

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: P870271

Luminaire Tested: **MEM2-HSN-SA-30-830-U-T2R-HSS**

Issue Date: 09/05/2024



Test Information

Test Method: LM-79-08
Report Number: P870271
Test Lab: INNOVATION CENTER(G3)
Issue Date: 09/05/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: STREETWORKS
Catalog Number: MEM2-HSN-SA-30-830-U-T2R-HSS
Description: EPIC MODERN SHORT HOUSING DISCRETE LED ARRAYS 30W 80CRI 3000K
FITXURE w/ TYPE II ROADWAY DISTRIBUTION OPTIC AND HOUSE SIDE SHIELD
Light Source: (10) 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

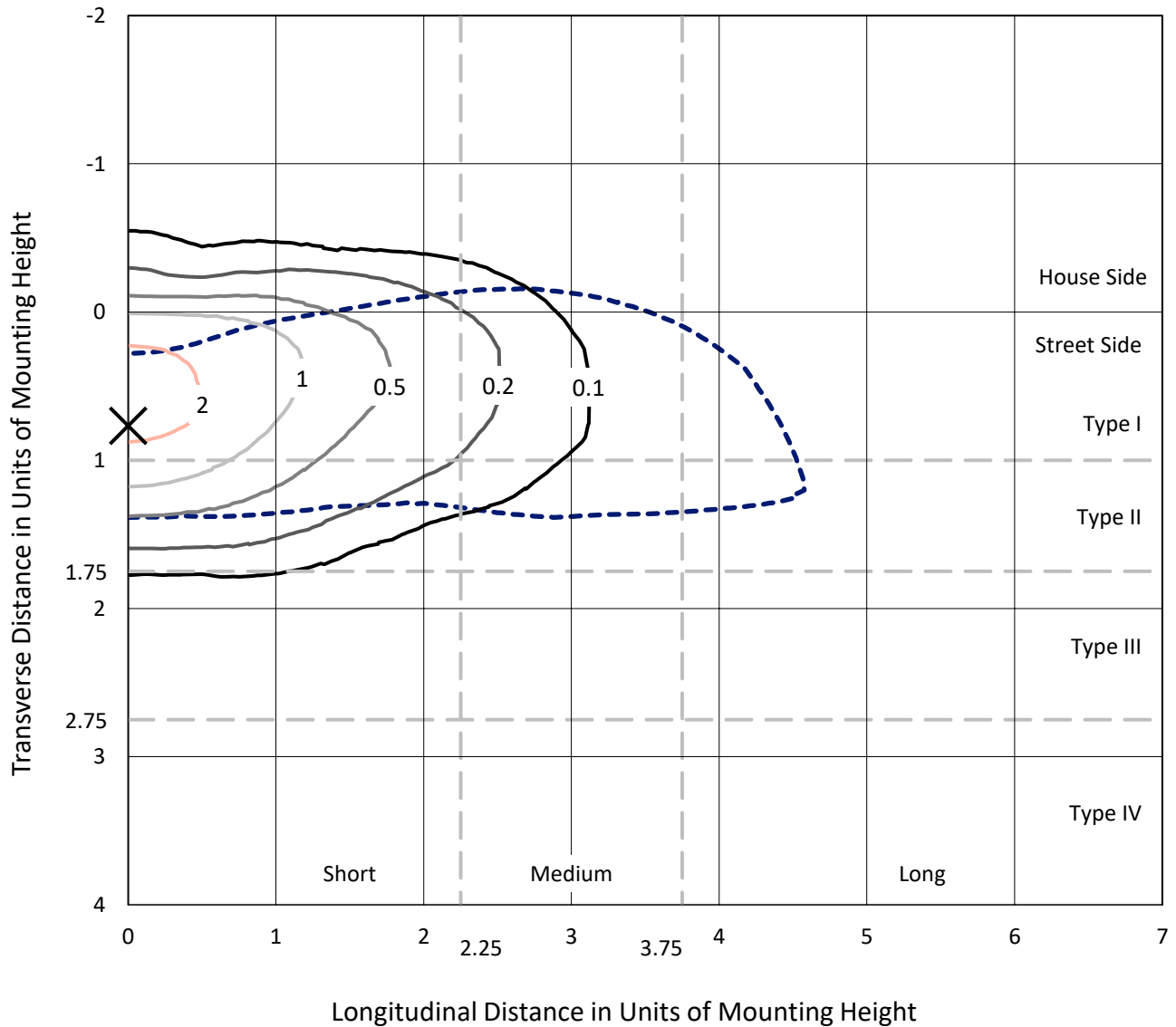
Lumens per Lamp: N/A
Luminaire Lumens: 3092.2 lumens
Efficiency: N/A
Efficacy: 94.3 lumens/watt
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
IES Classification: Type II - Short
BUG Rating: B1 - U0 - G1

Input Watts (W): 32.8
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.99
Total Harmonic Distortion (THDi): 9.76%
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

REPORT NUMBER: P870271
 CATALOG NUMBER: MEM2-HSN-SA-30-830-U-T2R-HSS

Iso-Footcandle Lines of Horizontal Illumination

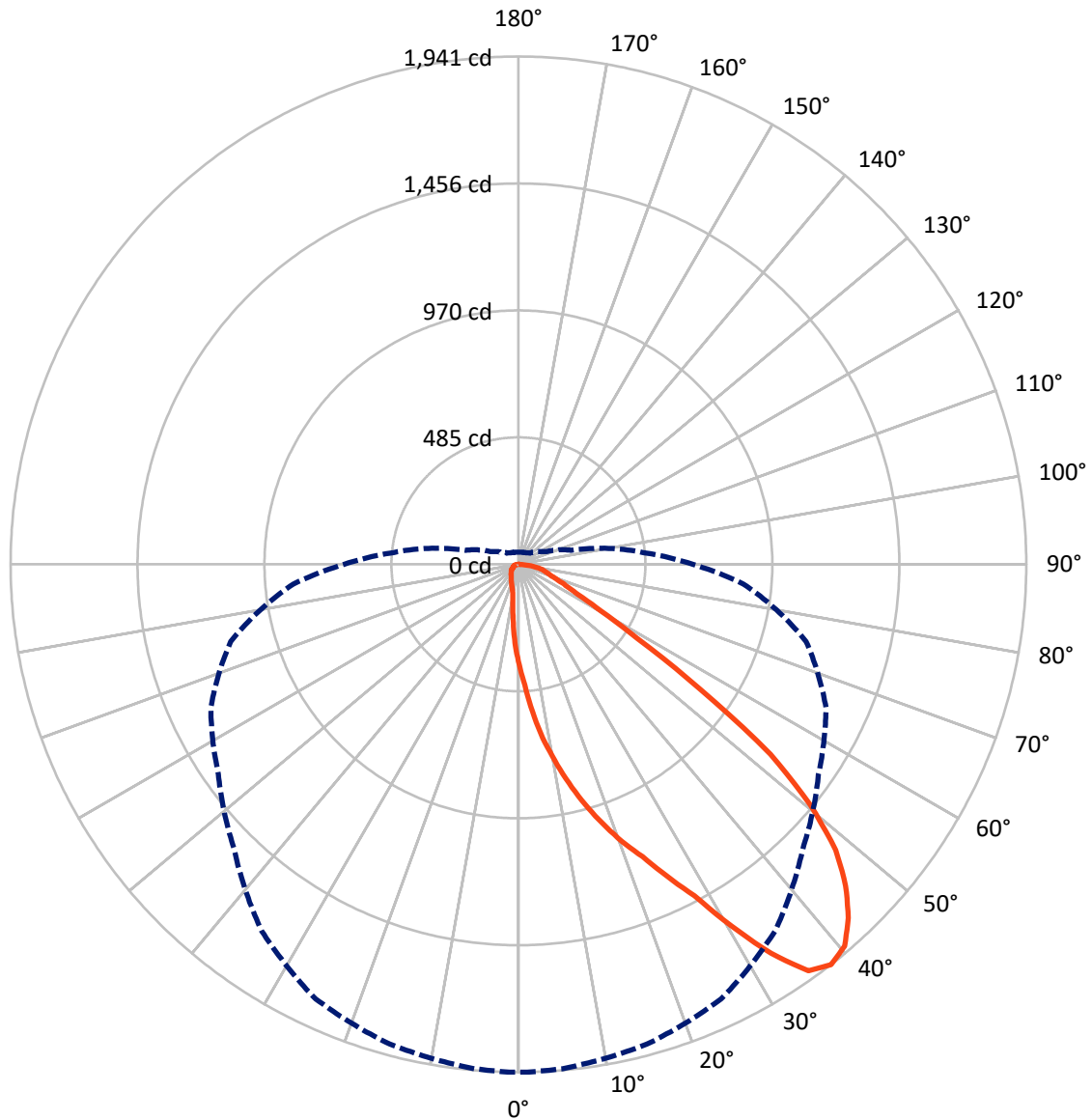
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 2.7 fc
 Type II - Short - N/A

REPORT NUMBER: P870271
CATALOG NUMBER: MEM2-HSN-SA-30-830-U-T2R-HSS

Luminous Intensity Polar Plot



— Vertical Plane Through 0-Deg Lateral - - - Horizontal Cone Through 37.5-Deg Vertical

REPORT NUMBER: P870271

CATALOG NUMBER: MEM2-HSN-SA-30-830-U-T2R-HSS

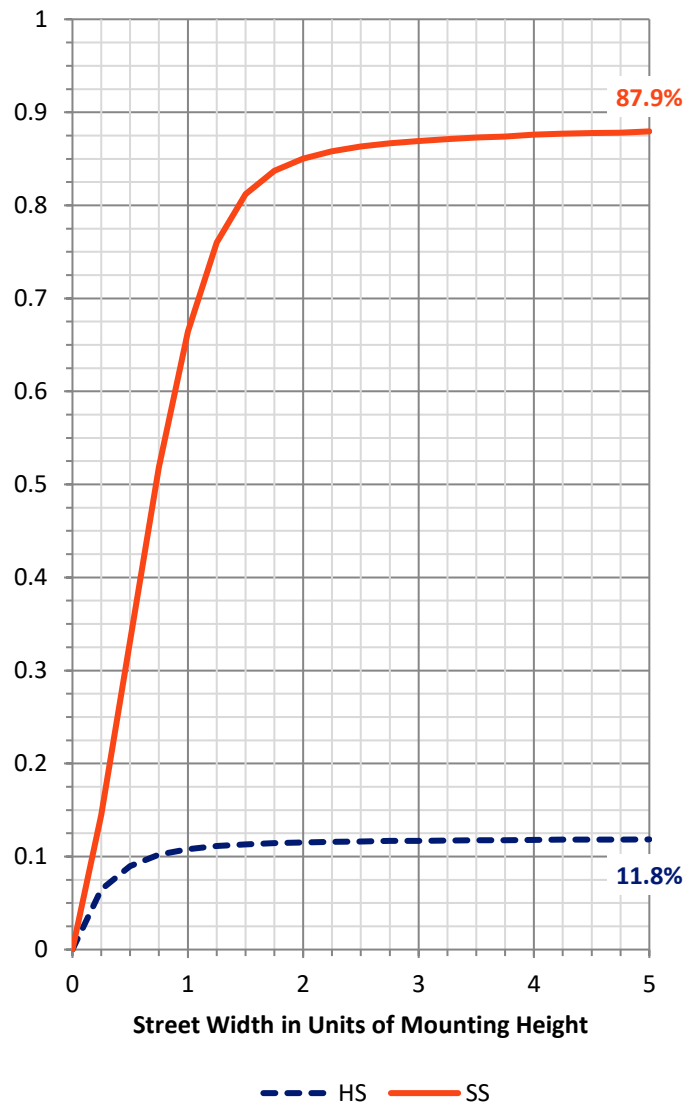
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 368.8 | 0.0 | 368.8 |
| | % Fixture | 11.9 | 0.0 | 11.9 |
| Street Side | Lumens | 2723.4 | 0.0 | 2723.4 |
| | % Fixture | 88.1 | 0.0 | 88.1 |
| Total | Lumens | 3092.2 | 0.0 | 3092.2 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 38.4 | 1.2 |
| 10°-20° | 134.4 | 4.3 |
| 20°-30° | 277.2 | 9.0 |
| 30°-40° | 487.8 | 15.8 |
| 40°-50° | 662.4 | 21.4 |
| 50°-60° | 656.2 | 21.2 |
| 60°-70° | 505.2 | 16.3 |
| 70°-80° | 293.2 | 9.5 |
| 80°-90° | 37.3 | 1.2 |
| 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° | 3092.2 | 100.0 |
| 0°-180° | 3092.2 | 100.0 |

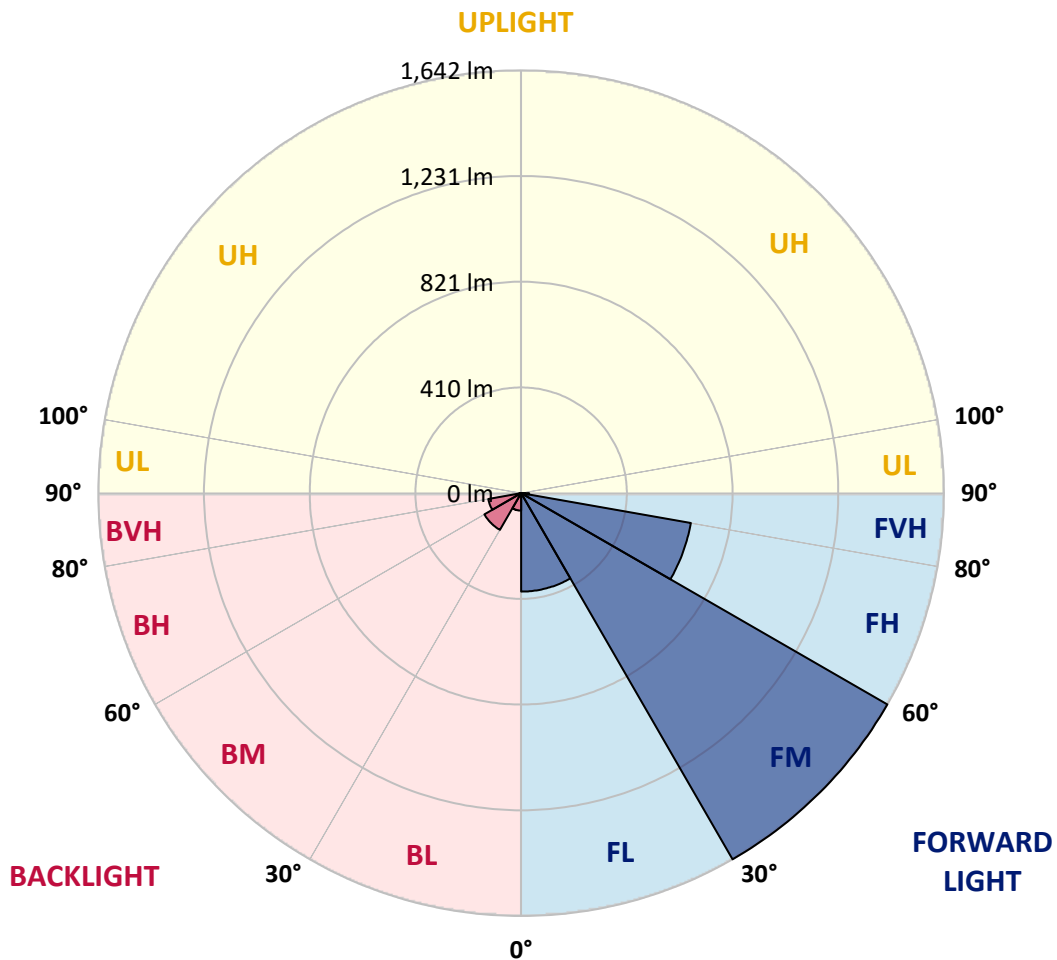


REPORT NUMBER: P870271
 CATALOG NUMBER: MEM2-HSN-SA-30-830-U-T2R-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 382.3 | 12.4 | | | |
| FM (30°-60°) | 1641.7 | 53.1 | | | |
| FH (60°-80°) | 669.0 | 21.6 | | | G1/1800 |
| FVH (80°-90°) | 30.4 | 1.0 | | | G1/100 |
| BL (0°-30°) | 67.8 | 2.2 | B0/110 | | |
| BM (30°-60°) | 164.7 | 5.3 | B0/220 | | |
| BH (60°-80°) | 129.4 | 4.2 | B1/500 | | G1/500 |
| BVH (80°-90°) | 6.9 | 0.2 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G1
 Type II Short





REPORT NUMBER: P870271

CATALOG NUMBER: MEM2-HSN-SA-30-830-U-T2R-HSS

CANDELA DISTRIBUTION (FULL):

| | 0° | 1° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 383.2 | 383.2 | 383.2 | 383.2 | 383.2 | 383.2 | 383.2 | 383.2 | 383.2 | 383.2 | 383.2 |
| 2.5° | 461.7 | 468.6 | 463.4 | 459.1 | 453.1 | 447.0 | 438.4 | 428.9 | 416.8 | 402.2 | 389.2 |
| 5° | 566.1 | 569.6 | 567.8 | 565.3 | 546.3 | 528.2 | 510.0 | 487.6 | 456.5 | 428.9 | 399.6 |
| 7.5° | 670.5 | 668.8 | 664.5 | 656.7 | 639.5 | 618.8 | 586.0 | 548.9 | 504.8 | 456.5 | 410.8 |
| 10° | 762.0 | 764.6 | 761.2 | 749.1 | 727.5 | 699.0 | 659.3 | 617.0 | 557.5 | 490.2 | 426.3 |
| 12.5° | 857.8 | 859.5 | 859.5 | 833.6 | 819.0 | 775.0 | 732.7 | 675.7 | 609.3 | 531.6 | 444.4 |
| 15° | 951.9 | 948.4 | 948.4 | 931.2 | 905.3 | 856.1 | 808.6 | 739.6 | 664.5 | 570.4 | 465.2 |
| 17.5° | 1041.6 | 1043.4 | 1035.6 | 1016.6 | 991.6 | 944.1 | 885.4 | 809.5 | 718.9 | 617.0 | 486.7 |
| 20° | 1130.5 | 1125.3 | 1121.9 | 1102.9 | 1076.2 | 1020.1 | 964.0 | 877.7 | 782.7 | 669.7 | 516.9 |
| 22.5° | 1213.4 | 1216.0 | 1207.3 | 1177.1 | 1152.1 | 1101.2 | 1037.3 | 957.9 | 850.0 | 722.3 | 549.7 |
| 25° | 1320.4 | 1311.7 | 1319.5 | 1283.3 | 1244.4 | 1184.0 | 1111.5 | 1033.0 | 923.4 | 787.0 | 590.3 |
| 27.5° | 1434.3 | 1439.5 | 1435.2 | 1395.5 | 1342.8 | 1261.7 | 1185.8 | 1102.0 | 997.6 | 848.3 | 636.0 |
| 30° | 1604.3 | 1601.7 | 1602.6 | 1543.0 | 1455.9 | 1359.2 | 1266.0 | 1174.5 | 1071.8 | 923.4 | 689.5 |
| 32.5° | 1772.6 | 1782.1 | 1758.8 | 1706.1 | 1606.0 | 1460.2 | 1346.3 | 1244.4 | 1143.5 | 988.1 | 743.9 |
| 35° | 1908.1 | 1905.5 | 1896.0 | 1837.3 | 1738.1 | 1596.5 | 1437.7 | 1322.1 | 1219.4 | 1067.5 | 804.3 |
| 37.5° | 1940.9 | 1940.9 | 1934.8 | 1898.6 | 1833.0 | 1710.4 | 1537.0 | 1399.8 | 1297.1 | 1138.3 | 863.0 |
| 40° | 1919.3 | 1915.0 | 1911.5 | 1887.4 | 1852.0 | 1779.5 | 1641.4 | 1480.0 | 1379.9 | 1229.8 | 927.7 |
| 42.5° | 1848.5 | 1849.4 | 1845.1 | 1831.3 | 1812.3 | 1784.7 | 1706.1 | 1565.5 | 1461.0 | 1316.1 | 991.6 |
| 45° | 1753.6 | 1755.3 | 1750.1 | 1748.4 | 1738.9 | 1738.9 | 1720.8 | 1632.8 | 1537.9 | 1404.1 | 1061.5 |
| 47.5° | 1631.9 | 1631.1 | 1628.5 | 1624.1 | 1643.1 | 1663.8 | 1680.2 | 1670.8 | 1606.0 | 1499.0 | 1124.5 |
| 50° | 1446.4 | 1444.6 | 1452.4 | 1474.0 | 1520.6 | 1566.3 | 1614.7 | 1659.5 | 1655.2 | 1587.0 | 1200.4 |
| 52.5° | 1205.6 | 1194.4 | 1203.0 | 1269.5 | 1365.3 | 1467.1 | 1535.3 | 1606.0 | 1680.2 | 1680.2 | 1275.5 |
| 55° | 843.1 | 852.6 | 857.8 | 955.3 | 1144.3 | 1319.5 | 1439.5 | 1530.9 | 1670.8 | 1754.5 | 1358.3 |
| 57.5° | 536.8 | 540.2 | 555.8 | 661.1 | 882.8 | 1102.0 | 1314.3 | 1464.5 | 1635.4 | 1816.6 | 1441.2 |
| 60° | 361.6 | 349.5 | 361.6 | 422.0 | 635.2 | 864.7 | 1130.5 | 1380.8 | 1584.5 | 1861.5 | 1532.7 |
| 62.5° | 255.4 | 254.6 | 258.0 | 293.4 | 453.1 | 649.8 | 900.1 | 1267.7 | 1543.9 | 1864.1 | 1600.8 |
| 65° | 206.3 | 200.2 | 202.8 | 222.7 | 303.8 | 476.4 | 660.2 | 1063.2 | 1507.6 | 1818.3 | 1634.5 |
| 67.5° | 165.7 | 163.1 | 164.8 | 177.8 | 227.8 | 358.1 | 465.2 | 808.6 | 1430.8 | 1740.7 | 1615.5 |
| 70° | 135.5 | 136.4 | 137.2 | 150.2 | 181.2 | 271.0 | 332.3 | 554.9 | 1266.9 | 1652.6 | 1530.1 |
| 72.5° | 117.4 | 117.4 | 118.2 | 126.9 | 151.9 | 214.9 | 251.1 | 360.7 | 1025.2 | 1557.7 | 1373.0 |
| 75° | 103.6 | 103.6 | 103.6 | 111.3 | 129.4 | 172.6 | 195.0 | 246.8 | 736.1 | 1381.6 | 1135.7 |
| 77.5° | 89.8 | 90.6 | 90.6 | 97.5 | 111.3 | 134.6 | 150.2 | 170.9 | 469.5 | 1067.5 | 859.5 |
| 80° | 69.0 | 69.0 | 69.9 | 77.7 | 94.9 | 105.3 | 110.5 | 120.8 | 246.8 | 670.5 | 545.4 |
| 82.5° | 48.3 | 49.2 | 49.2 | 50.1 | 63.9 | 64.7 | 59.5 | 60.4 | 89.8 | 222.7 | 207.1 |
| 85° | 5.2 | 6.0 | 6.9 | 6.9 | 11.2 | 13.8 | 14.7 | 13.8 | 14.7 | 25.9 | 25.9 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 1.7 | 1.7 | 2.6 | 2.6 | 2.6 | 2.6 |
| 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: P870271

CATALOG NUMBER: MEM2-HSN-SA-30-830-U-T2R-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 383.2 | 383.2 | 383.2 | 383.2 | 383.2 | 383.2 | 383.2 | 383.2 | 383.2 | 383.2 | 383.2 |
| 2.5° | 382.3 | 376.3 | 363.3 | 352.1 | 341.7 | 333.1 | 327.1 | 319.3 | 313.3 | 313.3 | 316.7 |
| 5° | 384.9 | 371.1 | 344.3 | 319.3 | 299.5 | 280.5 | 263.2 | 252.0 | 243.4 | 238.2 | 238.2 |
| 7.5° | 388.3 | 367.6 | 327.1 | 289.1 | 258.0 | 227.8 | 201.1 | 188.1 | 175.2 | 170.9 | 171.7 |
| 10° | 395.3 | 365.9 | 311.5 | 262.3 | 215.7 | 177.8 | 151.9 | 138.1 | 131.2 | 127.7 | 127.7 |
| 12.5° | 403.0 | 365.9 | 295.1 | 232.1 | 177.8 | 138.9 | 123.4 | 113.1 | 109.6 | 107.9 | 106.1 |
| 15° | 413.4 | 367.6 | 281.3 | 200.2 | 145.0 | 117.4 | 106.1 | 100.1 | 96.7 | 94.9 | 94.9 |
| 17.5° | 425.5 | 369.4 | 266.7 | 174.3 | 123.4 | 103.6 | 94.9 | 90.6 | 87.2 | 85.4 | 85.4 |
| 20° | 441.0 | 373.7 | 252.0 | 151.0 | 107.9 | 94.9 | 87.2 | 82.8 | 79.4 | 78.5 | 77.7 |
| 22.5° | 460.0 | 380.6 | 237.3 | 132.0 | 97.5 | 86.3 | 79.4 | 75.9 | 73.4 | 71.6 | 71.6 |
| 25° | 482.4 | 389.2 | 226.1 | 118.2 | 89.8 | 80.3 | 74.2 | 69.9 | 67.3 | 66.5 | 66.5 |
| 27.5° | 513.5 | 403.9 | 214.9 | 107.9 | 83.7 | 74.2 | 68.2 | 64.7 | 62.1 | 61.3 | 60.4 |
| 30° | 542.8 | 422.0 | 209.7 | 105.3 | 79.4 | 69.0 | 64.7 | 60.4 | 57.8 | 57.0 | 56.1 |
| 32.5° | 580.8 | 442.7 | 206.3 | 105.3 | 77.7 | 65.6 | 60.4 | 57.0 | 54.4 | 53.5 | 52.6 |
| 35° | 621.4 | 466.9 | 206.3 | 108.7 | 78.5 | 63.0 | 57.0 | 53.5 | 50.9 | 49.2 | 49.2 |
| 37.5° | 665.4 | 491.0 | 208.0 | 113.9 | 81.1 | 61.3 | 53.5 | 50.1 | 47.5 | 46.6 | 46.6 |
| 40° | 712.0 | 523.8 | 211.4 | 118.2 | 83.7 | 60.4 | 50.1 | 47.5 | 44.9 | 43.1 | 43.1 |
| 42.5° | 755.1 | 549.7 | 217.5 | 123.4 | 85.4 | 59.5 | 47.5 | 44.9 | 42.3 | 41.4 | 41.4 |
| 45° | 805.2 | 578.2 | 222.7 | 126.9 | 85.4 | 57.0 | 44.9 | 42.3 | 40.6 | 39.7 | 38.8 |
| 47.5° | 844.9 | 601.5 | 225.2 | 128.6 | 83.7 | 54.4 | 42.3 | 40.6 | 38.8 | 37.1 | 38.0 |
| 50° | 893.2 | 626.5 | 229.6 | 129.4 | 80.3 | 50.9 | 40.6 | 38.0 | 36.2 | 35.4 | 35.4 |
| 52.5° | 939.8 | 651.6 | 233.0 | 127.7 | 75.9 | 46.6 | 38.0 | 36.2 | 34.5 | 32.8 | 32.8 |
| 55° | 995.0 | 679.2 | 238.2 | 125.1 | 69.0 | 42.3 | 35.4 | 33.7 | 31.1 | 30.2 | 29.3 |
| 57.5° | 1058.0 | 715.4 | 242.5 | 120.0 | 60.4 | 38.0 | 33.7 | 31.1 | 27.6 | 25.9 | 25.9 |
| 60° | 1115.8 | 756.8 | 246.0 | 107.0 | 52.6 | 35.4 | 31.1 | 28.5 | 25.0 | 24.2 | 24.2 |
| 62.5° | 1178.0 | 800.0 | 246.0 | 84.6 | 44.9 | 31.9 | 29.3 | 26.8 | 23.3 | 22.4 | 22.4 |
| 65° | 1221.1 | 838.8 | 238.2 | 63.0 | 38.0 | 30.2 | 28.5 | 25.0 | 21.6 | 20.7 | 20.7 |
| 67.5° | 1233.2 | 863.0 | 216.6 | 44.9 | 32.8 | 28.5 | 26.8 | 23.3 | 20.7 | 19.0 | 19.0 |
| 70° | 1194.4 | 844.0 | 176.9 | 34.5 | 28.5 | 25.9 | 24.2 | 21.6 | 19.0 | 18.1 | 18.1 |
| 72.5° | 1083.1 | 771.5 | 132.0 | 29.3 | 25.0 | 24.2 | 22.4 | 19.8 | 18.1 | 17.3 | 17.3 |
| 75° | 907.0 | 641.2 | 93.2 | 25.9 | 23.3 | 21.6 | 19.8 | 18.1 | 16.4 | 16.4 | 16.4 |
| 77.5° | 686.9 | 463.4 | 57.8 | 23.3 | 19.8 | 19.8 | 18.1 | 16.4 | 15.5 | 14.7 | 14.7 |
| 80° | 443.6 | 292.6 | 32.8 | 16.4 | 13.8 | 14.7 | 12.9 | 11.2 | 11.2 | 10.4 | 10.4 |
| 82.5° | 188.1 | 115.6 | 17.3 | 9.5 | 6.9 | 6.0 | 4.3 | 4.3 | 3.5 | 3.5 | 3.5 |
| 85° | 19.0 | 6.9 | 3.5 | 2.6 | 2.6 | 1.7 | 1.7 | 1.7 | 1.7 | 0.9 | 0.9 |
| 87.5° | 2.6 | 2.6 | 2.6 | 1.7 | 1.7 | 1.7 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 |
| 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: SP1-2407-157-7

Test Date: 09/05/2024

Luminaire Tested: MEM2-HTN-SA-30-830-U-5WQ

Data in this report applies to families of products including MEM2-HTN-SA-30-830-U-5WQ

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-157-7
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 09/05/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: Streetworks
 Catalog Number: **MEM2-HTN-SA-30-830-U-5WQ**
 Description: Epic Modern Light Square 30W 5WQ Optic

Spectral Parameters

CCT (K): 3126
 CIE u': 0.2465
 CIE v': 0.5182
 Duv: -0.0004
 CIE x: 0.4277
 CIE y: 0.3997
 CIE z: 0.1727
 Peak Wavelength (nm): 601
 Dominant Wavelength (nm): 582
 Purity: 48.31913
 Rf: 84.4
 Rg: 94.7

| | | | |
|-----------|------|------|------|
| CRI (Ra): | 82.6 | | |
| R1: | 81.4 | R9: | 5.1 |
| R2: | 92.2 | R10: | 82.2 |
| R3: | 94.9 | R11: | 79.8 |
| R4: | 80.1 | R12: | 70.4 |
| R5: | 81.8 | R13: | 84.2 |
| R6: | 90.5 | R14: | 97.9 |
| R7: | 81.8 | R15: | 73.6 |
| R8: | 58.0 | | |



Test Conditions

Stabilization Time: 22M
 Operation Time: 1H 22M
 Sphere Temperature (°C): 24.3

REPORT NUMBER: SP1-2407-157-7

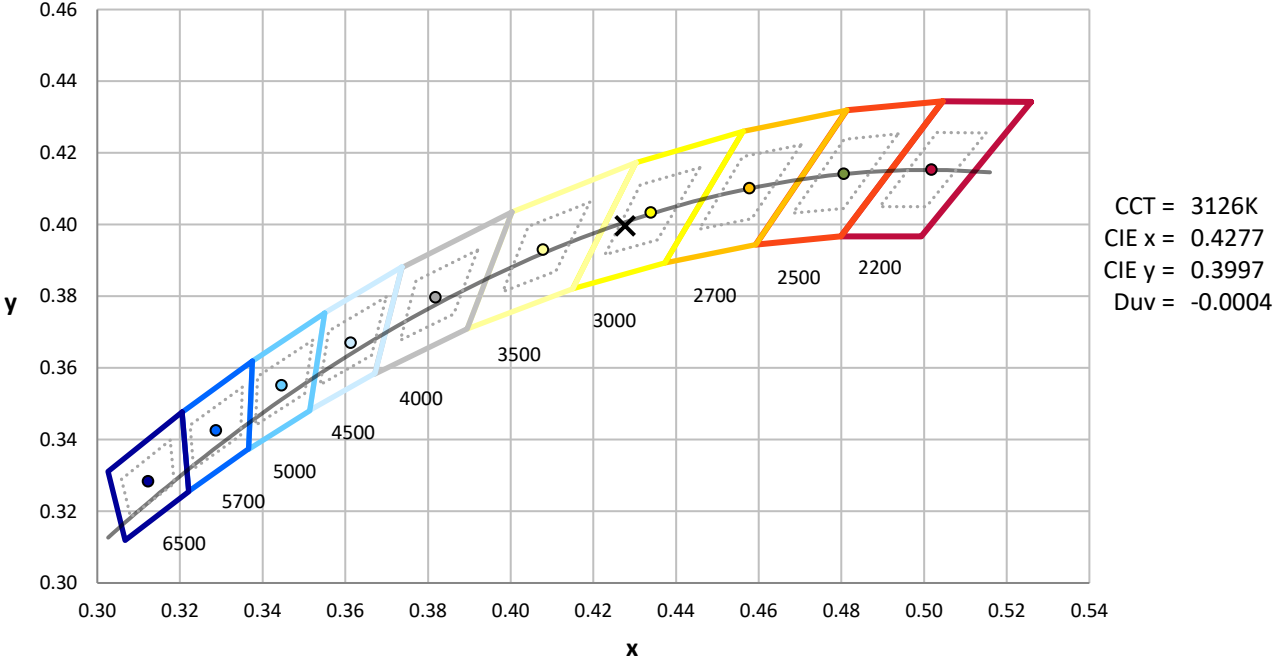
| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 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: SP1-2407-157-7

CIE 1931 Chromaticity Diagram



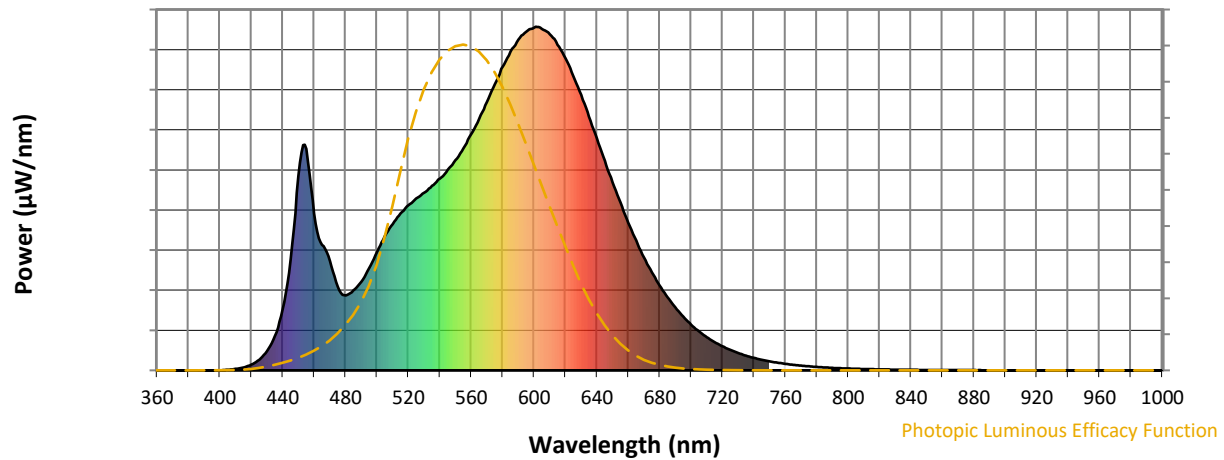
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2407-157-7

Photopic Flux vs. Wavelength

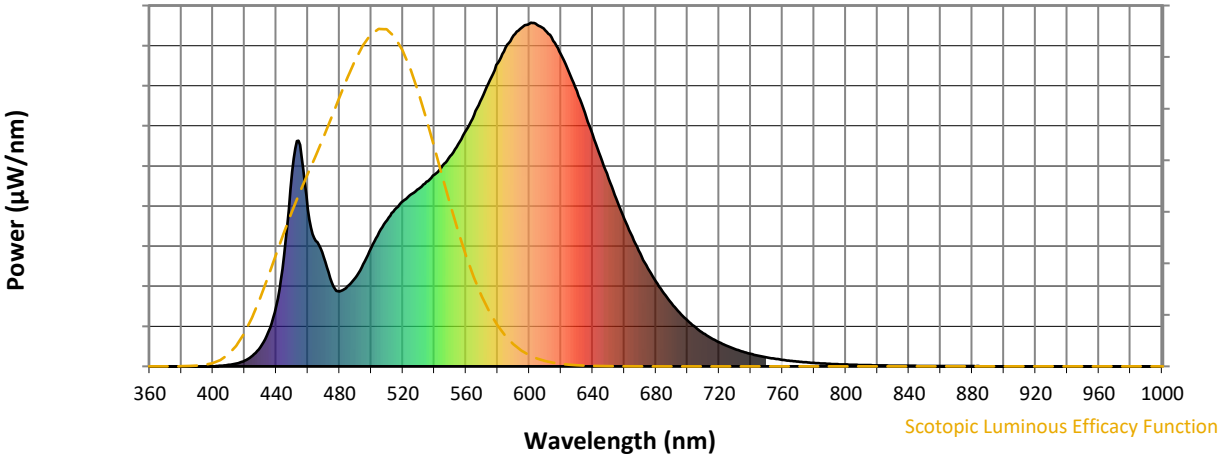


Photopic Lumens: NR

| 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 | 258 | NR | 620 | 908 | NR | 750 | 26 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 297 | NR | 625 | 857 | NR | 755 | 22 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 345 | NR | 630 | 801 | NR | 760 | 19 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 391 | NR | 635 | 738 | NR | 765 | 16 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 426 | NR | 640 | 675 | NR | 770 | 14 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 456 | NR | 645 | 610 | NR | 775 | 12 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 480 | NR | 650 | 547 | NR | 780 | 10 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 500 | NR | 655 | 488 | NR | 785 | 9 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 517 | NR | 660 | 429 | NR | 790 | 7 | NR | 920 | 0 | NR |
| 405 | 2 | NR | 535 | 538 | NR | 665 | 378 | NR | 795 | 6 | NR | 925 | 0 | NR |
| 410 | 4 | NR | 540 | 558 | NR | 670 | 328 | NR | 800 | 5 | NR | 930 | 0 | NR |
| 415 | 9 | NR | 545 | 584 | NR | 675 | 285 | NR | 805 | 5 | NR | 935 | 0 | NR |
| 420 | 16 | NR | 550 | 611 | NR | 680 | 247 | NR | 810 | 4 | NR | 940 | 0 | NR |
| 425 | 31 | NR | 555 | 646 | NR | 685 | 212 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 56 | NR | 560 | 687 | NR | 690 | 183 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 101 | NR | 565 | 731 | NR | 695 | 156 | NR | 825 | 3 | NR | 955 | 0 | NR |
| 440 | 178 | NR | 570 | 780 | NR | 700 | 133 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 323 | NR | 575 | 832 | NR | 705 | 114 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 566 | NR | 580 | 883 | NR | 710 | 96 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 645 | NR | 585 | 927 | NR | 715 | 82 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 457 | NR | 590 | 963 | NR | 720 | 70 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 365 | NR | 595 | 985 | NR | 725 | 59 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 317 | NR | 600 | 998 | NR | 730 | 50 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 244 | NR | 605 | 994 | NR | 735 | 43 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 218 | NR | 610 | 978 | NR | 740 | 36 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 233 | NR | 615 | 947 | NR | 745 | 31 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2407-157-7

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR S/P: 1.42

| 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 | 258 | NR | 620 | 908 | NR | 750 | 26 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 297 | NR | 625 | 857 | NR | 755 | 22 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 345 | NR | 630 | 801 | NR | 760 | 19 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 391 | NR | 635 | 738 | NR | 765 | 16 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 426 | NR | 640 | 675 | NR | 770 | 14 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 456 | NR | 645 | 610 | NR | 775 | 12 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 480 | NR | 650 | 547 | NR | 780 | 10 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 500 | NR | 655 | 488 | NR | 785 | 9 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 517 | NR | 660 | 429 | NR | 790 | 7 | NR | 920 | 0 | NR |
| 405 | 2 | NR | 535 | 538 | NR | 665 | 378 | NR | 795 | 6 | NR | 925 | 0 | NR |
| 410 | 4 | NR | 540 | 558 | NR | 670 | 328 | NR | 800 | 5 | NR | 930 | 0 | NR |
| 415 | 9 | NR | 545 | 584 | NR | 675 | 285 | NR | 805 | 5 | NR | 935 | 0 | NR |
| 420 | 16 | NR | 550 | 611 | NR | 680 | 247 | NR | 810 | 4 | NR | 940 | 0 | NR |
| 425 | 31 | NR | 555 | 646 | NR | 685 | 212 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 56 | NR | 560 | 687 | NR | 690 | 183 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 101 | NR | 565 | 731 | NR | 695 | 156 | NR | 825 | 3 | NR | 955 | 0 | NR |
| 440 | 178 | NR | 570 | 780 | NR | 700 | 133 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 323 | NR | 575 | 832 | NR | 705 | 114 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 566 | NR | 580 | 883 | NR | 710 | 96 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 645 | NR | 585 | 927 | NR | 715 | 82 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 457 | NR | 590 | 963 | NR | 720 | 70 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 365 | NR | 595 | 985 | NR | 725 | 59 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 317 | NR | 600 | 998 | NR | 730 | 50 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 244 | NR | 605 | 994 | NR | 735 | 43 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 218 | NR | 610 | 978 | NR | 740 | 36 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 233 | NR | 615 | 947 | NR | 745 | 31 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2407-157-7

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.79

| 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 | 258 | NR | 620 | 908 | NR | 750 | 26 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 297 | NR | 625 | 857 | NR | 755 | 22 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 345 | NR | 630 | 801 | NR | 760 | 19 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 391 | NR | 635 | 738 | NR | 765 | 16 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 426 | NR | 640 | 675 | NR | 770 | 14 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 456 | NR | 645 | 610 | NR | 775 | 12 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 480 | NR | 650 | 547 | NR | 780 | 10 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 500 | NR | 655 | 488 | NR | 785 | 9 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 517 | NR | 660 | 429 | NR | 790 | 7 | NR | 920 | 0 | NR |
| 405 | 2 | NR | 535 | 538 | NR | 665 | 378 | NR | 795 | 6 | NR | 925 | 0 | NR |
| 410 | 4 | NR | 540 | 558 | NR | 670 | 328 | NR | 800 | 5 | NR | 930 | 0 | NR |
| 415 | 9 | NR | 545 | 584 | NR | 675 | 285 | NR | 805 | 5 | NR | 935 | 0 | NR |
| 420 | 16 | NR | 550 | 611 | NR | 680 | 247 | NR | 810 | 4 | NR | 940 | 0 | NR |
| 425 | 31 | NR | 555 | 646 | NR | 685 | 212 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 56 | NR | 560 | 687 | NR | 690 | 183 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 101 | NR | 565 | 731 | NR | 695 | 156 | NR | 825 | 3 | NR | 955 | 0 | NR |
| 440 | 178 | NR | 570 | 780 | NR | 700 | 133 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 323 | NR | 575 | 832 | NR | 705 | 114 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 566 | NR | 580 | 883 | NR | 710 | 96 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 645 | NR | 585 | 927 | NR | 715 | 82 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 457 | NR | 590 | 963 | NR | 720 | 70 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 365 | NR | 595 | 985 | NR | 725 | 59 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 317 | NR | 600 | 998 | NR | 730 | 50 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 244 | NR | 605 | 994 | NR | 735 | 43 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 218 | NR | 610 | 978 | NR | 740 | 36 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 233 | NR | 615 | 947 | NR | 745 | 31 | NR | 875 | 1 | NR | | | |

Summary

$R_f = 84.4$
 $R_g = 94.7$
 $CIE R_a = 82.6$
 $R_9 = 5.1$

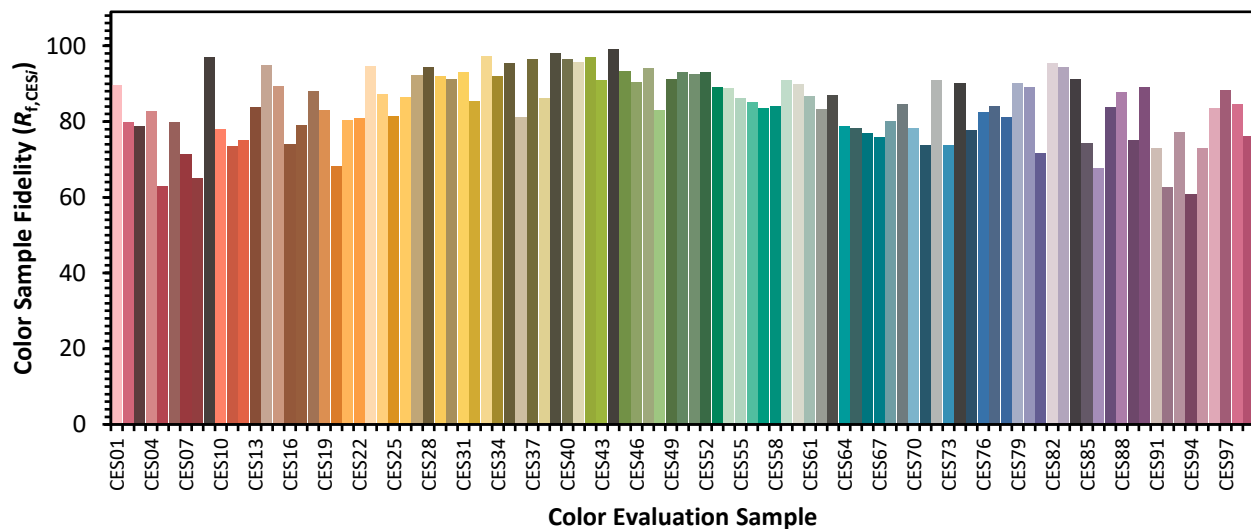


Color Vector Graphics

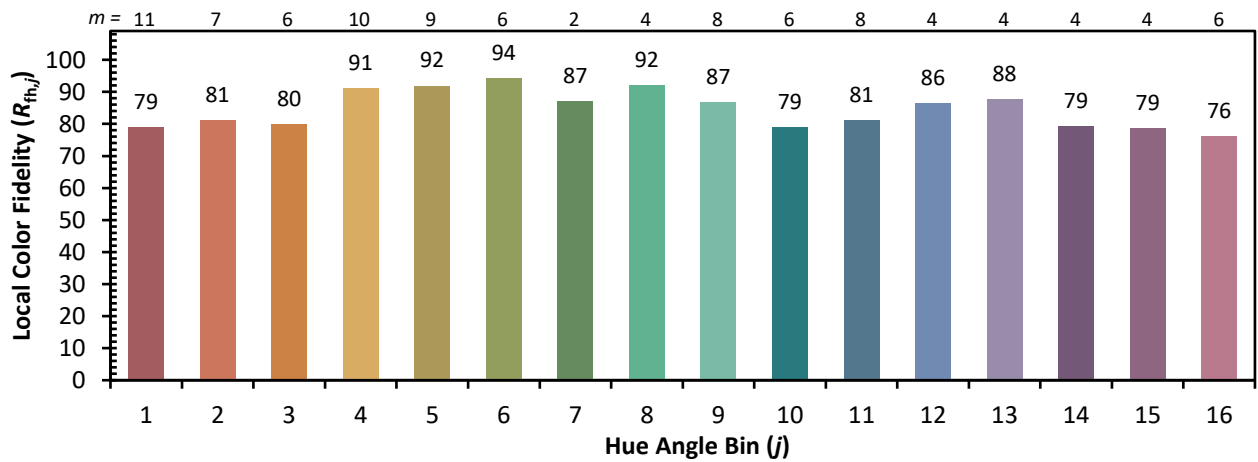


Individual Sample Fidelity Index ($R_{f,i}$)

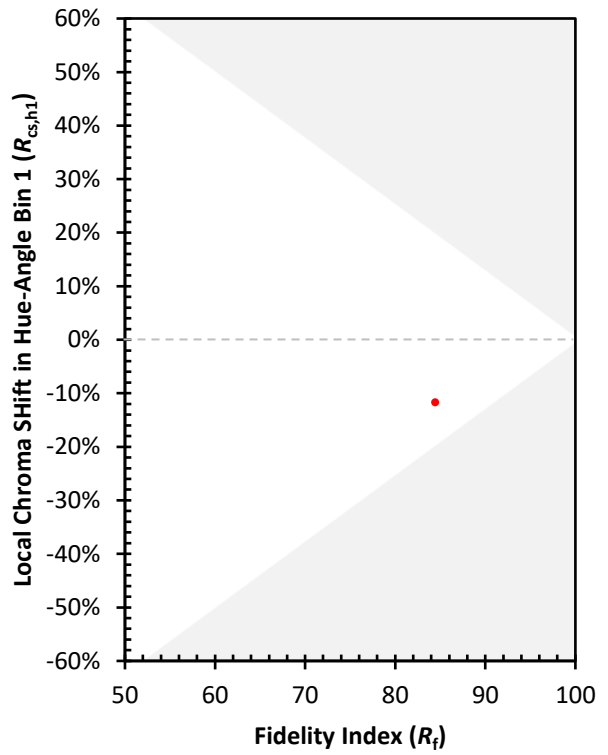
| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 86 | CES51 = 93 | CES76 = 82 |
| CES02 = 63 | CES27 = 92 | CES52 = 93 | CES77 = 84 |
| CES03 = 31 | CES28 = 94 | CES53 = 89 | CES78 = 81 |
| CES04 = 70 | CES29 = 92 | CES54 = 89 | CES79 = 90 |
| CES05 = 49 | CES30 = 91 | CES55 = 86 | CES80 = 89 |
| CES06 = 51 | CES31 = 93 | CES56 = 85 | CES81 = 72 |
| CES07 = 42 | CES32 = 85 | CES57 = 83 | CES82 = 95 |
| CES08 = 41 | CES33 = 97 | CES58 = 84 | CES83 = 94 |
| CES09 = 29 | CES34 = 92 | CES59 = 91 | CES84 = 91 |
| CES10 = 76 | CES35 = 96 | CES60 = 90 | CES85 = 74 |
| CES11 = 59 | CES36 = 81 | CES61 = 87 | CES86 = 68 |
| CES12 = 65 | CES37 = 96 | CES62 = 83 | CES87 = 84 |
| CES13 = 43 | CES38 = 86 | CES63 = 87 | CES88 = 88 |
| CES14 = 74 | CES39 = 98 | CES64 = 79 | CES89 = 75 |
| CES15 = 71 | CES40 = 96 | CES65 = 78 | CES90 = 89 |
| CES16 = 47 | CES41 = 96 | CES66 = 77 | CES91 = 73 |
| CES17 = 50 | CES42 = 97 | CES67 = 76 | CES92 = 63 |
| CES18 = 56 | CES43 = 91 | CES68 = 80 | CES93 = 77 |
| CES19 = 72 | CES44 = 99 | CES69 = 85 | CES94 = 61 |
| CES20 = 66 | CES45 = 93 | CES70 = 78 | CES95 = 73 |
| CES21 = 87 | CES46 = 90 | CES71 = 74 | CES96 = 84 |
| CES22 = 79 | CES47 = 94 | CES72 = 91 | CES97 = 88 |
| CES23 = 92 | CES48 = 83 | CES73 = 74 | CES98 = 85 |
| CES24 = 91 | CES49 = 91 | CES74 = 90 | CES99 = 76 |
| CES25 = 72 | CES50 = 93 | CES75 = 78 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)