

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: INVUE

Report Number: P880267

Luminaire Tested: **EMM2-HSN-VA6-735-U-WT4**

Issue Date: 10/01/2024



Test Information

Test Method: LM-79-08
Report Number: P880267
Test Lab: INNOVATION CENTER(G3)
Issue Date: 10/01/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: INVUE
Catalog Number: EMM2-HSN-VA6-735-U-WT4
Description: EPIC MODERN SHORT HOUSING 6W 70CRI 3500K VISUAL COMFORT FIXTURE w/
DRIVE LANE TYPE IV DISTRIBUTION OPTIC
Light Source: (1) 3500K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

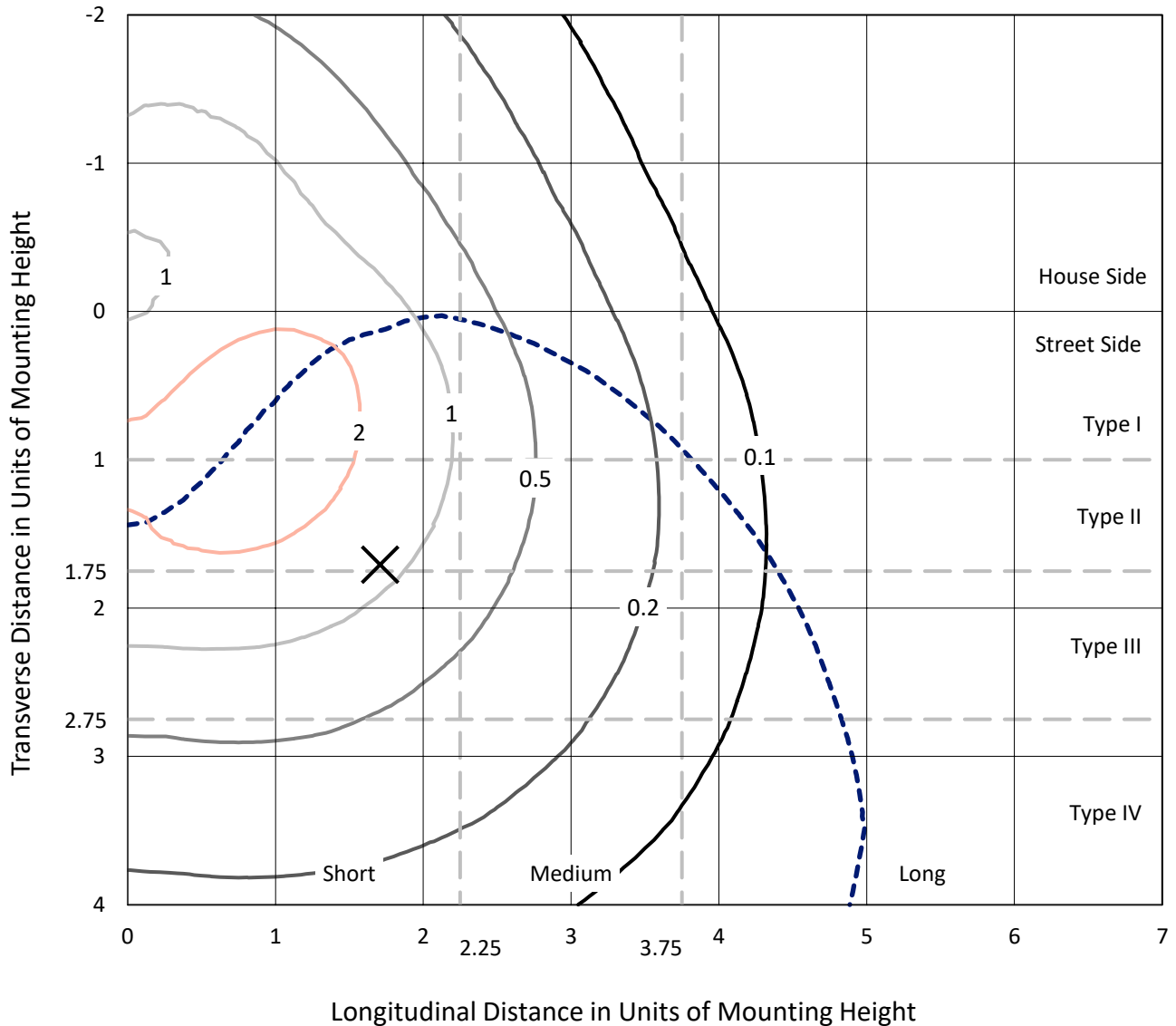
Lumens per Lamp: N/A
Luminaire Lumens: 9162.3 lumens
Efficiency: N/A
Efficacy: 86.4 lumens/watt
Luminous Opening: Circular (Dia: 1.12' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B3 - U0 - G4

Input Watts (W): 106
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.99
Total Harmonic Distortion (THDi): 5%
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

REPORT NUMBER: P880267
 CATALOG NUMBER: EMM2-HSN-VA6-735-U-WT4

Iso-Footcandle Lines of Horizontal Illumination

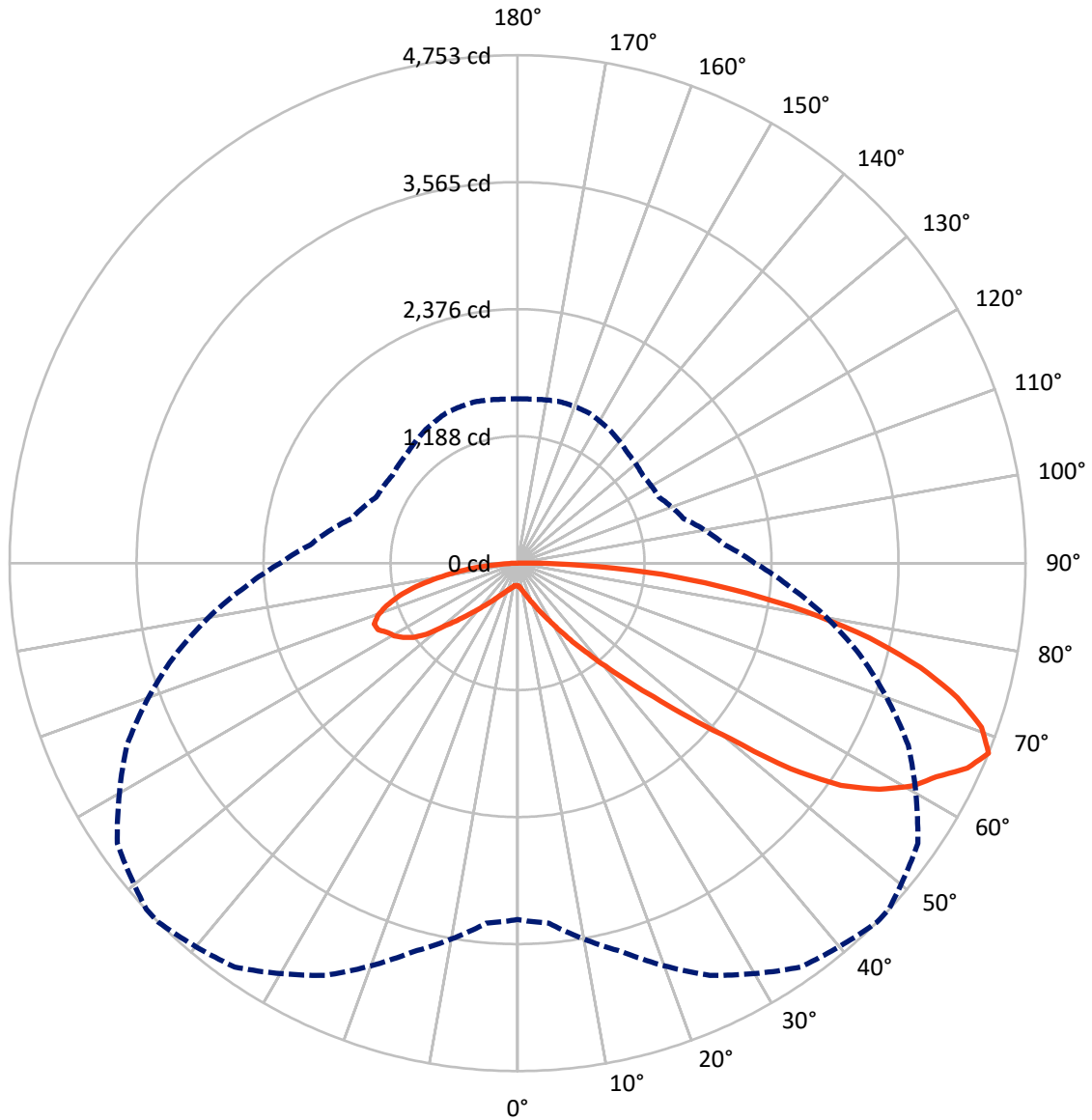
✕ Max cd
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 3.2 fc
 Type IV - Short - N/A

REPORT NUMBER: P880267
CATALOG NUMBER: EMM2-HSN-VA6-735-U-WT4

Luminous Intensity Polar Plot



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

REPORT NUMBER: P880267
 CATALOG NUMBER: EMM2-HSN-VA6-735-U-WT4

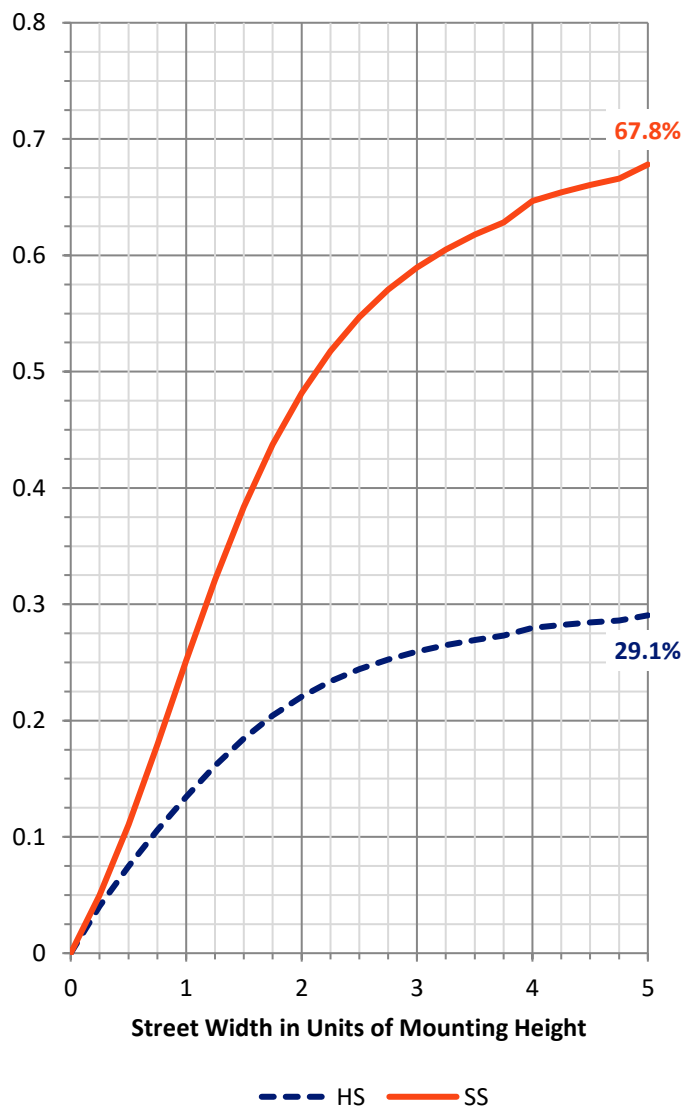
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 2715.4 | 0.0 | 2715.4 |
| | % Fixture | 29.6 | 0.0 | 29.6 |
| Street Side | Lumens | 6446.9 | 0.0 | 6446.9 |
| | % Fixture | 70.4 | 0.0 | 70.4 |
| Total | Lumens | 9162.3 | 0.0 | 9162.3 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 21.7 | 0.2 |
| 10°-20° | 81.5 | 0.9 |
| 20°-30° | 192.0 | 2.1 |
| 30°-40° | 421.1 | 4.6 |
| 40°-50° | 916.8 | 10.0 |
| 50°-60° | 1883.7 | 20.6 |
| 60°-70° | 2653.9 | 29.0 |
| 70°-80° | 2253.1 | 24.6 |
| 80°-90° | 738.4 | 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° | 9162.3 | 100.0 |
| 0°-180° | 9162.3 | 100.0 |



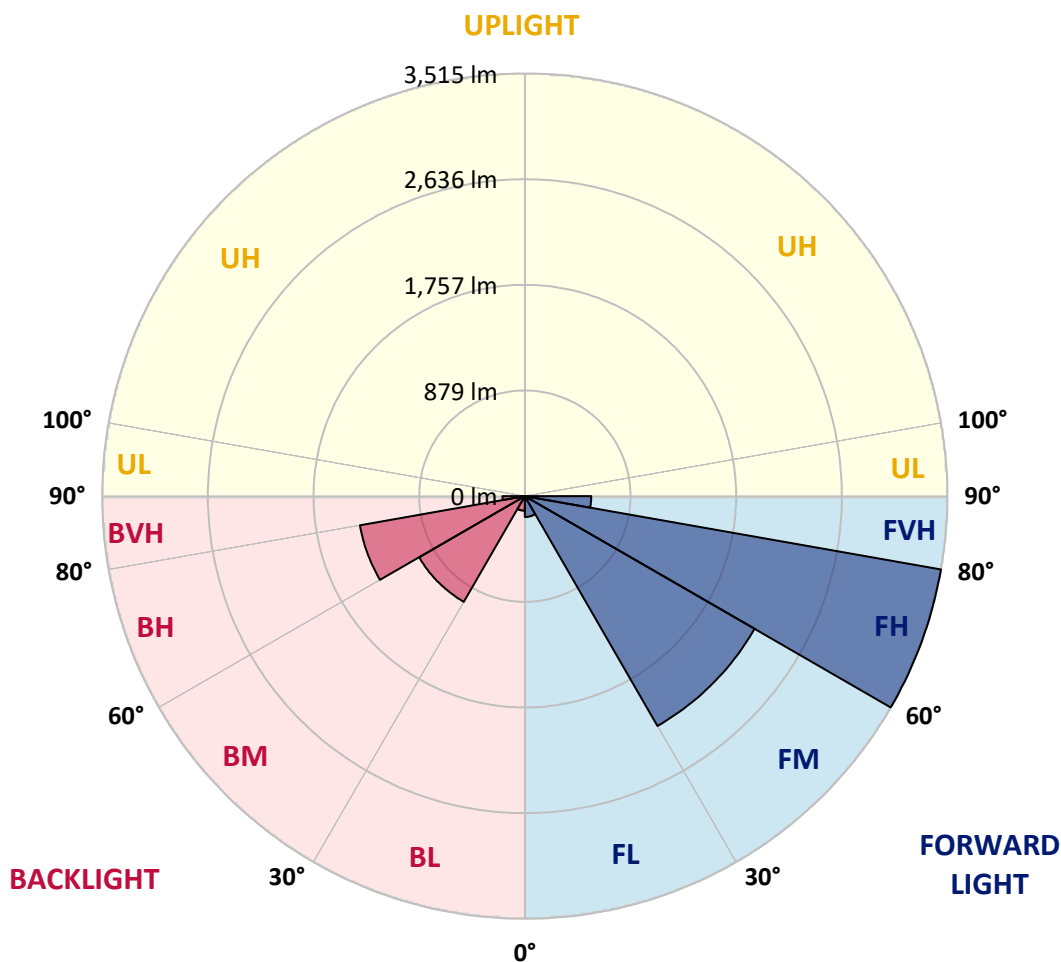
REPORT NUMBER: P880267
 CATALOG NUMBER: EMM2-HSN-VA6-735-U-WT4

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 173.4 | 1.9 | | | |
| FM (30°-60°) | 2206.7 | 24.1 | | | |
| FH (60°-80°) | 3514.6 | 38.4 | | | G2/5000 |
| FVH (80°-90°) | 552.2 | 6.0 | | | G4/750 |
| BL (0°-30°) | 121.9 | 1.3 | B1/500 | | |
| BM (30°-60°) | 1014.9 | 11.1 | B2/2500 | | |
| BH (60°-80°) | 1392.4 | 15.2 | B3/2500 | | G3/2500 |
| BVH (80°-90°) | 186.2 | 2.0 | | | G2/225 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B3-U0-G4

Type IV Short





REPORT NUMBER: P880267

CATALOG NUMBER: EMM2-HSN-VA6-735-U-WT4

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 47° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 211.6 | 211.6 | 211.6 | 211.6 | 211.6 | 211.6 | 211.6 | 211.6 | 211.6 | 211.6 | 211.6 |
| 2.5° | 218.1 | 217.2 | 218.1 | 218.1 | 218.1 | 217.2 | 217.2 | 217.2 | 216.2 | 215.3 | 214.4 |
| 5° | 231.2 | 231.2 | 231.2 | 230.3 | 230.3 | 228.4 | 228.4 | 227.5 | 225.6 | 223.7 | 221.9 |
| 7.5° | 249.0 | 248.1 | 248.1 | 247.1 | 246.2 | 244.3 | 243.4 | 242.5 | 238.7 | 235.9 | 232.2 |
| 10° | 270.5 | 270.5 | 269.6 | 267.7 | 267.7 | 263.1 | 264.0 | 262.1 | 257.4 | 251.8 | 245.3 |
| 12.5° | 296.8 | 296.8 | 294.9 | 294.9 | 293.0 | 289.3 | 288.3 | 285.5 | 280.8 | 271.5 | 264.0 |
| 15° | 325.8 | 325.8 | 327.6 | 325.8 | 323.9 | 319.2 | 319.2 | 315.5 | 305.2 | 297.7 | 286.5 |
| 17.5° | 362.3 | 357.6 | 360.4 | 359.5 | 359.5 | 356.7 | 353.9 | 349.2 | 340.7 | 327.6 | 313.6 |
| 20° | 399.7 | 400.7 | 397.9 | 400.7 | 401.6 | 397.9 | 397.9 | 392.2 | 380.1 | 364.2 | 341.7 |
| 22.5° | 446.5 | 446.5 | 440.9 | 448.4 | 453.1 | 450.3 | 449.3 | 438.1 | 423.1 | 401.6 | 379.1 |
| 25° | 495.2 | 493.3 | 502.7 | 504.6 | 514.9 | 513.9 | 513.0 | 502.7 | 480.2 | 454.0 | 419.4 |
| 27.5° | 550.4 | 553.2 | 571.0 | 575.7 | 586.0 | 585.1 | 584.1 | 572.9 | 548.6 | 513.0 | 468.1 |
| 30° | 618.8 | 622.5 | 639.4 | 655.3 | 673.1 | 674.9 | 673.1 | 663.7 | 628.1 | 581.3 | 530.8 |
| 32.5° | 698.3 | 708.6 | 725.5 | 752.6 | 775.1 | 785.4 | 787.3 | 770.4 | 730.2 | 668.4 | 601.9 |
| 35° | 806.9 | 798.5 | 821.9 | 866.8 | 904.3 | 924.9 | 924.0 | 901.5 | 857.5 | 778.9 | 684.3 |
| 37.5° | 913.7 | 910.8 | 947.4 | 1006.3 | 1056.9 | 1073.7 | 1078.4 | 1063.4 | 1007.3 | 903.4 | 792.0 |
| 40° | 1025.1 | 1048.5 | 1090.6 | 1158.9 | 1233.8 | 1269.4 | 1272.2 | 1250.7 | 1173.9 | 1056.9 | 909.9 |
| 42.5° | 1170.2 | 1193.6 | 1246.9 | 1331.2 | 1439.8 | 1498.7 | 1502.5 | 1478.1 | 1385.5 | 1233.8 | 1052.2 |
| 45° | 1353.6 | 1366.7 | 1422.9 | 1551.2 | 1690.6 | 1785.2 | 1812.3 | 1782.4 | 1668.2 | 1457.5 | 1229.1 |
| 47.5° | 1551.2 | 1551.2 | 1642.9 | 1812.3 | 2023.0 | 2147.5 | 2168.1 | 2140.9 | 1970.5 | 1716.8 | 1426.6 |
| 50° | 1771.1 | 1772.1 | 1918.1 | 2160.6 | 2426.4 | 2581.8 | 2597.7 | 2532.2 | 2326.3 | 1980.8 | 1627.9 |
| 52.5° | 1999.6 | 2023.9 | 2237.3 | 2604.3 | 2961.0 | 3198.7 | 3214.6 | 3138.8 | 2864.5 | 2359.0 | 1842.3 |
| 55° | 2314.1 | 2352.5 | 2662.3 | 3112.6 | 3483.3 | 3670.5 | 3671.5 | 3580.7 | 3251.2 | 2726.0 | 2098.8 |
| 57.5° | 2750.3 | 2765.3 | 3054.6 | 3514.2 | 3864.3 | 3992.6 | 3983.2 | 3850.3 | 3470.2 | 2931.0 | 2309.4 |
| 60° | 3110.7 | 3145.4 | 3381.3 | 3808.1 | 4149.8 | 4237.8 | 4227.5 | 4051.5 | 3620.0 | 3050.8 | 2410.5 |
| 62.5° | 3347.6 | 3364.4 | 3608.7 | 4018.8 | 4325.8 | 4399.8 | 4388.5 | 4224.7 | 3803.5 | 3259.6 | 2579.0 |
| 65° | 3404.7 | 3432.8 | 3742.6 | 4159.2 | 4456.9 | 4623.5 | 4616.0 | 4528.0 | 4095.5 | 3414.0 | 2658.6 |
| 67.5° | 3335.4 | 3382.2 | 3762.3 | 4255.6 | 4614.1 | 4752.7 | 4748.9 | 4572.0 | 4032.8 | 3314.8 | 2558.4 |
| 70° | 3194.0 | 3234.3 | 3706.1 | 4245.3 | 4568.3 | 4605.7 | 4576.7 | 4374.5 | 3848.4 | 3150.0 | 2408.6 |
| 72.5° | 2971.3 | 3039.6 | 3500.2 | 4010.3 | 4279.9 | 4304.3 | 4294.0 | 4046.9 | 3571.3 | 2866.4 | 2182.1 |
| 75° | 2679.2 | 2762.5 | 3180.0 | 3592.8 | 3849.3 | 3891.5 | 3871.8 | 3655.6 | 3174.4 | 2511.6 | 1901.3 |
| 77.5° | 2309.4 | 2356.2 | 2674.5 | 3066.7 | 3361.6 | 3369.1 | 3357.9 | 3116.3 | 2673.6 | 2103.5 | 1599.8 |
| 80° | 1819.8 | 1847.9 | 2124.1 | 2450.8 | 2695.1 | 2725.1 | 2714.8 | 2551.9 | 2123.1 | 1664.4 | 1247.9 |
| 82.5° | 1348.0 | 1329.3 | 1514.6 | 1782.4 | 2024.8 | 2026.7 | 2043.6 | 1862.9 | 1589.5 | 1207.6 | 893.1 |
| 85° | 776.0 | 783.5 | 944.5 | 1127.1 | 1274.1 | 1359.2 | 1358.3 | 1271.3 | 1022.2 | 768.6 | 544.8 |
| 87.5° | 216.2 | 233.1 | 335.1 | 487.7 | 554.2 | 602.9 | 585.1 | 528.0 | 426.9 | 241.5 | 138.5 |
| 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: P880267

CATALOG NUMBER: EMM2-HSN-VA6-735-U-WT4

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 211.6 | 211.6 | 211.6 | 211.6 | 211.6 | 211.6 | 211.6 | 211.6 | 211.6 | 211.6 | 211.6 |
| 2.5° | 214.4 | 213.4 | 212.5 | 211.6 | 209.7 | 209.7 | 208.8 | 209.7 | 209.7 | 209.7 | 209.7 |
| 5° | 220.0 | 219.1 | 216.2 | 214.4 | 211.6 | 209.7 | 208.8 | 208.8 | 208.8 | 208.8 | 208.8 |
| 7.5° | 229.3 | 228.4 | 223.7 | 220.0 | 216.2 | 214.4 | 212.5 | 211.6 | 210.6 | 209.7 | 210.6 |
| 10° | 243.4 | 239.6 | 235.0 | 229.3 | 223.7 | 220.9 | 218.1 | 217.2 | 216.2 | 215.3 | 215.3 |
| 12.5° | 259.3 | 256.5 | 248.1 | 240.6 | 235.0 | 230.3 | 226.5 | 224.7 | 223.7 | 222.8 | 222.8 |
| 15° | 280.8 | 275.2 | 264.0 | 254.6 | 246.2 | 240.6 | 236.8 | 235.0 | 234.0 | 233.1 | 233.1 |
| 17.5° | 305.2 | 297.7 | 282.7 | 270.5 | 261.2 | 253.7 | 249.0 | 246.2 | 244.3 | 245.3 | 246.2 |
| 20° | 333.3 | 321.1 | 304.2 | 289.3 | 277.1 | 268.7 | 264.0 | 260.2 | 258.4 | 259.3 | 260.2 |
| 22.5° | 366.0 | 352.9 | 328.6 | 310.8 | 295.8 | 285.5 | 280.8 | 278.0 | 276.2 | 275.2 | 273.3 |
| 25° | 403.5 | 386.6 | 358.5 | 334.2 | 316.4 | 306.1 | 300.5 | 298.6 | 296.8 | 294.9 | 294.9 |
| 27.5° | 448.4 | 428.7 | 390.4 | 364.2 | 342.6 | 332.3 | 325.8 | 323.0 | 323.0 | 320.2 | 320.2 |
| 30° | 500.8 | 474.6 | 427.8 | 393.2 | 371.6 | 358.5 | 351.0 | 350.1 | 348.2 | 351.0 | 351.0 |
| 32.5° | 563.5 | 528.0 | 470.9 | 430.6 | 406.3 | 394.1 | 386.6 | 384.7 | 381.9 | 383.8 | 389.4 |
| 35° | 642.2 | 596.3 | 528.0 | 480.2 | 450.3 | 438.1 | 428.7 | 427.8 | 423.1 | 427.8 | 420.3 |
| 37.5° | 730.2 | 679.6 | 588.8 | 532.7 | 499.9 | 485.8 | 479.3 | 476.5 | 475.5 | 475.5 | 469.9 |
| 40° | 837.8 | 777.0 | 666.5 | 597.2 | 559.8 | 543.0 | 536.4 | 535.5 | 533.6 | 540.1 | 533.6 |
| 42.5° | 970.8 | 878.1 | 747.0 | 668.4 | 630.0 | 612.2 | 604.7 | 601.9 | 606.6 | 609.4 | 608.5 |
| 45° | 1118.7 | 1018.5 | 850.0 | 759.2 | 715.2 | 697.4 | 687.1 | 684.3 | 686.2 | 686.2 | 695.5 |
| 47.5° | 1289.0 | 1171.1 | 967.9 | 858.4 | 818.2 | 796.6 | 790.1 | 780.7 | 776.0 | 774.2 | 790.1 |
| 50° | 1466.9 | 1319.9 | 1088.7 | 966.1 | 929.6 | 912.7 | 914.6 | 895.9 | 889.3 | 881.8 | 880.0 |
| 52.5° | 1645.7 | 1479.1 | 1226.3 | 1115.9 | 1073.7 | 1082.2 | 1078.4 | 1058.8 | 1020.4 | 1011.0 | 988.5 |
| 55° | 1860.1 | 1658.8 | 1358.3 | 1226.3 | 1189.8 | 1196.4 | 1211.3 | 1211.3 | 1202.9 | 1182.3 | 1164.5 |
| 57.5° | 2041.7 | 1807.7 | 1457.5 | 1292.8 | 1261.0 | 1277.8 | 1307.8 | 1330.2 | 1349.9 | 1364.9 | 1363.9 |
| 60° | 2142.8 | 1899.4 | 1522.1 | 1343.3 | 1305.9 | 1338.7 | 1383.6 | 1422.0 | 1464.1 | 1508.1 | 1506.2 |
| 62.5° | 2282.3 | 2027.6 | 1637.3 | 1433.2 | 1368.6 | 1378.9 | 1430.4 | 1496.9 | 1535.2 | 1571.7 | 1582.0 |
| 65° | 2318.8 | 2051.0 | 1680.3 | 1496.9 | 1444.4 | 1446.3 | 1480.9 | 1535.2 | 1568.0 | 1577.4 | 1583.0 |
| 67.5° | 2220.5 | 1948.1 | 1609.2 | 1459.4 | 1431.3 | 1457.5 | 1513.7 | 1556.8 | 1561.5 | 1539.0 | 1537.1 |
| 70° | 2072.6 | 1821.7 | 1496.9 | 1371.4 | 1353.6 | 1393.9 | 1467.8 | 1519.3 | 1508.1 | 1462.2 | 1459.4 |
| 72.5° | 1863.8 | 1630.7 | 1346.1 | 1255.3 | 1237.6 | 1288.1 | 1353.6 | 1407.9 | 1391.1 | 1356.4 | 1353.6 |
| 75° | 1612.9 | 1394.8 | 1163.6 | 1096.2 | 1095.3 | 1150.5 | 1207.6 | 1240.4 | 1239.4 | 1215.1 | 1207.6 |
| 77.5° | 1340.5 | 1163.6 | 958.6 | 897.7 | 920.2 | 972.6 | 1014.8 | 1039.1 | 1030.7 | 1022.2 | 1019.4 |
| 80° | 1049.4 | 892.1 | 739.5 | 703.0 | 737.7 | 755.5 | 800.4 | 798.5 | 803.2 | 785.4 | 798.5 |
| 82.5° | 747.0 | 643.1 | 529.8 | 513.9 | 518.6 | 554.2 | 578.5 | 575.7 | 563.5 | 550.4 | 544.8 |
| 85° | 453.1 | 396.0 | 339.8 | 317.3 | 333.3 | 330.5 | 345.4 | 333.3 | 325.8 | 319.2 | 324.8 |
| 87.5° | 125.4 | 108.6 | 103.9 | 74.9 | 92.7 | 73.0 | 76.8 | 53.4 | 46.8 | 56.2 | 48.7 |
| 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

Streetworks

Report Number: SP1-2407-176-4

Test Date: 09/24/2024

Luminaire Tested: MEM2-HTN-VA-30-735-U-WQ

Data in this report applies to families of products including MEM2-HTN-VA-30-735-U-WQ

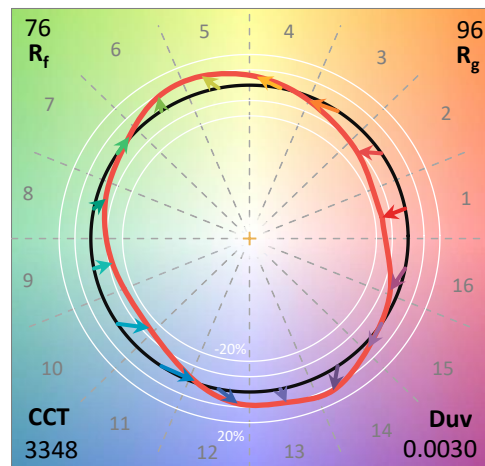
Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-176-4
 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-30-735-U-WQ**
 Description: EPIC MODERN VISUAL COMFORT 30W WAVESTREAM WIDE

Spectral Parameters

CCT (K): 3348
 CIE u': 0.2384
 CIE v': 0.5184
 Duv: 0.0030
 CIE x: 0.4177
 CIE y: 0.4036
 CIE z: 0.1787
 Peak Wavelength (nm): 593
 Dominant Wavelength (nm): 580
 Purity: 46.5223
 R_f: 75.8
 R_g: 95.8

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 73.4 | | |
| R1: | 70.8 | R9: | -19.2 |
| R2: | 79.9 | R10: | 52.5 |
| R3: | 87.6 | R11: | 68.0 |
| R4: | 72.6 | R12: | 42.6 |
| R5: | 69.3 | R13: | 72.0 |
| R6: | 71.3 | R14: | 92.6 |
| R7: | 82.1 | R15: | 63.8 |
| R8: | 53.3 | | |



Test Conditions

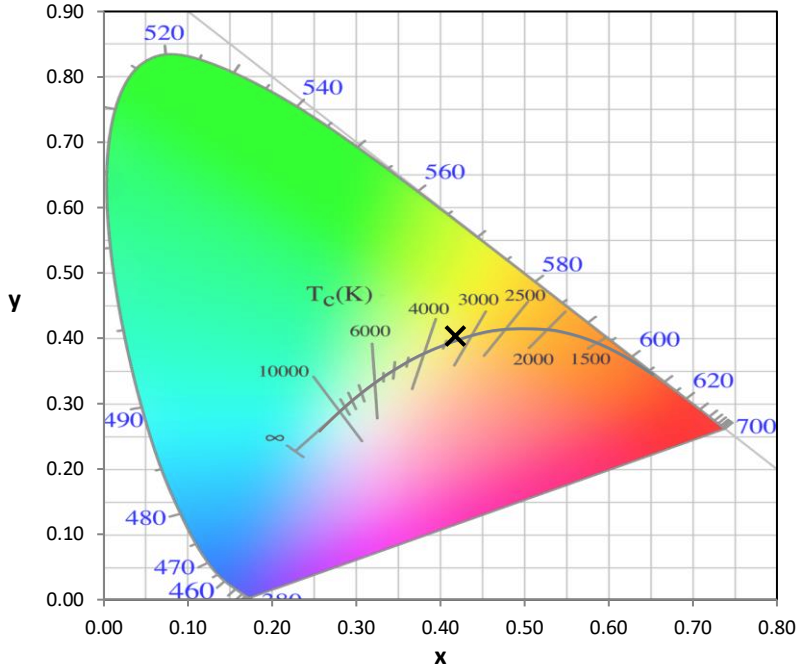
Stabilization Time: 30M
 Operation Time: 1H 30M
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-176-4

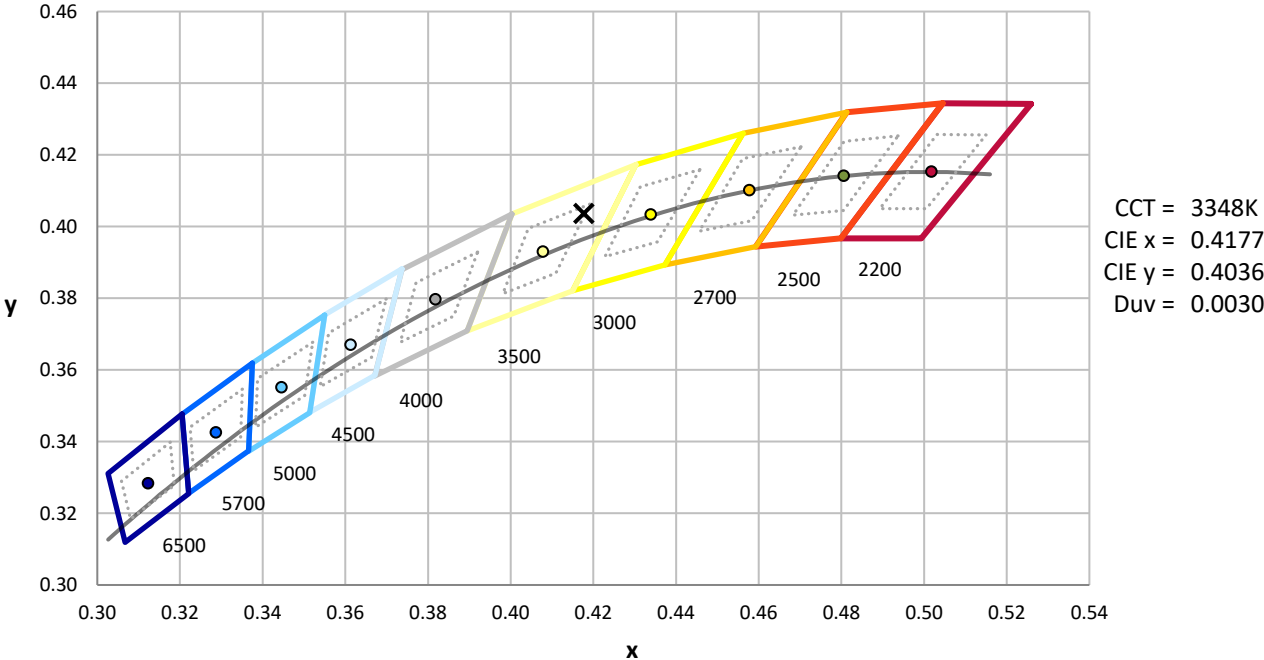
| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 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: SP1-2407-176-4

CIE 1931 Chromaticity Diagram



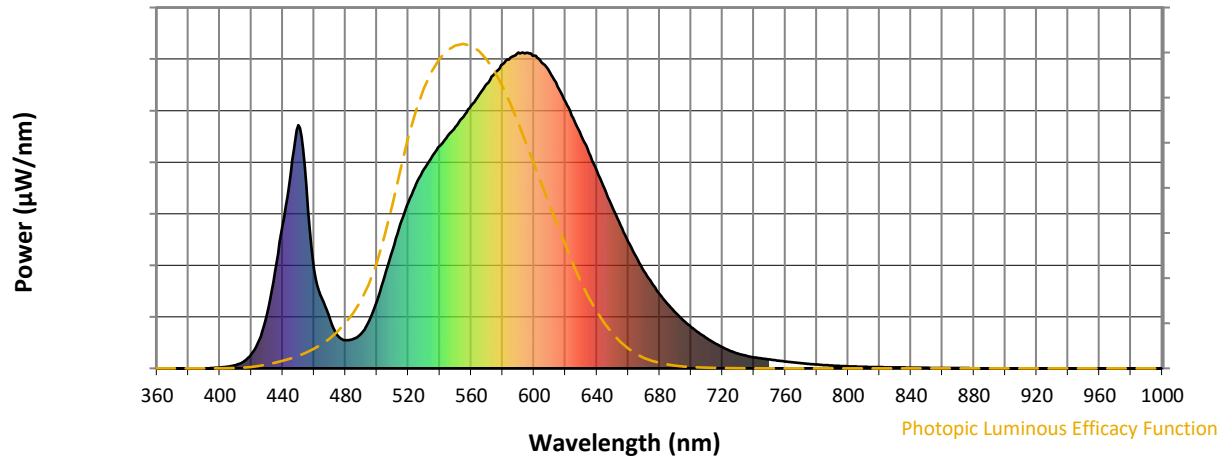
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3500K 4-step quadrangle

REPORT NUMBER: SP1-2407-176-4

Photopic Flux vs. Wavelength

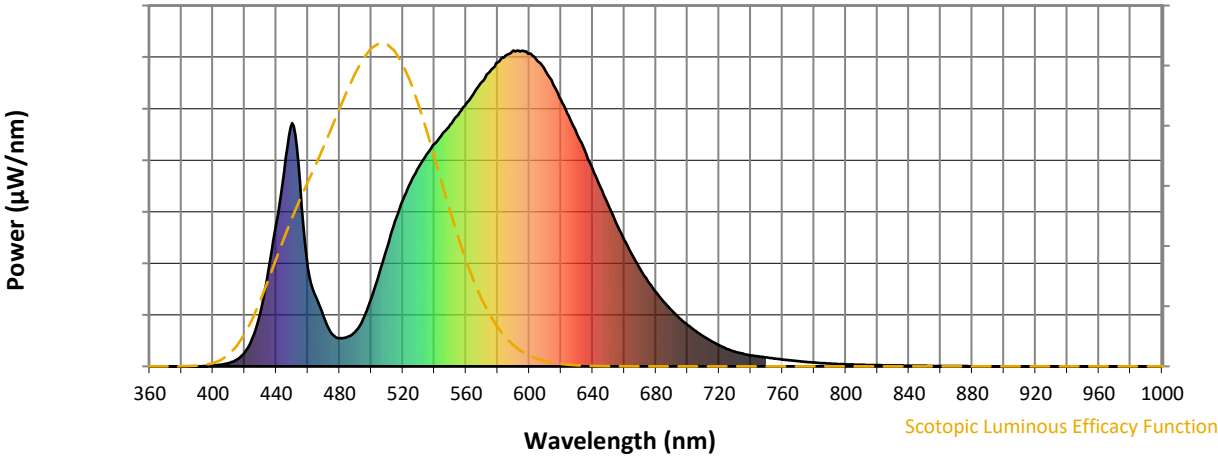


Photopic Lumens: NR

| 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 | 110 | NR | 620 | 844 | NR | 750 | 28 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 150 | NR | 625 | 792 | NR | 755 | 25 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 214 | NR | 630 | 737 | NR | 760 | 22 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 293 | NR | 635 | 683 | NR | 765 | 19 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 376 | NR | 640 | 625 | NR | 770 | 16 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 458 | NR | 645 | 566 | NR | 775 | 14 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 526 | NR | 650 | 509 | NR | 780 | 12 | NR | 910 | 0 | NR |
| 395 | 1 | NR | 525 | 584 | NR | 655 | 453 | NR | 785 | 10 | NR | 915 | 0 | NR |
| 400 | 3 | NR | 530 | 631 | NR | 660 | 401 | NR | 790 | 9 | NR | 920 | 0 | NR |
| 405 | 5 | NR | 535 | 671 | NR | 665 | 353 | NR | 795 | 8 | NR | 925 | 0 | NR |
| 410 | 10 | NR | 540 | 704 | NR | 670 | 308 | NR | 800 | 7 | NR | 930 | 0 | NR |
| 415 | 21 | NR | 545 | 737 | NR | 675 | 269 | NR | 805 | 6 | NR | 935 | 0 | NR |
| 420 | 44 | NR | 550 | 766 | NR | 680 | 235 | NR | 810 | 5 | NR | 940 | 0 | NR |
| 425 | 90 | NR | 555 | 797 | NR | 685 | 204 | NR | 815 | 4 | NR | 945 | 0 | NR |
| 430 | 171 | NR | 560 | 832 | NR | 690 | 177 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 305 | NR | 565 | 866 | NR | 695 | 152 | NR | 825 | 3 | NR | 955 | 0 | NR |
| 440 | 455 | NR | 570 | 901 | NR | 700 | 131 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 615 | NR | 575 | 933 | NR | 705 | 112 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 771 | NR | 580 | 963 | NR | 710 | 96 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 579 | NR | 585 | 984 | NR | 715 | 80 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 313 | NR | 590 | 1000 | NR | 720 | 67 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 221 | NR | 595 | 999 | NR | 725 | 55 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 156 | NR | 600 | 990 | NR | 730 | 46 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 103 | NR | 605 | 968 | NR | 735 | 40 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 89 | NR | 610 | 937 | NR | 740 | 35 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 93 | NR | 615 | 893 | NR | 745 | 31 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2407-176-4

Scotopic Flux vs. Wavelength

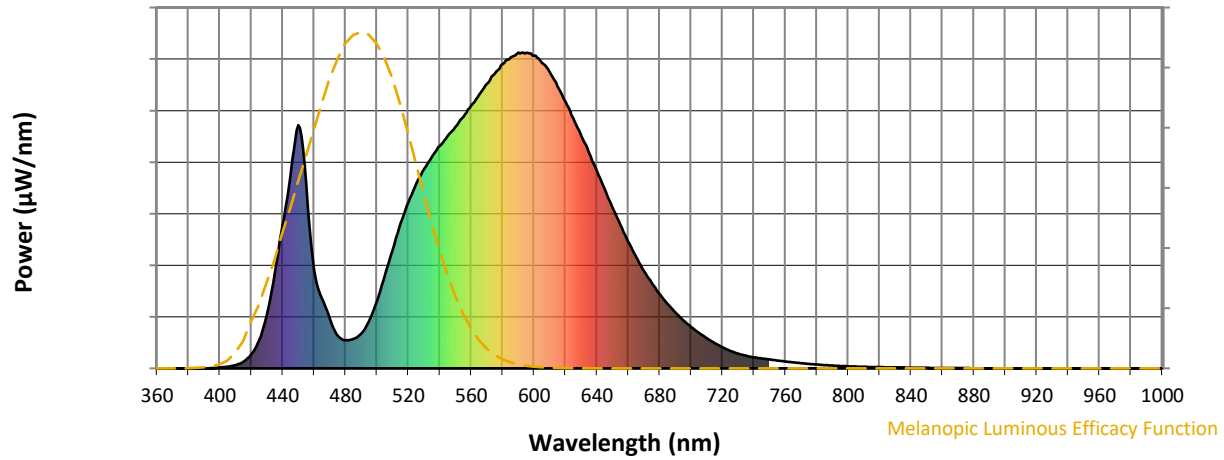


Scotopic Lumens: NR S/P: 1.31

| 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 | 110 | NR | 620 | 844 | NR | 750 | 28 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 150 | NR | 625 | 792 | NR | 755 | 25 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 214 | NR | 630 | 737 | NR | 760 | 22 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 293 | NR | 635 | 683 | NR | 765 | 19 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 376 | NR | 640 | 625 | NR | 770 | 16 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 458 | NR | 645 | 566 | NR | 775 | 14 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 526 | NR | 650 | 509 | NR | 780 | 12 | NR | 910 | 0 | NR |
| 395 | 1 | NR | 525 | 584 | NR | 655 | 453 | NR | 785 | 10 | NR | 915 | 0 | NR |
| 400 | 3 | NR | 530 | 631 | NR | 660 | 401 | NR | 790 | 9 | NR | 920 | 0 | NR |
| 405 | 5 | NR | 535 | 671 | NR | 665 | 353 | NR | 795 | 8 | NR | 925 | 0 | NR |
| 410 | 10 | NR | 540 | 704 | NR | 670 | 308 | NR | 800 | 7 | NR | 930 | 0 | NR |
| 415 | 21 | NR | 545 | 737 | NR | 675 | 269 | NR | 805 | 6 | NR | 935 | 0 | NR |
| 420 | 44 | NR | 550 | 766 | NR | 680 | 235 | NR | 810 | 5 | NR | 940 | 0 | NR |
| 425 | 90 | NR | 555 | 797 | NR | 685 | 204 | NR | 815 | 4 | NR | 945 | 0 | NR |
| 430 | 171 | NR | 560 | 832 | NR | 690 | 177 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 305 | NR | 565 | 866 | NR | 695 | 152 | NR | 825 | 3 | NR | 955 | 0 | NR |
| 440 | 455 | NR | 570 | 901 | NR | 700 | 131 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 615 | NR | 575 | 933 | NR | 705 | 112 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 771 | NR | 580 | 963 | NR | 710 | 96 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 579 | NR | 585 | 984 | NR | 715 | 80 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 313 | NR | 590 | 1000 | NR | 720 | 67 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 221 | NR | 595 | 999 | NR | 725 | 55 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 156 | NR | 600 | 990 | NR | 730 | 46 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 103 | NR | 605 | 968 | NR | 735 | 40 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 89 | NR | 610 | 937 | NR | 740 | 35 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 93 | NR | 615 | 893 | NR | 745 | 31 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2407-176-4

Melanopic Flux vs. Wavelength



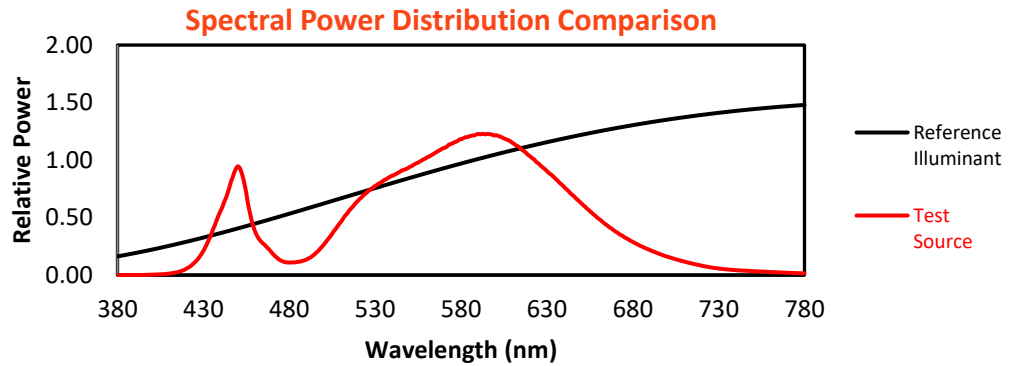
Melanopic Lumens: NR

M/P: 2.4

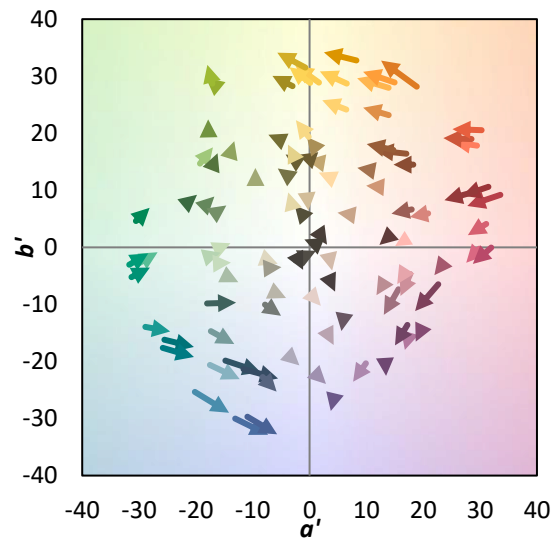
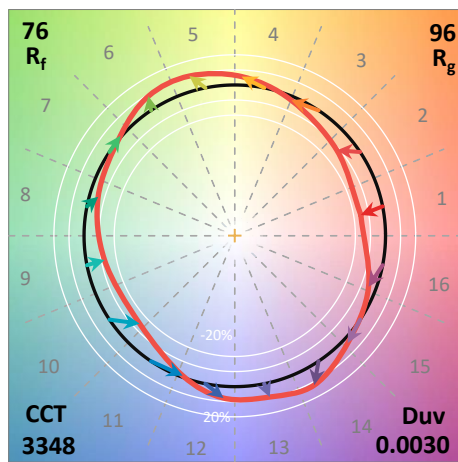
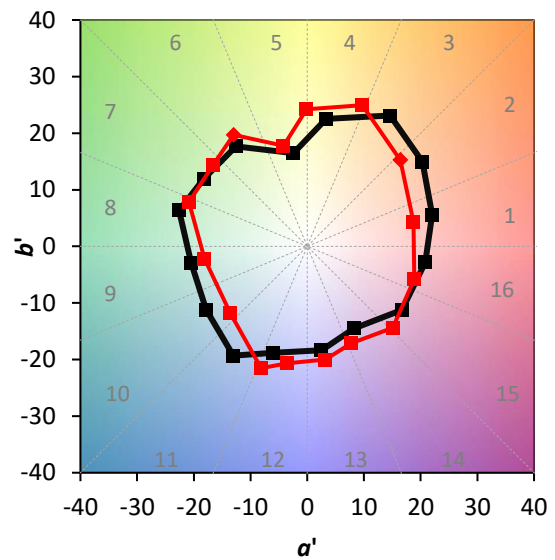
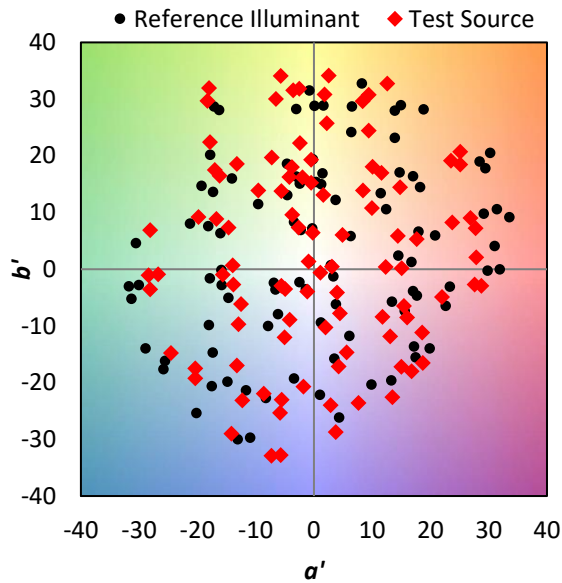
| λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360 | 0 | NR | 490 | 110 | NR | 620 | 844 | NR | 750 | 28 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 150 | NR | 625 | 792 | NR | 755 | 25 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 214 | NR | 630 | 737 | NR | 760 | 22 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 293 | NR | 635 | 683 | NR | 765 | 19 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 376 | NR | 640 | 625 | NR | 770 | 16 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 458 | NR | 645 | 566 | NR | 775 | 14 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 526 | NR | 650 | 509 | NR | 780 | 12 | NR | 910 | 0 | NR |
| 395 | 1 | NR | 525 | 584 | NR | 655 | 453 | NR | 785 | 10 | NR | 915 | 0 | NR |
| 400 | 3 | NR | 530 | 631 | NR | 660 | 401 | NR | 790 | 9 | NR | 920 | 0 | NR |
| 405 | 5 | NR | 535 | 671 | NR | 665 | 353 | NR | 795 | 8 | NR | 925 | 0 | NR |
| 410 | 10 | NR | 540 | 704 | NR | 670 | 308 | NR | 800 | 7 | NR | 930 | 0 | NR |
| 415 | 21 | NR | 545 | 737 | NR | 675 | 269 | NR | 805 | 6 | NR | 935 | 0 | NR |
| 420 | 44 | NR | 550 | 766 | NR | 680 | 235 | NR | 810 | 5 | NR | 940 | 0 | NR |
| 425 | 90 | NR | 555 | 797 | NR | 685 | 204 | NR | 815 | 4 | NR | 945 | 0 | NR |
| 430 | 171 | NR | 560 | 832 | NR | 690 | 177 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 305 | NR | 565 | 866 | NR | 695 | 152 | NR | 825 | 3 | NR | 955 | 0 | NR |
| 440 | 455 | NR | 570 | 901 | NR | 700 | 131 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 615 | NR | 575 | 933 | NR | 705 | 112 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 771 | NR | 580 | 963 | NR | 710 | 96 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 579 | NR | 585 | 984 | NR | 715 | 80 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 313 | NR | 590 | 1000 | NR | 720 | 67 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 221 | NR | 595 | 999 | NR | 725 | 55 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 156 | NR | 600 | 990 | NR | 730 | 46 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 103 | NR | 605 | 968 | NR | 735 | 40 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 89 | NR | 610 | 937 | NR | 740 | 35 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 93 | NR | 615 | 893 | NR | 745 | 31 | NR | 875 | 1 | NR | | | |

Summary

$R_f = 75.8$
 $R_g = 95.8$
 $CIE R_a = 73.4$
 $R_9 = -19.2$

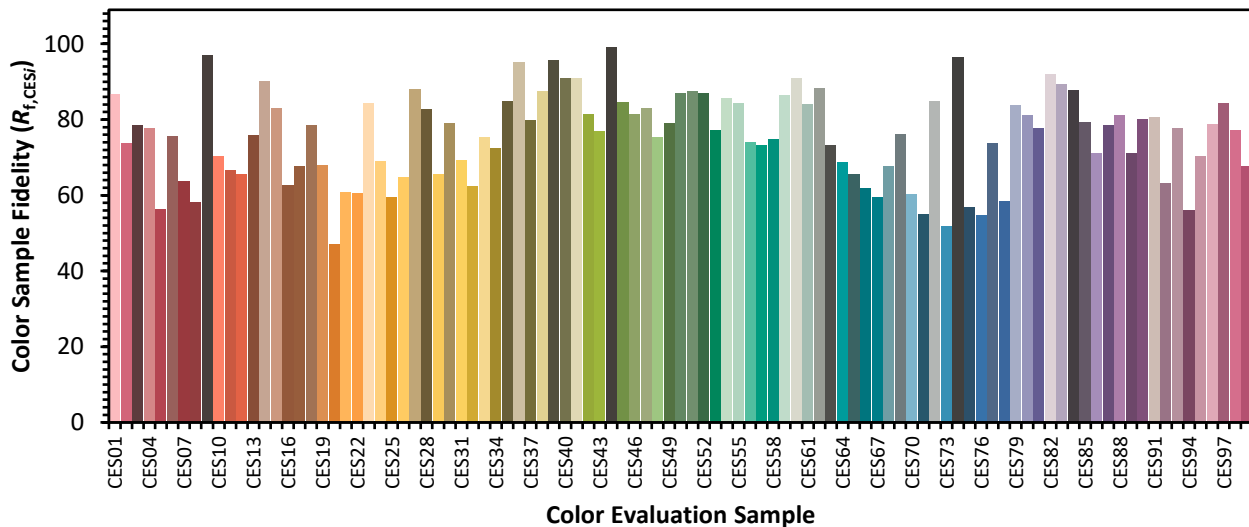


Color Vector Graphics

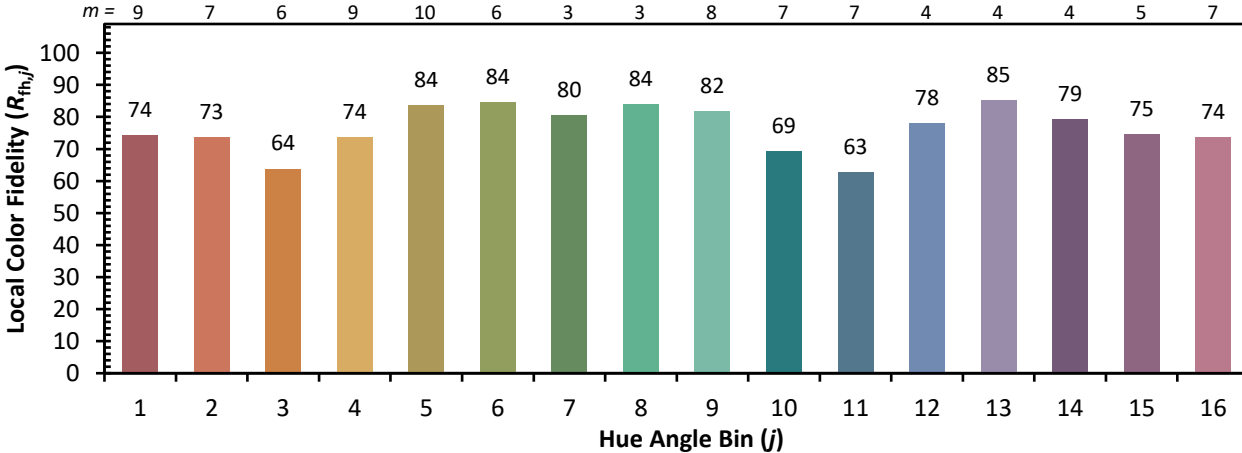
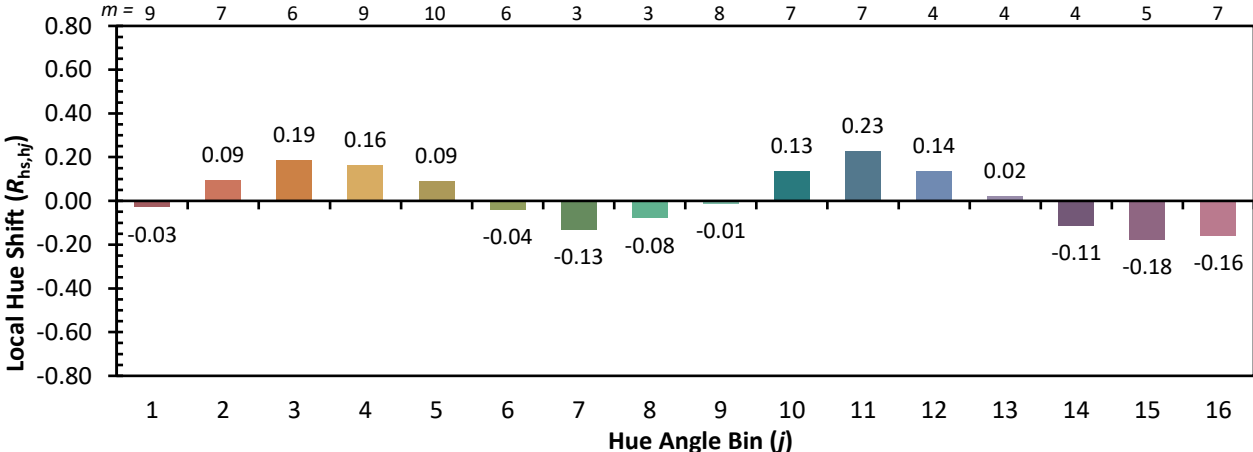
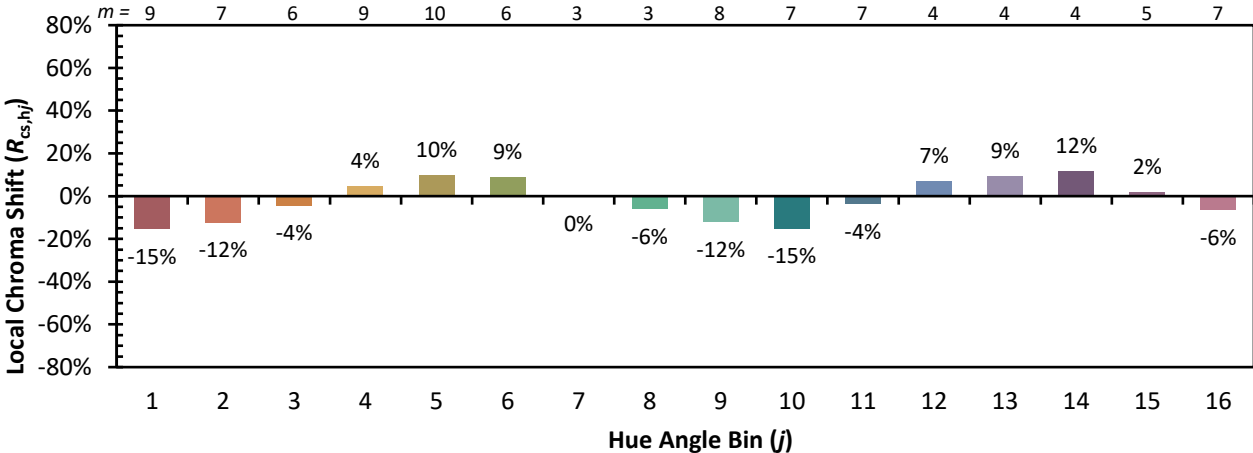


Individual Sample Fidelity Index ($R_{f,i}$)

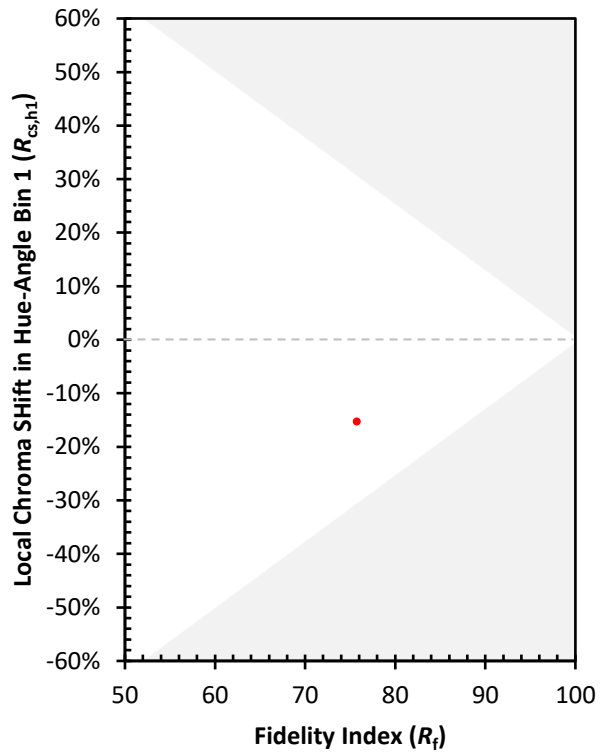
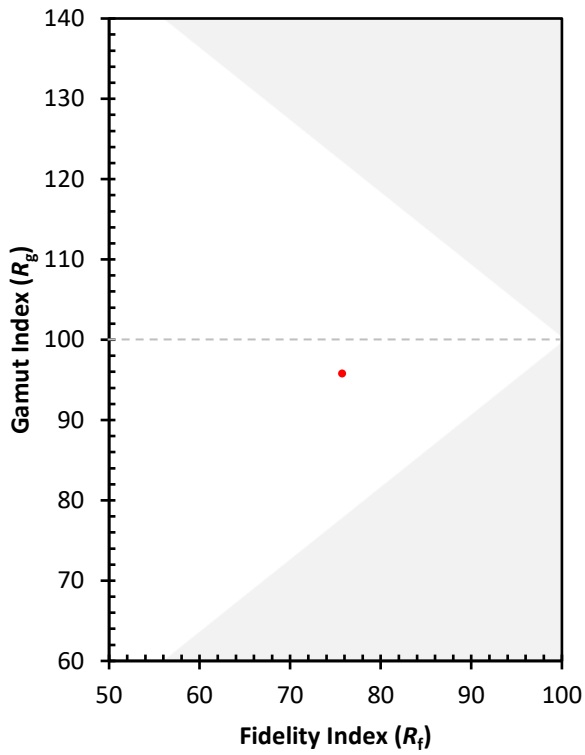
| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 65 | CES51 = 88 | CES76 = 55 |
| CES02 = 62 | CES27 = 88 | CES52 = 87 | CES77 = 74 |
| CES03 = 31 | CES28 = 83 | CES53 = 77 | CES78 = 58 |
| CES04 = 70 | CES29 = 66 | CES54 = 86 | CES79 = 84 |
| CES05 = 48 | CES30 = 79 | CES55 = 84 | CES80 = 81 |
| CES06 = 51 | CES31 = 69 | CES56 = 74 | CES81 = 78 |
| CES07 = 41 | CES32 = 62 | CES57 = 73 | CES82 = 92 |
| CES08 = 40 | CES33 = 75 | CES58 = 75 | CES83 = 89 |
| CES09 = 29 | CES34 = 73 | CES59 = 87 | CES84 = 88 |
| CES10 = 75 | CES35 = 85 | CES60 = 91 | CES85 = 79 |
| CES11 = 58 | CES36 = 95 | CES61 = 84 | CES86 = 71 |
| CES12 = 64 | CES37 = 80 | CES62 = 88 | CES87 = 79 |
| CES13 = 43 | CES38 = 88 | CES63 = 73 | CES88 = 81 |
| CES14 = 74 | CES39 = 96 | CES64 = 69 | CES89 = 71 |
| CES15 = 71 | CES40 = 91 | CES65 = 66 | CES90 = 80 |
| CES16 = 47 | CES41 = 91 | CES66 = 62 | CES91 = 81 |
| CES17 = 50 | CES42 = 81 | CES67 = 60 | CES92 = 63 |
| CES18 = 56 | CES43 = 77 | CES68 = 68 | CES93 = 78 |
| CES19 = 72 | CES44 = 99 | CES69 = 76 | CES94 = 56 |
| CES20 = 65 | CES45 = 85 | CES70 = 60 | CES95 = 70 |
| CES21 = 87 | CES46 = 82 | CES71 = 55 | CES96 = 79 |
| CES22 = 79 | CES47 = 83 | CES72 = 85 | CES97 = 84 |
| CES23 = 92 | CES48 = 75 | CES73 = 52 | CES98 = 77 |
| CES24 = 91 | CES49 = 79 | CES74 = 96 | CES99 = 68 |
| CES25 = 72 | CES50 = 87 | CES75 = 57 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)