

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: P879862

Luminaire Tested: **MEM2-HTN-VA-50-730-U-WT4**

Issue Date: 10/01/2024



Test Information

Test Method: LM-79-08
Report Number: P879862
Test Lab: INNOVATION CENTER(G3)
Issue Date: 10/01/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: STREETWORKS
Catalog Number: MEM2-HTN-VA-50-730-U-WT4
Description: EPIC MODERN TALL HOUSING 50W 70CRI 3000K VISUAL COMFORT FIXTURE w/
DRIVE LANE TYPE IV DISTRIBUTION OPTIC
Light Source: (1) 3000K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

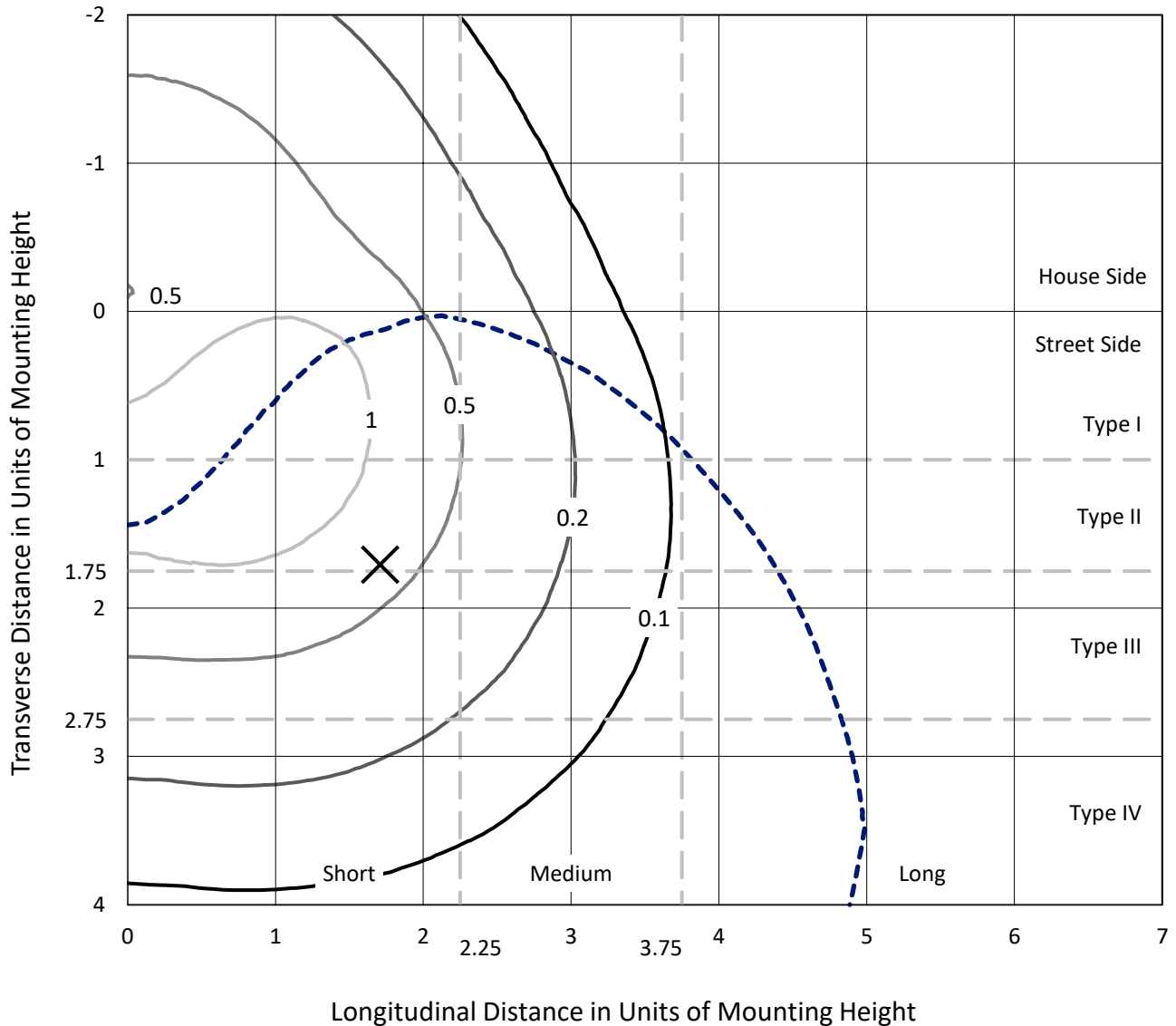
Lumens per Lamp: N/A
Luminaire Lumens: 4977.9 lumens
Efficiency: N/A
Efficacy: 101.6 lumens/watt
Luminous Opening: Circular (Dia: 1.12' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B2 - U0 - G3

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

REPORT NUMBER: P879862
 CATALOG NUMBER: MEM2-HTN-VA-50-730-U-WT4

Iso-Footcandle Lines of Horizontal Illumination

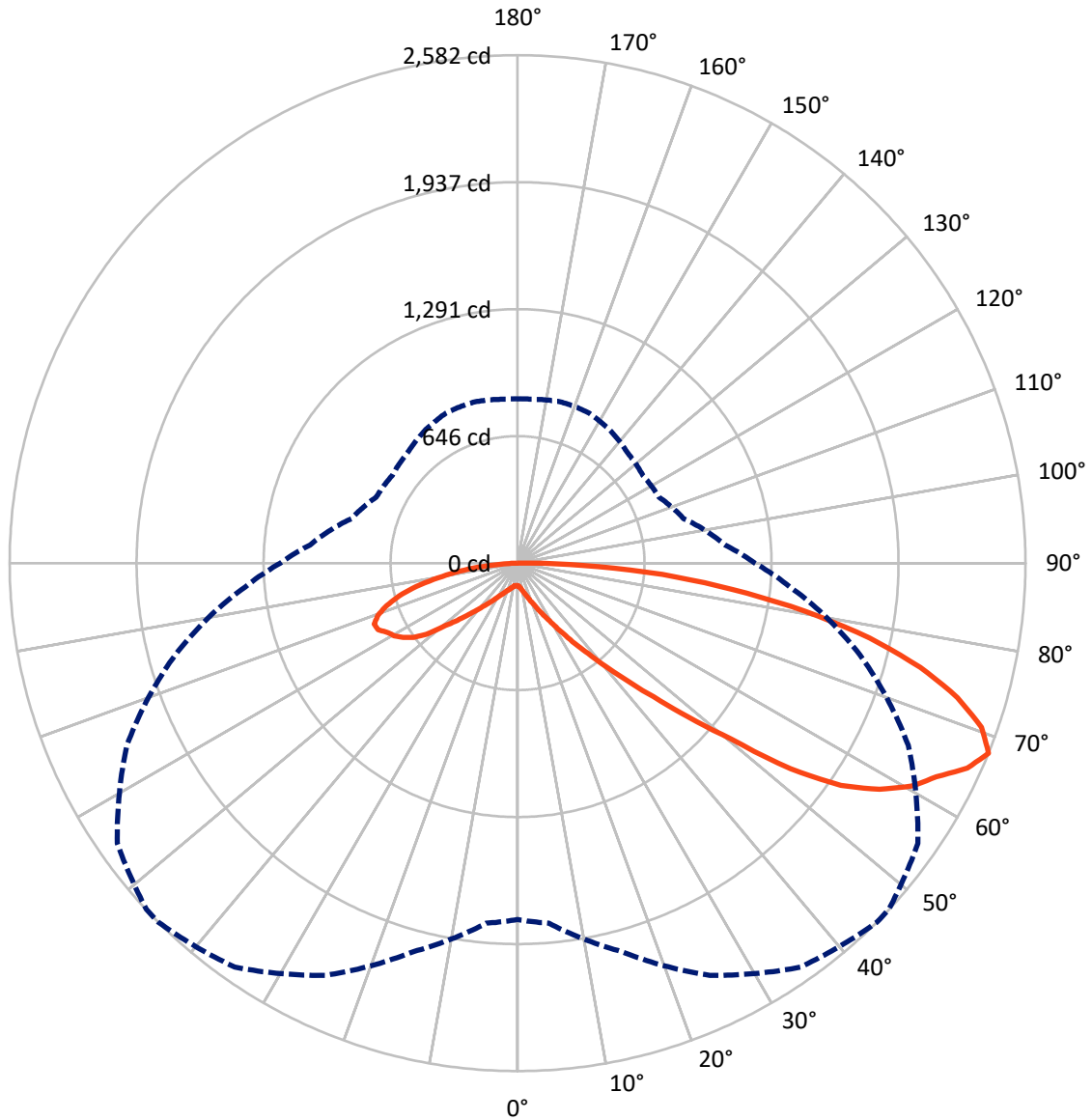
× Max cd
 - - - 1/2 Max cd



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

REPORT NUMBER: P879862
CATALOG NUMBER: MEM2-HTN-VA-50-730-U-WT4

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 | 1475.3 | 0.0 | 1475.3 |
| | % Fixture | 29.6 | 0.0 | 29.6 |
| Street Side | Lumens | 3502.6 | 0.0 | 3502.6 |
| | % Fixture | 70.4 | 0.0 | 70.4 |
| Total | Lumens | 4977.9 | 0.0 | 4977.9 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 11.8 | 0.2 |
| 10°-20° | 44.3 | 0.9 |
| 20°-30° | 104.3 | 2.1 |
| 30°-40° | 228.8 | 4.6 |
| 40°-50° | 498.1 | 10.0 |
| 50°-60° | 1023.4 | 20.6 |
| 60°-70° | 1441.9 | 29.0 |
| 70°-80° | 1224.1 | 24.6 |
| 80°-90° | 401.2 | 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° | 4977.9 | 100.0 |
| 0°-180° | 4977.9 | 100.0 |



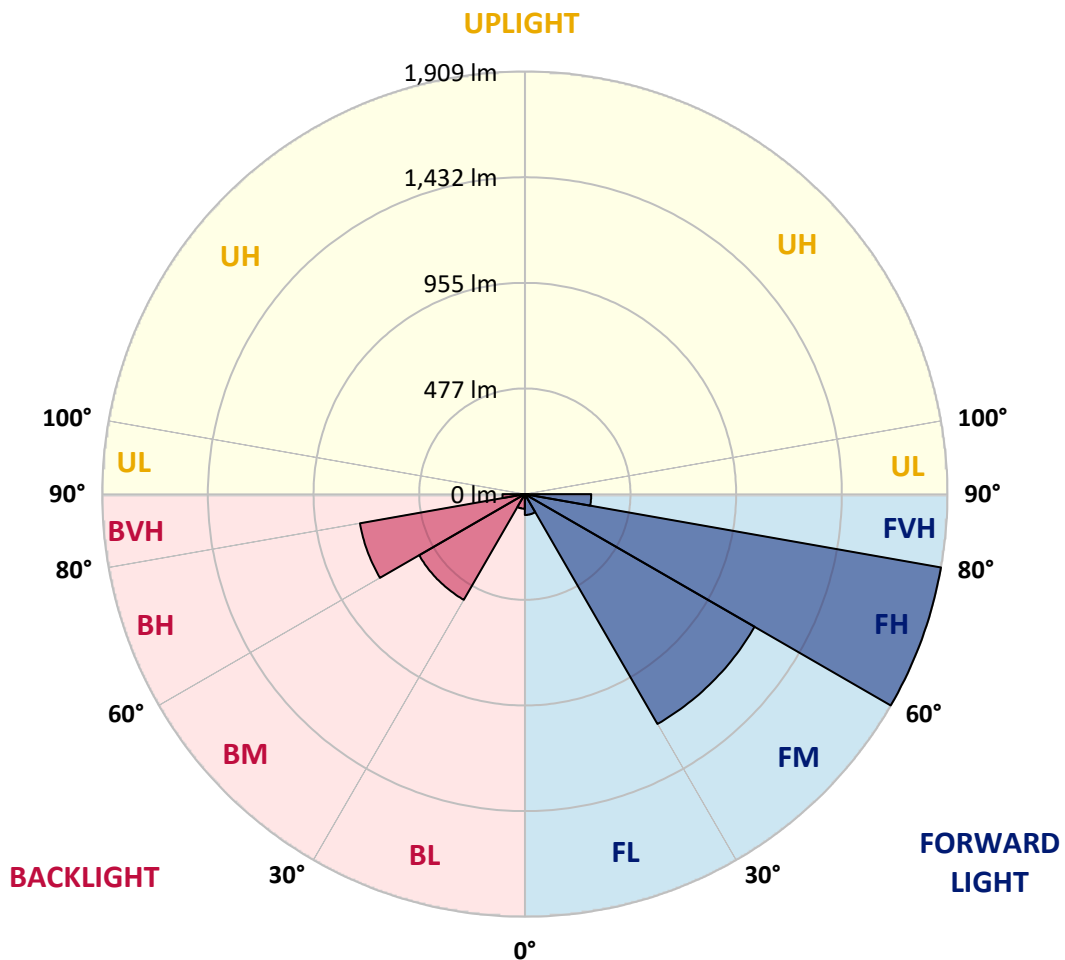
REPORT NUMBER: P879862
 CATALOG NUMBER: MEM2-HTN-VA-50-730-U-WT4

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 94.2 | 1.9 | | | |
| FM (30°-60°) | 1198.9 | 24.1 | | | |
| FH (60°-80°) | 1909.5 | 38.4 | | | G2/5000 |
| FVH (80°-90°) | 300.0 | 6.0 | | | G3/500 |
| BL (0°-30°) | 66.2 | 1.3 | B0/110 | | |
| BM (30°-60°) | 551.4 | 11.1 | B1/1000 | | |
| BH (60°-80°) | 756.5 | 15.2 | B2/1000 | | G2/1000 |
| BVH (80°-90°) | 101.2 | 2.0 | | | G2/225 |
| 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: P879862

CATALOG NUMBER: MEM2-HTN-VA-50-730-U-WT4

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 47° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 114.9 | 114.9 | 114.9 | 114.9 | 114.9 | 114.9 | 114.9 | 114.9 | 114.9 | 114.9 | 114.9 |
| 2.5° | 118.5 | 118.0 | 118.5 | 118.5 | 118.5 | 118.0 | 118.0 | 118.0 | 117.5 | 117.0 | 116.5 |
| 5° | 125.6 | 125.6 | 125.6 | 125.1 | 125.1 | 124.1 | 124.1 | 123.6 | 122.6 | 121.6 | 120.5 |
| 7.5° | 135.3 | 134.8 | 134.8 | 134.3 | 133.8 | 132.7 | 132.2 | 131.7 | 129.7 | 128.2 | 126.1 |
| 10° | 147.0 | 147.0 | 146.5 | 145.5 | 145.5 | 142.9 | 143.4 | 142.4 | 139.9 | 136.8 | 133.3 |
| 12.5° | 161.2 | 161.2 | 160.2 | 160.2 | 159.2 | 157.2 | 156.6 | 155.1 | 152.6 | 147.5 | 143.4 |
| 15° | 177.0 | 177.0 | 178.0 | 177.0 | 176.0 | 173.4 | 173.4 | 171.4 | 165.8 | 161.7 | 155.6 |
| 17.5° | 196.8 | 194.3 | 195.8 | 195.3 | 195.3 | 193.8 | 192.2 | 189.7 | 185.1 | 178.0 | 170.4 |
| 20° | 217.2 | 217.7 | 216.2 | 217.7 | 218.2 | 216.2 | 216.2 | 213.1 | 206.5 | 197.8 | 185.6 |
| 22.5° | 242.6 | 242.6 | 239.5 | 243.6 | 246.2 | 244.6 | 244.1 | 238.0 | 229.9 | 218.2 | 206.0 |
| 25° | 269.0 | 268.0 | 273.1 | 274.1 | 279.7 | 279.2 | 278.7 | 273.1 | 260.9 | 246.7 | 227.9 |
| 27.5° | 299.1 | 300.6 | 310.2 | 312.8 | 318.4 | 317.9 | 317.4 | 311.3 | 298.0 | 278.7 | 254.3 |
| 30° | 336.2 | 338.2 | 347.4 | 356.0 | 365.7 | 366.7 | 365.7 | 360.6 | 341.3 | 315.8 | 288.4 |
| 32.5° | 379.4 | 385.0 | 394.2 | 408.9 | 421.1 | 426.7 | 427.7 | 418.6 | 396.7 | 363.1 | 327.0 |
| 35° | 438.4 | 433.8 | 446.5 | 471.0 | 491.3 | 502.5 | 502.0 | 489.8 | 465.9 | 423.2 | 371.8 |
| 37.5° | 496.4 | 494.9 | 514.7 | 546.7 | 574.2 | 583.4 | 585.9 | 577.8 | 547.2 | 490.8 | 430.3 |
| 40° | 556.9 | 569.6 | 592.5 | 629.6 | 670.3 | 689.7 | 691.2 | 679.5 | 637.8 | 574.2 | 494.4 |
| 42.5° | 635.7 | 648.5 | 677.4 | 723.2 | 782.2 | 814.3 | 816.3 | 803.1 | 752.7 | 670.3 | 571.7 |
| 45° | 735.4 | 742.5 | 773.1 | 842.7 | 918.5 | 969.9 | 984.6 | 968.4 | 906.3 | 791.9 | 667.8 |
| 47.5° | 842.7 | 842.7 | 892.6 | 984.6 | 1099.1 | 1166.7 | 1177.9 | 1163.2 | 1070.6 | 932.8 | 775.1 |
| 50° | 962.3 | 962.8 | 1042.1 | 1173.8 | 1318.3 | 1402.7 | 1411.4 | 1375.7 | 1263.9 | 1076.2 | 884.4 |
| 52.5° | 1086.4 | 1099.6 | 1215.5 | 1414.9 | 1608.7 | 1737.9 | 1746.5 | 1705.3 | 1556.3 | 1281.7 | 1000.9 |
| 55° | 1257.2 | 1278.1 | 1446.4 | 1691.1 | 1892.5 | 1994.2 | 1994.7 | 1945.4 | 1766.4 | 1481.0 | 1140.3 |
| 57.5° | 1494.3 | 1502.4 | 1659.5 | 1909.3 | 2099.5 | 2169.2 | 2164.1 | 2091.9 | 1885.4 | 1592.4 | 1254.7 |
| 60° | 1690.1 | 1708.9 | 1837.0 | 2069.0 | 2254.6 | 2302.4 | 2296.8 | 2201.2 | 1966.7 | 1657.5 | 1309.6 |
| 62.5° | 1818.7 | 1827.9 | 1960.6 | 2183.4 | 2350.2 | 2390.4 | 2384.3 | 2295.3 | 2066.4 | 1770.9 | 1401.2 |
| 65° | 1849.8 | 1865.0 | 2033.4 | 2259.7 | 2421.4 | 2512.0 | 2507.9 | 2460.1 | 2225.1 | 1854.8 | 1444.4 |
| 67.5° | 1812.1 | 1837.6 | 2044.0 | 2312.1 | 2506.9 | 2582.1 | 2580.1 | 2484.0 | 2191.0 | 1800.9 | 1390.0 |
| 70° | 1735.3 | 1757.2 | 2013.5 | 2306.5 | 2481.9 | 2502.3 | 2486.5 | 2376.7 | 2090.8 | 1711.4 | 1308.6 |
| 72.5° | 1614.3 | 1651.4 | 1901.6 | 2178.8 | 2325.3 | 2338.5 | 2332.9 | 2198.7 | 1940.3 | 1557.3 | 1185.5 |
| 75° | 1455.6 | 1500.9 | 1727.7 | 1952.0 | 2091.3 | 2114.2 | 2103.5 | 1986.1 | 1724.6 | 1364.6 | 1033.0 |
| 77.5° | 1254.7 | 1280.1 | 1453.1 | 1666.2 | 1826.4 | 1830.4 | 1824.3 | 1693.1 | 1452.5 | 1142.8 | 869.2 |
| 80° | 988.7 | 1004.0 | 1154.0 | 1331.5 | 1464.2 | 1480.5 | 1474.9 | 1386.4 | 1153.5 | 904.3 | 678.0 |
| 82.5° | 732.4 | 722.2 | 822.9 | 968.4 | 1100.1 | 1101.1 | 1110.3 | 1012.1 | 863.6 | 656.1 | 485.2 |
| 85° | 421.6 | 425.7 | 513.2 | 612.3 | 692.2 | 738.5 | 738.0 | 690.7 | 555.4 | 417.6 | 296.0 |
| 87.5° | 117.5 | 126.6 | 182.1 | 265.0 | 301.1 | 327.5 | 317.9 | 286.8 | 231.9 | 131.2 | 75.3 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



REPORT NUMBER: P879862

CATALOG NUMBER: MEM2-HTN-VA-50-730-U-WT4

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 114.9 | 114.9 | 114.9 | 114.9 | 114.9 | 114.9 | 114.9 | 114.9 | 114.9 | 114.9 | 114.9 |
| 2.5° | 116.5 | 116.0 | 115.5 | 114.9 | 113.9 | 113.9 | 113.4 | 113.9 | 113.9 | 113.9 | 113.9 |
| 5° | 119.5 | 119.0 | 117.5 | 116.5 | 114.9 | 113.9 | 113.4 | 113.4 | 113.4 | 113.4 | 113.4 |
| 7.5° | 124.6 | 124.1 | 121.6 | 119.5 | 117.5 | 116.5 | 115.5 | 114.9 | 114.4 | 113.9 | 114.4 |
| 10° | 132.2 | 130.2 | 127.7 | 124.6 | 121.6 | 120.0 | 118.5 | 118.0 | 117.5 | 117.0 | 117.0 |
| 12.5° | 140.9 | 139.4 | 134.8 | 130.7 | 127.7 | 125.1 | 123.1 | 122.1 | 121.6 | 121.0 | 121.0 |
| 15° | 152.6 | 149.5 | 143.4 | 138.3 | 133.8 | 130.7 | 128.7 | 127.7 | 127.1 | 126.6 | 126.6 |
| 17.5° | 165.8 | 161.7 | 153.6 | 147.0 | 141.9 | 137.8 | 135.3 | 133.8 | 132.7 | 133.3 | 133.8 |
| 20° | 181.1 | 174.4 | 165.3 | 157.2 | 150.5 | 146.0 | 143.4 | 141.4 | 140.4 | 140.9 | 141.4 |
| 22.5° | 198.9 | 191.7 | 178.5 | 168.9 | 160.7 | 155.1 | 152.6 | 151.1 | 150.0 | 149.5 | 148.5 |
| 25° | 219.2 | 210.0 | 194.8 | 181.6 | 171.9 | 166.3 | 163.3 | 162.2 | 161.2 | 160.2 | 160.2 |
| 27.5° | 243.6 | 232.9 | 212.1 | 197.8 | 186.1 | 180.6 | 177.0 | 175.5 | 175.5 | 173.9 | 173.9 |
| 30° | 272.1 | 257.9 | 232.4 | 213.6 | 201.9 | 194.8 | 190.7 | 190.2 | 189.2 | 190.7 | 190.7 |
| 32.5° | 306.2 | 286.8 | 255.8 | 234.0 | 220.7 | 214.1 | 210.0 | 209.0 | 207.5 | 208.5 | 211.6 |
| 35° | 348.9 | 324.0 | 286.8 | 260.9 | 244.6 | 238.0 | 232.9 | 232.4 | 229.9 | 232.4 | 228.4 |
| 37.5° | 396.7 | 369.2 | 319.9 | 289.4 | 271.6 | 264.0 | 260.4 | 258.9 | 258.4 | 258.4 | 255.3 |
| 40° | 455.2 | 422.1 | 362.1 | 324.5 | 304.1 | 295.0 | 291.4 | 290.9 | 289.9 | 293.5 | 289.9 |
| 42.5° | 527.4 | 477.1 | 405.9 | 363.1 | 342.3 | 332.6 | 328.6 | 327.0 | 329.6 | 331.1 | 330.6 |
| 45° | 607.8 | 553.4 | 461.8 | 412.5 | 388.6 | 378.9 | 373.3 | 371.8 | 372.8 | 372.8 | 377.9 |
| 47.5° | 700.3 | 636.3 | 525.9 | 466.4 | 444.5 | 432.8 | 429.3 | 424.2 | 421.6 | 420.6 | 429.3 |
| 50° | 797.0 | 717.1 | 591.5 | 524.9 | 505.0 | 495.9 | 496.9 | 486.7 | 483.2 | 479.1 | 478.1 |
| 52.5° | 894.1 | 803.6 | 666.3 | 606.2 | 583.4 | 587.9 | 585.9 | 575.2 | 554.4 | 549.3 | 537.1 |
| 55° | 1010.6 | 901.2 | 738.0 | 666.3 | 646.4 | 650.0 | 658.1 | 658.1 | 653.5 | 642.4 | 632.7 |
| 57.5° | 1109.2 | 982.1 | 791.9 | 702.4 | 685.1 | 694.2 | 710.5 | 722.7 | 733.4 | 741.5 | 741.0 |
| 60° | 1164.2 | 1031.9 | 827.0 | 729.8 | 709.5 | 727.3 | 751.7 | 772.6 | 795.4 | 819.3 | 818.3 |
| 62.5° | 1240.0 | 1101.6 | 889.5 | 778.7 | 743.6 | 749.2 | 777.1 | 813.2 | 834.1 | 853.9 | 859.5 |
| 65° | 1259.8 | 1114.3 | 912.9 | 813.2 | 784.8 | 785.8 | 804.6 | 834.1 | 851.9 | 857.0 | 860.0 |
| 67.5° | 1206.4 | 1058.4 | 874.3 | 792.9 | 777.6 | 791.9 | 822.4 | 845.8 | 848.3 | 836.1 | 835.1 |
| 70° | 1126.0 | 989.7 | 813.2 | 745.1 | 735.4 | 757.3 | 797.5 | 825.4 | 819.3 | 794.4 | 792.9 |
| 72.5° | 1012.6 | 886.0 | 731.4 | 682.0 | 672.4 | 699.8 | 735.4 | 764.9 | 755.8 | 737.0 | 735.4 |
| 75° | 876.3 | 757.8 | 632.2 | 595.6 | 595.1 | 625.1 | 656.1 | 673.9 | 673.4 | 660.2 | 656.1 |
| 77.5° | 728.3 | 632.2 | 520.8 | 487.7 | 499.9 | 528.4 | 551.3 | 564.5 | 560.0 | 555.4 | 553.9 |
| 80° | 570.1 | 484.7 | 401.8 | 382.0 | 400.8 | 410.4 | 434.8 | 433.8 | 436.4 | 426.7 | 433.8 |
| 82.5° | 405.9 | 349.4 | 287.9 | 279.2 | 281.8 | 301.1 | 314.3 | 312.8 | 306.2 | 299.1 | 296.0 |
| 85° | 246.2 | 215.1 | 184.6 | 172.4 | 181.1 | 179.5 | 187.7 | 181.1 | 177.0 | 173.4 | 176.5 |
| 87.5° | 68.2 | 59.0 | 56.5 | 40.7 | 50.4 | 39.7 | 41.7 | 29.0 | 25.4 | 30.5 | 26.4 |
| 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: SP1-2407-176-3

Test Date: 09/24/2024

Luminaire Tested: MEM2-HTN-VA-30-730-U-WQ

Data in this report applies to families of products including MEM2-HTN-VA-30-730-U-WQ

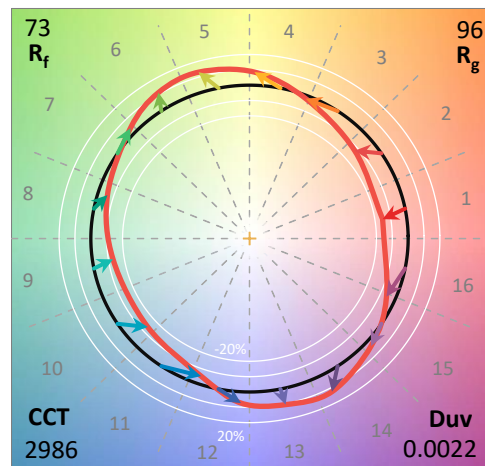
Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-176-3
 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-30-730-U-WQ**
 Description: EPIC MODERN VISUAL COMFORT 30W WAVESTREAM WIDE

Spectral Parameters

CCT (K): 2986
 CIE u': 0.2503
 CIE v': 0.5248
 Duv: 0.0022
 CIE x: 0.4413
 CIE y: 0.4112
 CIE z: 0.1476
 Peak Wavelength (nm): 596
 Dominant Wavelength (nm): 582
 Purity: 55.87534
 Rf: 73.2
 Rg: 95.9

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 71.3 | | |
| R1: | 68.5 | R9: | -25.2 |
| R2: | 79.2 | R10: | 51.0 |
| R3: | 88.4 | R11: | 63.6 |
| R4: | 69.4 | R12: | 39.8 |
| R5: | 66.3 | R13: | 69.9 |
| R6: | 70.0 | R14: | 92.9 |
| R7: | 80.1 | R15: | 61.4 |
| R8: | 48.3 | | |



Test Conditions

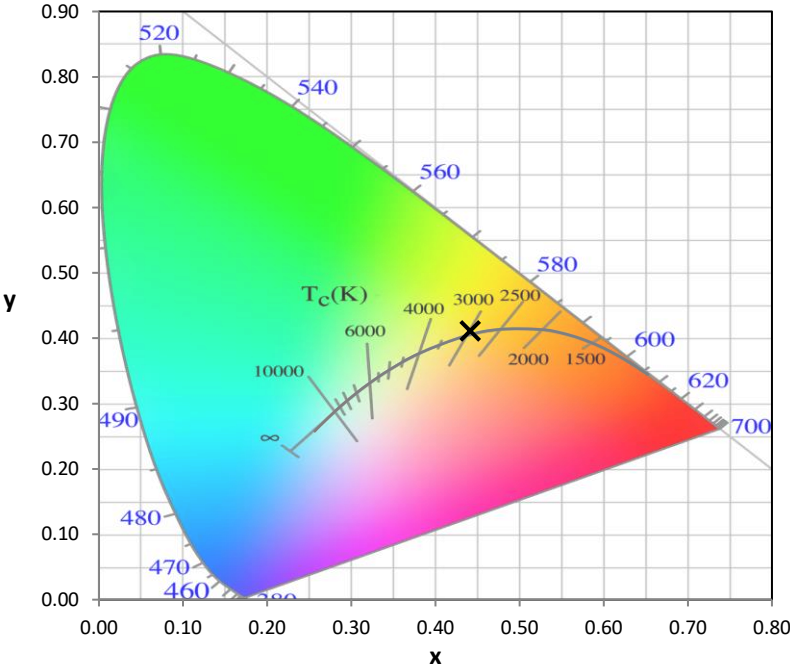
Stabilization Time: 27M
 Operation Time: 1H 27M
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-176-3

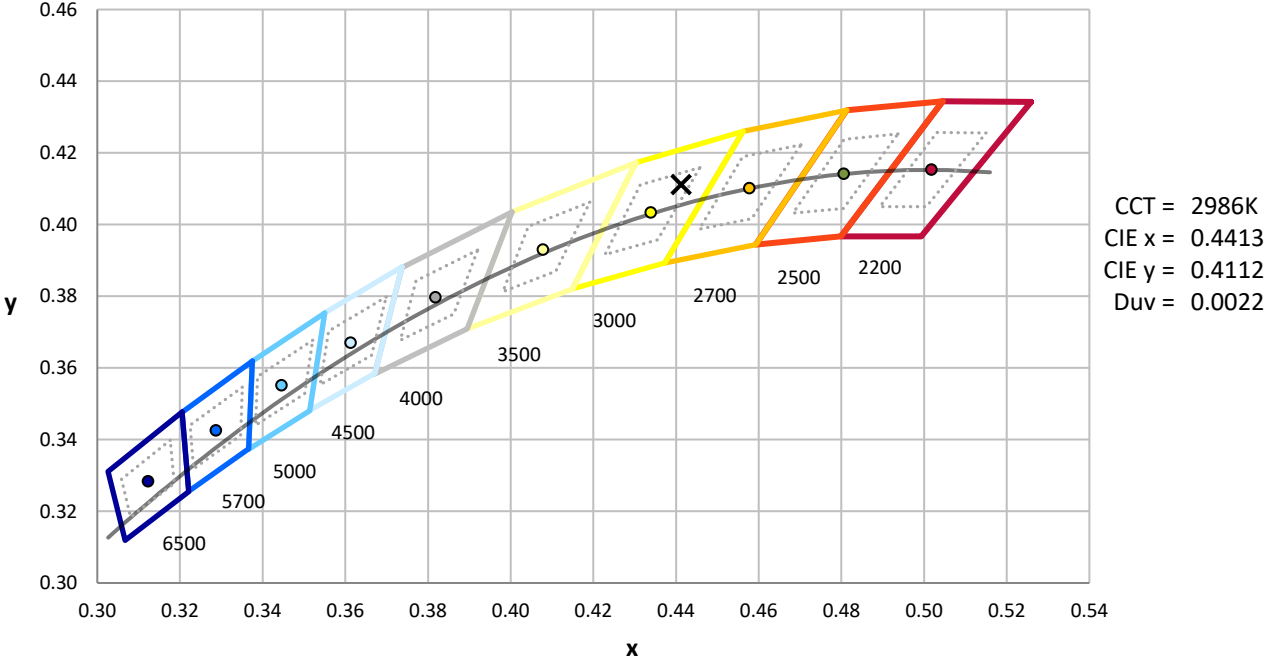
| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 |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

REPORT NUMBER: SP1-2407-176-3

CIE 1931 Chromaticity Diagram



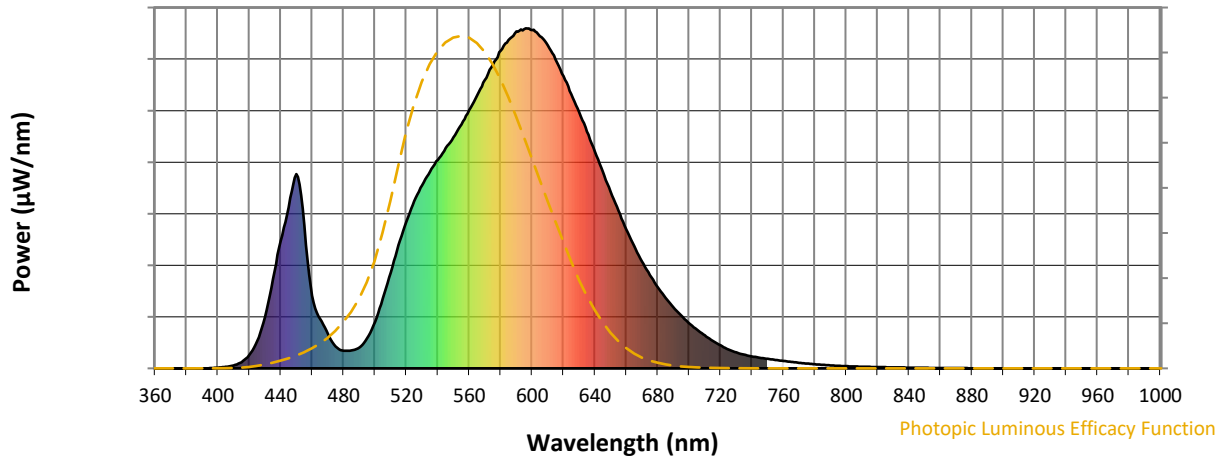
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2407-176-3

Photopic Flux vs. Wavelength

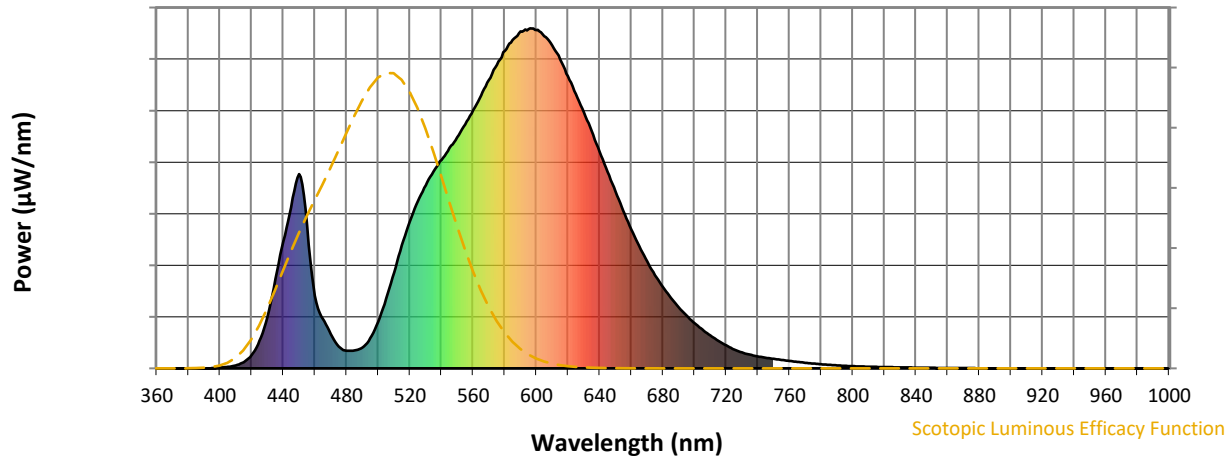


Photopic Lumens: NR

| 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 | 61 | NR | 620 | 859 | NR | 750 | 28 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 88 | NR | 625 | 807 | NR | 755 | 25 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 137 | NR | 630 | 753 | NR | 760 | 22 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 205 | NR | 635 | 697 | NR | 765 | 19 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 281 | NR | 640 | 637 | NR | 770 | 16 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 363 | NR | 645 | 578 | NR | 775 | 14 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 432 | NR | 650 | 520 | NR | 780 | 12 | NR | 910 | 0 | NR |
| 395 | 1 | NR | 525 | 492 | NR | 655 | 463 | NR | 785 | 10 | NR | 915 | 0 | NR |
| 400 | 2 | NR | 530 | 539 | NR | 660 | 409 | NR | 790 | 9 | NR | 920 | 0 | NR |
| 405 | 4 | NR | 535 | 579 | NR | 665 | 359 | NR | 795 | 8 | NR | 925 | 0 | NR |
| 410 | 9 | NR | 540 | 613 | NR | 670 | 315 | NR | 800 | 6 | NR | 930 | 0 | NR |
| 415 | 18 | NR | 545 | 648 | NR | 675 | 274 | NR | 805 | 6 | NR | 935 | 0 | NR |
| 420 | 39 | NR | 550 | 680 | NR | 680 | 239 | NR | 810 | 5 | NR | 940 | 0 | NR |
| 425 | 81 | NR | 555 | 717 | NR | 685 | 207 | NR | 815 | 4 | NR | 945 | 0 | NR |
| 430 | 151 | NR | 560 | 759 | NR | 690 | 180 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 263 | NR | 565 | 803 | NR | 695 | 155 | NR | 825 | 3 | NR | 955 | 0 | NR |
| 440 | 375 | NR | 570 | 848 | NR | 700 | 133 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 474 | NR | 575 | 892 | NR | 705 | 114 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 571 | NR | 580 | 933 | NR | 710 | 97 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 421 | NR | 585 | 966 | NR | 715 | 81 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 214 | NR | 590 | 991 | NR | 720 | 67 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 146 | NR | 595 | 998 | NR | 725 | 55 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 101 | NR | 600 | 995 | NR | 730 | 47 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 64 | NR | 605 | 977 | NR | 735 | 40 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 52 | NR | 610 | 949 | NR | 740 | 35 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 53 | NR | 615 | 908 | NR | 745 | 31 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2407-176-3

Scotopic Flux vs. Wavelength



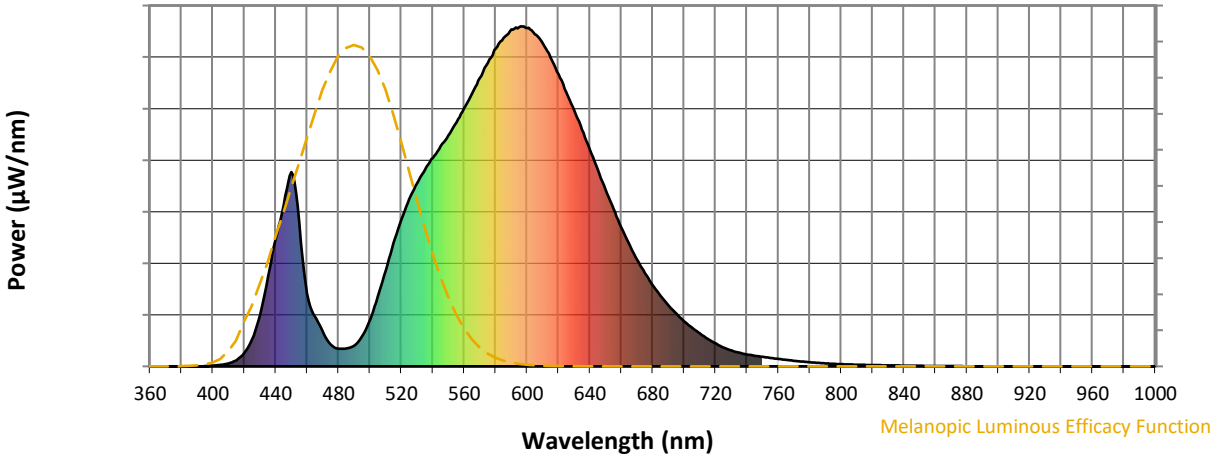
Scotopic Lumens: NR

S/P: 1.15

| 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 | 61 | NR | 620 | 859 | NR | 750 | 28 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 88 | NR | 625 | 807 | NR | 755 | 25 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 137 | NR | 630 | 753 | NR | 760 | 22 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 205 | NR | 635 | 697 | NR | 765 | 19 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 281 | NR | 640 | 637 | NR | 770 | 16 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 363 | NR | 645 | 578 | NR | 775 | 14 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 432 | NR | 650 | 520 | NR | 780 | 12 | NR | 910 | 0 | NR |
| 395 | 1 | NR | 525 | 492 | NR | 655 | 463 | NR | 785 | 10 | NR | 915 | 0 | NR |
| 400 | 2 | NR | 530 | 539 | NR | 660 | 409 | NR | 790 | 9 | NR | 920 | 0 | NR |
| 405 | 4 | NR | 535 | 579 | NR | 665 | 359 | NR | 795 | 8 | NR | 925 | 0 | NR |
| 410 | 9 | NR | 540 | 613 | NR | 670 | 315 | NR | 800 | 6 | NR | 930 | 0 | NR |
| 415 | 18 | NR | 545 | 648 | NR | 675 | 274 | NR | 805 | 6 | NR | 935 | 0 | NR |
| 420 | 39 | NR | 550 | 680 | NR | 680 | 239 | NR | 810 | 5 | NR | 940 | 0 | NR |
| 425 | 81 | NR | 555 | 717 | NR | 685 | 207 | NR | 815 | 4 | NR | 945 | 0 | NR |
| 430 | 151 | NR | 560 | 759 | NR | 690 | 180 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 263 | NR | 565 | 803 | NR | 695 | 155 | NR | 825 | 3 | NR | 955 | 0 | NR |
| 440 | 375 | NR | 570 | 848 | NR | 700 | 133 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 474 | NR | 575 | 892 | NR | 705 | 114 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 571 | NR | 580 | 933 | NR | 710 | 97 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 421 | NR | 585 | 966 | NR | 715 | 81 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 214 | NR | 590 | 991 | NR | 720 | 67 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 146 | NR | 595 | 998 | NR | 725 | 55 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 101 | NR | 600 | 995 | NR | 730 | 47 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 64 | NR | 605 | 977 | NR | 735 | 40 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 52 | NR | 610 | 949 | NR | 740 | 35 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 53 | NR | 615 | 908 | NR | 745 | 31 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2407-176-3

Melanopic Flux vs. Wavelength



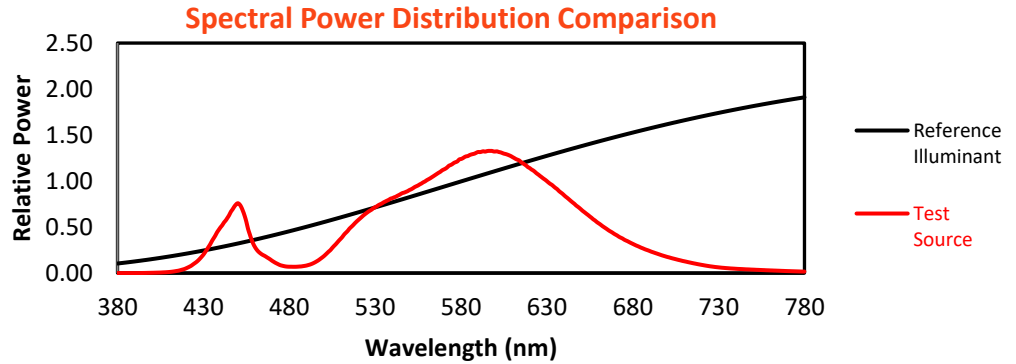
Melanopic Lumens: NR

M/P: 2.01

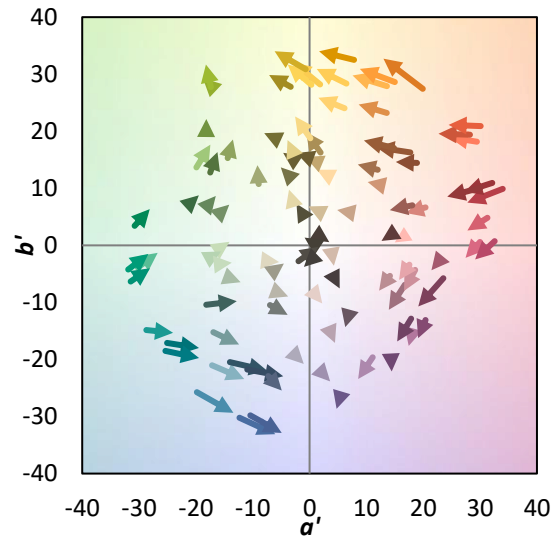
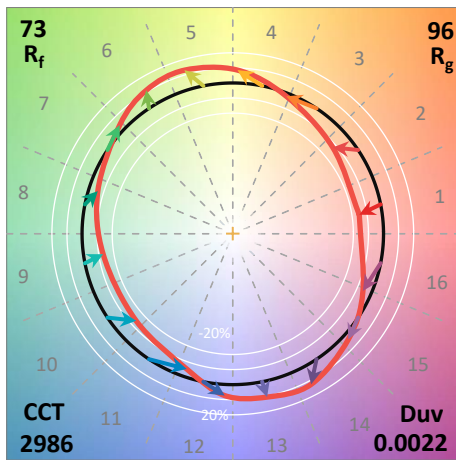
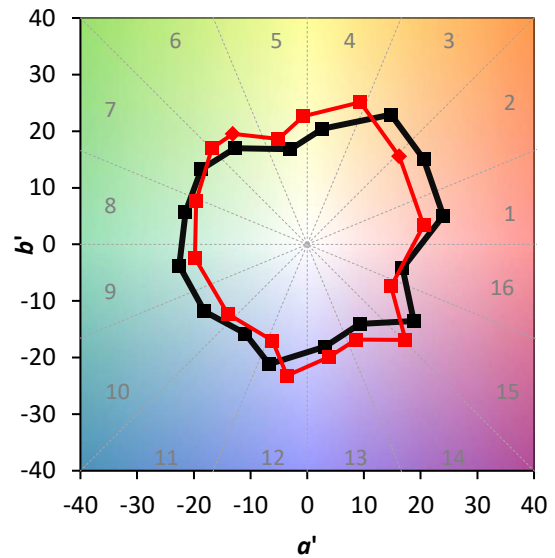
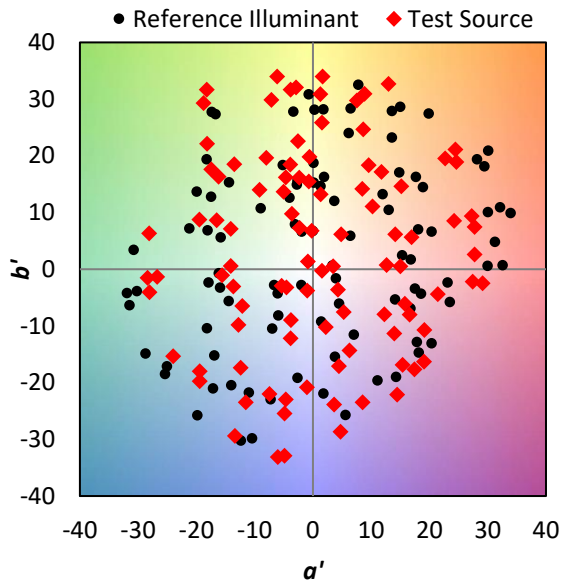
| λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360 | 0 | NR | 490 | 61 | NR | 620 | 859 | NR | 750 | 28 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 88 | NR | 625 | 807 | NR | 755 | 25 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 137 | NR | 630 | 753 | NR | 760 | 22 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 205 | NR | 635 | 697 | NR | 765 | 19 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 281 | NR | 640 | 637 | NR | 770 | 16 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 363 | NR | 645 | 578 | NR | 775 | 14 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 432 | NR | 650 | 520 | NR | 780 | 12 | NR | 910 | 0 | NR |
| 395 | 1 | NR | 525 | 492 | NR | 655 | 463 | NR | 785 | 10 | NR | 915 | 0 | NR |
| 400 | 2 | NR | 530 | 539 | NR | 660 | 409 | NR | 790 | 9 | NR | 920 | 0 | NR |
| 405 | 4 | NR | 535 | 579 | NR | 665 | 359 | NR | 795 | 8 | NR | 925 | 0 | NR |
| 410 | 9 | NR | 540 | 613 | NR | 670 | 315 | NR | 800 | 6 | NR | 930 | 0 | NR |
| 415 | 18 | NR | 545 | 648 | NR | 675 | 274 | NR | 805 | 6 | NR | 935 | 0 | NR |
| 420 | 39 | NR | 550 | 680 | NR | 680 | 239 | NR | 810 | 5 | NR | 940 | 0 | NR |
| 425 | 81 | NR | 555 | 717 | NR | 685 | 207 | NR | 815 | 4 | NR | 945 | 0 | NR |
| 430 | 151 | NR | 560 | 759 | NR | 690 | 180 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 263 | NR | 565 | 803 | NR | 695 | 155 | NR | 825 | 3 | NR | 955 | 0 | NR |
| 440 | 375 | NR | 570 | 848 | NR | 700 | 133 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 474 | NR | 575 | 892 | NR | 705 | 114 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 571 | NR | 580 | 933 | NR | 710 | 97 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 421 | NR | 585 | 966 | NR | 715 | 81 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 214 | NR | 590 | 991 | NR | 720 | 67 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 146 | NR | 595 | 998 | NR | 725 | 55 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 101 | NR | 600 | 995 | NR | 730 | 47 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 64 | NR | 605 | 977 | NR | 735 | 40 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 52 | NR | 610 | 949 | NR | 740 | 35 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 53 | NR | 615 | 908 | NR | 745 | 31 | NR | 875 | 1 | NR | | | |

Summary

$R_f = 73.2$
 $R_g = 95.9$
 $CIE R_a = 71.3$
 $R_9 = -25.2$

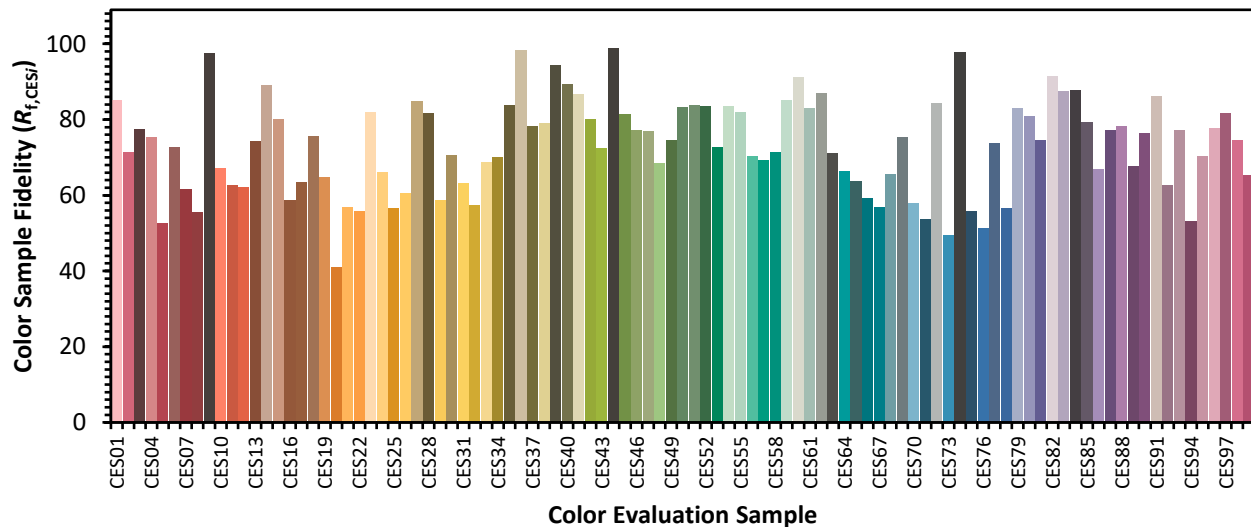


Color Vector Graphics

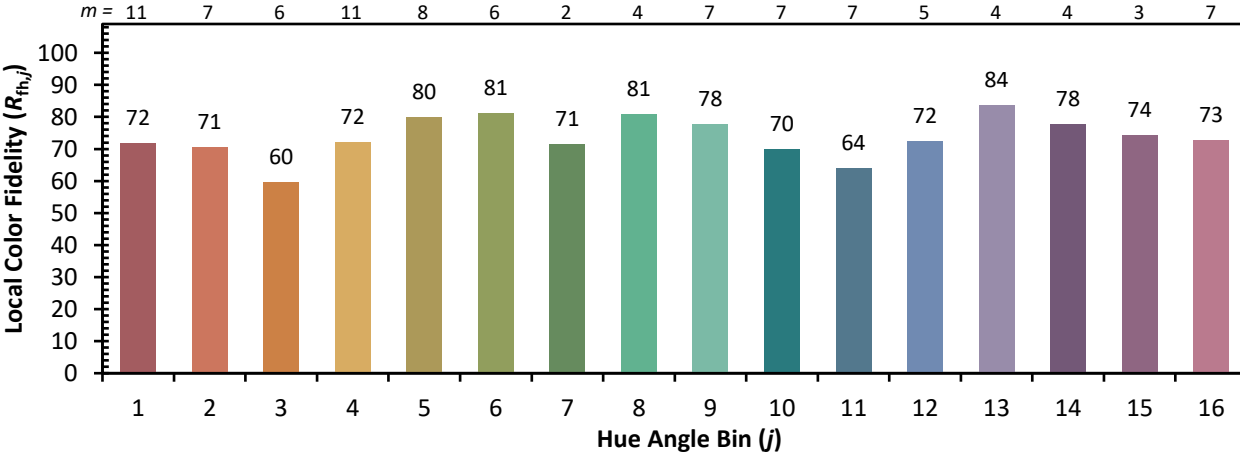
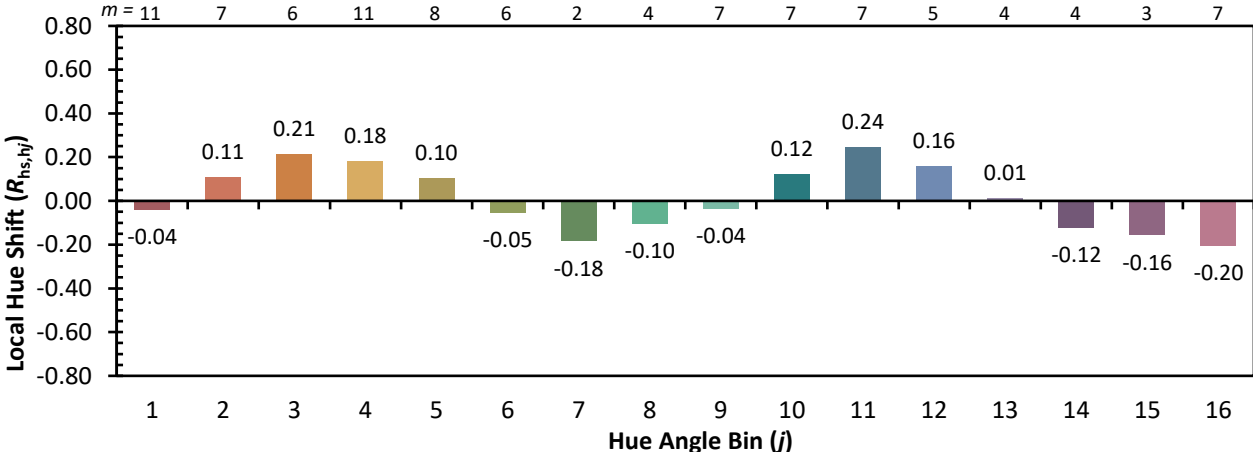
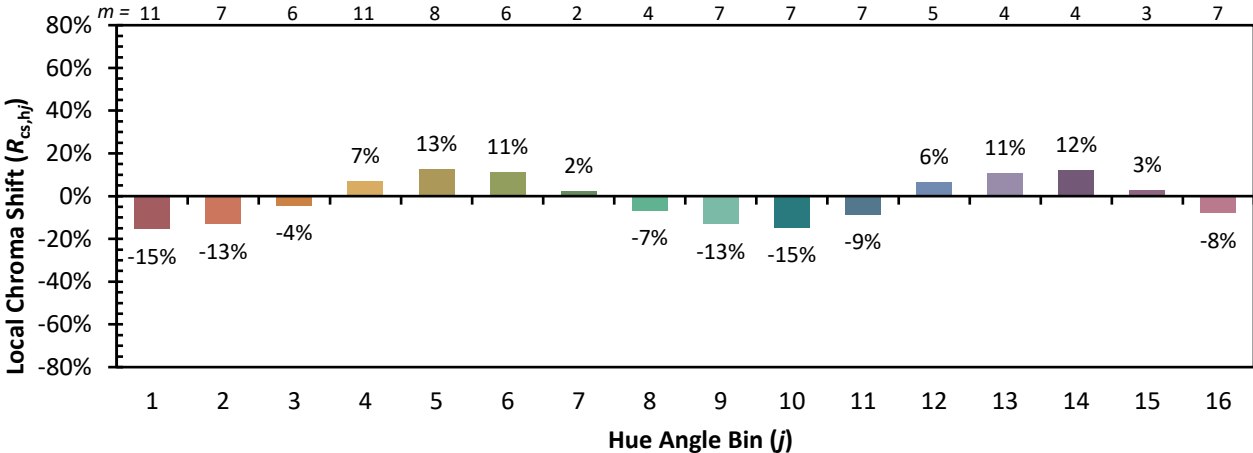


Individual Sample Fidelity Index ($R_{f,i}$)

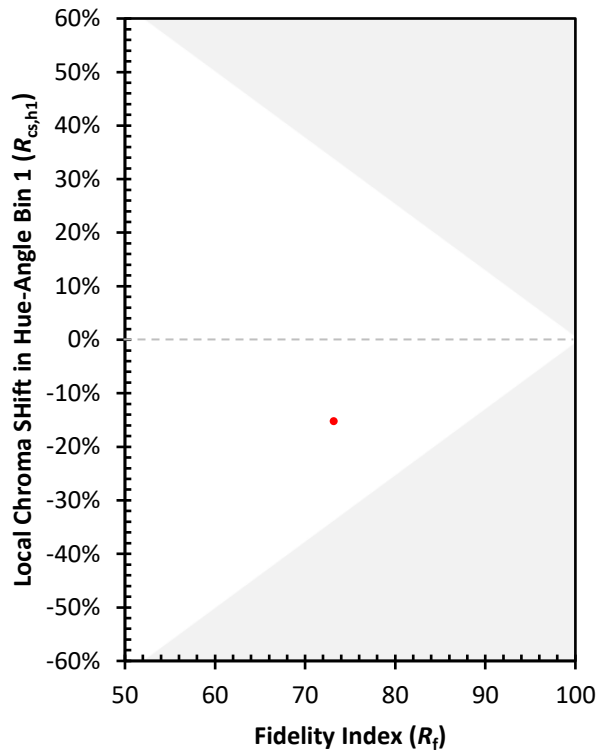
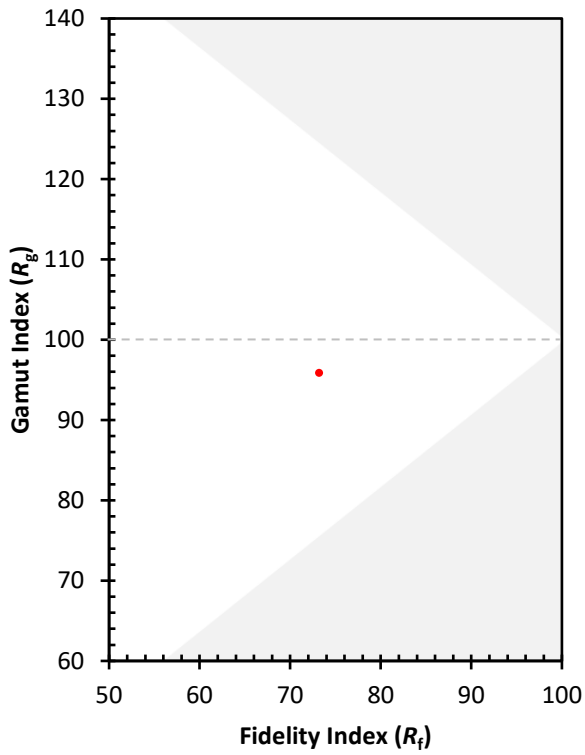
| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 61 | CES51 = 84 | CES76 = 51 |
| CES02 = 62 | CES27 = 85 | CES52 = 84 | CES77 = 74 |
| CES03 = 31 | CES28 = 82 | CES53 = 73 | CES78 = 56 |
| CES04 = 71 | CES29 = 59 | CES54 = 84 | CES79 = 83 |
| CES05 = 49 | CES30 = 71 | CES55 = 82 | CES80 = 81 |
| CES06 = 51 | CES31 = 63 | CES56 = 70 | CES81 = 75 |
| CES07 = 41 | CES32 = 57 | CES57 = 69 | CES82 = 92 |
| CES08 = 40 | CES33 = 69 | CES58 = 71 | CES83 = 88 |
| CES09 = 29 | CES34 = 70 | CES59 = 85 | CES84 = 88 |
| CES10 = 76 | CES35 = 84 | CES60 = 91 | CES85 = 79 |
| CES11 = 59 | CES36 = 98 | CES61 = 83 | CES86 = 67 |
| CES12 = 65 | CES37 = 78 | CES62 = 87 | CES87 = 77 |
| CES13 = 43 | CES38 = 79 | CES63 = 71 | CES88 = 78 |
| CES14 = 74 | CES39 = 94 | CES64 = 66 | CES89 = 68 |
| CES15 = 71 | CES40 = 89 | CES65 = 64 | CES90 = 76 |
| CES16 = 47 | CES41 = 87 | CES66 = 59 | CES91 = 86 |
| CES17 = 50 | CES42 = 80 | CES67 = 57 | CES92 = 63 |
| CES18 = 56 | CES43 = 73 | CES68 = 66 | CES93 = 77 |
| CES19 = 73 | CES44 = 99 | CES69 = 75 | CES94 = 53 |
| CES20 = 66 | CES45 = 81 | CES70 = 58 | CES95 = 70 |
| CES21 = 87 | CES46 = 77 | CES71 = 54 | CES96 = 78 |
| CES22 = 79 | CES47 = 77 | CES72 = 84 | CES97 = 82 |
| CES23 = 92 | CES48 = 68 | CES73 = 49 | CES98 = 75 |
| CES24 = 91 | CES49 = 74 | CES74 = 98 | CES99 = 65 |
| CES25 = 73 | CES50 = 83 | CES75 = 56 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)