | 61.88407 |           |      |      |       |
| Rf:                       | 67.9     |           |      |      |       |
| Rg:                       | 98.6     |           |      |      |       |



### Test Conditions

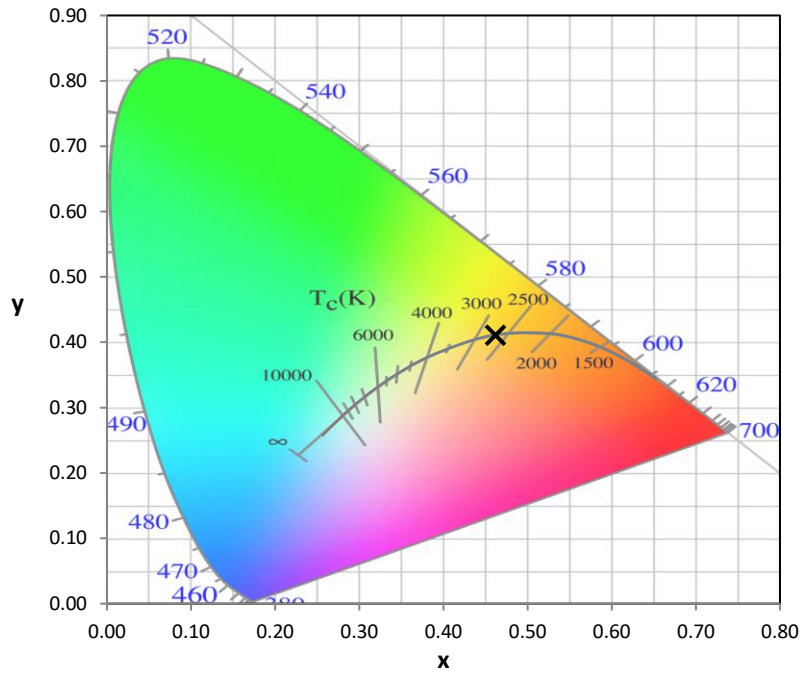
Stabilization Time: 21M  
 Operation Time: 1H 21M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-3

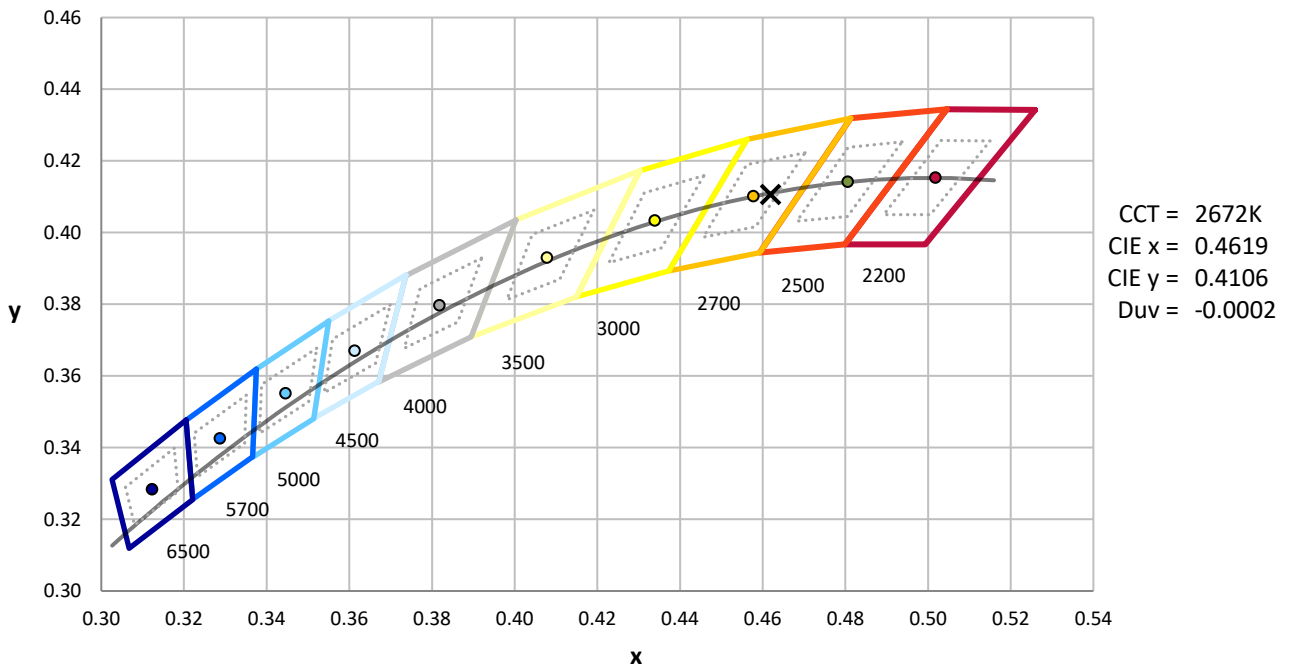
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | IN0058                | 6/18/2024        | 12/18/2024           |
| Power Meter                    | INXT2011004           | 2/8/2024         | 2/8/2025             |
| AC Power Source                | IN0063                | 10/24/2023       | 10/24/2024           |
| DC Power Source                | IN0208                | 10/24/2023       | 10/24/2024           |
| Sphere Thermometer             | IN0085                | 10/24/2023       | 10/24/2024           |
| Room Thermometer               | IN0046                | 10/24/2023       | 10/24/2024           |

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**CIE 1931 Chromaticity Diagram**



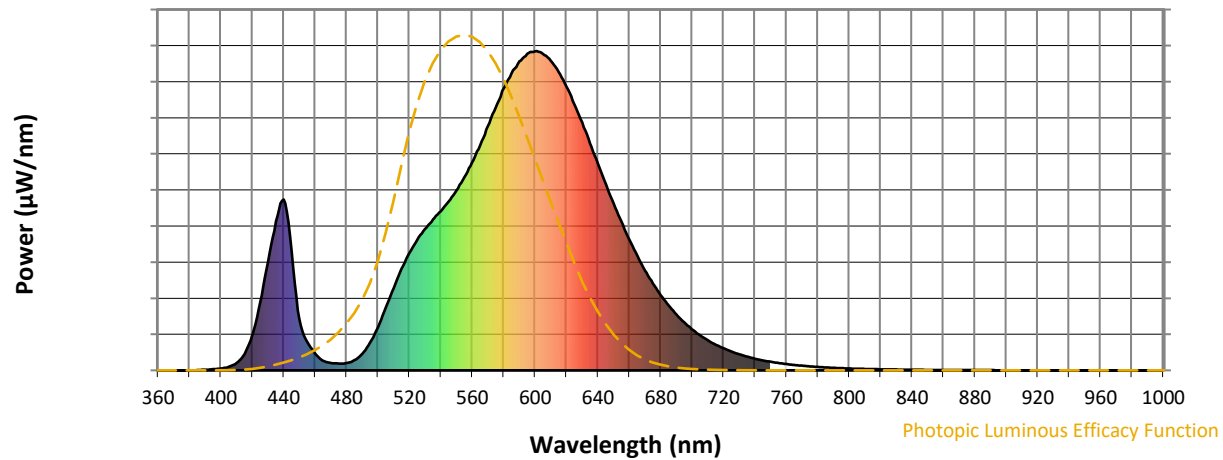
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 2700K 4-step quadrangle

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### Photopic Flux vs. Wavelength

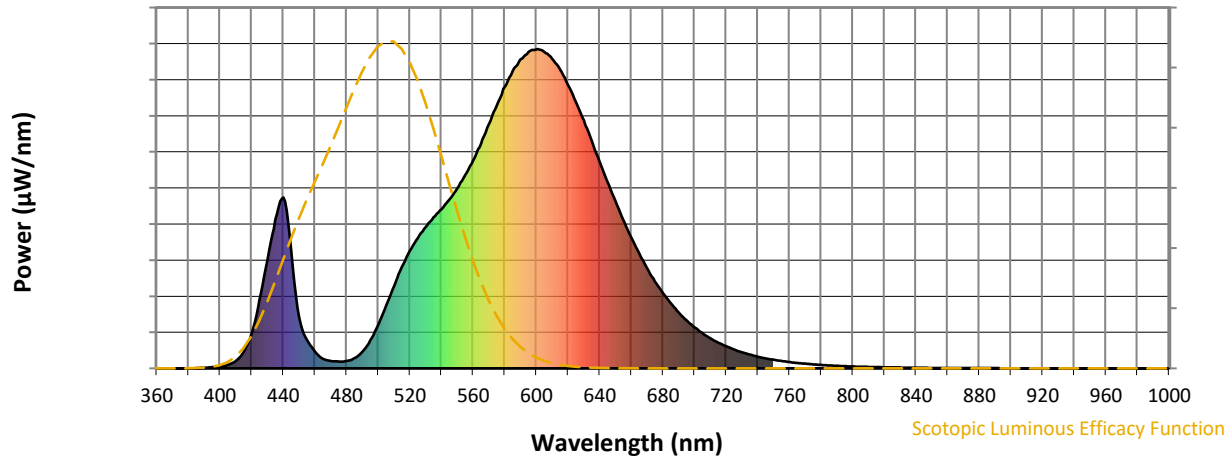


### Photopic Lumens: NR

| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360               | 0                                    | NR                             | 490               | 52                                   | NR                             | 620               | 888                                  | NR                             | 750               | 27                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 87                                   | NR                             | 625               | 834                                  | NR                             | 755               | 23                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 135                                  | NR                             | 630               | 776                                  | NR                             | 760               | 20                                   | NR                             | 890               | 1                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 196                                  | NR                             | 635               | 712                                  | NR                             | 765               | 17                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 258                                  | NR                             | 640               | 648                                  | NR                             | 770               | 15                                   | NR                             | 900               | 0                                    | NR                             |
| 385               | 1                                    | NR                             | 515               | 317                                  | NR                             | 645               | 583                                  | NR                             | 775               | 12                                   | NR                             | 905               | 0                                    | NR                             |
| 390               | 2                                    | NR                             | 520               | 368                                  | NR                             | 650               | 523                                  | NR                             | 780               | 11                                   | NR                             | 910               | 0                                    | NR                             |
| 395               | 4                                    | NR                             | 525               | 408                                  | NR                             | 655               | 465                                  | NR                             | 785               | 9                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 6                                    | NR                             | 530               | 443                                  | NR                             | 660               | 410                                  | NR                             | 790               | 8                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 11                                   | NR                             | 535               | 473                                  | NR                             | 665               | 360                                  | NR                             | 795               | 7                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 23                                   | NR                             | 540               | 498                                  | NR                             | 670               | 313                                  | NR                             | 800               | 6                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 51                                   | NR                             | 545               | 530                                  | NR                             | 675               | 272                                  | NR                             | 805               | 5                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 111                                  | NR                             | 550               | 563                                  | NR                             | 680               | 236                                  | NR                             | 810               | 4                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 214                                  | NR                             | 555               | 605                                  | NR                             | 685               | 203                                  | NR                             | 815               | 4                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 339                                  | NR                             | 560               | 651                                  | NR                             | 690               | 175                                  | NR                             | 820               | 3                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 467                                  | NR                             | 565               | 705                                  | NR                             | 695               | 150                                  | NR                             | 825               | 3                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 535                                  | NR                             | 570               | 765                                  | NR                             | 700               | 128                                  | NR                             | 830               | 3                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 372                                  | NR                             | 575               | 824                                  | NR                             | 705               | 110                                  | NR                             | 835               | 2                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 160                                  | NR                             | 580               | 882                                  | NR                             | 710               | 94                                   | NR                             | 840               | 2                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 89                                   | NR                             | 585               | 930                                  | NR                             | 715               | 80                                   | NR                             | 845               | 2                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 53                                   | NR                             | 590               | 968                                  | NR                             | 720               | 69                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 31                                   | NR                             | 595               | 991                                  | NR                             | 725               | 59                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 23                                   | NR                             | 600               | 999                                  | NR                             | 730               | 50                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 21                                   | NR                             | 605               | 992                                  | NR                             | 735               | 43                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 23                                   | NR                             | 610               | 969                                  | NR                             | 740               | 36                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 32                                   | NR                             | 615               | 935                                  | NR                             | 745               | 31                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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### Scotopic Flux vs. Wavelength



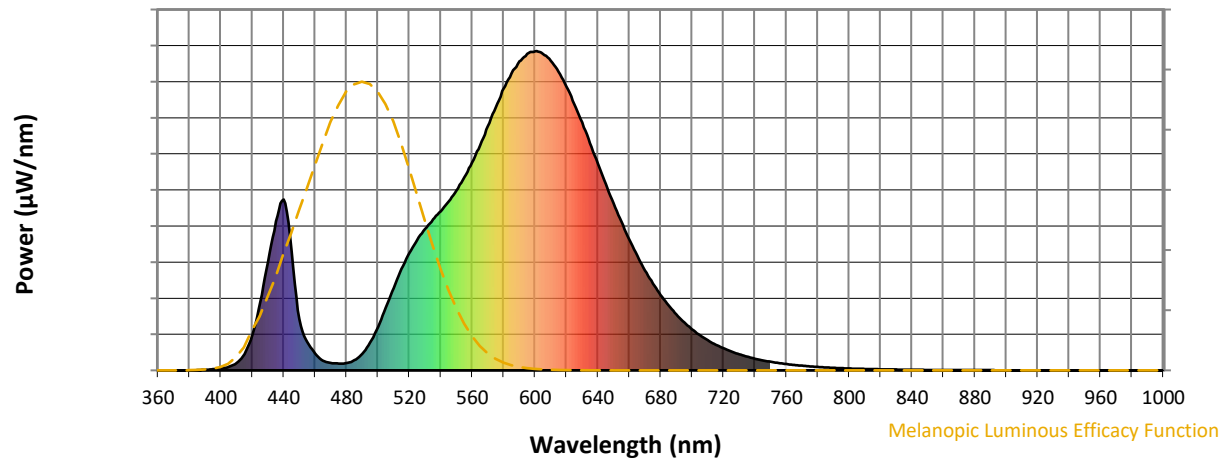
Scotopic Lumens: NR

S/P: 1.02

| λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 52                          | NR               | 620       | 888                         | NR               | 750       | 27                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 87                          | NR               | 625       | 834                         | NR               | 755       | 23                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 135                         | NR               | 630       | 776                         | NR               | 760       | 20                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 196                         | NR               | 635       | 712                         | NR               | 765       | 17                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 258                         | NR               | 640       | 648                         | NR               | 770       | 15                          | NR               | 900       | 0                           | NR               |
| 385       | 1                           | NR               | 515       | 317                         | NR               | 645       | 583                         | NR               | 775       | 12                          | NR               | 905       | 0                           | NR               |
| 390       | 2                           | NR               | 520       | 368                         | NR               | 650       | 523                         | NR               | 780       | 11                          | NR               | 910       | 0                           | NR               |
| 395       | 4                           | NR               | 525       | 408                         | NR               | 655       | 465                         | NR               | 785       | 9                           | NR               | 915       | 0                           | NR               |
| 400       | 6                           | NR               | 530       | 443                         | NR               | 660       | 410                         | NR               | 790       | 8                           | NR               | 920       | 0                           | NR               |
| 405       | 11                          | NR               | 535       | 473                         | NR               | 665       | 360                         | NR               | 795       | 7                           | NR               | 925       | 0                           | NR               |
| 410       | 23                          | NR               | 540       | 498                         | NR               | 670       | 313                         | NR               | 800       | 6                           | NR               | 930       | 0                           | NR               |
| 415       | 51                          | NR               | 545       | 530                         | NR               | 675       | 272                         | NR               | 805       | 5                           | NR               | 935       | 0                           | NR               |
| 420       | 111                         | NR               | 550       | 563                         | NR               | 680       | 236                         | NR               | 810       | 4                           | NR               | 940       | 0                           | NR               |
| 425       | 214                         | NR               | 555       | 605                         | NR               | 685       | 203                         | NR               | 815       | 4                           | NR               | 945       | 0                           | NR               |
| 430       | 339                         | NR               | 560       | 651                         | NR               | 690       | 175                         | NR               | 820       | 3                           | NR               | 950       | 0                           | NR               |
| 435       | 467                         | NR               | 565       | 705                         | NR               | 695       | 150                         | NR               | 825       | 3                           | NR               | 955       | 0                           | NR               |
| 440       | 535                         | NR               | 570       | 765                         | NR               | 700       | 128                         | NR               | 830       | 3                           | NR               | 960       | 0                           | NR               |
| 445       | 372                         | NR               | 575       | 824                         | NR               | 705       | 110                         | NR               | 835       | 2                           | NR               | 965       | 0                           | NR               |
| 450       | 160                         | NR               | 580       | 882                         | NR               | 710       | 94                          | NR               | 840       | 2                           | NR               | 970       | 0                           | NR               |
| 455       | 89                          | NR               | 585       | 930                         | NR               | 715       | 80                          | NR               | 845       | 2                           | NR               | 975       | 0                           | NR               |
| 460       | 53                          | NR               | 590       | 968                         | NR               | 720       | 69                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 31                          | NR               | 595       | 991                         | NR               | 725       | 59                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 23                          | NR               | 600       | 999                         | NR               | 730       | 50                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 21                          | NR               | 605       | 992                         | NR               | 735       | 43                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 23                          | NR               | 610       | 969                         | NR               | 740       | 36                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 32                          | NR               | 615       | 935                         | NR               | 745       | 31                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 1.71

| λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 52                          | NR               | 620       | 888                         | NR               | 750       | 27                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 87                          | NR               | 625       | 834                         | NR               | 755       | 23                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 135                         | NR               | 630       | 776                         | NR               | 760       | 20                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 196                         | NR               | 635       | 712                         | NR               | 765       | 17                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 258                         | NR               | 640       | 648                         | NR               | 770       | 15                          | NR               | 900       | 0                           | NR               |
| 385       | 1                           | NR               | 515       | 317                         | NR               | 645       | 583                         | NR               | 775       | 12                          | NR               | 905       | 0                           | NR               |
| 390       | 2                           | NR               | 520       | 368                         | NR               | 650       | 523                         | NR               | 780       | 11                          | NR               | 910       | 0                           | NR               |
| 395       | 4                           | NR               | 525       | 408                         | NR               | 655       | 465                         | NR               | 785       | 9                           | NR               | 915       | 0                           | NR               |
| 400       | 6                           | NR               | 530       | 443                         | NR               | 660       | 410                         | NR               | 790       | 8                           | NR               | 920       | 0                           | NR               |
| 405       | 11                          | NR               | 535       | 473                         | NR               | 665       | 360                         | NR               | 795       | 7                           | NR               | 925       | 0                           | NR               |
| 410       | 23                          | NR               | 540       | 498                         | NR               | 670       | 313                         | NR               | 800       | 6                           | NR               | 930       | 0                           | NR               |
| 415       | 51                          | NR               | 545       | 530                         | NR               | 675       | 272                         | NR               | 805       | 5                           | NR               | 935       | 0                           | NR               |
| 420       | 111                         | NR               | 550       | 563                         | NR               | 680       | 236                         | NR               | 810       | 4                           | NR               | 940       | 0                           | NR               |
| 425       | 214                         | NR               | 555       | 605                         | NR               | 685       | 203                         | NR               | 815       | 4                           | NR               | 945       | 0                           | NR               |
| 430       | 339                         | NR               | 560       | 651                         | NR               | 690       | 175                         | NR               | 820       | 3                           | NR               | 950       | 0                           | NR               |
| 435       | 467                         | NR               | 565       | 705                         | NR               | 695       | 150                         | NR               | 825       | 3                           | NR               | 955       | 0                           | NR               |
| 440       | 535                         | NR               | 570       | 765                         | NR               | 700       | 128                         | NR               | 830       | 3                           | NR               | 960       | 0                           | NR               |
| 445       | 372                         | NR               | 575       | 824                         | NR               | 705       | 110                         | NR               | 835       | 2                           | NR               | 965       | 0                           | NR               |
| 450       | 160                         | NR               | 580       | 882                         | NR               | 710       | 94                          | NR               | 840       | 2                           | NR               | 970       | 0                           | NR               |
| 455       | 89                          | NR               | 585       | 930                         | NR               | 715       | 80                          | NR               | 845       | 2                           | NR               | 975       | 0                           | NR               |
| 460       | 53                          | NR               | 590       | 968                         | NR               | 720       | 69                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 31                          | NR               | 595       | 991                         | NR               | 725       | 59                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 23                          | NR               | 600       | 999                         | NR               | 730       | 50                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 21                          | NR               | 605       | 992                         | NR               | 735       | 43                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 23                          | NR               | 610       | 969                         | NR               | 740       | 36                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 32                          | NR               | 615       | 935                         | NR               | 745       | 31                          | NR               | 875       | 1                           | NR               |           |                             |                  |

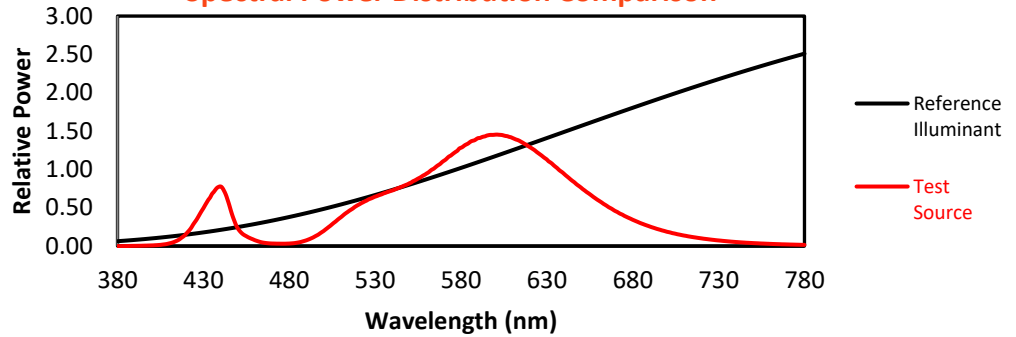
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TM-30-18

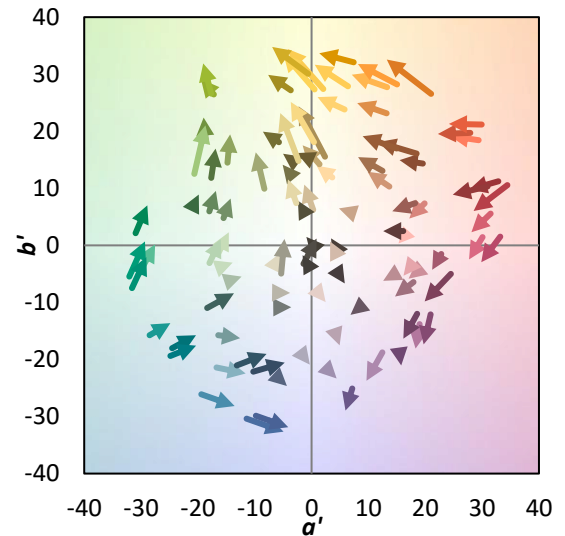
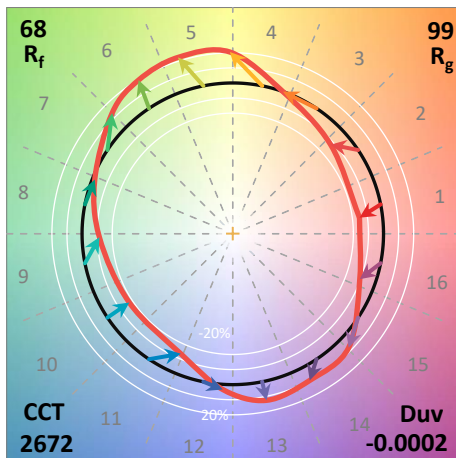
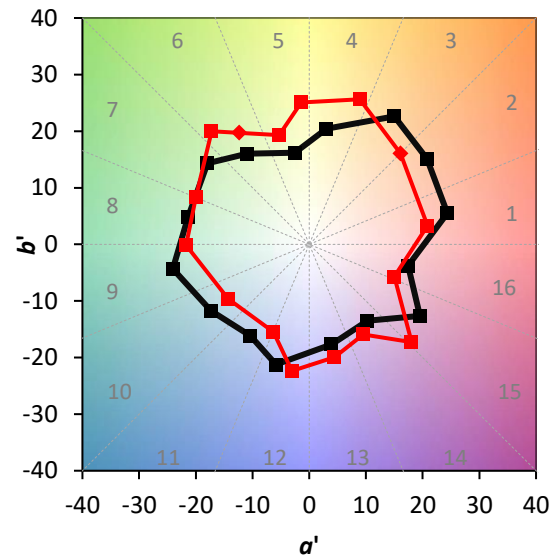
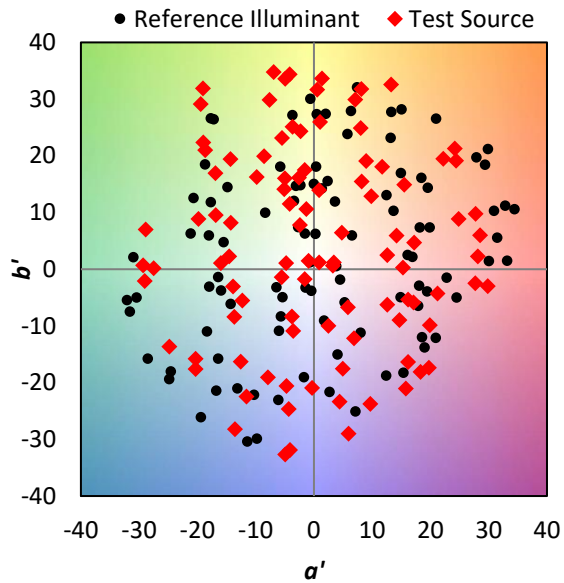
### Summary

$R_f = 67.9$   
 $R_g = 98.6$   
 $CIE R_a = 71.1$   
 $R_g = -27.8$

### Spectral Power Distribution Comparison



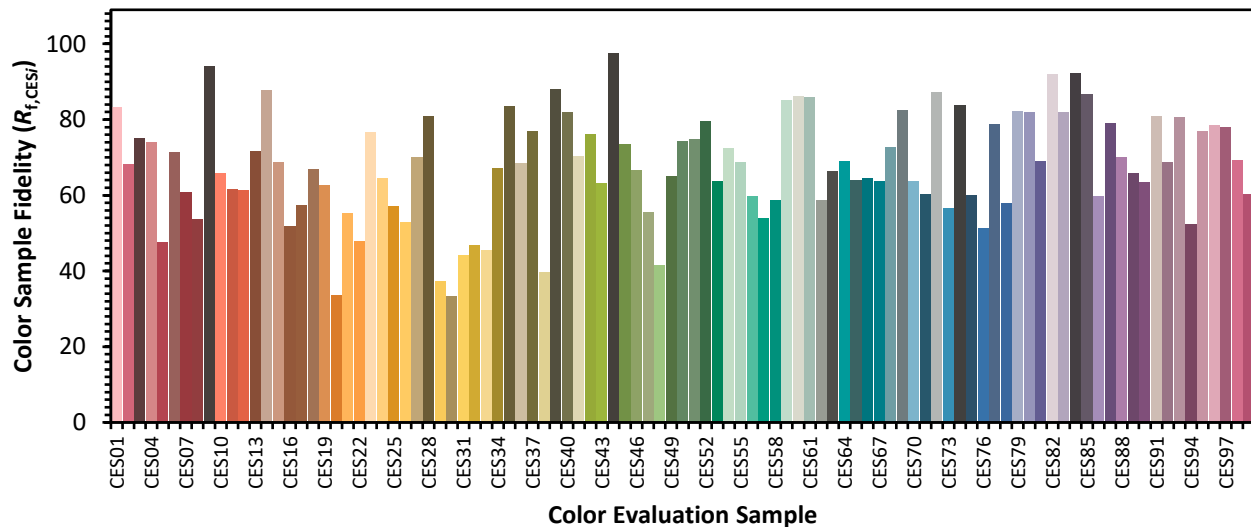
### Color Vector Graphics

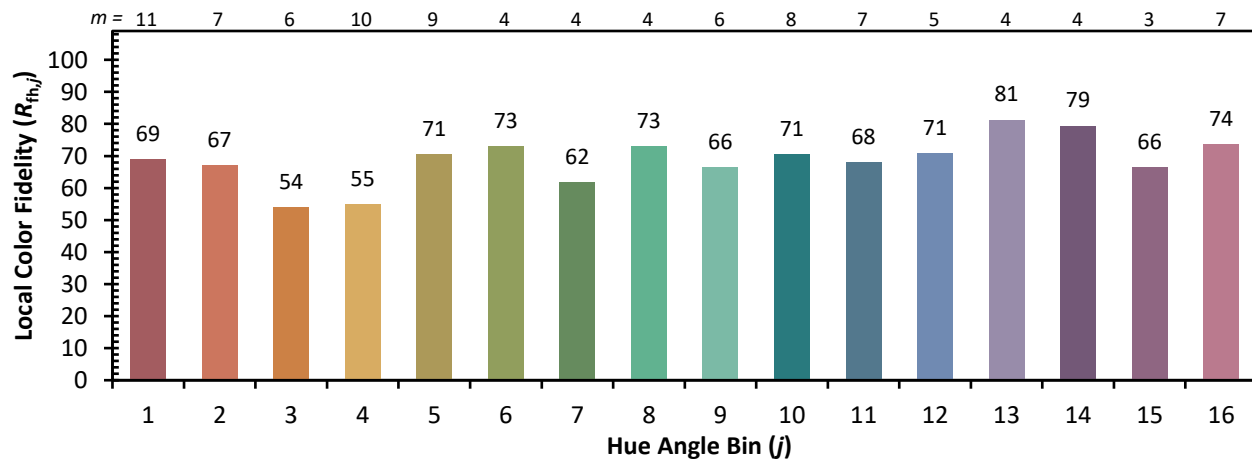
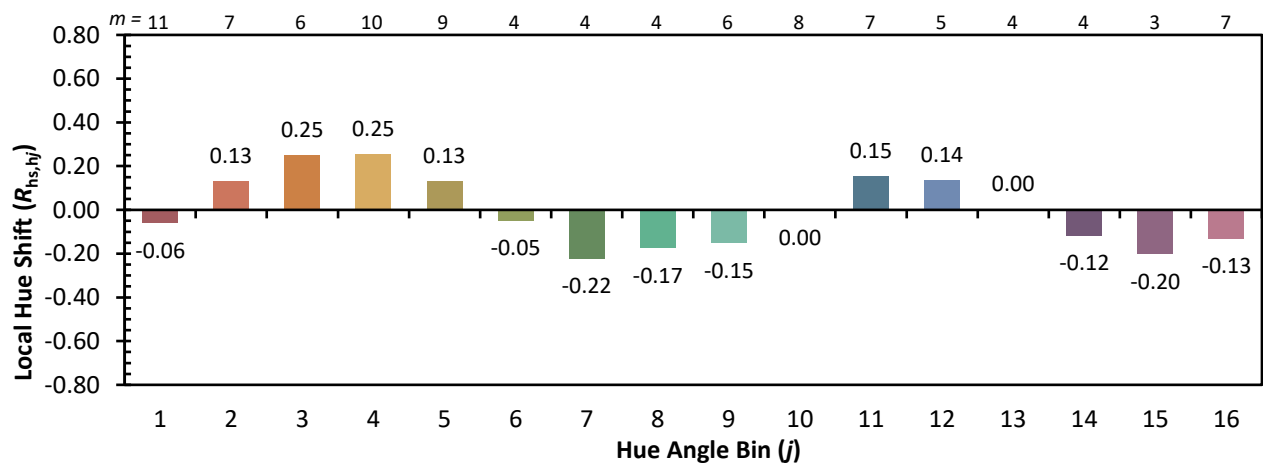
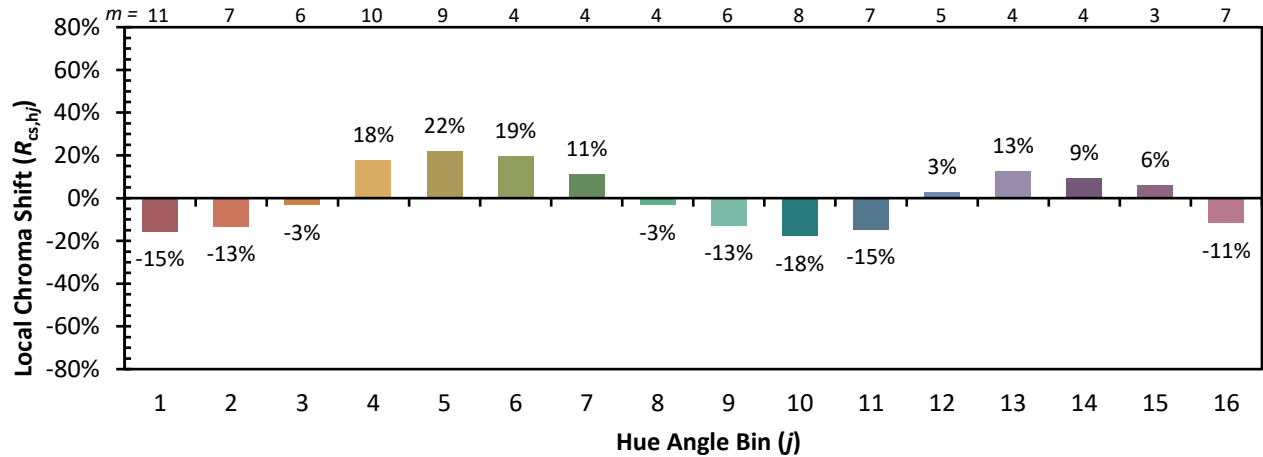




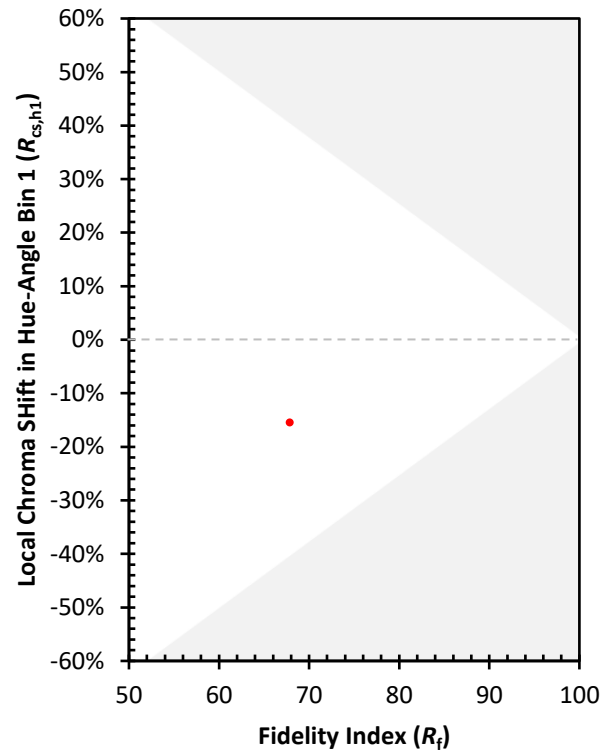
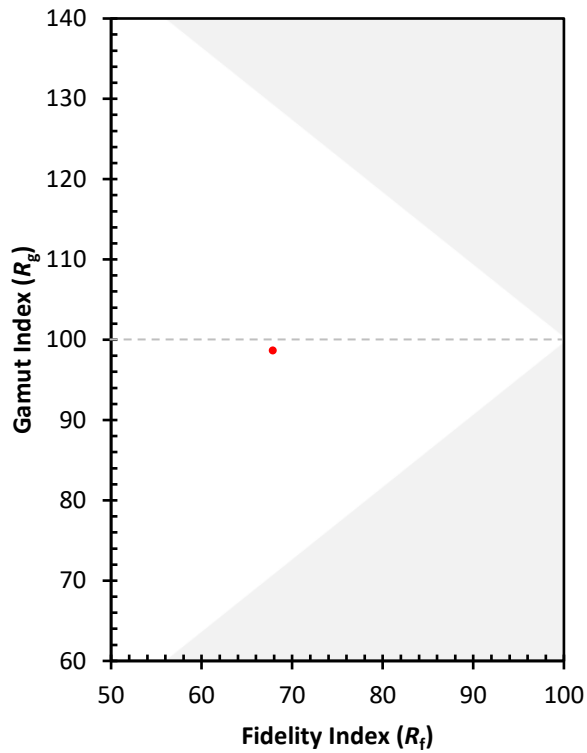
**Individual Sample Fidelity Index ( $R_{f,i}$ )**

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 53 | CES51 = 75 | CES76 = 51 |
| CES02 = 63 | CES27 = 70 | CES52 = 80 | CES77 = 79 |
| CES03 = 31 | CES28 = 81 | CES53 = 64 | CES78 = 58 |
| CES04 = 71 | CES29 = 37 | CES54 = 73 | CES79 = 82 |
| CES05 = 50 | CES30 = 33 | CES55 = 69 | CES80 = 82 |
| CES06 = 52 | CES31 = 44 | CES56 = 60 | CES81 = 69 |
| CES07 = 42 | CES32 = 47 | CES57 = 54 | CES82 = 92 |
| CES08 = 41 | CES33 = 45 | CES58 = 59 | CES83 = 82 |
| CES09 = 29 | CES34 = 67 | CES59 = 85 | CES84 = 92 |
| CES10 = 77 | CES35 = 84 | CES60 = 86 | CES85 = 87 |
| CES11 = 60 | CES36 = 68 | CES61 = 86 | CES86 = 60 |
| CES12 = 66 | CES37 = 77 | CES62 = 59 | CES87 = 79 |
| CES13 = 44 | CES38 = 40 | CES63 = 66 | CES88 = 70 |
| CES14 = 74 | CES39 = 88 | CES64 = 69 | CES89 = 66 |
| CES15 = 72 | CES40 = 82 | CES65 = 64 | CES90 = 64 |
| CES16 = 48 | CES41 = 70 | CES66 = 65 | CES91 = 81 |
| CES17 = 51 | CES42 = 76 | CES67 = 64 | CES92 = 69 |
| CES18 = 57 | CES43 = 63 | CES68 = 73 | CES93 = 81 |
| CES19 = 73 | CES44 = 97 | CES69 = 83 | CES94 = 53 |
| CES20 = 67 | CES45 = 74 | CES70 = 64 | CES95 = 77 |
| CES21 = 88 | CES46 = 67 | CES71 = 60 | CES96 = 79 |
| CES22 = 80 | CES47 = 55 | CES72 = 87 | CES97 = 78 |
| CES23 = 92 | CES48 = 42 | CES73 = 57 | CES98 = 69 |
| CES24 = 92 | CES49 = 65 | CES74 = 84 | CES99 = 60 |
| CES25 = 73 | CES50 = 74 | CES75 = 60 |            |



**Color Rendition by Hue-Angle Bin**


**Measure Comparisons**



(END OF REPORT)