

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: P1379937

Luminaire Tested: **VAL-T-SB1C-730-U-T2**

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: P1379937  
 Test Lab: INNOVATION CENTER(G3)  
 Issue Date: 02/18/2026  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: STREETWORKS  
 Catalog Number: VAL-T-SB1C-730-U-T2  
 Description: GALLEON II WALL SLIM HIGH DENSITY LED ARRAYS 1SQUARE 52W 70CRI  
 3000K FIXTURE w/ TYPE II DISTRIBUTION OPTIC  
 Light Source: (26) 3000K 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: 6588.6 lumens  
 Efficiency: N/A  
 Efficacy: 126.7 lumens/watt  
 Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')  
 IES Classification: Type II - Medium  
 BUG Rating: B1 - U0 - G2  
  
 Input Watts (W): 52  
 Input Voltage (V): 120  
 Input Current (Ain): 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

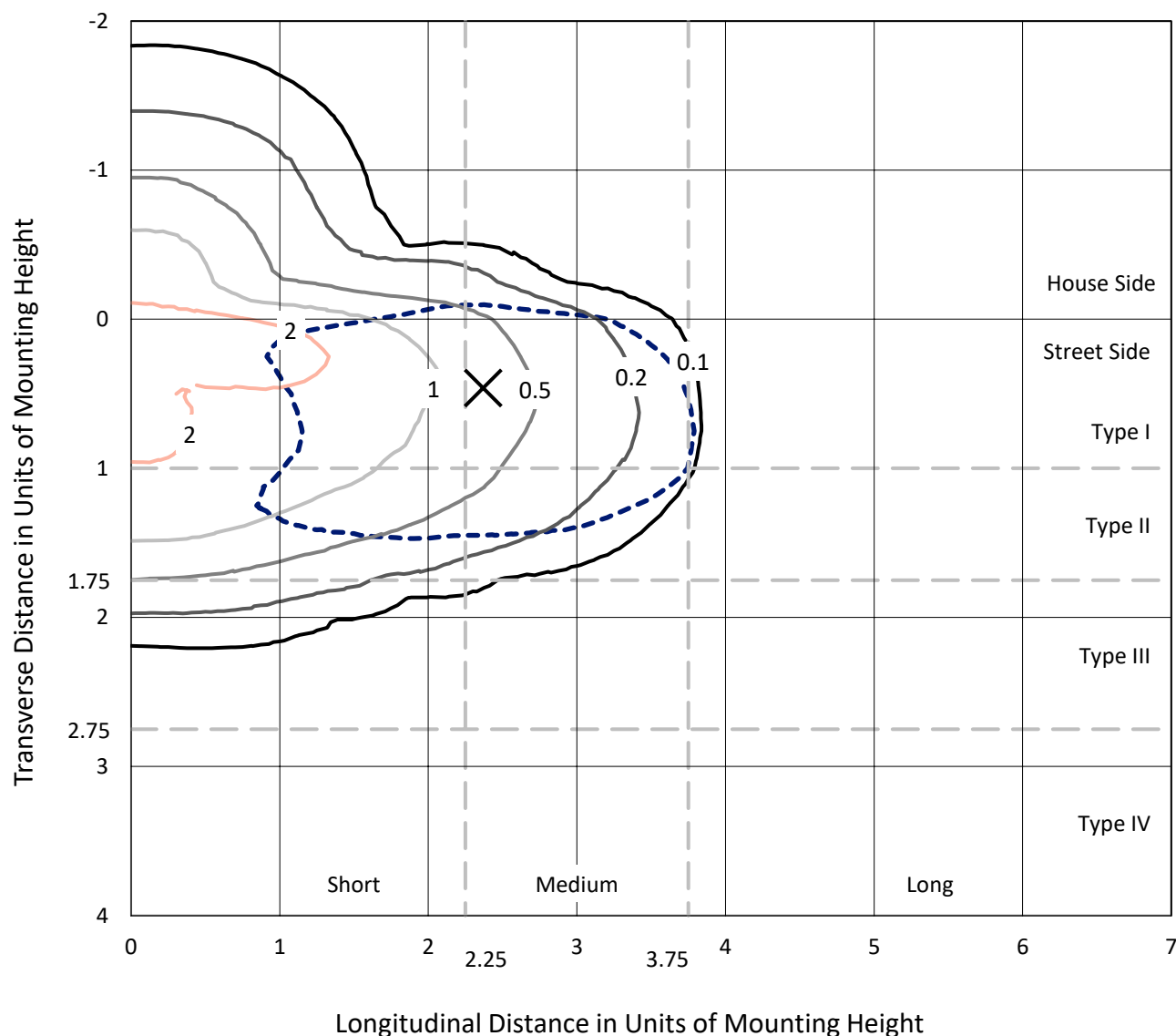
REPORT NUMBER: P1379937

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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd

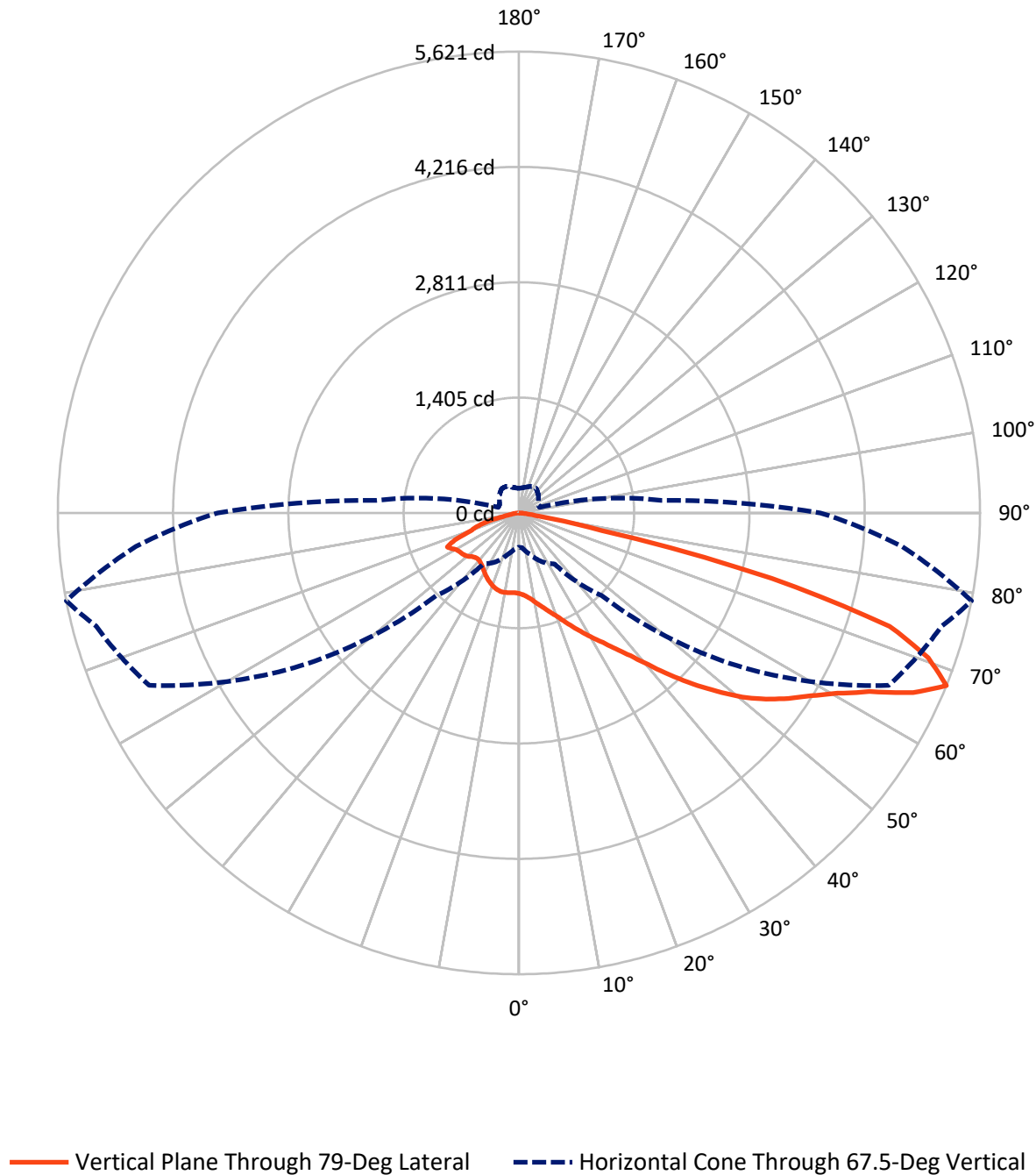
--- 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 2.9 fc  
 Type II - Medium - N/A

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## Luminous Intensity Polar Plot



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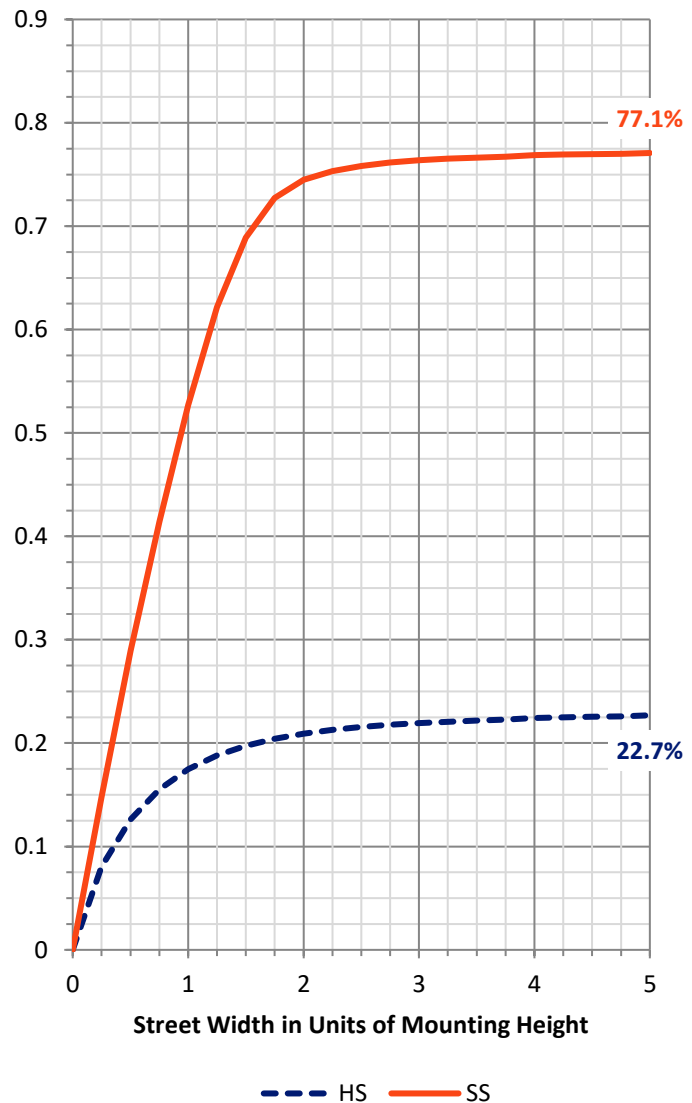
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 1509.6   | 0.0    | 1509.6 |
|                    | % Fixture | 22.9     | 0.0    | 22.9   |
| <b>Street Side</b> | Lumens    | 5079.0   | 0.0    | 5079.0 |
|                    | % Fixture | 77.1     | 0.0    | 77.1   |
| <b>Total</b>       | Lumens    | 6588.6   | 0.0    | 6588.6 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 93.9   | 1.4       |
| 10°-20°   | 282.7  | 4.3       |
| 20°-30°   | 477.6  | 7.2       |
| 30°-40°   | 736.9  | 11.2      |
| 40°-50°   | 1125.3 | 17.1      |
| 50°-60°   | 1555.9 | 23.6      |
| 60°-70°   | 1572.4 | 23.9      |
| 70°-80°   | 691.8  | 10.5      |
| 80°-90°   | 52.1   | 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°    | 6588.6 | 100.0     |
| 0°-180°   | 6588.6 | 100.0     |

**Coefficient of Utilization**



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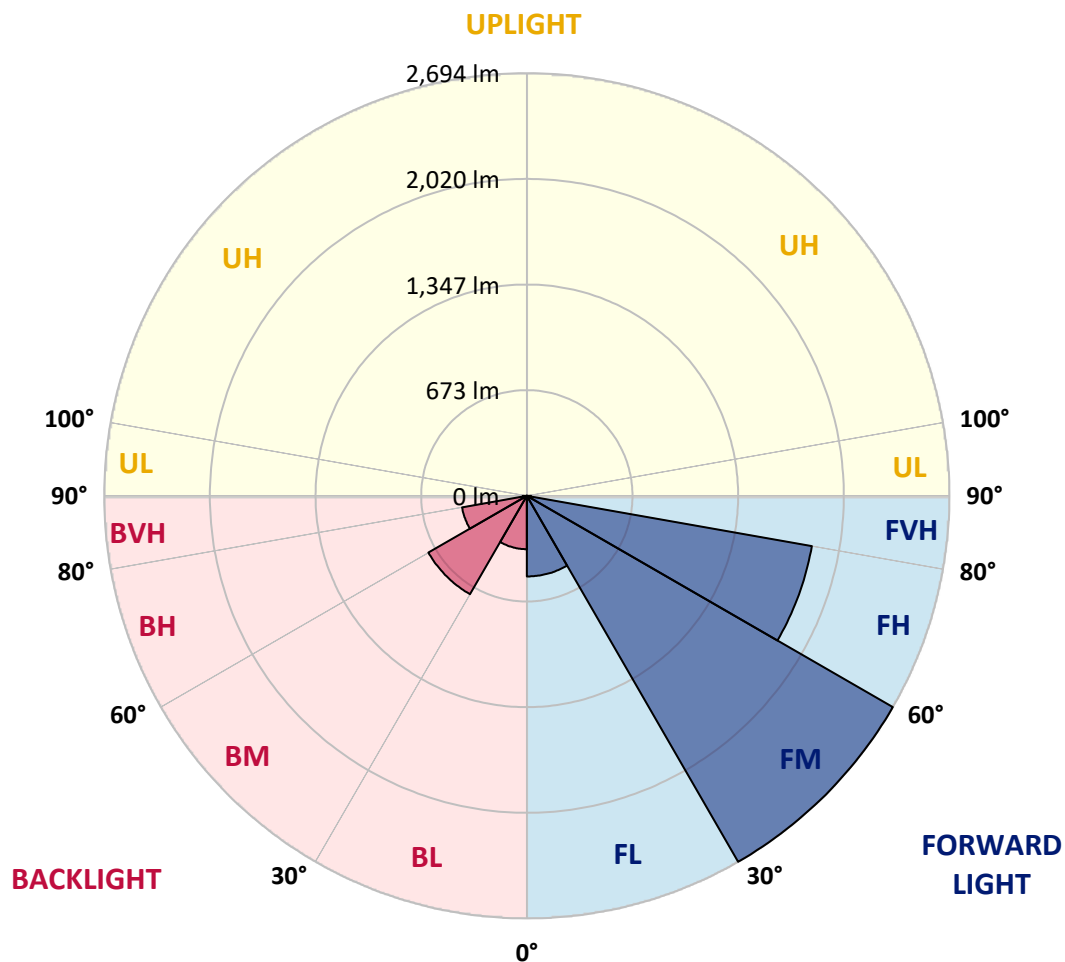
CATALOG NUMBER: VAL-T-SB1C-730-U-T2

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 514.0  | 7.8       |                         |      |         |
| FM   | (30°-60°)   | 2693.7 | 40.9      |                         |      |         |
| FH   | (60°-80°)   | 1844.8 | 28.0      |                         |      | G2/5000 |
| FVH  | (80°-90°)   | 26.4   | 0.4       |                         |      | G1/100  |
| BL   | (0°-30°)    | 340.2  | 5.2       | B1/500                  |      |         |
| BM   | (30°-60°)   | 724.4  | 11.0      | B1/1000                 |      |         |
| BH   | (60°-80°)   | 419.3  | 6.4       | B1/500                  |      | G1/500  |
| BVH  | (80°-90°)   | 25.7   | 0.4       |                         |      | G1/100  |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B1-U0-G2**

Type II Medium



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 65°    | 75°    | 79°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 982.7  | 982.7  | 982.7  | 982.7  | 982.7  | 982.7  | 982.7  | 982.7  | 982.7  | 982.7  | 982.7  |
| 2.5°  | 1028.3 | 1044.5 | 1044.5 | 1037.1 | 1034.2 | 1032.7 | 1022.4 | 1010.7 | 1006.2 | 998.9  | 994.5  |
| 5°    | 1091.6 | 1091.6 | 1094.5 | 1087.2 | 1091.6 | 1085.7 | 1071.0 | 1056.3 | 1038.6 | 1025.4 | 1019.5 |
| 7.5°  | 1097.5 | 1109.2 | 1116.6 | 1116.6 | 1125.4 | 1126.9 | 1119.5 | 1103.3 | 1081.3 | 1060.7 | 1050.4 |
| 10°   | 1103.3 | 1113.6 | 1113.6 | 1125.4 | 1144.5 | 1159.2 | 1163.7 | 1157.8 | 1122.5 | 1107.8 | 1087.2 |
| 12.5° | 1090.1 | 1101.9 | 1106.3 | 1129.8 | 1156.3 | 1184.3 | 1204.8 | 1207.8 | 1185.7 | 1159.2 | 1128.3 |
| 15°   | 1044.5 | 1054.8 | 1072.4 | 1107.8 | 1154.8 | 1197.5 | 1237.2 | 1259.3 | 1234.3 | 1215.1 | 1172.5 |
| 17.5° | 982.7  | 988.6  | 1018.0 | 1063.6 | 1128.3 | 1200.4 | 1269.6 | 1312.2 | 1306.4 | 1281.3 | 1231.3 |
| 20°   | 976.8  | 982.7  | 991.5  | 1025.4 | 1100.4 | 1190.1 | 1290.2 | 1372.6 | 1388.7 | 1350.5 | 1288.7 |
| 22.5° | 1026.8 | 1032.7 | 1032.7 | 1037.1 | 1084.2 | 1181.3 | 1310.8 | 1437.3 | 1474.1 | 1441.7 | 1362.3 |
| 25°   | 1096.0 | 1107.8 | 1094.5 | 1084.2 | 1100.4 | 1187.2 | 1322.5 | 1510.8 | 1582.9 | 1543.2 | 1444.6 |
| 27.5° | 1194.5 | 1193.1 | 1181.3 | 1150.4 | 1146.0 | 1204.8 | 1354.9 | 1568.2 | 1687.4 | 1646.2 | 1530.0 |
| 30°   | 1331.4 | 1338.7 | 1312.2 | 1247.5 | 1218.1 | 1244.6 | 1399.0 | 1615.3 | 1797.7 | 1763.9 | 1610.9 |
| 32.5° | 1485.8 | 1482.9 | 1450.5 | 1388.7 | 1316.7 | 1309.3 | 1440.2 | 1665.3 | 1924.2 | 1881.6 | 1712.4 |
| 35°   | 1652.1 | 1649.1 | 1638.8 | 1532.9 | 1438.8 | 1399.0 | 1506.4 | 1722.7 | 2071.3 | 2036.0 | 1831.5 |
| 37.5° | 1802.1 | 1815.4 | 1846.3 | 1675.6 | 1575.6 | 1516.7 | 1591.8 | 1818.3 | 2259.6 | 2208.1 | 1975.7 |
| 40°   | 1930.1 | 1953.6 | 1983.1 | 1828.6 | 1703.6 | 1653.5 | 1705.0 | 1974.2 | 2461.2 | 2430.3 | 2149.3 |
| 42.5° | 2047.8 | 2064.0 | 2061.0 | 1966.9 | 1859.5 | 1803.6 | 1847.7 | 2136.1 | 2721.6 | 2699.5 | 2362.6 |
| 45°   | 2192.0 | 2209.6 | 2202.3 | 2112.5 | 2005.1 | 1955.1 | 2034.6 | 2325.8 | 2968.7 | 2971.7 | 2564.2 |
| 47.5° | 2333.2 | 2350.8 | 2346.4 | 2264.1 | 2161.1 | 2119.9 | 2228.7 | 2549.4 | 3207.0 | 3246.8 | 2783.4 |
| 50°   | 2465.6 | 2481.8 | 2490.6 | 2439.1 | 2349.4 | 2305.2 | 2418.5 | 2759.8 | 3438.0 | 3527.7 | 2992.3 |
| 52.5° | 2502.4 | 2523.0 | 2583.3 | 2602.4 | 2562.7 | 2509.7 | 2592.1 | 2961.4 | 3636.6 | 3770.5 | 3193.8 |
| 55°   | 2381.7 | 2417.0 | 2546.5 | 2643.6 | 2761.3 | 2767.2 | 2773.1 | 3157.0 | 3810.2 | 3989.7 | 3377.7 |
| 57.5° | 2171.4 | 2177.3 | 2328.8 | 2525.9 | 2805.4 | 3055.5 | 3084.9 | 3385.0 | 3979.4 | 4203.0 | 3560.1 |
| 60°   | 1705.0 | 1674.1 | 1919.8 | 2253.8 | 2646.5 | 3170.3 | 3582.2 | 3738.1 | 4189.7 | 4460.4 | 3779.3 |
| 62.5° | 913.6  | 916.5  | 1119.5 | 1534.4 | 2192.0 | 3058.5 | 4008.8 | 4264.8 | 4497.2 | 4794.4 | 4104.4 |
| 65°   | 573.7  | 595.8  | 710.6  | 894.4  | 1326.9 | 2430.3 | 4035.3 | 4965.0 | 4984.2 | 5279.8 | 4511.9 |
| 67.5° | 419.3  | 425.2  | 522.2  | 656.1  | 760.6  | 1425.5 | 3248.2 | 4973.9 | 5335.7 | 5621.1 | 4685.5 |
| 70°   | 311.9  | 314.8  | 384.0  | 494.3  | 554.6  | 667.9  | 2069.9 | 4304.5 | 5153.3 | 5294.6 | 4251.5 |
| 72.5° | 228.0  | 229.5  | 266.3  | 363.4  | 436.9  | 397.2  | 972.4  | 3101.1 | 4475.1 | 4726.7 | 3824.9 |
| 75°   | 160.4  | 163.3  | 189.8  | 251.6  | 294.2  | 276.6  | 370.7  | 1938.9 | 3212.9 | 3185.0 | 2671.6 |
| 77.5° | 120.6  | 122.1  | 139.8  | 178.0  | 200.1  | 180.9  | 208.9  | 906.2  | 1147.5 | 1035.7 | 843.0  |
| 80°   | 88.3   | 92.7   | 101.5  | 111.8  | 133.9  | 116.2  | 117.7  | 254.5  | 276.6  | 242.7  | 217.7  |
| 82.5° | 47.1   | 53.0   | 67.7   | 67.7   | 78.0   | 69.1   | 61.8   | 113.3  | 119.2  | 111.8  | 97.1   |
| 85°   | 14.7   | 14.7   | 16.2   | 20.6   | 30.9   | 30.9   | 30.9   | 38.2   | 39.7   | 39.7   | 33.8   |
| 87.5° | 2.9    | 2.9    | 2.9    | 2.9    | 4.4    | 5.9    | 8.8    | 11.8   | 13.2   | 14.7   | 14.7   |
| 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-730-U-T2

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 982.7  | 982.7  | 982.7 | 982.7 | 982.7 | 982.7 | 982.7 | 982.7 | 982.7 | 982.7 | 982.7 |
| 2.5°  | 991.5  | 981.2  | 970.9 | 953.3 | 944.5 | 931.2 | 919.4 | 913.6 | 909.2 | 907.7 | 907.7 |
| 5°    | 1010.7 | 994.5  | 962.1 | 931.2 | 903.3 | 878.3 | 859.1 | 844.4 | 835.6 | 828.2 | 828.2 |
| 7.5°  | 1029.8 | 1007.7 | 959.2 | 904.7 | 865.0 | 834.1 | 807.6 | 798.8 | 795.9 | 788.5 | 784.1 |
| 10°   | 1062.1 | 1026.8 | 954.8 | 876.8 | 820.9 | 794.4 | 782.6 | 779.7 | 781.2 | 782.6 | 782.6 |
| 12.5° | 1087.2 | 1048.9 | 943.0 | 841.5 | 787.0 | 772.3 | 773.8 | 781.2 | 792.9 | 791.5 | 788.5 |
| 15°   | 1122.5 | 1065.1 | 919.4 | 800.3 | 760.6 | 760.6 | 775.3 | 791.5 | 803.2 | 810.6 | 806.2 |
| 17.5° | 1163.7 | 1084.2 | 884.1 | 762.0 | 738.5 | 751.7 | 782.6 | 798.8 | 819.4 | 823.8 | 820.9 |
| 20°   | 1215.1 | 1100.4 | 844.4 | 725.3 | 723.8 | 751.7 | 778.2 | 801.8 | 817.9 | 822.4 | 825.3 |
| 22.5° | 1265.2 | 1115.1 | 792.9 | 698.8 | 707.6 | 742.9 | 767.9 | 792.9 | 800.3 | 804.7 | 806.2 |
| 25°   | 1316.7 | 1129.8 | 745.9 | 678.2 | 695.8 | 731.1 | 751.7 | 762.0 | 763.5 | 760.6 | 760.6 |
| 27.5° | 1372.6 | 1131.3 | 698.8 | 662.0 | 682.6 | 713.5 | 725.3 | 728.2 | 722.3 | 701.7 | 695.8 |
| 30°   | 1431.4 | 1116.6 | 660.5 | 647.3 | 667.9 | 692.9 | 701.7 | 692.9 | 672.3 | 642.9 | 639.9 |
| 32.5° | 1479.9 | 1094.5 | 632.6 | 629.6 | 651.7 | 673.8 | 673.8 | 657.6 | 626.7 | 597.3 | 595.8 |
| 35°   | 1553.5 | 1063.6 | 604.6 | 617.9 | 637.0 | 647.3 | 650.2 | 626.7 | 592.9 | 564.9 | 562.0 |
| 37.5° | 1625.6 | 1037.1 | 592.9 | 603.2 | 620.8 | 629.6 | 620.8 | 597.3 | 575.2 | 551.7 | 551.7 |
| 40°   | 1737.4 | 1021.0 | 578.1 | 592.9 | 607.6 | 609.0 | 592.9 | 575.2 | 578.1 | 564.9 | 563.4 |
| 42.5° | 1859.5 | 1019.5 | 572.3 | 582.6 | 592.9 | 589.9 | 566.4 | 566.4 | 570.8 | 545.8 | 539.9 |
| 45°   | 1999.3 | 1040.1 | 572.3 | 567.9 | 573.7 | 564.9 | 551.7 | 548.7 | 538.4 | 501.7 | 500.2 |
| 47.5° | 2144.9 | 1090.1 | 575.2 | 547.3 | 545.8 | 542.8 | 537.0 | 526.7 | 495.8 | 464.9 | 460.5 |
| 50°   | 2259.6 | 1159.2 | 584.0 | 520.8 | 514.9 | 525.2 | 514.9 | 497.2 | 461.9 | 432.5 | 428.1 |
| 52.5° | 2396.5 | 1228.4 | 578.1 | 488.4 | 481.1 | 507.5 | 497.2 | 472.2 | 445.7 | 428.1 | 423.7 |
| 55°   | 2540.6 | 1300.5 | 554.6 | 444.3 | 450.2 | 485.5 | 482.5 | 454.6 | 422.2 | 398.7 | 395.7 |
| 57.5° | 2684.8 | 1391.7 | 514.9 | 406.0 | 428.1 | 472.2 | 460.5 | 426.6 | 404.6 | 388.4 | 385.4 |
| 60°   | 2905.5 | 1522.6 | 457.5 | 366.3 | 406.0 | 444.3 | 425.2 | 414.9 | 391.3 | 378.1 | 370.7 |
| 62.5° | 3190.9 | 1740.3 | 382.5 | 329.5 | 375.1 | 410.4 | 409.0 | 397.2 | 376.6 | 361.9 | 357.5 |
| 65°   | 3596.9 | 1947.8 | 313.3 | 294.2 | 335.4 | 369.3 | 386.9 | 376.6 | 356.0 | 339.8 | 338.4 |
| 67.5° | 3674.9 | 1740.3 | 260.4 | 257.4 | 291.3 | 329.5 | 363.4 | 356.0 | 323.6 | 303.1 | 300.1 |
| 70°   | 3198.2 | 1243.1 | 219.2 | 222.1 | 254.5 | 288.3 | 325.1 | 307.5 | 281.0 | 269.2 | 267.7 |
| 72.5° | 2839.3 | 1068.0 | 183.9 | 189.8 | 213.3 | 244.2 | 266.3 | 272.2 | 253.0 | 242.7 | 238.3 |
| 75°   | 2046.3 | 800.3  | 148.6 | 155.9 | 172.1 | 189.8 | 231.0 | 241.3 | 223.6 | 213.3 | 206.0 |
| 77.5° | 759.1  | 333.9  | 110.3 | 117.7 | 129.5 | 154.5 | 186.8 | 208.9 | 195.7 | 203.0 | 182.4 |
| 80°   | 182.4  | 117.7  | 80.9  | 79.4  | 91.2  | 116.2 | 148.6 | 164.8 | 151.5 | 144.2 | 125.0 |
| 82.5° | 79.4   | 57.4   | 53.0  | 53.0  | 55.9  | 76.5  | 98.6  | 116.2 | 113.3 | 94.2  | 89.7  |
| 85°   | 29.4   | 25.0   | 25.0  | 26.5  | 26.5  | 35.3  | 53.0  | 61.8  | 55.9  | 48.5  | 47.1  |
| 87.5° | 13.2   | 13.2   | 10.3  | 8.8   | 7.4   | 7.4   | 8.8   | 5.9   | 4.4   | 2.9   | 2.9   |
| 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: SP1-2407-184-4

Test Date: 10/10/2024

Luminaire Tested: GSS-SB1A-730-U-5WQ

Data in this report applies to families of products including GSS-SB1A-730-U-5WQ

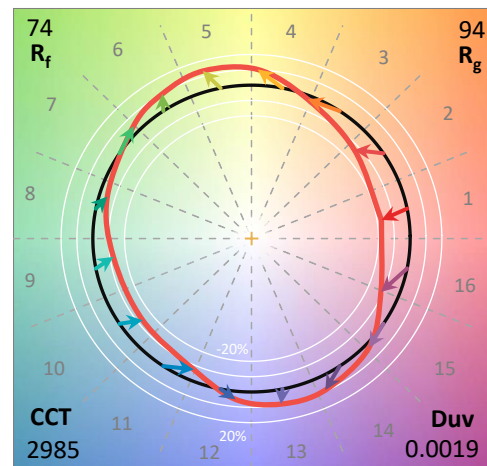
### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-4  
 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-730-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI  
 3000K CCT 26 LEDS

### Spectral Parameters

CCT (K): 2985  
 CIE  $u'$ : 0.2504  
 CIE  $v'$ : 0.5243  
 Duv: 0.0019  
 CIE x: 0.4408  
 CIE y: 0.4101  
 CIE z: 0.1491  
 Peak Wavelength (nm): 595  
 Dominant Wavelength (nm): 582  
 Purity: 55.41818  
 R<sub>f</sub>: 73.8  
 R<sub>g</sub>: 94.4

CRI (Ra): 70.8  
 R1: 66.3  
 R2: 80.6  
 R3: 94.5  
 R4: 68.2  
 R5: 66.5  
 R6: 74.7  
 R7: 76.2  
 R8: 39.6  
 R9: -43.2  
 R10: 57.6  
 R11: 64.8  
 R12: 53.5  
 R13: 68.7  
 R14: 97.0  
 R15: 56.4



### Test Conditions

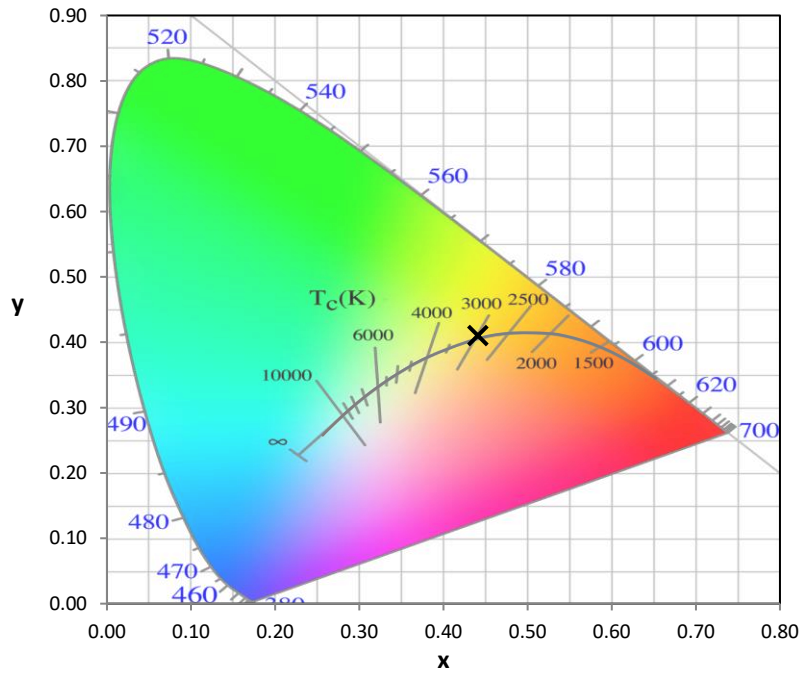
Stabilization Time: 36M  
 Operation Time: 1H 36M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-4

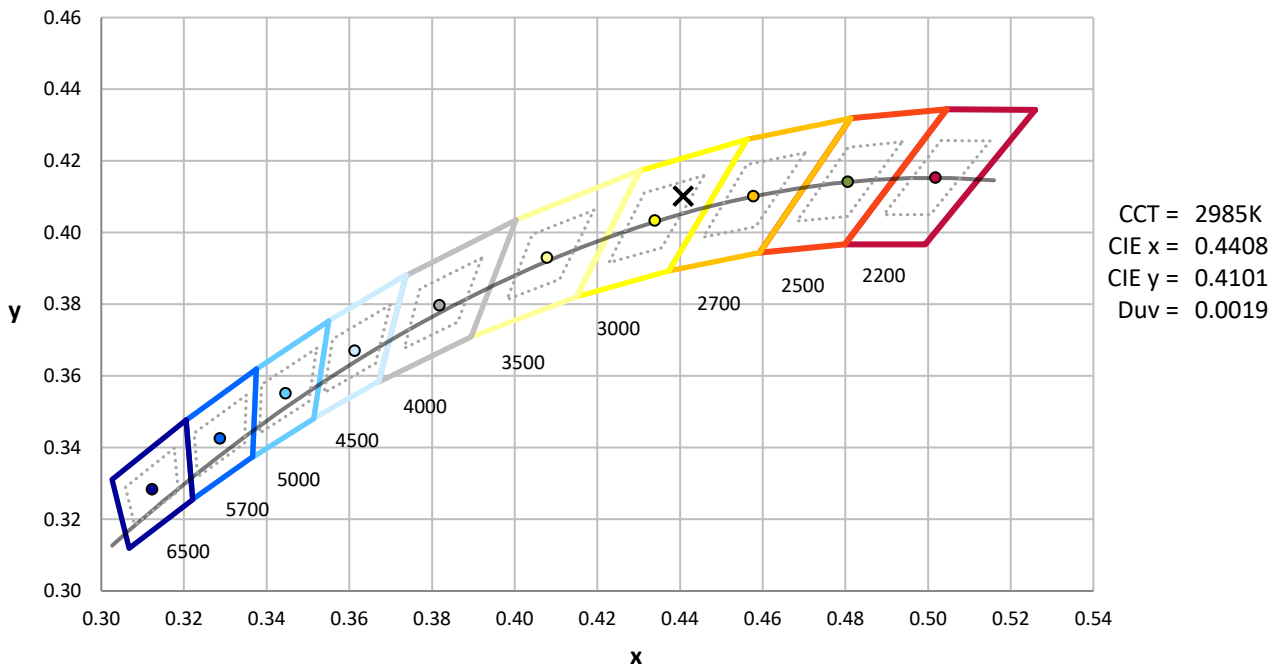
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date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

REPORT NUMBER: SP1-2407-184-4

**CIE 1931 Chromaticity Diagram**



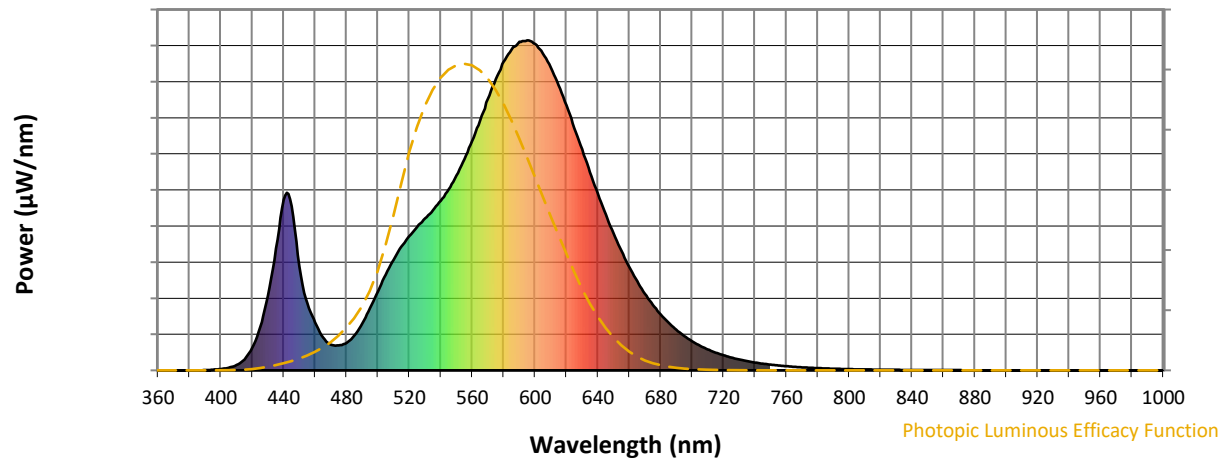
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 3000K 4-step quadrangle

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### Photopic Flux vs. Wavelength

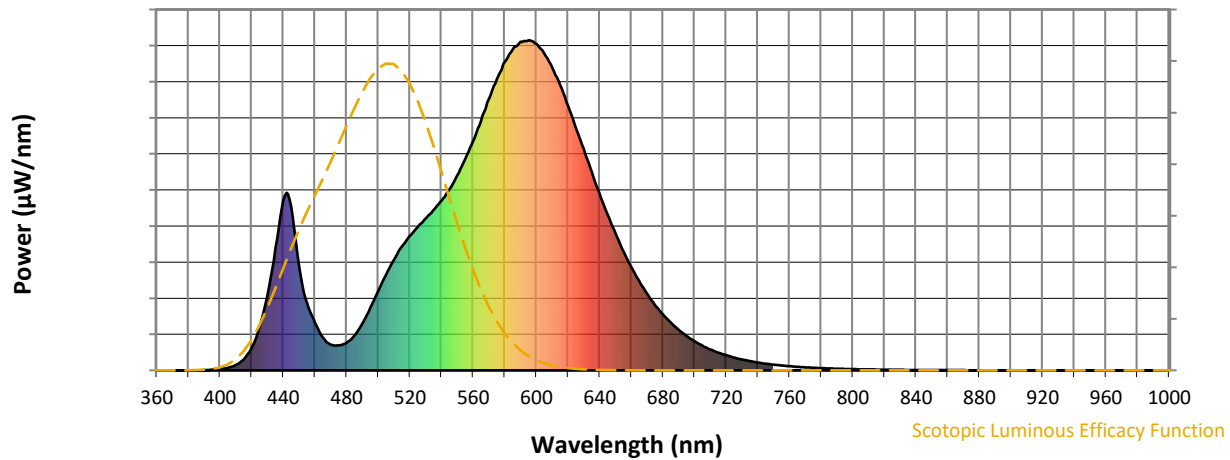


### Photopic Lumens: NR

| $\lambda$<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               | 142                                  | NR                             | 620               | 803                                  | NR                             | 750               | 17                                   | NR                             | 880               | 0                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 189                                  | NR                             | 625               | 734                                  | NR                             | 755               | 15                                   | NR                             | 885               | 0                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 240                                  | NR                             | 630               | 670                                  | NR                             | 760               | 13                                   | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 290                                  | NR                             | 635               | 600                                  | NR                             | 765               | 11                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 335                                  | NR                             | 640               | 535                                  | NR                             | 770               | 9                                    | NR                             | 900               | 0                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 375                                  | NR                             | 645               | 473                                  | NR                             | 775               | 8                                    | NR                             | 905               | 0                                    | NR                             |
| 390               | 1                                    | NR                             | 520               | 408                                  | NR                             | 650               | 415                                  | NR                             | 780               | 7                                    | NR                             | 910               | 0                                    | NR                             |
| 395               | 2                                    | NR                             | 525               | 434                                  | NR                             | 655               | 362                                  | NR                             | 785               | 6                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 4                                    | NR                             | 530               | 461                                  | NR                             | 660               | 313                                  | NR                             | 790               | 5                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 8                                    | NR                             | 535               | 486                                  | NR                             | 665               | 271                                  | NR                             | 795               | 4                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 16                                   | NR                             | 540               | 514                                  | NR                             | 670               | 231                                  | NR                             | 800               | 4                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 33                                   | NR                             | 545               | 549                                  | NR                             | 675               | 198                                  | NR                             | 805               | 3                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 69                                   | NR                             | 550               | 591                                  | NR                             | 680               | 169                                  | NR                             | 810               | 3                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 131                                  | NR                             | 555               | 640                                  | NR                             | 685               | 144                                  | NR                             | 815               | 2                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 227                                  | NR                             | 560               | 695                                  | NR                             | 690               | 123                                  | NR                             | 820               | 2                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 369                                  | NR                             | 565               | 757                                  | NR                             | 695               | 104                                  | NR                             | 825               | 2                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 517                                  | NR                             | 570               | 822                                  | NR                             | 700               | 88                                   | NR                             | 830               | 2                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 498                                  | NR                             | 575               | 882                                  | NR                             | 705               | 75                                   | NR                             | 835               | 1                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 315                                  | NR                             | 580               | 935                                  | NR                             | 710               | 63                                   | NR                             | 840               | 1                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 204                                  | NR                             | 585               | 972                                  | NR                             | 715               | 54                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 145                                  | NR                             | 590               | 996                                  | NR                             | 720               | 46                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 100                                  | NR                             | 595               | 1000                                 | NR                             | 725               | 39                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 78                                   | NR                             | 600               | 989                                  | NR                             | 730               | 33                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 76                                   | NR                             | 605               | 960                                  | NR                             | 735               | 28                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 83                                   | NR                             | 610               | 918                                  | NR                             | 740               | 24                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 105                                  | NR                             | 615               | 864                                  | NR                             | 745               | 20                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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### Scotopic Flux vs. Wavelength



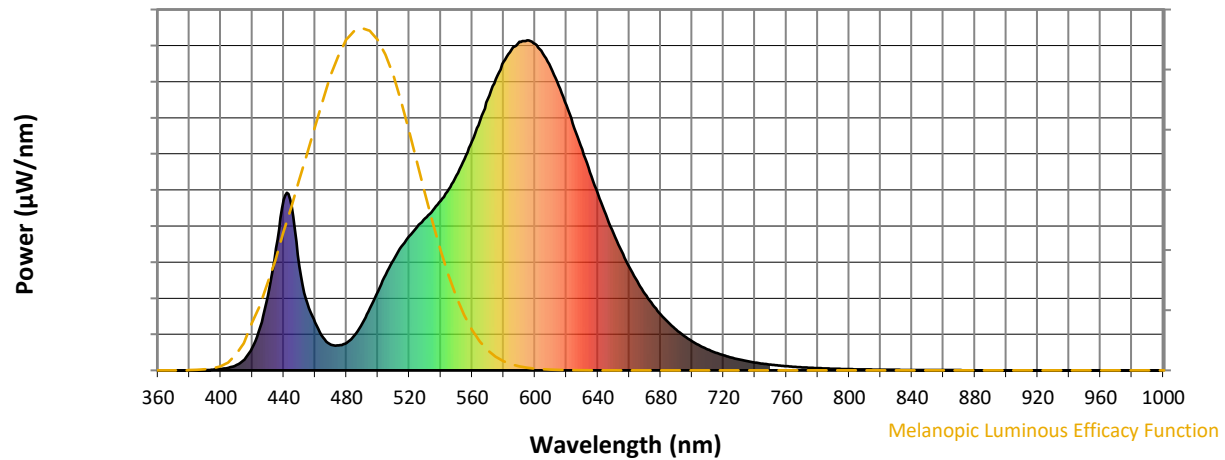
Scotopic Lumens: NR

S/P: 1.19

| 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       | 142                         | NR               | 620       | 803                         | NR               | 750       | 17                          | NR               | 880       | 0                           | NR               |
| 365       | 0                           | NR               | 495       | 189                         | NR               | 625       | 734                         | NR               | 755       | 15                          | NR               | 885       | 0                           | NR               |
| 370       | 0                           | NR               | 500       | 240                         | NR               | 630       | 670                         | NR               | 760       | 13                          | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 290                         | NR               | 635       | 600                         | NR               | 765       | 11                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 335                         | NR               | 640       | 535                         | NR               | 770       | 9                           | NR               | 900       | 0                           | NR               |
| 385       | 0                           | NR               | 515       | 375                         | NR               | 645       | 473                         | NR               | 775       | 8                           | NR               | 905       | 0                           | NR               |
| 390       | 1                           | NR               | 520       | 408                         | NR               | 650       | 415                         | NR               | 780       | 7                           | NR               | 910       | 0                           | NR               |
| 395       | 2                           | NR               | 525       | 434                         | NR               | 655       | 362                         | NR               | 785       | 6                           | NR               | 915       | 0                           | NR               |
| 400       | 4                           | NR               | 530       | 461                         | NR               | 660       | 313                         | NR               | 790       | 5                           | NR               | 920       | 0                           | NR               |
| 405       | 8                           | NR               | 535       | 486                         | NR               | 665       | 271                         | NR               | 795       | 4                           | NR               | 925       | 0                           | NR               |
| 410       | 16                          | NR               | 540       | 514                         | NR               | 670       | 231                         | NR               | 800       | 4                           | NR               | 930       | 0                           | NR               |
| 415       | 33                          | NR               | 545       | 549                         | NR               | 675       | 198                         | NR               | 805       | 3                           | NR               | 935       | 0                           | NR               |
| 420       | 69                          | NR               | 550       | 591                         | NR               | 680       | 169                         | NR               | 810       | 3                           | NR               | 940       | 0                           | NR               |
| 425       | 131                         | NR               | 555       | 640                         | NR               | 685       | 144                         | NR               | 815       | 2                           | NR               | 945       | 0                           | NR               |
| 430       | 227                         | NR               | 560       | 695                         | NR               | 690       | 123                         | NR               | 820       | 2                           | NR               | 950       | 0                           | NR               |
| 435       | 369                         | NR               | 565       | 757                         | NR               | 695       | 104                         | NR               | 825       | 2                           | NR               | 955       | 0                           | NR               |
| 440       | 517                         | NR               | 570       | 822                         | NR               | 700       | 88                          | NR               | 830       | 2                           | NR               | 960       | 0                           | NR               |
| 445       | 498                         | NR               | 575       | 882                         | NR               | 705       | 75                          | NR               | 835       | 1                           | NR               | 965       | 0                           | NR               |
| 450       | 315                         | NR               | 580       | 935                         | NR               | 710       | 63                          | NR               | 840       | 1                           | NR               | 970       | 0                           | NR               |
| 455       | 204                         | NR               | 585       | 972                         | NR               | 715       | 54                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 145                         | NR               | 590       | 996                         | NR               | 720       | 46                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 100                         | NR               | 595       | 1000                        | NR               | 725       | 39                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 78                          | NR               | 600       | 989                         | NR               | 730       | 33                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 76                          | NR               | 605       | 960                         | NR               | 735       | 28                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 83                          | NR               | 610       | 918                         | NR               | 740       | 24                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 105                         | NR               | 615       | 864                         | NR               | 745       | 20                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.13

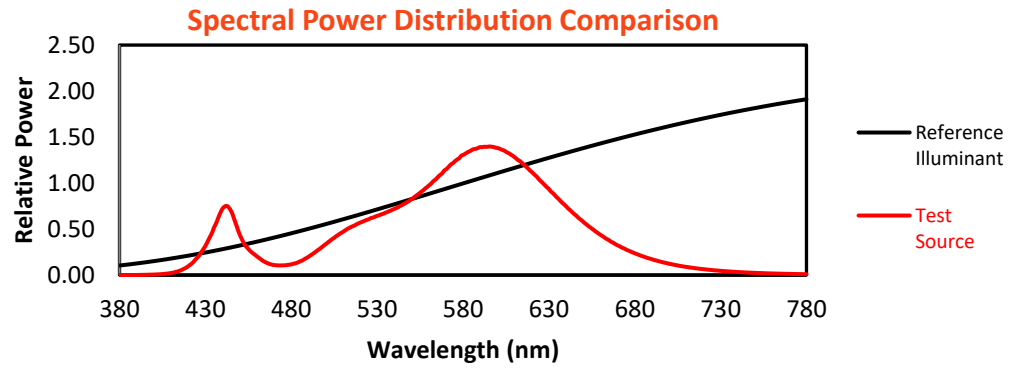
| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<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               | 142                                  | NR                             | 620               | 803                                  | NR                             | 750               | 17                                   | NR                             | 880               | 0                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 189                                  | NR                             | 625               | 734                                  | NR                             | 755               | 15                                   | NR                             | 885               | 0                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 240                                  | NR                             | 630               | 670                                  | NR                             | 760               | 13                                   | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 290                                  | NR                             | 635               | 600                                  | NR                             | 765               | 11                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 335                                  | NR                             | 640               | 535                                  | NR                             | 770               | 9                                    | NR                             | 900               | 0                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 375                                  | NR                             | 645               | 473                                  | NR                             | 775               | 8                                    | NR                             | 905               | 0                                    | NR                             |
| 390               | 1                                    | NR                             | 520               | 408                                  | NR                             | 650               | 415                                  | NR                             | 780               | 7                                    | NR                             | 910               | 0                                    | NR                             |
| 395               | 2                                    | NR                             | 525               | 434                                  | NR                             | 655               | 362                                  | NR                             | 785               | 6                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 4                                    | NR                             | 530               | 461                                  | NR                             | 660               | 313                                  | NR                             | 790               | 5                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 8                                    | NR                             | 535               | 486                                  | NR                             | 665               | 271                                  | NR                             | 795               | 4                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 16                                   | NR                             | 540               | 514                                  | NR                             | 670               | 231                                  | NR                             | 800               | 4                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 33                                   | NR                             | 545               | 549                                  | NR                             | 675               | 198                                  | NR                             | 805               | 3                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 69                                   | NR                             | 550               | 591                                  | NR                             | 680               | 169                                  | NR                             | 810               | 3                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 131                                  | NR                             | 555               | 640                                  | NR                             | 685               | 144                                  | NR                             | 815               | 2                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 227                                  | NR                             | 560               | 695                                  | NR                             | 690               | 123                                  | NR                             | 820               | 2                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 369                                  | NR                             | 565               | 757                                  | NR                             | 695               | 104                                  | NR                             | 825               | 2                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 517                                  | NR                             | 570               | 822                                  | NR                             | 700               | 88                                   | NR                             | 830               | 2                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 498                                  | NR                             | 575               | 882                                  | NR                             | 705               | 75                                   | NR                             | 835               | 1                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 315                                  | NR                             | 580               | 935                                  | NR                             | 710               | 63                                   | NR                             | 840               | 1                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 204                                  | NR                             | 585               | 972                                  | NR                             | 715               | 54                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 145                                  | NR                             | 590               | 996                                  | NR                             | 720               | 46                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 100                                  | NR                             | 595               | 1000                                 | NR                             | 725               | 39                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 78                                   | NR                             | 600               | 989                                  | NR                             | 730               | 33                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 76                                   | NR                             | 605               | 960                                  | NR                             | 735               | 28                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 83                                   | NR                             | 610               | 918                                  | NR                             | 740               | 24                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 105                                  | NR                             | 615               | 864                                  | NR                             | 745               | 20                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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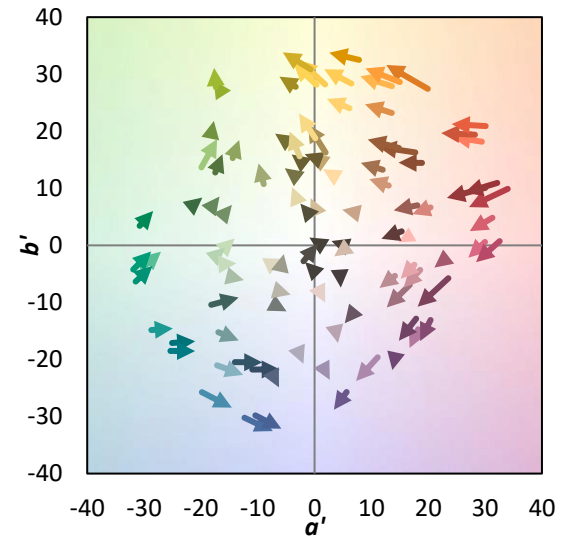
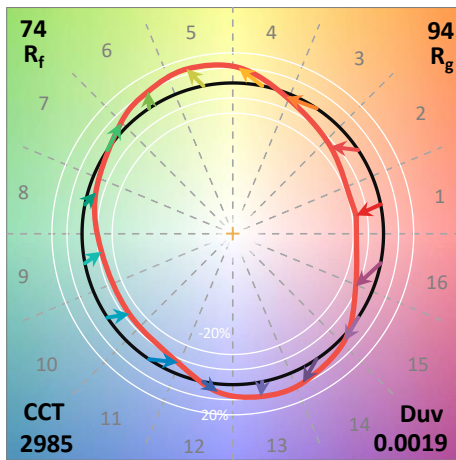
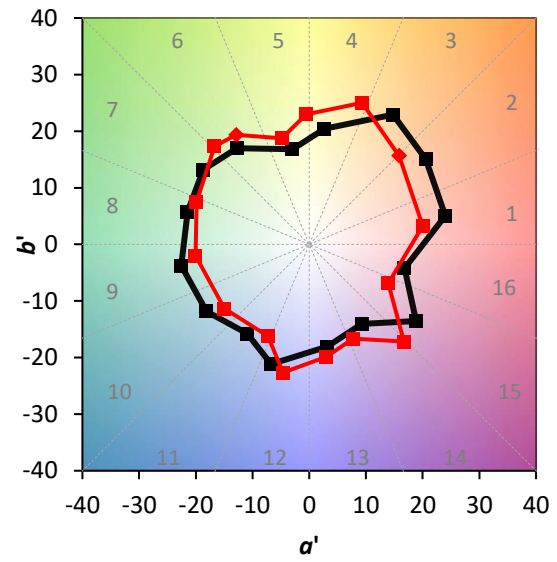
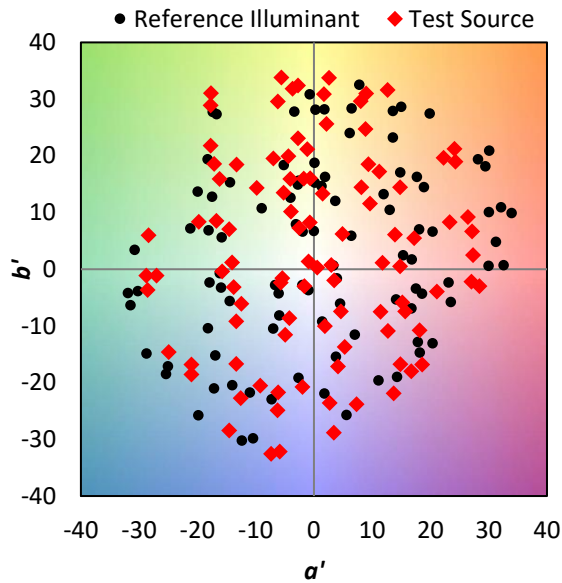
TM-30-18

### Summary

$R_f = 73.8$   
 $R_g = 94.4$   
 CIE  $R_a = 70.8$   
 $R_g = -43.2$



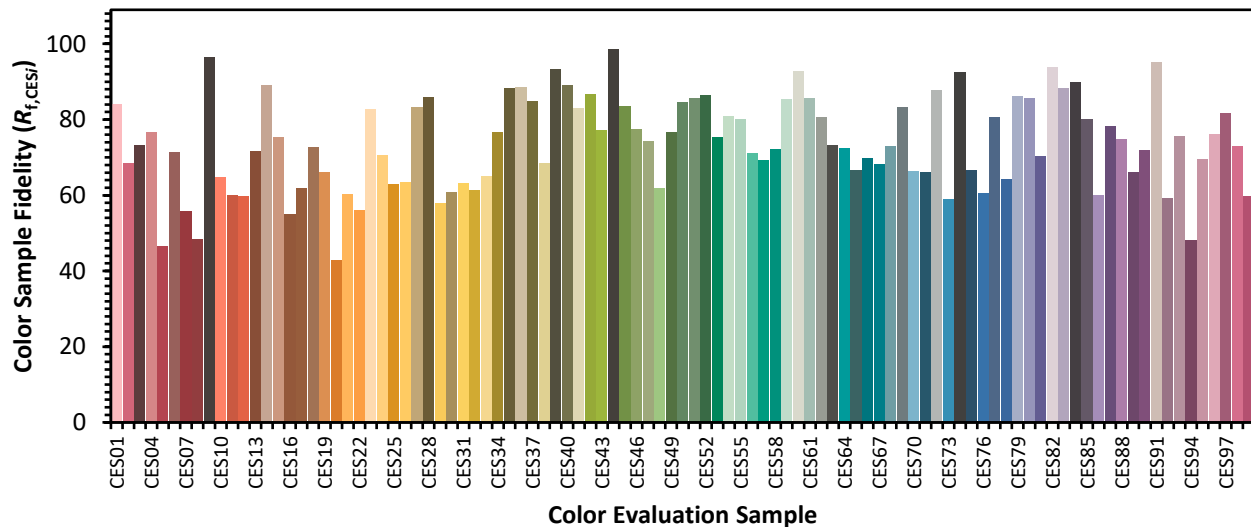
### Color Vector Graphics

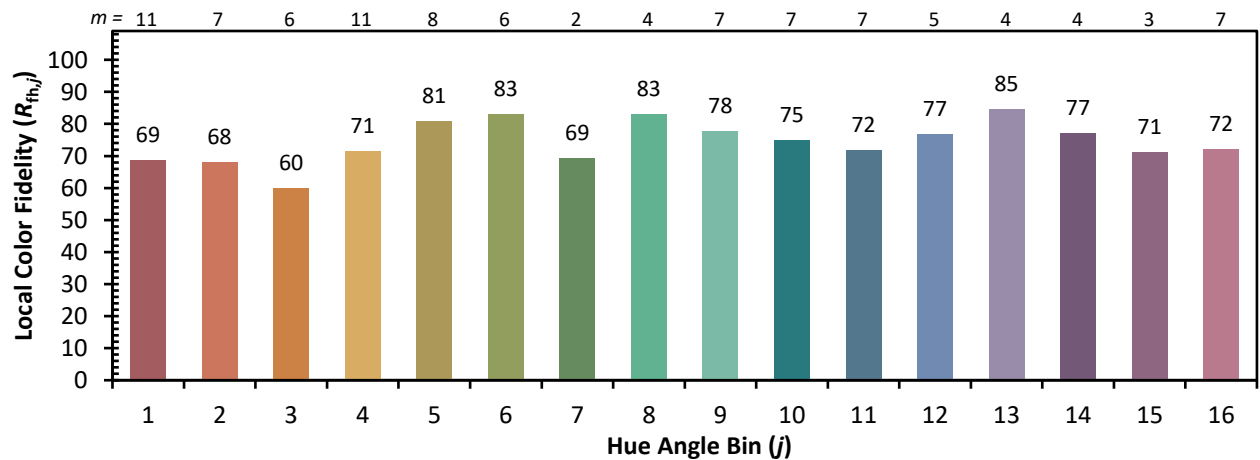
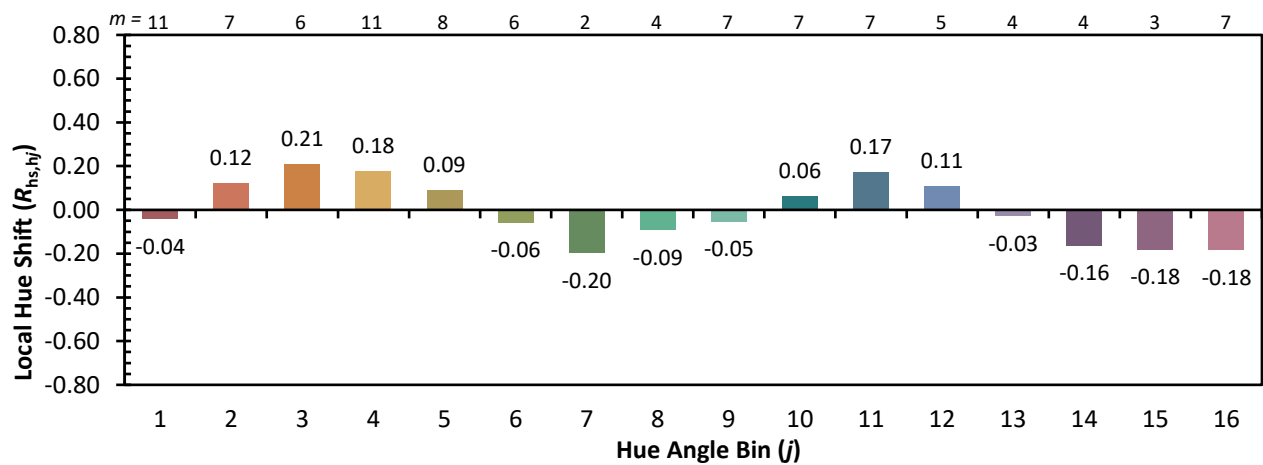
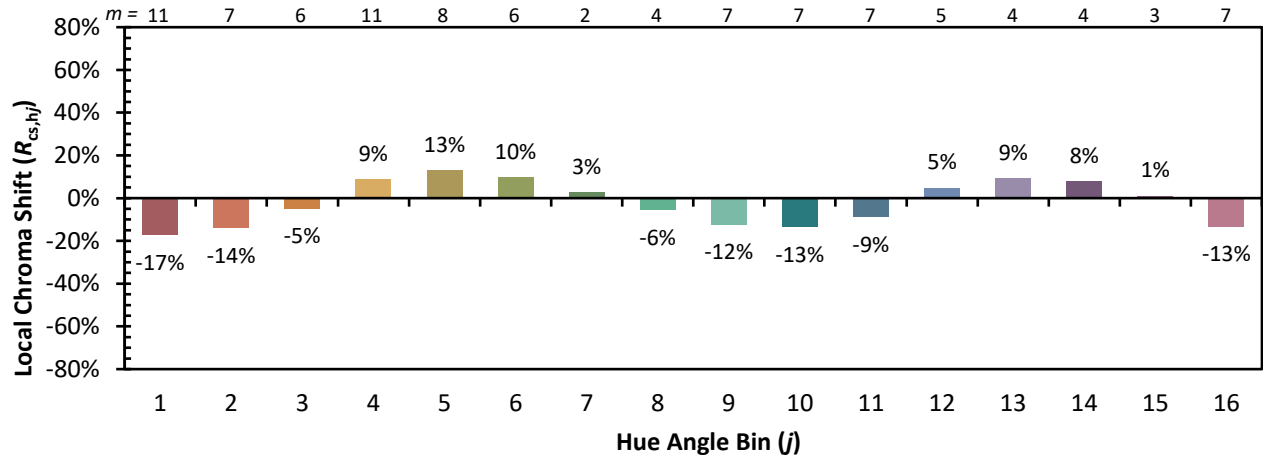




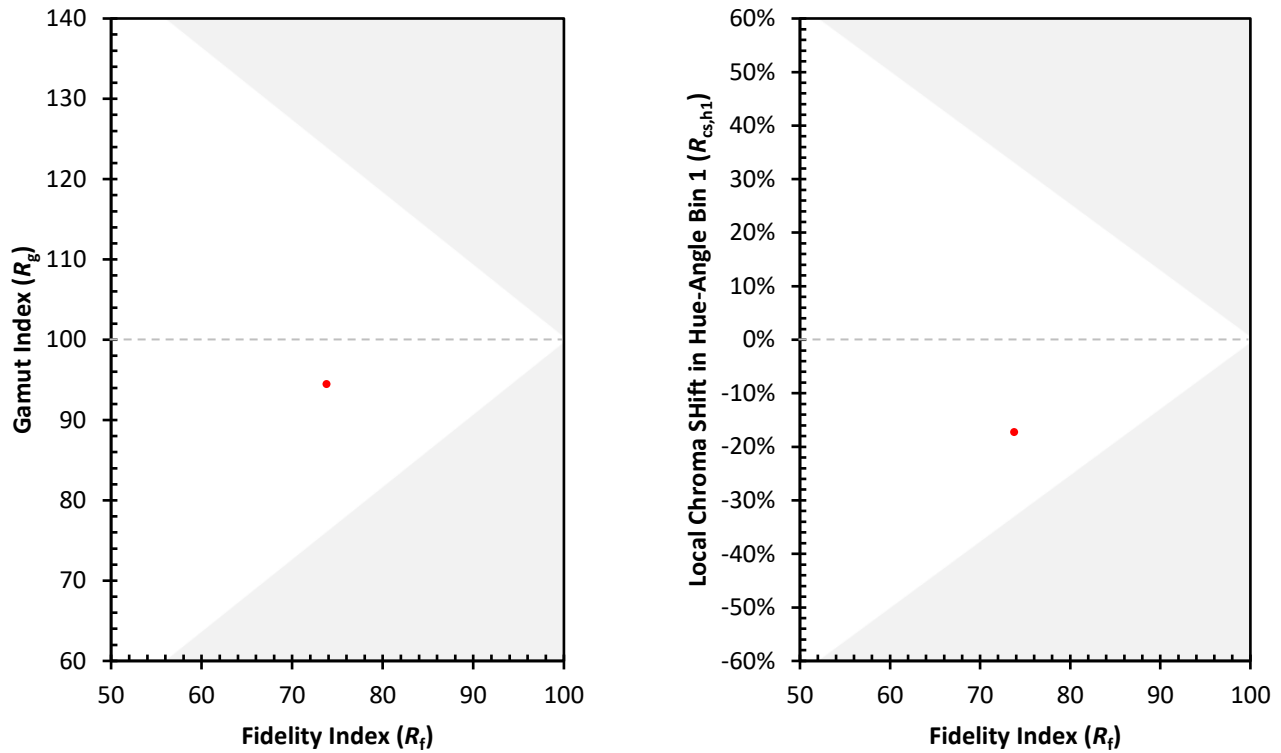
**Individual Sample Fidelity Index ( $R_{f,i}$ )**

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 63 | CES51 = 86 | CES76 = 61 |
| CES02 = 62 | CES27 = 83 | CES52 = 86 | CES77 = 81 |
| CES03 = 31 | CES28 = 86 | CES53 = 75 | CES78 = 64 |
| CES04 = 71 | CES29 = 58 | CES54 = 81 | CES79 = 86 |
| CES05 = 49 | CES30 = 61 | CES55 = 80 | CES80 = 86 |
| CES06 = 51 | CES31 = 63 | CES56 = 71 | CES81 = 70 |
| CES07 = 41 | CES32 = 61 | CES57 = 69 | CES82 = 94 |
| CES08 = 40 | CES33 = 65 | CES58 = 72 | CES83 = 88 |
| CES09 = 29 | CES34 = 77 | CES59 = 85 | CES84 = 90 |
| CES10 = 76 | CES35 = 88 | CES60 = 93 | CES85 = 80 |
| CES11 = 59 | CES36 = 89 | CES61 = 86 | CES86 = 60 |
| CES12 = 65 | CES37 = 85 | CES62 = 81 | CES87 = 78 |
| CES13 = 43 | CES38 = 69 | CES63 = 73 | CES88 = 75 |
| CES14 = 74 | CES39 = 93 | CES64 = 72 | CES89 = 66 |
| CES15 = 71 | CES40 = 89 | CES65 = 67 | CES90 = 72 |
| CES16 = 47 | CES41 = 83 | CES66 = 70 | CES91 = 95 |
| CES17 = 50 | CES42 = 87 | CES67 = 68 | CES92 = 59 |
| CES18 = 56 | CES43 = 77 | CES68 = 73 | CES93 = 76 |
| CES19 = 73 | CES44 = 99 | CES69 = 83 | CES94 = 48 |
| CES20 = 66 | CES45 = 83 | CES70 = 66 | CES95 = 70 |
| CES21 = 87 | CES46 = 77 | CES71 = 66 | CES96 = 76 |
| CES22 = 79 | CES47 = 74 | CES72 = 88 | CES97 = 82 |
| CES23 = 92 | CES48 = 62 | CES73 = 59 | CES98 = 73 |
| CES24 = 91 | CES49 = 77 | CES74 = 93 | CES99 = 60 |
| CES25 = 73 | CES50 = 85 | CES75 = 67 |            |



**Color Rendition by Hue-Angle Bin**


**Measure Comparisons**



(END OF REPORT)