

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



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

Test Report Prepared for
Cooper Lighting Solutions
(formerly Eaton)

Brand: STREETWORKS

Report Number: P879892

Luminaire Tested: **MEM2-HSN-VA-50-727-U-WT4**

Issue Date: 10/01/2024



Test Information

Test Method: LM-79-08
Report Number: P879892
Test Lab: INNOVATION CENTER(G3)
Issue Date: 10/01/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: STREETWORKS
Catalog Number: MEM2-HSN-VA-50-727-U-WT4
Description: EPIC MODERN SHORT HOUSING 50W 70CRI 2700K VISUAL COMFORT FIXTURE w/
DRIVE LANE TYPE IV DISTRIBUTION OPTIC
Light Source: (1) 2700K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

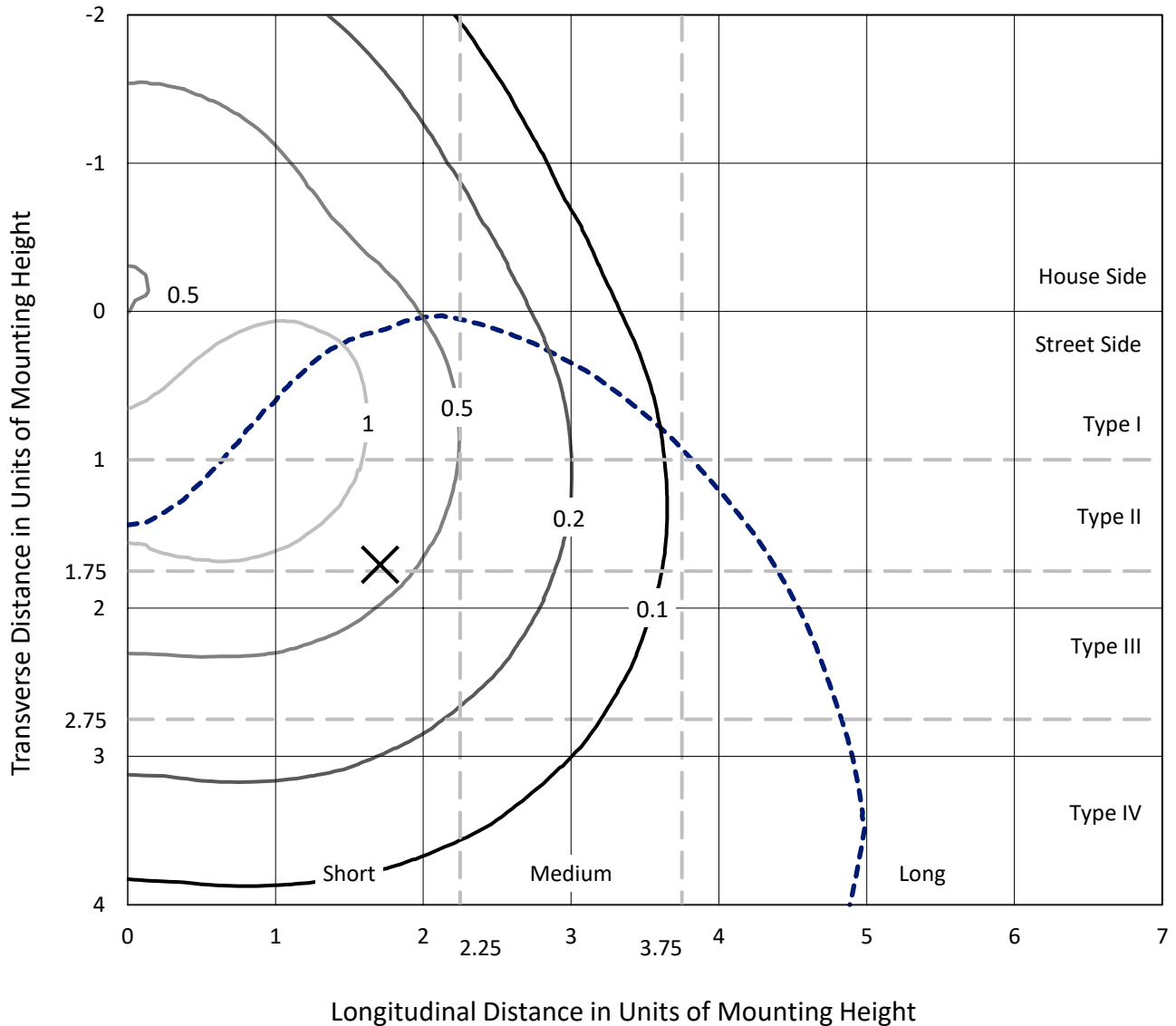
Lumens per Lamp: N/A
Luminaire Lumens: 4851.4 lumens
Efficiency: N/A
Efficacy: 99.0 lumens/watt
Luminous Opening: Circular (Dia: 1.12' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B2 - U0 - G3

Input Watts (W): 49
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.99
Total Harmonic Distortion (THDi): 6%
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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Iso-Footcandle Lines of Horizontal Illumination

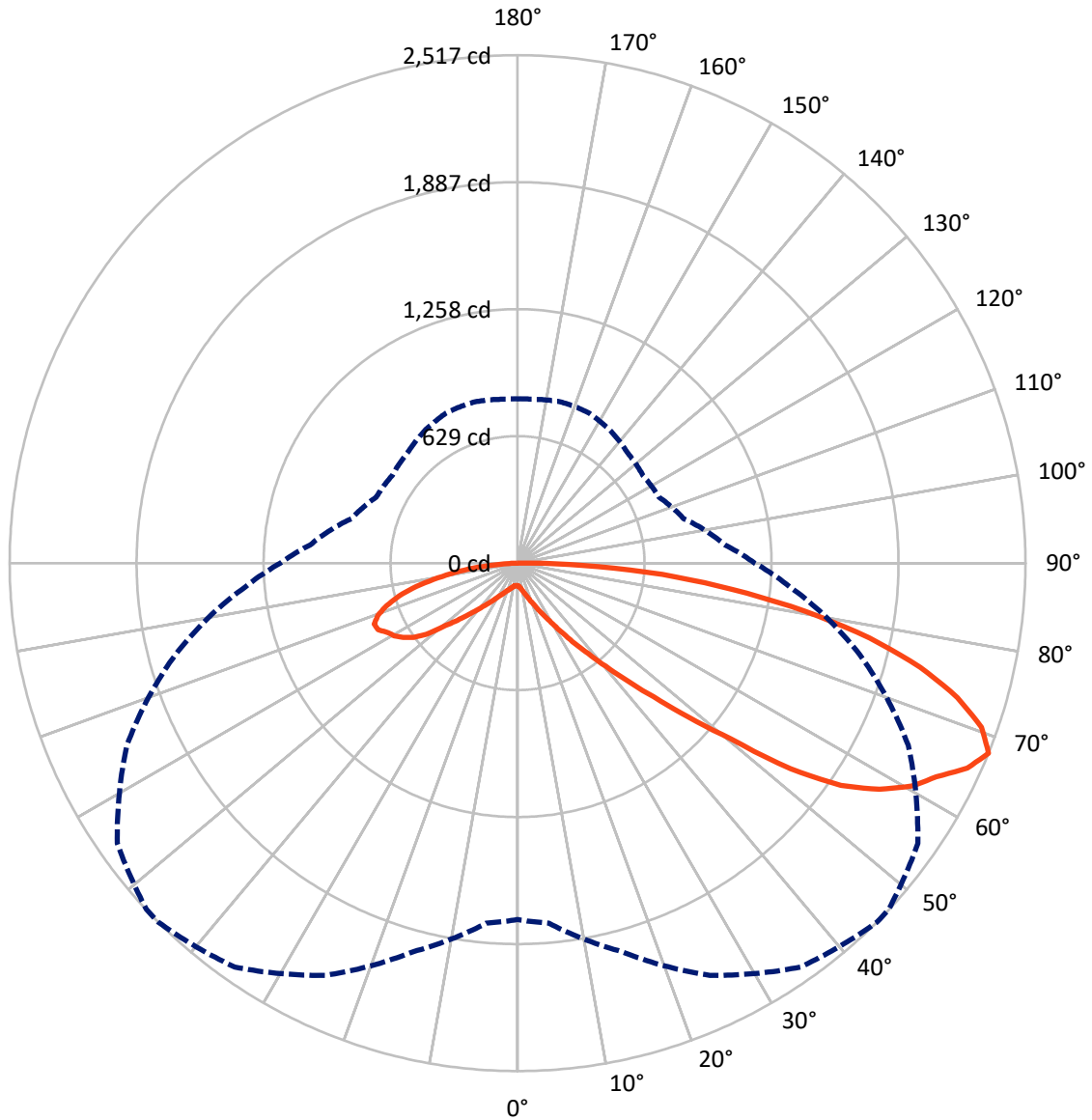
✕ Max cd
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 1.7 fc
 Type IV - Short - N/A

REPORT NUMBER: P879892
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Luminous Intensity Polar Plot



— Vertical Plane Through 45-Deg Lateral - - - Horizontal Cone Through 67.5-Deg Vertical

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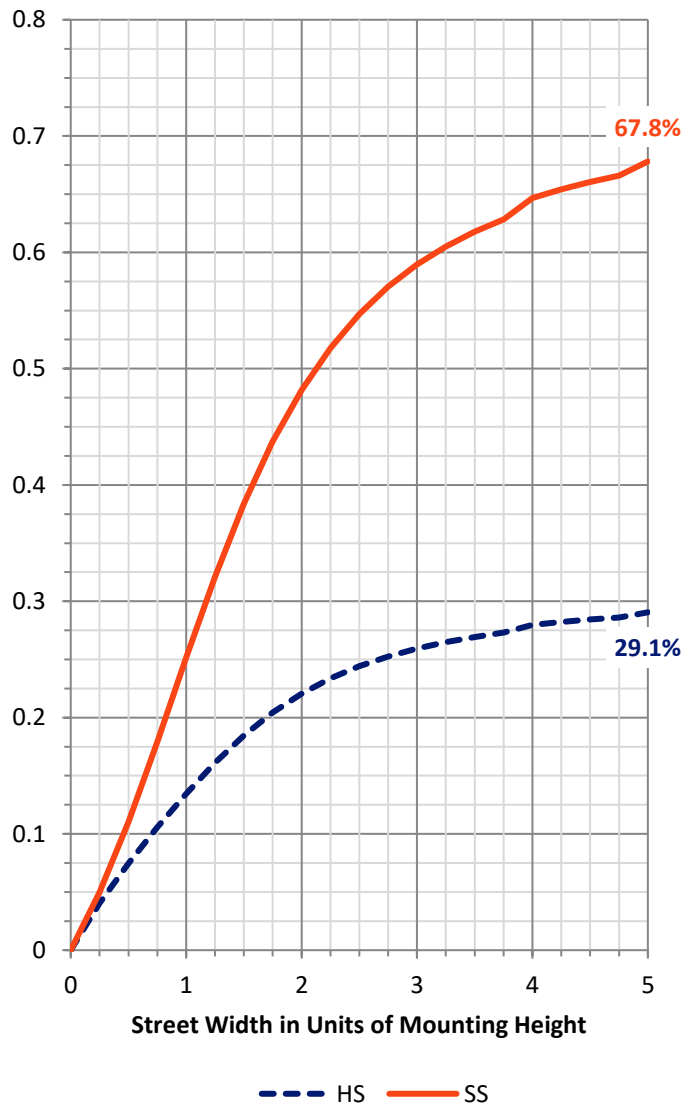
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 1437.8 | 0.0 | 1437.8 |
| | % Fixture | 29.6 | 0.0 | 29.6 |
| Street Side | Lumens | 3413.6 | 0.0 | 3413.6 |
| | % Fixture | 70.4 | 0.0 | 70.4 |
| Total | Lumens | 4851.4 | 0.0 | 4851.4 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 11.5 | 0.2 |
| 10°-20° | 43.2 | 0.9 |
| 20°-30° | 101.7 | 2.1 |
| 30°-40° | 223.0 | 4.6 |
| 40°-50° | 485.5 | 10.0 |
| 50°-60° | 997.4 | 20.6 |
| 60°-70° | 1405.2 | 29.0 |
| 70°-80° | 1193.0 | 24.6 |
| 80°-90° | 391.0 | 8.1 |
| 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° | 4851.4 | 100.0 |
| 0°-180° | 4851.4 | 100.0 |



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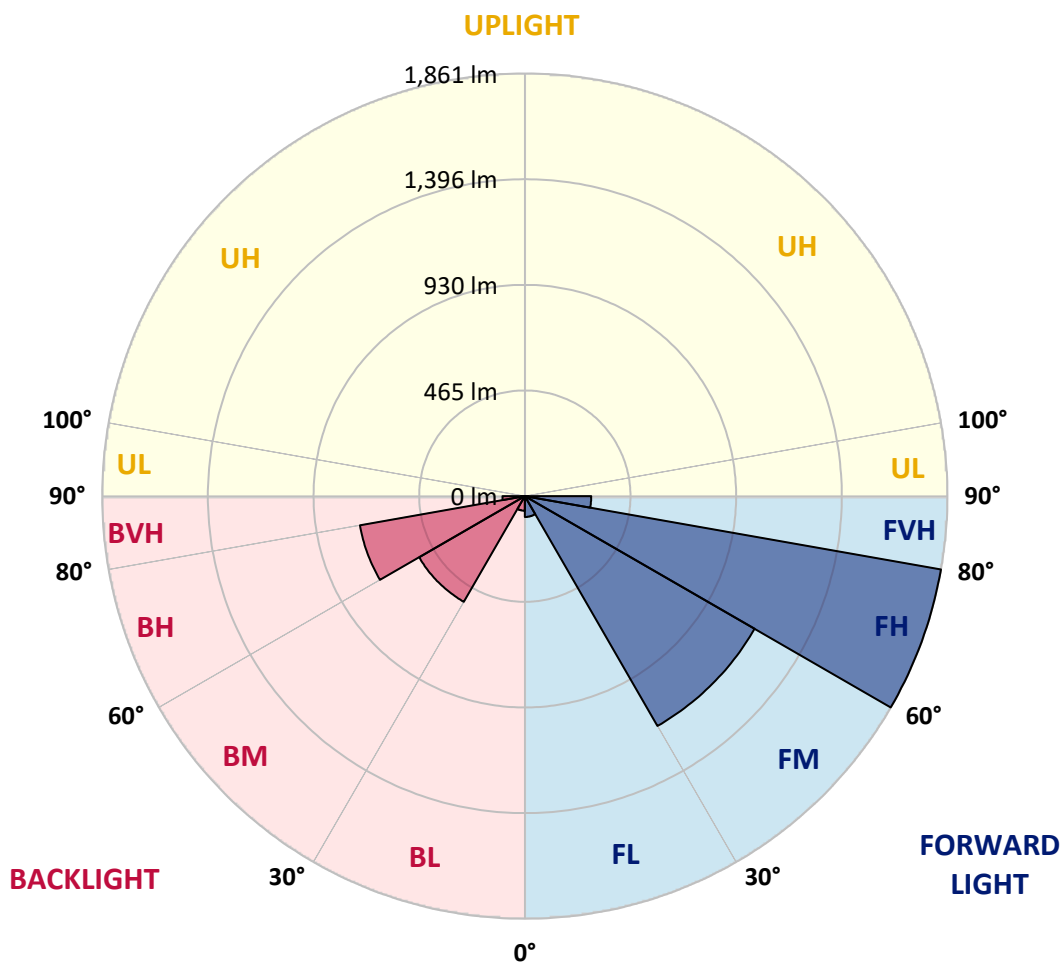
CATALOG NUMBER: MEM2-HSN-VA-50-727-U-WT4

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 91.8 | 1.9 | | | |
| FM (30°-60°) | 1168.5 | 24.1 | | | |
| FH (60°-80°) | 1861.0 | 38.4 | | | G2/5000 |
| FVH (80°-90°) | 292.4 | 6.0 | | | G3/500 |
| BL (0°-30°) | 64.5 | 1.3 | B0/110 | | |
| BM (30°-60°) | 537.4 | 11.1 | B1/1000 | | |
| BH (60°-80°) | 737.3 | 15.2 | B2/1000 | | G2/1000 |
| BVH (80°-90°) | 98.6 | 2.0 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B2-U0-G3

Type IV Short





REPORT NUMBER: P879892

CATALOG NUMBER: MEM2-HSN-VA-50-727-U-WT4

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 47° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 112.0 | 112.0 | 112.0 | 112.0 | 112.0 | 112.0 | 112.0 | 112.0 | 112.0 | 112.0 | 112.0 |
| 2.5° | 115.5 | 115.0 | 115.5 | 115.5 | 115.5 | 115.0 | 115.0 | 115.0 | 114.5 | 114.0 | 113.5 |
| 5° | 122.4 | 122.4 | 122.4 | 121.9 | 121.9 | 120.9 | 120.9 | 120.4 | 119.5 | 118.5 | 117.5 |
| 7.5° | 131.9 | 131.4 | 131.4 | 130.9 | 130.4 | 129.4 | 128.9 | 128.4 | 126.4 | 124.9 | 122.9 |
| 10° | 143.3 | 143.3 | 142.8 | 141.8 | 141.8 | 139.3 | 139.8 | 138.8 | 136.3 | 133.3 | 129.9 |
| 12.5° | 157.1 | 157.1 | 156.1 | 156.1 | 155.1 | 153.2 | 152.7 | 151.2 | 148.7 | 143.7 | 139.8 |
| 15° | 172.5 | 172.5 | 173.5 | 172.5 | 171.5 | 169.0 | 169.0 | 167.0 | 161.6 | 157.6 | 151.7 |
| 17.5° | 191.8 | 189.3 | 190.8 | 190.3 | 190.3 | 188.9 | 187.4 | 184.9 | 180.4 | 173.5 | 166.1 |
| 20° | 211.7 | 212.2 | 210.7 | 212.2 | 212.6 | 210.7 | 210.7 | 207.7 | 201.2 | 192.8 | 180.9 |
| 22.5° | 236.4 | 236.4 | 233.5 | 237.4 | 239.9 | 238.4 | 237.9 | 232.0 | 224.0 | 212.6 | 200.7 |
| 25° | 262.2 | 261.2 | 266.2 | 267.2 | 272.6 | 272.1 | 271.6 | 266.2 | 254.3 | 240.4 | 222.1 |
| 27.5° | 291.5 | 292.9 | 302.4 | 304.8 | 310.3 | 309.8 | 309.3 | 303.4 | 290.5 | 271.6 | 247.8 |
| 30° | 327.6 | 329.6 | 338.5 | 347.0 | 356.4 | 357.4 | 356.4 | 351.4 | 332.6 | 307.8 | 281.0 |
| 32.5° | 369.8 | 375.2 | 384.2 | 398.5 | 410.4 | 415.9 | 416.9 | 407.9 | 386.6 | 353.9 | 318.7 |
| 35° | 427.3 | 422.8 | 435.2 | 459.0 | 478.8 | 489.7 | 489.2 | 477.3 | 454.0 | 412.4 | 362.3 |
| 37.5° | 483.8 | 482.3 | 501.6 | 532.9 | 559.6 | 568.5 | 571.0 | 563.1 | 533.3 | 478.3 | 419.3 |
| 40° | 542.8 | 555.2 | 577.5 | 613.6 | 653.3 | 672.1 | 673.6 | 662.2 | 621.6 | 559.6 | 481.8 |
| 42.5° | 619.6 | 632.0 | 660.2 | 704.9 | 762.4 | 793.6 | 795.6 | 782.7 | 733.6 | 653.3 | 557.1 |
| 45° | 716.8 | 723.7 | 753.4 | 821.3 | 895.2 | 945.3 | 959.6 | 943.8 | 883.3 | 771.8 | 650.8 |
| 47.5° | 821.3 | 821.3 | 869.9 | 959.6 | 1071.2 | 1137.1 | 1148.0 | 1133.6 | 1043.4 | 909.1 | 755.4 |
| 50° | 937.8 | 938.3 | 1015.6 | 1144.0 | 1284.8 | 1367.1 | 1375.5 | 1340.8 | 1231.8 | 1048.9 | 862.0 |
| 52.5° | 1058.8 | 1071.7 | 1184.7 | 1379.0 | 1567.8 | 1693.7 | 1702.2 | 1662.0 | 1516.8 | 1249.1 | 975.5 |
| 55° | 1225.3 | 1245.6 | 1409.7 | 1648.1 | 1844.4 | 1943.6 | 1944.1 | 1896.0 | 1721.5 | 1443.4 | 1111.3 |
| 57.5° | 1456.3 | 1464.2 | 1617.4 | 1860.8 | 2046.2 | 2114.1 | 2109.1 | 2038.7 | 1837.5 | 1552.0 | 1222.8 |
| 60° | 1647.1 | 1665.5 | 1790.4 | 2016.4 | 2197.3 | 2243.9 | 2238.5 | 2145.3 | 1916.8 | 1615.4 | 1276.4 |
| 62.5° | 1772.5 | 1781.5 | 1910.8 | 2127.9 | 2290.5 | 2329.7 | 2323.7 | 2237.0 | 2013.9 | 1726.0 | 1365.6 |
| 65° | 1802.8 | 1817.7 | 1981.7 | 2202.3 | 2359.9 | 2448.2 | 2444.2 | 2397.6 | 2168.6 | 1807.7 | 1407.7 |
| 67.5° | 1766.1 | 1790.9 | 1992.1 | 2253.4 | 2443.2 | 2516.6 | 2514.6 | 2420.9 | 2135.4 | 1755.2 | 1354.7 |
| 70° | 1691.3 | 1712.6 | 1962.4 | 2247.9 | 2418.9 | 2438.7 | 2423.4 | 2316.3 | 2037.7 | 1668.0 | 1275.4 |
| 72.5° | 1573.3 | 1609.5 | 1853.3 | 2123.5 | 2266.2 | 2279.1 | 2273.7 | 2142.8 | 1891.0 | 1517.8 | 1155.4 |
| 75° | 1418.6 | 1462.7 | 1683.8 | 1902.4 | 2038.2 | 2060.5 | 2050.1 | 1935.6 | 1680.8 | 1329.9 | 1006.7 |
| 77.5° | 1222.8 | 1247.6 | 1416.2 | 1623.8 | 1780.0 | 1783.9 | 1778.0 | 1650.1 | 1415.7 | 1113.8 | 847.1 |
| 80° | 963.6 | 978.5 | 1124.7 | 1297.7 | 1427.1 | 1442.9 | 1437.5 | 1351.2 | 1124.2 | 881.3 | 660.7 |
| 82.5° | 713.8 | 703.9 | 802.0 | 943.8 | 1072.2 | 1073.1 | 1082.1 | 986.4 | 841.7 | 639.4 | 472.9 |
| 85° | 410.9 | 414.9 | 500.1 | 596.8 | 674.6 | 719.7 | 719.2 | 673.1 | 541.3 | 407.0 | 288.5 |
| 87.5° | 114.5 | 123.4 | 177.5 | 258.2 | 293.4 | 319.2 | 309.8 | 279.6 | 226.0 | 127.9 | 73.4 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



REPORT NUMBER: P879892

CATALOG NUMBER: MEM2-HSN-VA-50-727-U-WT4

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 112.0 | 112.0 | 112.0 | 112.0 | 112.0 | 112.0 | 112.0 | 112.0 | 112.0 | 112.0 | 112.0 |
| 2.5° | 113.5 | 113.0 | 112.5 | 112.0 | 111.0 | 111.0 | 110.5 | 111.0 | 111.0 | 111.0 | 111.0 |
| 5° | 116.5 | 116.0 | 114.5 | 113.5 | 112.0 | 111.0 | 110.5 | 110.5 | 110.5 | 110.5 | 110.5 |
| 7.5° | 121.4 | 120.9 | 118.5 | 116.5 | 114.5 | 113.5 | 112.5 | 112.0 | 111.5 | 111.0 | 111.5 |
| 10° | 128.9 | 126.9 | 124.4 | 121.4 | 118.5 | 117.0 | 115.5 | 115.0 | 114.5 | 114.0 | 114.0 |
| 12.5° | 137.3 | 135.8 | 131.4 | 127.4 | 124.4 | 121.9 | 120.0 | 119.0 | 118.5 | 118.0 | 118.0 |
| 15° | 148.7 | 145.7 | 139.8 | 134.8 | 130.4 | 127.4 | 125.4 | 124.4 | 123.9 | 123.4 | 123.4 |
| 17.5° | 161.6 | 157.6 | 149.7 | 143.3 | 138.3 | 134.3 | 131.9 | 130.4 | 129.4 | 129.9 | 130.4 |
| 20° | 176.5 | 170.0 | 161.1 | 153.2 | 146.7 | 142.3 | 139.8 | 137.8 | 136.8 | 137.3 | 137.8 |
| 22.5° | 193.8 | 186.9 | 174.0 | 164.6 | 156.6 | 151.2 | 148.7 | 147.2 | 146.2 | 145.7 | 144.7 |
| 25° | 213.6 | 204.7 | 189.8 | 177.0 | 167.5 | 162.1 | 159.1 | 158.1 | 157.1 | 156.1 | 156.1 |
| 27.5° | 237.4 | 227.0 | 206.7 | 192.8 | 181.4 | 176.0 | 172.5 | 171.0 | 171.0 | 169.5 | 169.5 |
| 30° | 265.2 | 251.3 | 226.5 | 208.2 | 196.8 | 189.8 | 185.9 | 185.4 | 184.4 | 185.9 | 185.9 |
| 32.5° | 298.4 | 279.6 | 249.3 | 228.0 | 215.1 | 208.7 | 204.7 | 203.7 | 202.2 | 203.2 | 206.2 |
| 35° | 340.0 | 315.7 | 279.6 | 254.3 | 238.4 | 232.0 | 227.0 | 226.5 | 224.0 | 226.5 | 222.6 |
| 37.5° | 386.6 | 359.9 | 311.8 | 282.0 | 264.7 | 257.3 | 253.8 | 252.3 | 251.8 | 251.8 | 248.8 |
| 40° | 443.6 | 411.4 | 352.9 | 316.2 | 296.4 | 287.5 | 284.0 | 283.5 | 282.5 | 286.0 | 282.5 |
| 42.5° | 514.0 | 464.9 | 395.6 | 353.9 | 333.6 | 324.2 | 320.2 | 318.7 | 321.2 | 322.7 | 322.2 |
| 45° | 592.3 | 539.3 | 450.1 | 402.0 | 378.7 | 369.3 | 363.8 | 362.3 | 363.3 | 363.3 | 368.3 |
| 47.5° | 682.5 | 620.1 | 512.5 | 454.5 | 433.2 | 421.8 | 418.4 | 413.4 | 410.9 | 409.9 | 418.4 |
| 50° | 776.7 | 698.9 | 576.5 | 511.5 | 492.2 | 483.3 | 484.3 | 474.4 | 470.9 | 466.9 | 465.9 |
| 52.5° | 871.4 | 783.2 | 649.3 | 590.8 | 568.5 | 573.0 | 571.0 | 560.6 | 540.3 | 535.3 | 523.4 |
| 55° | 984.9 | 878.3 | 719.2 | 649.3 | 630.0 | 633.5 | 641.4 | 641.4 | 636.9 | 626.0 | 616.6 |
| 57.5° | 1081.1 | 957.2 | 771.8 | 684.5 | 667.7 | 676.6 | 692.5 | 704.4 | 714.8 | 722.7 | 722.2 |
| 60° | 1134.6 | 1005.7 | 806.0 | 711.3 | 691.5 | 708.8 | 732.6 | 752.9 | 775.2 | 798.5 | 797.5 |
| 62.5° | 1208.5 | 1073.6 | 866.9 | 758.9 | 724.7 | 730.1 | 757.4 | 792.6 | 812.9 | 832.2 | 837.7 |
| 65° | 1227.8 | 1086.0 | 889.7 | 792.6 | 764.8 | 765.8 | 784.2 | 812.9 | 830.3 | 835.2 | 838.2 |
| 67.5° | 1175.7 | 1031.5 | 852.1 | 772.8 | 757.9 | 771.8 | 801.5 | 824.3 | 826.8 | 814.9 | 813.9 |
| 70° | 1097.4 | 964.6 | 792.6 | 726.2 | 716.8 | 738.1 | 777.2 | 804.5 | 798.5 | 774.2 | 772.8 |
| 72.5° | 986.9 | 863.5 | 712.8 | 664.7 | 655.3 | 682.1 | 716.8 | 745.5 | 736.6 | 718.2 | 716.8 |
| 75° | 854.1 | 738.6 | 616.1 | 580.4 | 579.9 | 609.2 | 639.4 | 656.8 | 656.3 | 643.4 | 639.4 |
| 77.5° | 709.8 | 616.1 | 507.6 | 475.4 | 487.3 | 515.0 | 537.3 | 550.2 | 545.7 | 541.3 | 539.8 |
| 80° | 555.7 | 472.4 | 391.6 | 372.3 | 390.6 | 400.0 | 423.8 | 422.8 | 425.3 | 415.9 | 422.8 |
| 82.5° | 395.6 | 340.5 | 280.6 | 272.1 | 274.6 | 293.4 | 306.3 | 304.8 | 298.4 | 291.5 | 288.5 |
| 85° | 239.9 | 209.7 | 179.9 | 168.0 | 176.5 | 175.0 | 182.9 | 176.5 | 172.5 | 169.0 | 172.0 |
| 87.5° | 66.4 | 57.5 | 55.0 | 39.7 | 49.1 | 38.7 | 40.6 | 28.3 | 24.8 | 29.7 | 25.8 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



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

Report Prepared for

Cooper Lighting Solutions

Streetworks

Report Number: SP1-2407-176-2

Test Date: 09/24/2024

Luminaire Tested: MEM2-HTN-VA-30-727-U-WQ

Data in this report applies to families of products including MEM2-HTN-VA-30-727-U-WQ

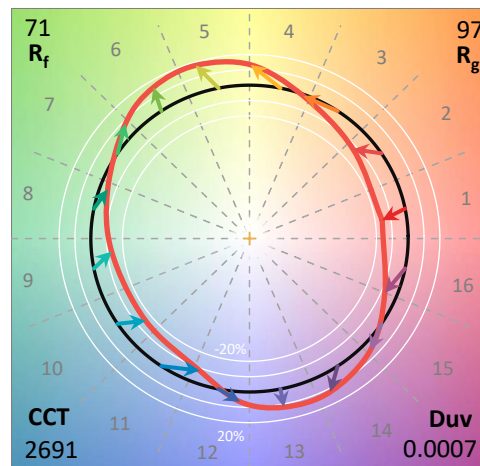
Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-176-2
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 09/27/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: Streetworks
 Catalog Number: **MEM2-HTN-VA-30-727-U-WQ**
 Description: EPIC MODERN VISUAL COMFORT 30W WAVESTREAM WIDE

Spectral Parameters

CCT (K): 2691
 CIE u': 0.2627
 CIE v': 0.5285
 Duv: 0.0007
 CIE x: 0.4618
 CIE y: 0.4129
 CIE z: 0.1254
 Peak Wavelength (nm): 601
 Dominant Wavelength (nm): 584
 Purity: 62.54863
 Rf: 70.6
 Rg: 97.2

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 70.6 | | |
| R1: | 67.7 | R9: | -27.1 |
| R2: | 79.8 | R10: | 53.1 |
| R3: | 90.6 | R11: | 61.9 |
| R4: | 67.7 | R12: | 42.2 |
| R5: | 65.3 | R13: | 69.4 |
| R6: | 71.1 | R14: | 94.1 |
| R7: | 78.1 | R15: | 60.4 |
| R8: | 44.7 | | |



Test Conditions

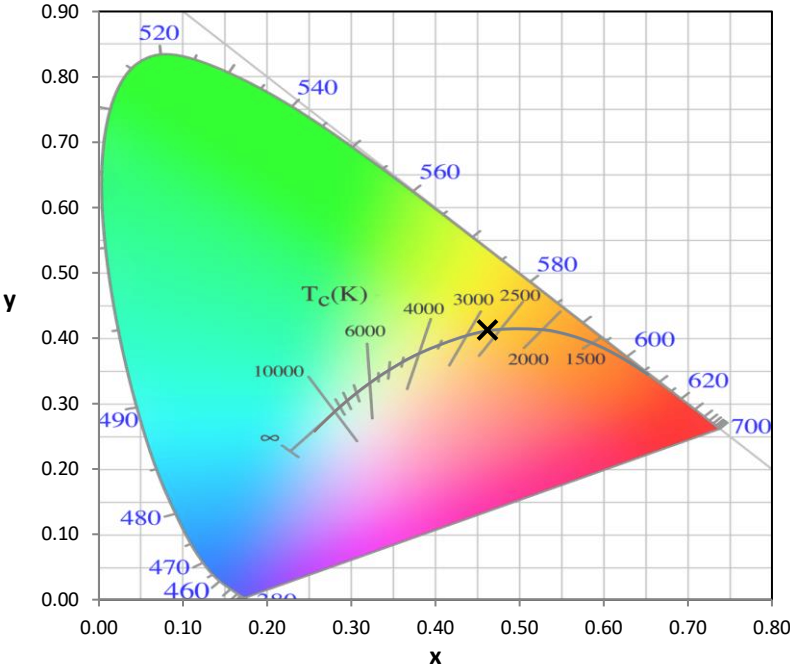
Stabilization Time: 28M
 Operation Time: 1H 28M
 Sphere Temperature (°C): 25.2

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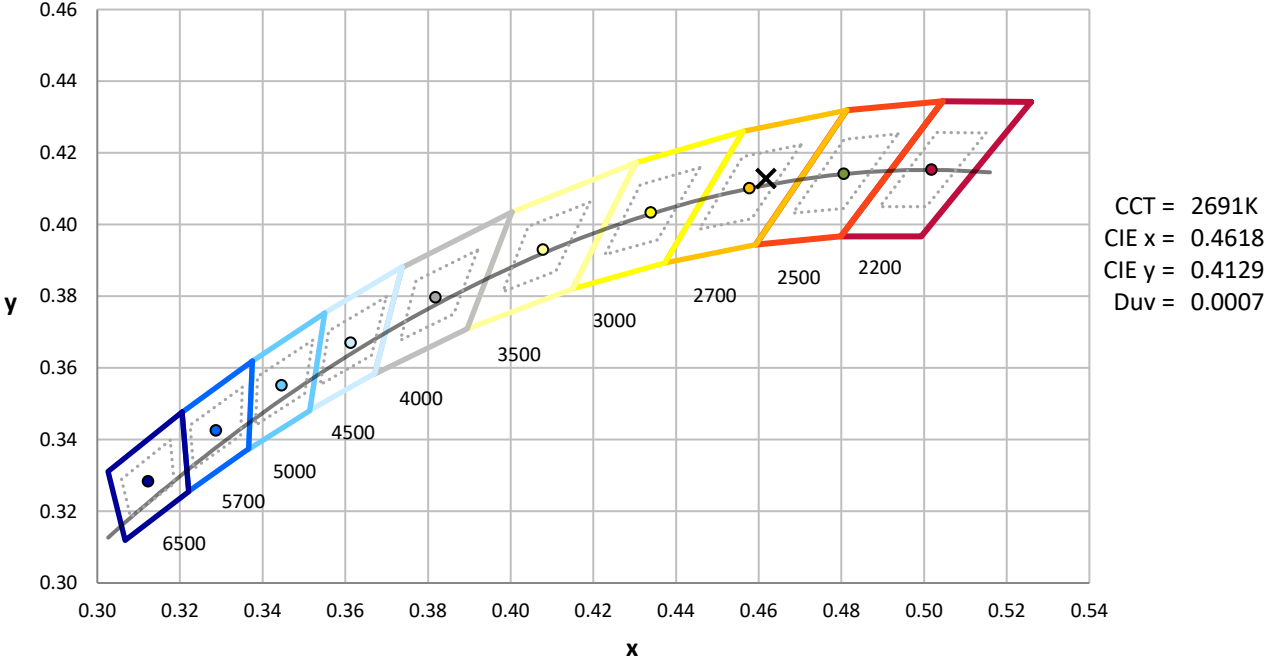
| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 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



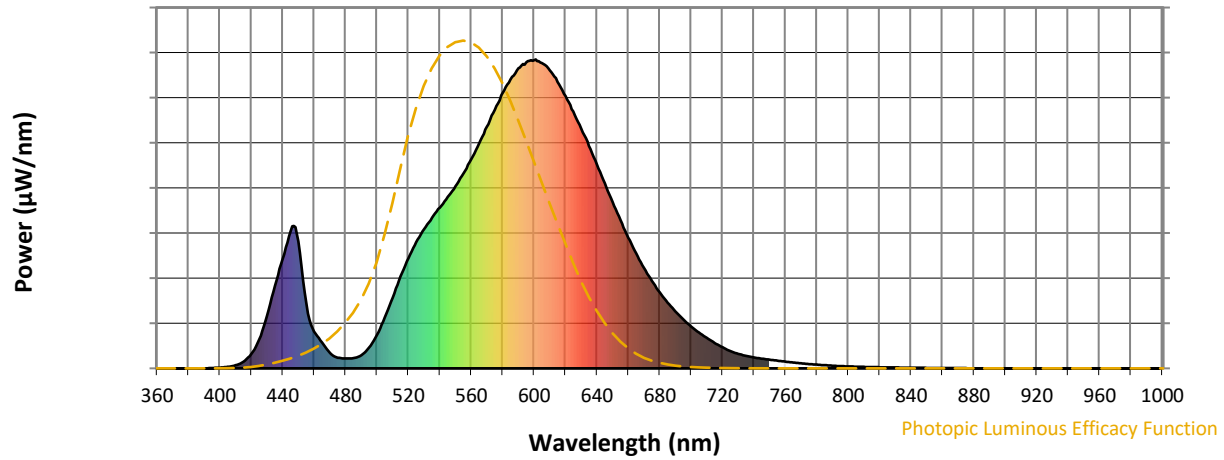
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 2700K 4-step quadrangle

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Photopic Flux vs. Wavelength

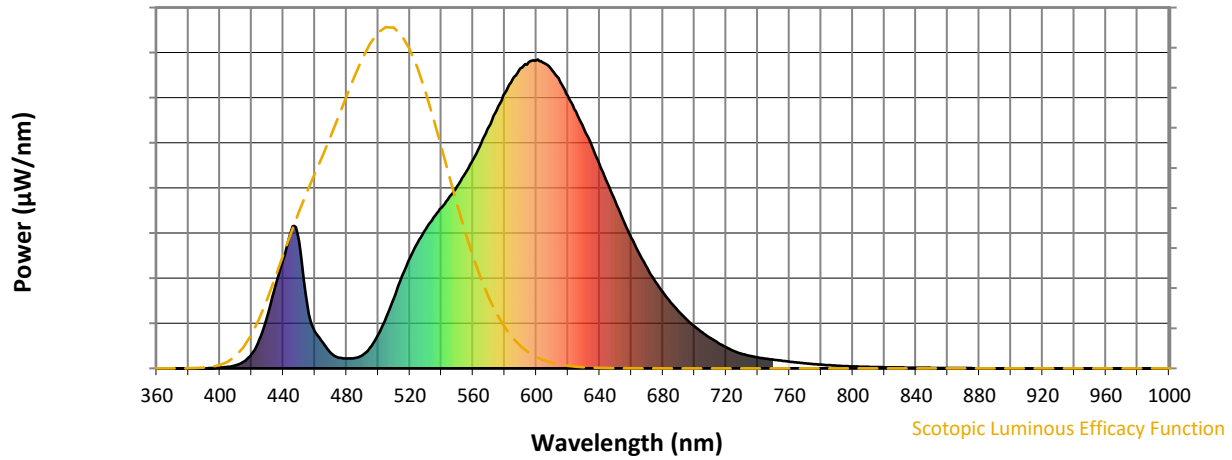


Photopic Lumens: NR

| λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360 | 0 | NR | 490 | 43 | NR | 620 | 881 | NR | 750 | 28 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 67 | NR | 625 | 832 | NR | 755 | 25 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 108 | NR | 630 | 776 | NR | 760 | 22 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 165 | NR | 635 | 720 | NR | 765 | 19 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 229 | NR | 640 | 660 | NR | 770 | 16 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 297 | NR | 645 | 599 | NR | 775 | 14 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 357 | NR | 650 | 538 | NR | 780 | 12 | NR | 910 | 0 | NR |
| 395 | 1 | NR | 525 | 408 | NR | 655 | 480 | NR | 785 | 10 | NR | 915 | 0 | NR |
| 400 | 3 | NR | 530 | 451 | NR | 660 | 423 | NR | 790 | 9 | NR | 920 | 0 | NR |
| 405 | 5 | NR | 535 | 488 | NR | 665 | 372 | NR | 795 | 7 | NR | 925 | 0 | NR |
| 410 | 10 | NR | 540 | 521 | NR | 670 | 325 | NR | 800 | 6 | NR | 930 | 0 | NR |
| 415 | 21 | NR | 545 | 555 | NR | 675 | 282 | NR | 805 | 5 | NR | 935 | 0 | NR |
| 420 | 46 | NR | 550 | 590 | NR | 680 | 246 | NR | 810 | 5 | NR | 940 | 0 | NR |
| 425 | 94 | NR | 555 | 631 | NR | 685 | 213 | NR | 815 | 4 | NR | 945 | 0 | NR |
| 430 | 169 | NR | 560 | 677 | NR | 690 | 185 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 268 | NR | 565 | 728 | NR | 695 | 158 | NR | 825 | 3 | NR | 955 | 0 | NR |
| 440 | 354 | NR | 570 | 782 | NR | 700 | 136 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 445 | NR | 575 | 838 | NR | 705 | 116 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 411 | NR | 580 | 891 | NR | 710 | 98 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 210 | NR | 585 | 935 | NR | 715 | 82 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 119 | NR | 590 | 972 | NR | 720 | 68 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 84 | NR | 595 | 991 | NR | 725 | 56 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 50 | NR | 600 | 997 | NR | 730 | 47 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 35 | NR | 605 | 988 | NR | 735 | 40 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 32 | NR | 610 | 965 | NR | 740 | 35 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 33 | NR | 615 | 927 | NR | 745 | 31 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2407-176-2

Scotopic Flux vs. Wavelength



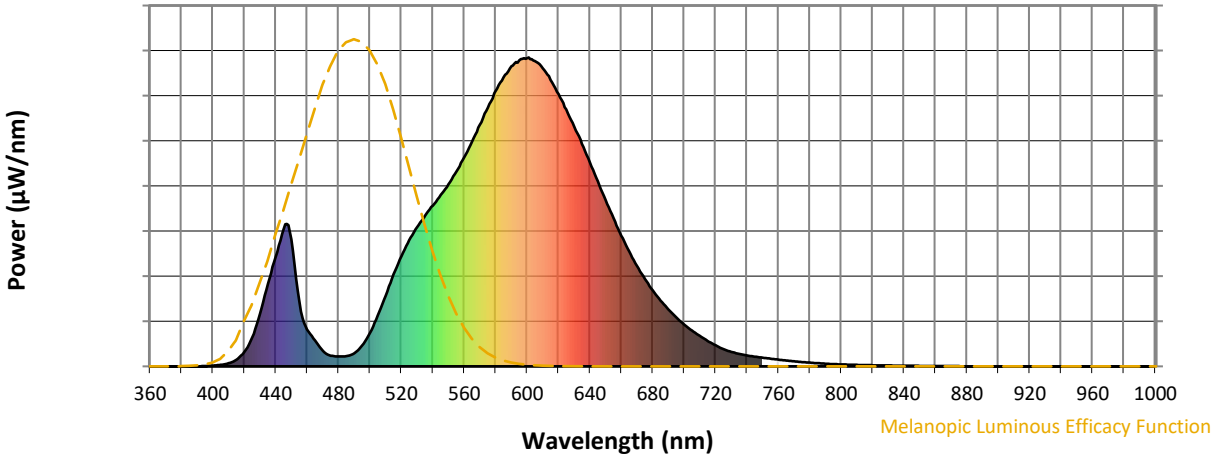
Scotopic Lumens: NR

S/P: 1.03

| λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) |
|----------------|--------------------------|----------------------|----------------|--------------------------|----------------------|----------------|--------------------------|----------------------|----------------|--------------------------|----------------------|----------------|--------------------------|----------------------|
| 360 | 0 | NR | 490 | 43 | NR | 620 | 881 | NR | 750 | 28 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 67 | NR | 625 | 832 | NR | 755 | 25 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 108 | NR | 630 | 776 | NR | 760 | 22 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 165 | NR | 635 | 720 | NR | 765 | 19 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 229 | NR | 640 | 660 | NR | 770 | 16 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 297 | NR | 645 | 599 | NR | 775 | 14 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 357 | NR | 650 | 538 | NR | 780 | 12 | NR | 910 | 0 | NR |
| 395 | 1 | NR | 525 | 408 | NR | 655 | 480 | NR | 785 | 10 | NR | 915 | 0 | NR |
| 400 | 3 | NR | 530 | 451 | NR | 660 | 423 | NR | 790 | 9 | NR | 920 | 0 | NR |
| 405 | 5 | NR | 535 | 488 | NR | 665 | 372 | NR | 795 | 7 | NR | 925 | 0 | NR |
| 410 | 10 | NR | 540 | 521 | NR | 670 | 325 | NR | 800 | 6 | NR | 930 | 0 | NR |
| 415 | 21 | NR | 545 | 555 | NR | 675 | 282 | NR | 805 | 5 | NR | 935 | 0 | NR |
| 420 | 46 | NR | 550 | 590 | NR | 680 | 246 | NR | 810 | 5 | NR | 940 | 0 | NR |
| 425 | 94 | NR | 555 | 631 | NR | 685 | 213 | NR | 815 | 4 | NR | 945 | 0 | NR |
| 430 | 169 | NR | 560 | 677 | NR | 690 | 185 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 268 | NR | 565 | 728 | NR | 695 | 158 | NR | 825 | 3 | NR | 955 | 0 | NR |
| 440 | 354 | NR | 570 | 782 | NR | 700 | 136 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 445 | NR | 575 | 838 | NR | 705 | 116 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 411 | NR | 580 | 891 | NR | 710 | 98 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 210 | NR | 585 | 935 | NR | 715 | 82 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 119 | NR | 590 | 972 | NR | 720 | 68 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 84 | NR | 595 | 991 | NR | 725 | 56 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 50 | NR | 600 | 997 | NR | 730 | 47 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 35 | NR | 605 | 988 | NR | 735 | 40 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 32 | NR | 610 | 965 | NR | 740 | 35 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 33 | NR | 615 | 927 | NR | 745 | 31 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2407-176-2

Melanopic Flux vs. Wavelength

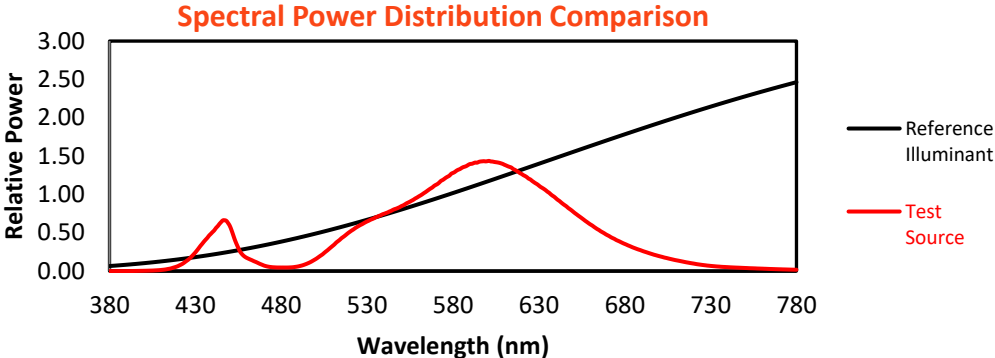


Melanopic Lumens: NR M/P: 1.73

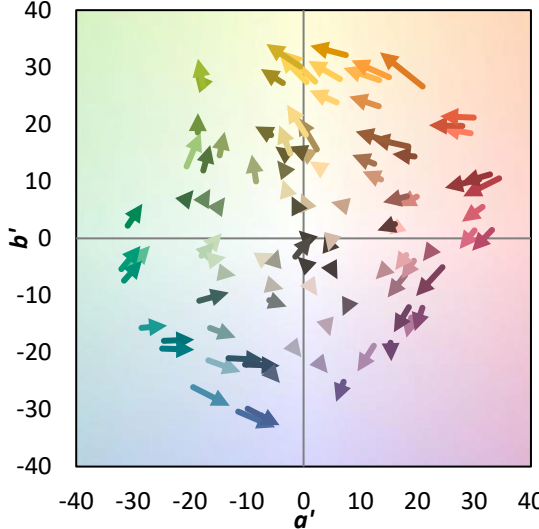
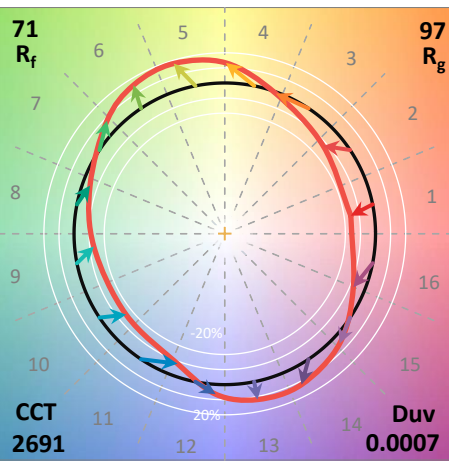
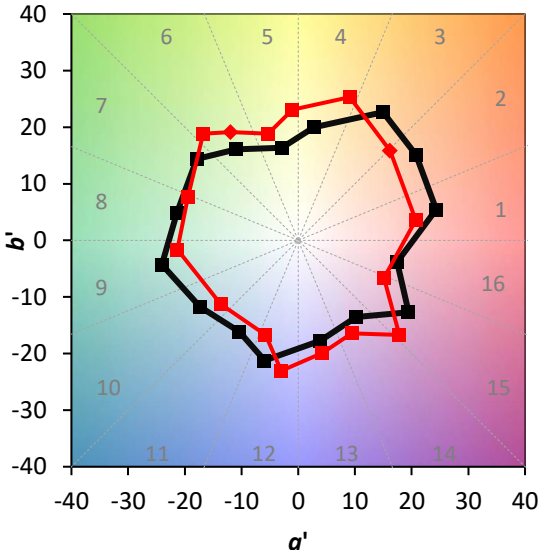
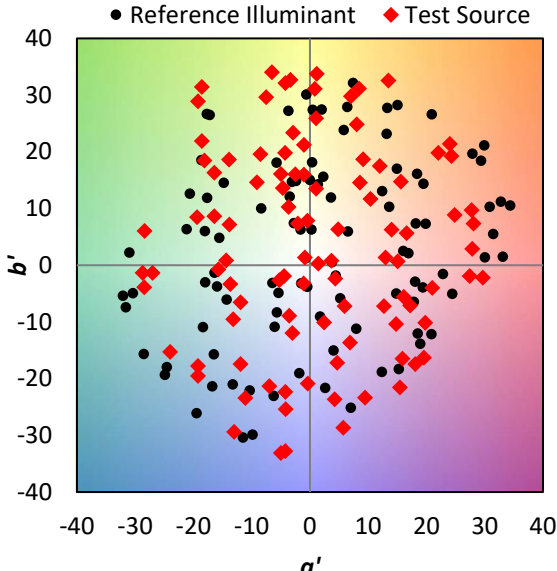
| λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360 | 0 | NR | 490 | 43 | NR | 620 | 881 | NR | 750 | 28 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 67 | NR | 625 | 832 | NR | 755 | 25 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 108 | NR | 630 | 776 | NR | 760 | 22 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 165 | NR | 635 | 720 | NR | 765 | 19 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 229 | NR | 640 | 660 | NR | 770 | 16 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 297 | NR | 645 | 599 | NR | 775 | 14 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 357 | NR | 650 | 538 | NR | 780 | 12 | NR | 910 | 0 | NR |
| 395 | 1 | NR | 525 | 408 | NR | 655 | 480 | NR | 785 | 10 | NR | 915 | 0 | NR |
| 400 | 3 | NR | 530 | 451 | NR | 660 | 423 | NR | 790 | 9 | NR | 920 | 0 | NR |
| 405 | 5 | NR | 535 | 488 | NR | 665 | 372 | NR | 795 | 7 | NR | 925 | 0 | NR |
| 410 | 10 | NR | 540 | 521 | NR | 670 | 325 | NR | 800 | 6 | NR | 930 | 0 | NR |
| 415 | 21 | NR | 545 | 555 | NR | 675 | 282 | NR | 805 | 5 | NR | 935 | 0 | NR |
| 420 | 46 | NR | 550 | 590 | NR | 680 | 246 | NR | 810 | 5 | NR | 940 | 0 | NR |
| 425 | 94 | NR | 555 | 631 | NR | 685 | 213 | NR | 815 | 4 | NR | 945 | 0 | NR |
| 430 | 169 | NR | 560 | 677 | NR | 690 | 185 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 268 | NR | 565 | 728 | NR | 695 | 158 | NR | 825 | 3 | NR | 955 | 0 | NR |
| 440 | 354 | NR | 570 | 782 | NR | 700 | 136 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 445 | NR | 575 | 838 | NR | 705 | 116 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 411 | NR | 580 | 891 | NR | 710 | 98 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 210 | NR | 585 | 935 | NR | 715 | 82 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 119 | NR | 590 | 972 | NR | 720 | 68 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 84 | NR | 595 | 991 | NR | 725 | 56 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 50 | NR | 600 | 997 | NR | 730 | 47 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 35 | NR | 605 | 988 | NR | 735 | 40 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 32 | NR | 610 | 965 | NR | 740 | 35 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 33 | NR | 615 | 927 | NR | 745 | 31 | NR | 875 | 1 | NR | | | |

Summary

$R_f = 70.6$
 $R_g = 97.2$
 CIE $R_a = 70.6$
 $R_9 = -27.1$

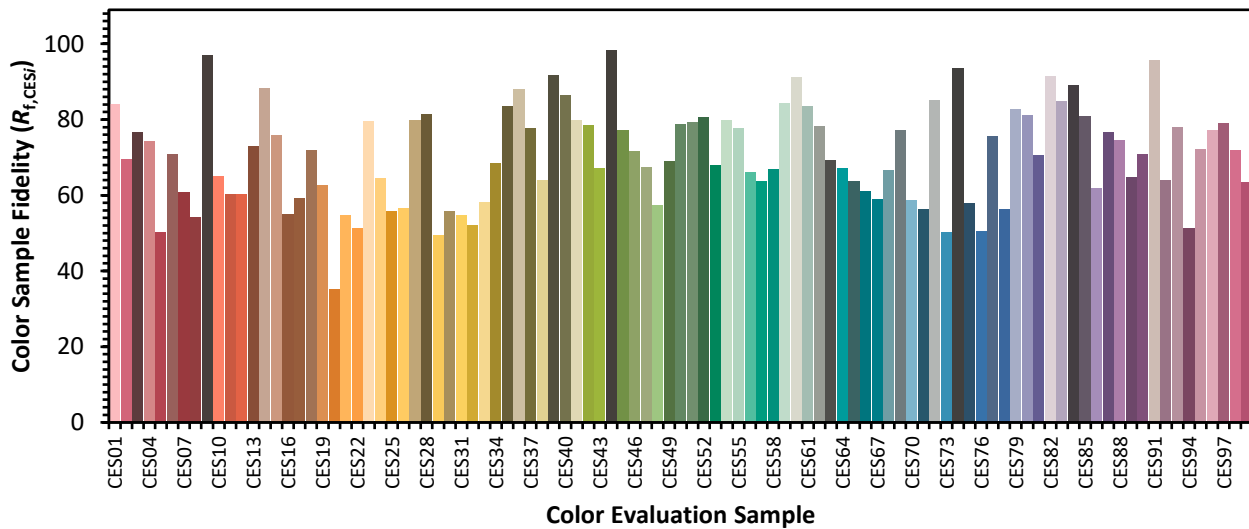


Color Vector Graphics

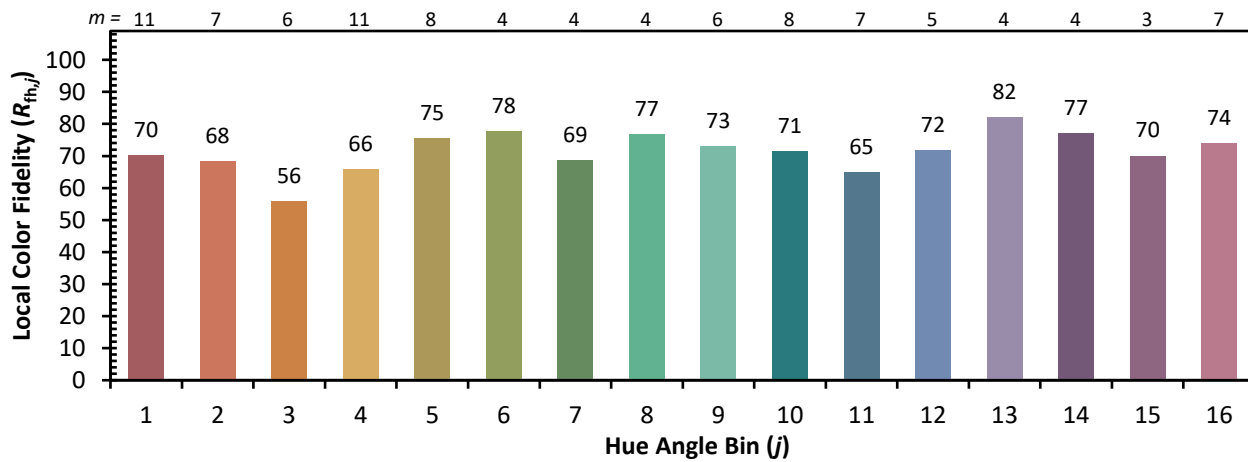
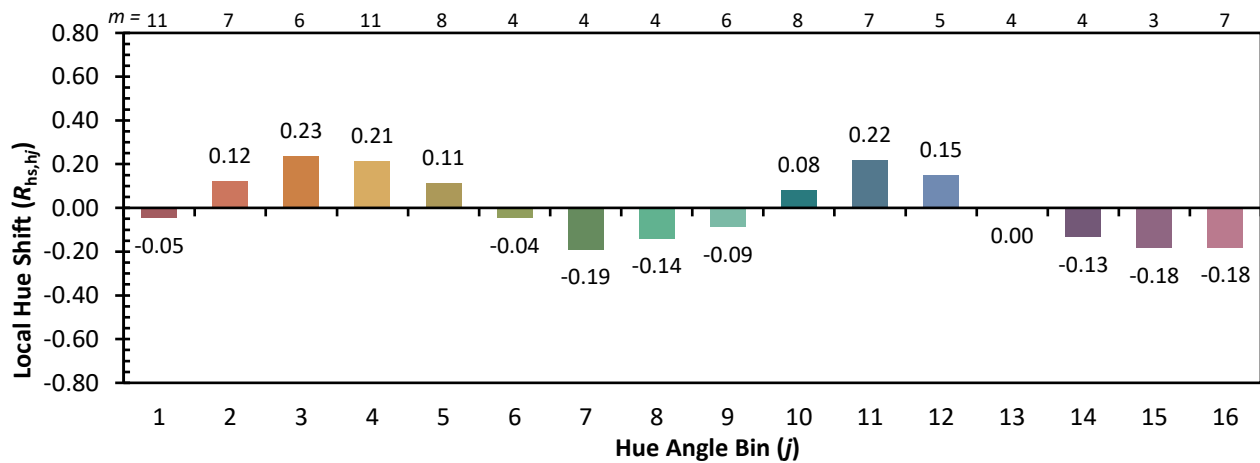
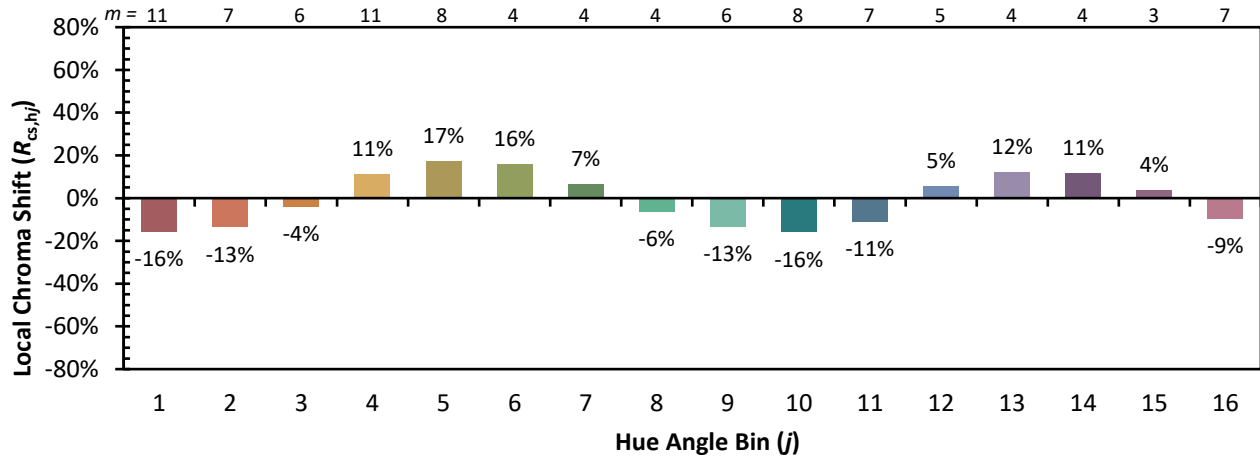


Individual Sample Fidelity Index ($R_{f,i}$)

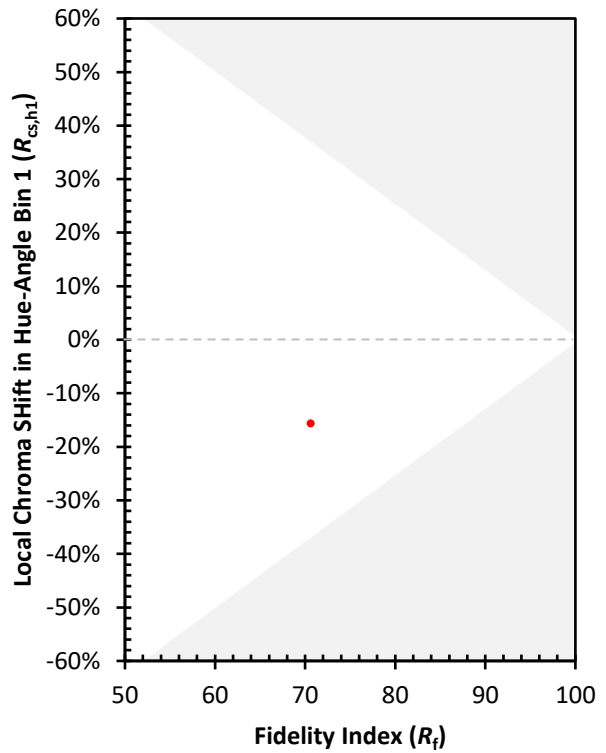
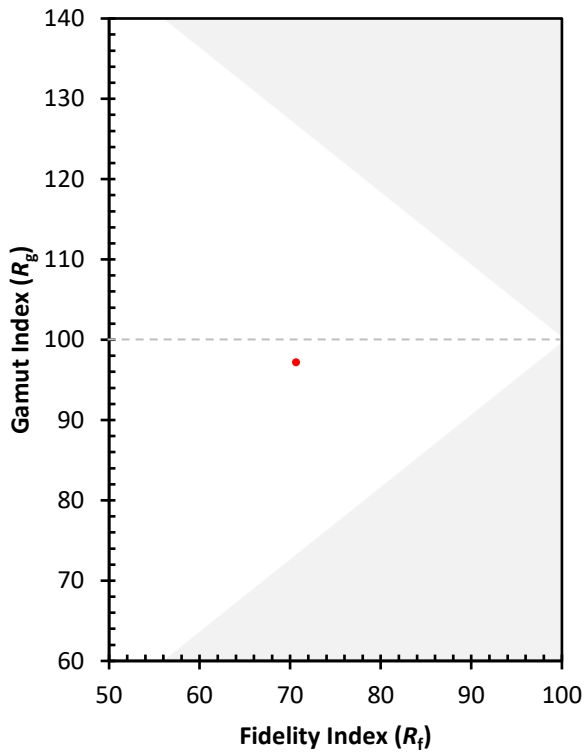
| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 57 | CES51 = 79 | CES76 = 50 |
| CES02 = 63 | CES27 = 80 | CES52 = 81 | CES77 = 76 |
| CES03 = 31 | CES28 = 81 | CES53 = 68 | CES78 = 56 |
| CES04 = 71 | CES29 = 49 | CES54 = 80 | CES79 = 83 |
| CES05 = 50 | CES30 = 56 | CES55 = 78 | CES80 = 81 |
| CES06 = 52 | CES31 = 55 | CES56 = 66 | CES81 = 71 |
| CES07 = 42 | CES32 = 52 | CES57 = 64 | CES82 = 92 |
| CES08 = 41 | CES33 = 58 | CES58 = 67 | CES83 = 85 |
| CES09 = 29 | CES34 = 69 | CES59 = 84 | CES84 = 89 |
| CES10 = 77 | CES35 = 84 | CES60 = 91 | CES85 = 81 |
| CES11 = 60 | CES36 = 88 | CES61 = 84 | CES86 = 62 |
| CES12 = 66 | CES37 = 78 | CES62 = 78 | CES87 = 77 |
| CES13 = 44 | CES38 = 64 | CES63 = 69 | CES88 = 75 |
| CES14 = 74 | CES39 = 92 | CES64 = 67 | CES89 = 65 |
| CES15 = 72 | CES40 = 86 | CES65 = 64 | CES90 = 71 |
| CES16 = 48 | CES41 = 80 | CES66 = 61 | CES91 = 96 |
| CES17 = 51 | CES42 = 79 | CES67 = 59 | CES92 = 64 |
| CES18 = 57 | CES43 = 67 | CES68 = 67 | CES93 = 78 |
| CES19 = 73 | CES44 = 98 | CES69 = 77 | CES94 = 51 |
| CES20 = 67 | CES45 = 77 | CES70 = 59 | CES95 = 72 |
| CES21 = 88 | CES46 = 72 | CES71 = 56 | CES96 = 77 |
| CES22 = 80 | CES47 = 67 | CES72 = 85 | CES97 = 79 |
| CES23 = 92 | CES48 = 57 | CES73 = 50 | CES98 = 72 |
| CES24 = 92 | CES49 = 69 | CES74 = 94 | CES99 = 63 |
| CES25 = 73 | CES50 = 79 | CES75 = 58 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)