

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: P870420

Luminaire Tested: **MEM2-HSN-SA-60-840-U-T3-HSS**

Issue Date: 09/05/2024



Test Information

Test Method: LM-79-08
Report Number: P870420
Test Lab: INNOVATION CENTER(G3)
Issue Date: 09/05/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: STREETWORKS
Catalog Number: MEM2-HSN-SA-60-840-U-T3-HSS
Description: EPIC MODERN SHORT HOUSING DISCRETE LED ARRAYS 60W 80CRI 4000K
FIXTURE w/ TYPE III DISTRIBUTION OPTIC AND HOUSE SIDE SHIELD
Light Source: (20) 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

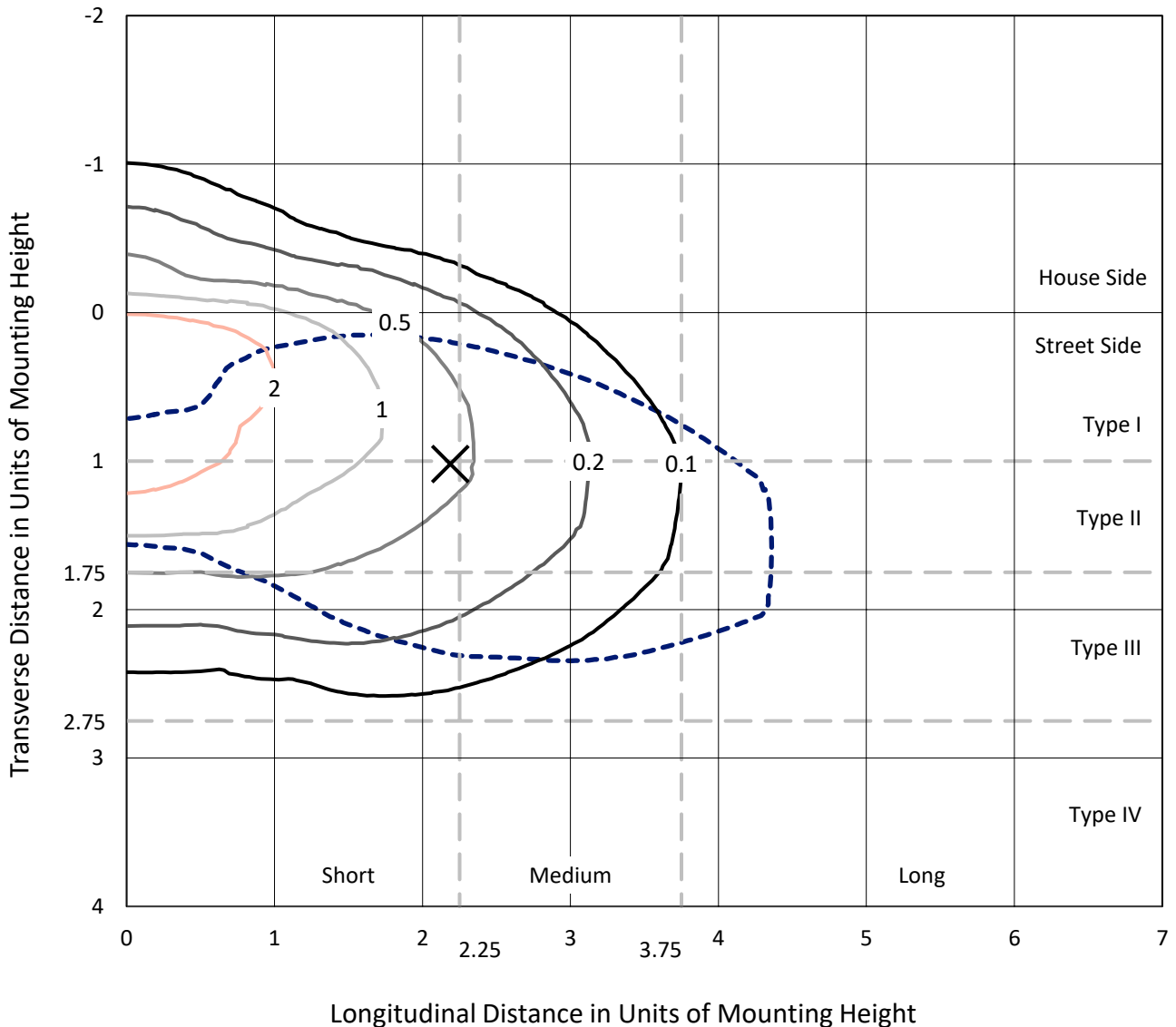
Lumens per Lamp: N/A
Luminaire Lumens: 6195.7 lumens
Efficiency: N/A
Efficacy: 101.6 lumens/watt
Luminous Opening: Rectangular (W 0.67' x L: 0.33' x H: 0')
IES Classification: Type III - Short
BUG Rating: B1 - U0 - G2

Input Watts (W): 61
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.99
Total Harmonic Distortion (THDi): 9.89%
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

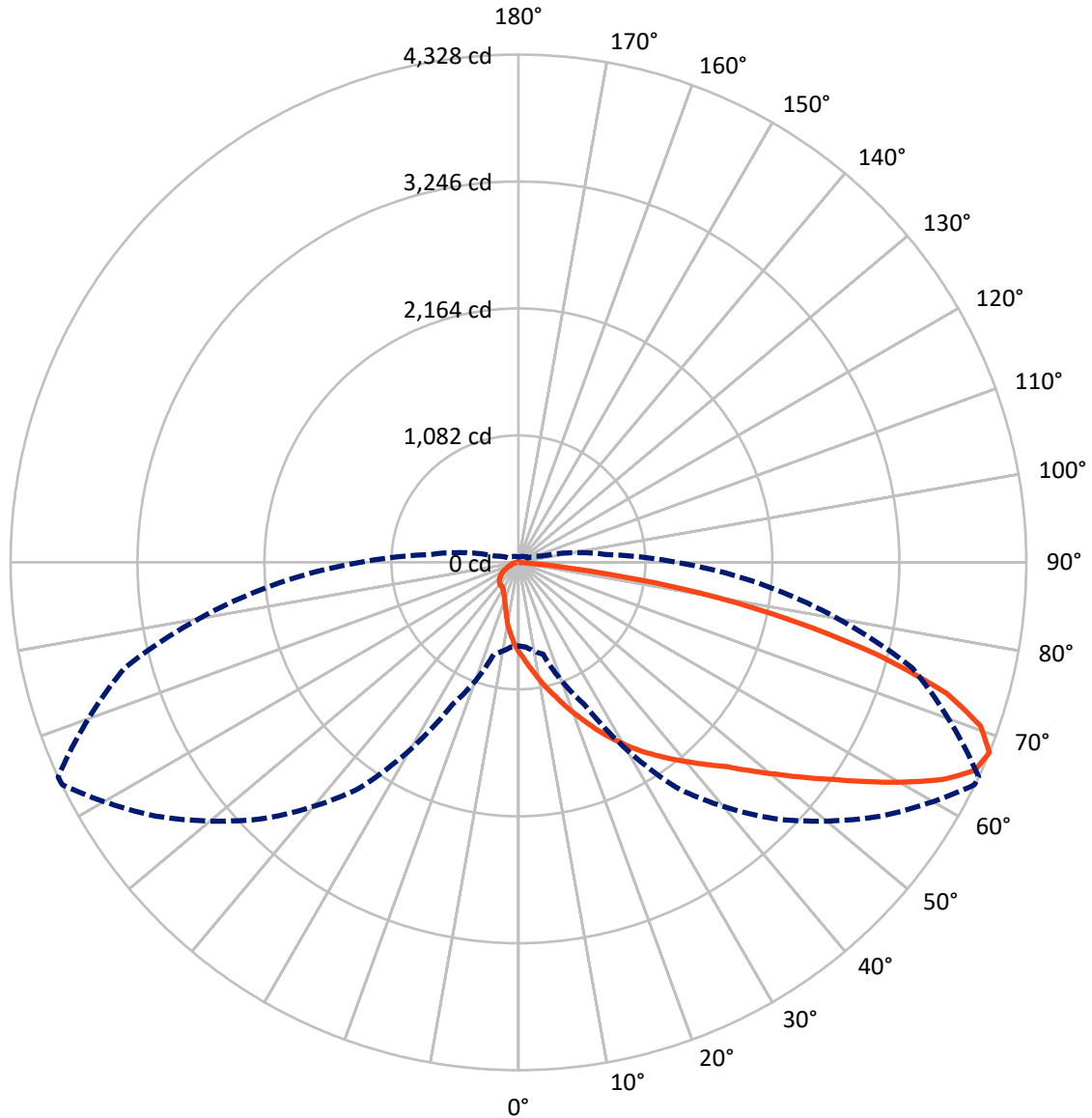
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 3.5 fc
 Type III - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 65-Deg Lateral - - - Horizontal Cone Through 67.5-Deg Vertical

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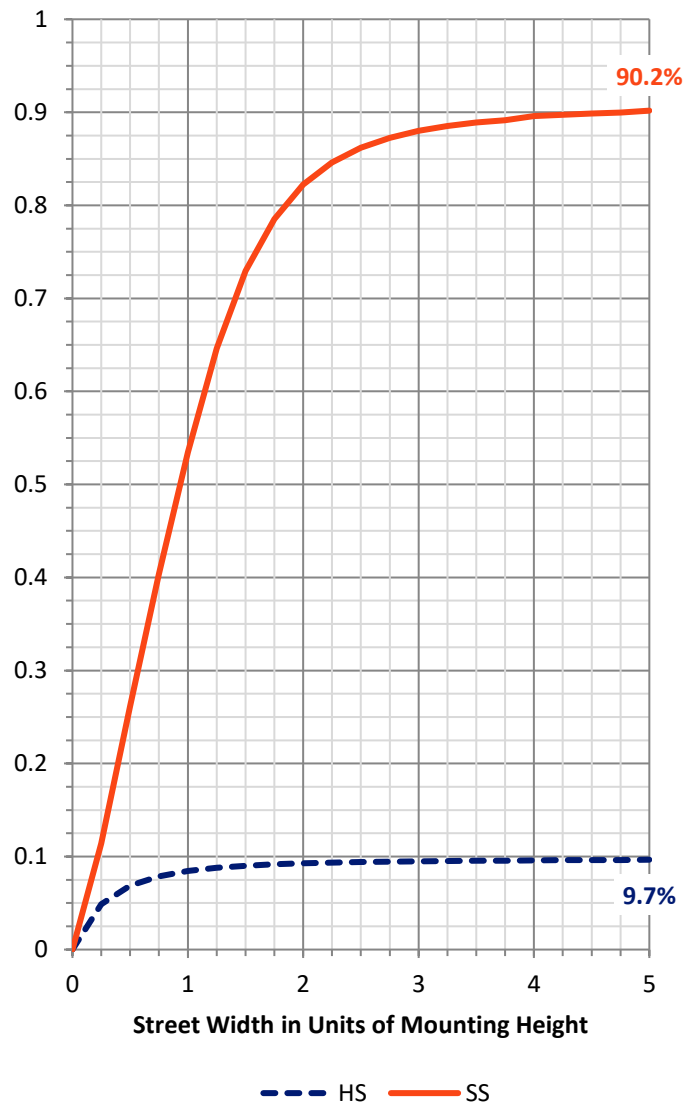
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 603.0 | 0.0 | 603.0 |
| | % Fixture | 9.7 | 0.0 | 9.7 |
| Street Side | Lumens | 5592.7 | 0.0 | 5592.7 |
| | % Fixture | 90.3 | 0.0 | 90.3 |
| Total | Lumens | 6195.7 | 0.0 | 6195.7 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 74.9 | 1.2 |
| 10°-20° | 248.6 | 4.0 |
| 20°-30° | 452.5 | 7.3 |
| 30°-40° | 700.3 | 11.3 |
| 40°-50° | 1058.6 | 17.1 |
| 50°-60° | 1377.1 | 22.2 |
| 60°-70° | 1358.5 | 21.9 |
| 70°-80° | 827.0 | 13.3 |
| 80°-90° | 98.3 | 1.6 |
| 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° | 6195.7 | 100.0 |
| 0°-180° | 6195.7 | 100.0 |



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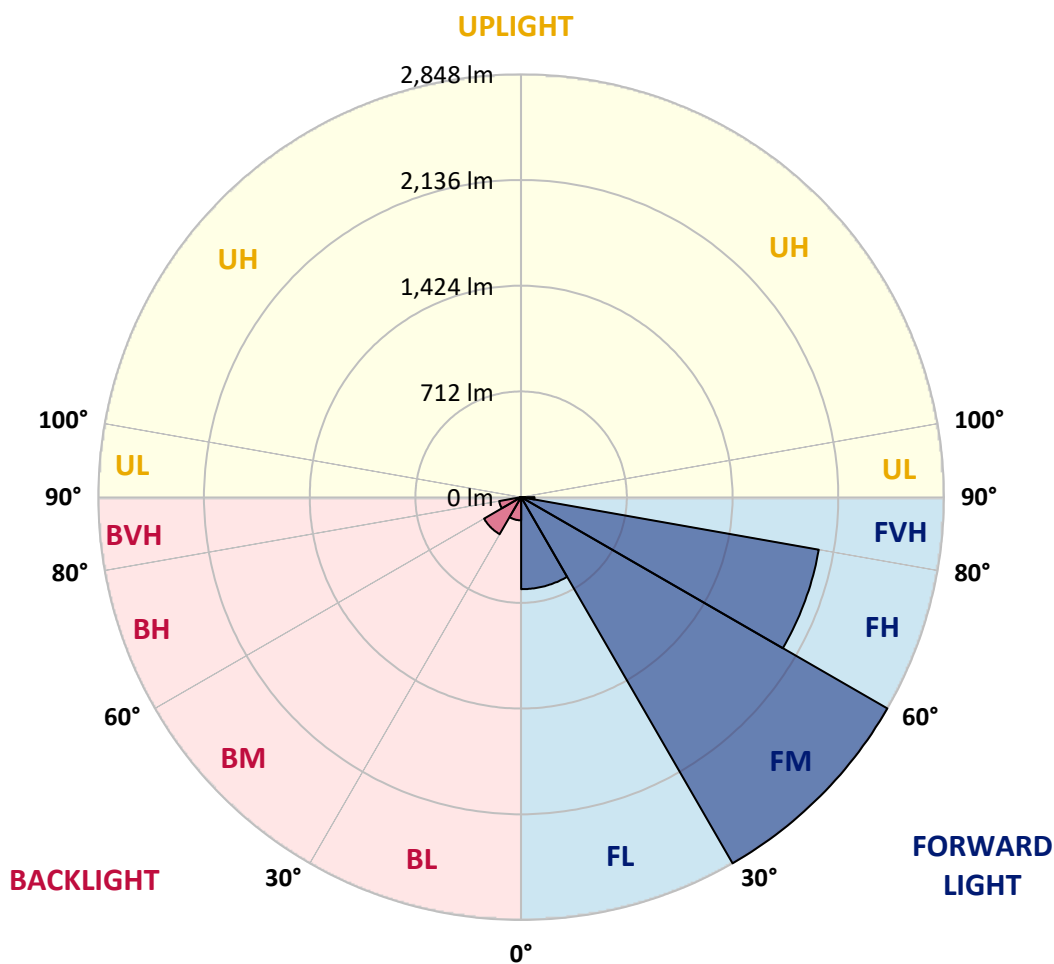
CATALOG NUMBER: MEM2-HSN-SA-60-840-U-T3-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 620.0 | 10.0 | | | |
| FM (30°-60°) | 2847.5 | 46.0 | | | |
| FH (60°-80°) | 2035.3 | 32.9 | | | G2/5000 |
| FVH (80°-90°) | 89.9 | 1.5 | | | G1/100 |
| BL (0°-30°) | 156.0 | 2.5 | B1/500 | | |
| BM (30°-60°) | 288.4 | 4.7 | B1/1000 | | |
| BH (60°-80°) | 150.2 | 2.4 | B1/500 | | G1/500 |
| BVH (80°-90°) | 8.4 | 0.1 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G2

Type III Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 64° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 765.6 | 765.6 | 765.6 | 765.6 | 765.6 | 765.6 | 765.6 | 765.6 | 765.6 | 765.6 | 765.6 |
| 2.5° | 894.7 | 887.6 | 892.9 | 880.5 | 866.4 | 855.8 | 834.5 | 816.9 | 815.1 | 797.4 | 778.0 |
| 5° | 1066.2 | 1043.2 | 1044.9 | 1020.2 | 990.1 | 958.3 | 924.7 | 880.5 | 880.5 | 838.1 | 793.9 |
| 7.5° | 1220.0 | 1216.5 | 1200.5 | 1161.6 | 1126.3 | 1076.8 | 1014.9 | 958.3 | 945.9 | 880.5 | 811.6 |
| 10° | 1368.5 | 1363.2 | 1349.1 | 1319.0 | 1258.9 | 1204.1 | 1126.3 | 1041.4 | 1025.5 | 931.8 | 832.8 |
| 12.5° | 1487.0 | 1488.7 | 1472.8 | 1448.1 | 1395.0 | 1329.6 | 1227.1 | 1121.0 | 1106.8 | 981.3 | 854.0 |
| 15° | 1591.3 | 1589.5 | 1586.0 | 1564.8 | 1513.5 | 1453.4 | 1333.1 | 1209.4 | 1186.4 | 1034.3 | 875.2 |
| 17.5° | 1670.9 | 1667.3 | 1660.2 | 1642.6 | 1617.8 | 1559.5 | 1444.5 | 1303.1 | 1283.6 | 1096.2 | 900.0 |
| 20° | 1693.8 | 1692.1 | 1692.1 | 1704.4 | 1693.8 | 1658.5 | 1555.9 | 1400.3 | 1379.1 | 1161.6 | 933.6 |
| 22.5° | 1736.3 | 1734.5 | 1732.7 | 1745.1 | 1752.2 | 1748.7 | 1660.2 | 1499.3 | 1479.9 | 1237.7 | 976.0 |
| 25° | 1791.1 | 1787.5 | 1782.2 | 1794.6 | 1803.5 | 1824.7 | 1764.6 | 1616.0 | 1593.1 | 1326.1 | 1018.4 |
| 27.5° | 1863.6 | 1867.1 | 1860.0 | 1858.3 | 1858.3 | 1870.6 | 1856.5 | 1720.4 | 1699.1 | 1410.9 | 1067.9 |
| 30° | 1959.1 | 1964.4 | 1952.0 | 1943.1 | 1927.2 | 1925.5 | 1929.0 | 1837.1 | 1807.0 | 1502.9 | 1119.2 |
| 32.5° | 2052.8 | 2058.1 | 2051.0 | 2038.6 | 1998.0 | 1982.0 | 1996.2 | 1936.1 | 1916.6 | 1603.7 | 1184.6 |
| 35° | 2128.8 | 2141.2 | 2141.2 | 2116.4 | 2059.8 | 2051.0 | 2074.0 | 2033.3 | 2019.2 | 1722.1 | 1262.4 |
| 37.5° | 2231.3 | 2238.4 | 2231.3 | 2185.4 | 2114.6 | 2125.3 | 2160.6 | 2135.9 | 2127.0 | 1849.4 | 1354.4 |
| 40° | 2450.6 | 2459.4 | 2413.5 | 2303.8 | 2190.7 | 2203.1 | 2264.9 | 2250.8 | 2236.6 | 1975.0 | 1439.2 |
| 42.5° | 2756.5 | 2735.3 | 2726.4 | 2482.4 | 2307.4 | 2300.3 | 2378.1 | 2358.6 | 2356.9 | 2102.3 | 1517.0 |
| 45° | 2958.0 | 2965.1 | 2920.9 | 2689.3 | 2553.1 | 2420.5 | 2503.6 | 2496.6 | 2482.4 | 2231.3 | 1610.7 |
| 47.5° | 3097.7 | 3081.8 | 2972.2 | 2860.8 | 2887.3 | 2577.9 | 2643.3 | 2661.0 | 2652.1 | 2378.1 | 1725.7 |
| 50° | 3156.1 | 3140.1 | 3067.7 | 2993.4 | 3025.2 | 2758.2 | 2786.5 | 2844.9 | 2836.0 | 2526.6 | 1822.9 |
| 52.5° | 3083.6 | 3064.1 | 3069.4 | 3088.9 | 3073.0 | 2899.7 | 2963.3 | 3055.3 | 3044.7 | 2699.9 | 1936.1 |
| 55° | 2622.1 | 2673.4 | 2871.4 | 3069.4 | 3064.1 | 3007.5 | 3152.5 | 3286.9 | 3265.7 | 2880.2 | 2033.3 |
| 57.5° | 2114.6 | 2142.9 | 2394.0 | 2929.7 | 3035.8 | 3097.7 | 3368.2 | 3534.4 | 3527.4 | 3060.6 | 2121.7 |
| 60° | 1681.5 | 1711.5 | 1902.5 | 2639.8 | 2970.4 | 3191.4 | 3589.2 | 3808.5 | 3801.4 | 3242.7 | 2185.4 |
| 62.5° | 1336.7 | 1336.7 | 1506.4 | 2222.5 | 2844.9 | 3246.2 | 3764.3 | 4084.3 | 4071.9 | 3389.4 | 2201.3 |
| 65° | 961.8 | 974.2 | 1101.5 | 1787.5 | 2641.5 | 3232.1 | 3849.2 | 4280.6 | 4273.5 | 3472.5 | 2167.7 |
| 67.5° | 710.8 | 724.9 | 809.8 | 1340.2 | 2341.0 | 3090.6 | 3771.4 | 4324.8 | 4328.3 | 3474.3 | 2058.1 |
| 70° | 555.2 | 558.7 | 622.4 | 931.8 | 1918.4 | 2775.9 | 3479.6 | 4178.0 | 4178.0 | 3387.7 | 1895.4 |
| 72.5° | 422.6 | 426.1 | 480.9 | 634.7 | 1412.7 | 2295.0 | 3042.9 | 3789.0 | 3815.6 | 3157.8 | 1654.9 |
| 75° | 327.1 | 334.2 | 371.3 | 456.2 | 885.8 | 1632.0 | 2500.1 | 3103.0 | 3175.5 | 2712.3 | 1363.2 |
| 77.5° | 252.8 | 259.9 | 290.0 | 334.2 | 516.3 | 1006.0 | 1757.5 | 2319.7 | 2385.2 | 2135.9 | 1052.0 |
| 80° | 203.3 | 206.9 | 226.3 | 251.1 | 313.0 | 518.1 | 1073.2 | 1524.1 | 1543.6 | 1451.6 | 696.6 |
| 82.5° | 93.7 | 100.8 | 122.0 | 137.9 | 155.6 | 240.5 | 457.9 | 564.0 | 588.8 | 576.4 | 286.4 |
| 85° | 10.6 | 10.6 | 12.4 | 14.1 | 15.9 | 24.8 | 31.8 | 28.3 | 28.3 | 33.6 | 30.1 |
| 87.5° | 0.0 | 0.0 | 0.0 | 1.8 | 3.5 | 3.5 | 5.3 | 5.3 | 5.3 | 5.3 | 5.3 |
| 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: P870420

CATALOG NUMBER: MEM2-HSN-SA-60-840-U-T3-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 765.6 | 765.6 | 765.6 | 765.6 | 765.6 | 765.6 | 765.6 | 765.6 | 765.6 | 765.6 | 765.6 |
| 2.5° | 767.4 | 755.0 | 732.0 | 712.5 | 694.9 | 677.2 | 668.3 | 647.1 | 641.8 | 645.4 | 633.0 |
| 5° | 770.9 | 746.1 | 698.4 | 654.2 | 617.1 | 581.7 | 551.6 | 519.8 | 512.7 | 502.1 | 496.8 |
| 7.5° | 776.2 | 739.1 | 664.8 | 595.8 | 539.3 | 488.0 | 450.9 | 426.1 | 406.7 | 401.4 | 399.6 |
| 10° | 783.3 | 730.2 | 627.7 | 541.0 | 463.2 | 410.2 | 376.6 | 358.9 | 351.9 | 346.5 | 348.3 |
| 12.5° | 788.6 | 721.4 | 592.3 | 479.2 | 403.1 | 355.4 | 339.5 | 325.3 | 321.8 | 320.0 | 320.0 |
| 15° | 795.6 | 712.5 | 549.9 | 424.3 | 351.9 | 323.6 | 307.6 | 302.3 | 302.3 | 300.6 | 300.6 |
| 17.5° | 804.5 | 705.5 | 514.5 | 381.9 | 321.8 | 295.3 | 288.2 | 281.1 | 281.1 | 281.1 | 279.4 |
| 20° | 822.2 | 701.9 | 482.7 | 346.5 | 295.3 | 277.6 | 267.0 | 261.7 | 259.9 | 258.1 | 258.1 |
| 22.5° | 839.8 | 701.9 | 447.3 | 320.0 | 277.6 | 258.1 | 247.5 | 242.2 | 240.5 | 240.5 | 240.5 |
| 25° | 864.6 | 700.2 | 419.0 | 297.0 | 261.7 | 238.7 | 228.1 | 222.8 | 219.2 | 219.2 | 217.5 |
| 27.5° | 892.9 | 700.2 | 394.3 | 279.4 | 244.0 | 221.0 | 208.6 | 203.3 | 198.0 | 198.0 | 196.3 |
| 30° | 921.2 | 703.7 | 373.1 | 265.2 | 226.3 | 205.1 | 189.2 | 182.1 | 178.6 | 176.8 | 176.8 |
| 32.5° | 958.3 | 714.3 | 358.9 | 254.6 | 210.4 | 189.2 | 173.3 | 166.2 | 162.7 | 160.9 | 160.9 |
| 35° | 1014.9 | 740.8 | 360.7 | 249.3 | 199.8 | 175.0 | 159.1 | 150.3 | 148.5 | 148.5 | 146.8 |
| 37.5° | 1075.0 | 765.6 | 366.0 | 245.8 | 189.2 | 164.4 | 148.5 | 139.7 | 137.9 | 137.9 | 137.9 |
| 40° | 1126.3 | 786.8 | 373.1 | 244.0 | 180.3 | 153.8 | 139.7 | 132.6 | 129.1 | 129.1 | 129.1 |
| 42.5° | 1177.6 | 799.2 | 374.8 | 238.7 | 175.0 | 145.0 | 132.6 | 125.5 | 122.0 | 123.8 | 123.8 |
| 45° | 1228.8 | 808.0 | 369.5 | 231.6 | 169.7 | 137.9 | 125.5 | 118.5 | 114.9 | 114.9 | 114.9 |
| 47.5° | 1290.7 | 827.5 | 360.7 | 221.0 | 166.2 | 132.6 | 118.5 | 111.4 | 109.6 | 109.6 | 109.6 |
| 50° | 1352.6 | 843.4 | 353.6 | 208.6 | 157.4 | 125.5 | 113.2 | 104.3 | 102.5 | 102.5 | 102.5 |
| 52.5° | 1403.9 | 850.5 | 344.8 | 192.7 | 148.5 | 118.5 | 106.1 | 97.2 | 93.7 | 93.7 | 93.7 |
| 55° | 1442.8 | 852.2 | 332.4 | 180.3 | 136.1 | 111.4 | 99.0 | 90.2 | 86.6 | 84.9 | 84.9 |
| 57.5° | 1474.6 | 850.5 | 320.0 | 168.0 | 125.5 | 102.5 | 90.2 | 83.1 | 77.8 | 76.0 | 76.0 |
| 60° | 1492.3 | 845.2 | 302.3 | 152.1 | 111.4 | 93.7 | 83.1 | 74.3 | 70.7 | 69.0 | 69.0 |
| 62.5° | 1481.7 | 831.0 | 277.6 | 127.3 | 100.8 | 84.9 | 76.0 | 69.0 | 63.7 | 61.9 | 61.9 |
| 65° | 1432.2 | 802.7 | 245.8 | 104.3 | 90.2 | 76.0 | 69.0 | 61.9 | 54.8 | 53.0 | 53.0 |
| 67.5° | 1345.5 | 755.0 | 203.3 | 88.4 | 83.1 | 69.0 | 61.9 | 54.8 | 49.5 | 46.0 | 46.0 |
| 70° | 1225.3 | 691.3 | 159.1 | 76.0 | 74.3 | 63.7 | 56.6 | 49.5 | 44.2 | 40.7 | 40.7 |
| 72.5° | 1053.8 | 587.0 | 118.5 | 65.4 | 65.4 | 58.3 | 51.3 | 46.0 | 40.7 | 37.1 | 37.1 |
| 75° | 852.2 | 443.8 | 90.2 | 60.1 | 58.3 | 53.0 | 46.0 | 40.7 | 37.1 | 33.6 | 33.6 |
| 77.5° | 622.4 | 295.3 | 74.3 | 54.8 | 54.8 | 47.7 | 42.4 | 37.1 | 33.6 | 31.8 | 31.8 |
| 80° | 378.4 | 169.7 | 53.0 | 42.4 | 42.4 | 40.7 | 35.4 | 31.8 | 30.1 | 26.5 | 24.8 |
| 82.5° | 153.8 | 65.4 | 28.3 | 21.2 | 21.2 | 19.4 | 12.4 | 10.6 | 10.6 | 10.6 | 8.8 |
| 85° | 15.9 | 10.6 | 7.1 | 5.3 | 5.3 | 5.3 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 |
| 87.5° | 5.3 | 5.3 | 3.5 | 3.5 | 3.5 | 3.5 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 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: SP1-2407-157-8

Test Date: 09/05/2024

Luminaire Tested: MEM2-HTN-SA-30-840-U-5WQ

Data in this report applies to families of products including MEM2-HTN-SA-30-840-U-5WQ

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-157-8
 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-30-840-U-5WQ**
 Description: Epic Modern Light Square 30W 5WQ Optic

Spectral Parameters

CCT (K): 3996
 CIE u': 0.2245
 CIE v': 0.5031
 Duv: 0.0012
 CIE x: 0.3815
 CIE y: 0.3799
 CIE z: 0.2386
 Peak Wavelength (nm): 449
 Dominant Wavelength (nm): 578
 Purity: 28.49233
 Rf: 82.6
 Rg: 95.1

| | | | |
|-----------|------|------|------|
| CRI (Ra): | 80.6 | | |
| R1: | 78.1 | R9: | -5.8 |
| R2: | 87.1 | R10: | 70.3 |
| R3: | 94.5 | R11: | 78.7 |
| R4: | 79.7 | R12: | 60.5 |
| R5: | 78.7 | R13: | 80.2 |
| R6: | 82.7 | R14: | 97.2 |
| R7: | 84.3 | R15: | 70.6 |
| R8: | 59.5 | | |



Test Conditions

Stabilization Time: 29M
 Operation Time: 1H 29M
 Sphere Temperature (°C): 24.3

REPORT NUMBER: SP1-2407-157-8

| 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 4000K 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 | 289 | NR | 620 | 725 | NR | 750 | 17 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 351 | NR | 625 | 673 | NR | 755 | 15 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 414 | NR | 630 | 619 | NR | 760 | 13 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 470 | NR | 635 | 562 | NR | 765 | 11 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 513 | NR | 640 | 506 | NR | 770 | 9 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 546 | NR | 645 | 452 | NR | 775 | 8 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 571 | NR | 650 | 400 | NR | 780 | 7 | NR | 910 | 0 | NR |
| 395 | 1 | NR | 525 | 592 | NR | 655 | 352 | NR | 785 | 6 | NR | 915 | 0 | NR |
| 400 | 3 | NR | 530 | 606 | NR | 660 | 307 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 6 | NR | 535 | 624 | NR | 665 | 267 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 12 | NR | 540 | 642 | NR | 670 | 231 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 22 | NR | 545 | 663 | NR | 675 | 199 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 44 | NR | 550 | 686 | NR | 680 | 171 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 83 | NR | 555 | 713 | NR | 685 | 146 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 150 | NR | 560 | 745 | NR | 690 | 125 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 267 | NR | 565 | 774 | NR | 695 | 106 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 466 | NR | 570 | 806 | NR | 700 | 90 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 804 | NR | 575 | 835 | NR | 705 | 76 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 1000 | NR | 580 | 858 | NR | 710 | 65 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 715 | NR | 585 | 875 | NR | 715 | 55 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 492 | NR | 590 | 884 | NR | 720 | 47 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 402 | NR | 595 | 880 | NR | 725 | 40 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 288 | NR | 600 | 868 | NR | 730 | 34 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 226 | NR | 605 | 844 | NR | 735 | 28 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 227 | NR | 610 | 814 | NR | 740 | 24 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 248 | NR | 615 | 771 | NR | 745 | 20 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2407-157-8

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.66

| 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 | 289 | NR | 620 | 725 | NR | 750 | 17 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 351 | NR | 625 | 673 | NR | 755 | 15 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 414 | NR | 630 | 619 | NR | 760 | 13 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 470 | NR | 635 | 562 | NR | 765 | 11 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 513 | NR | 640 | 506 | NR | 770 | 9 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 546 | NR | 645 | 452 | NR | 775 | 8 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 571 | NR | 650 | 400 | NR | 780 | 7 | NR | 910 | 0 | NR |
| 395 | 1 | NR | 525 | 592 | NR | 655 | 352 | NR | 785 | 6 | NR | 915 | 0 | NR |
| 400 | 3 | NR | 530 | 606 | NR | 660 | 307 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 6 | NR | 535 | 624 | NR | 665 | 267 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 12 | NR | 540 | 642 | NR | 670 | 231 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 22 | NR | 545 | 663 | NR | 675 | 199 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 44 | NR | 550 | 686 | NR | 680 | 171 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 83 | NR | 555 | 713 | NR | 685 | 146 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 150 | NR | 560 | 745 | NR | 690 | 125 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 267 | NR | 565 | 774 | NR | 695 | 106 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 466 | NR | 570 | 806 | NR | 700 | 90 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 804 | NR | 575 | 835 | NR | 705 | 76 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 1000 | NR | 580 | 858 | NR | 710 | 65 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 715 | NR | 585 | 875 | NR | 715 | 55 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 492 | NR | 590 | 884 | NR | 720 | 47 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 402 | NR | 595 | 880 | NR | 725 | 40 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 288 | NR | 600 | 868 | NR | 730 | 34 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 226 | NR | 605 | 844 | NR | 735 | 28 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 227 | NR | 610 | 814 | NR | 740 | 24 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 248 | NR | 615 | 771 | NR | 745 | 20 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2407-157-8

Melanopic Flux vs. Wavelength



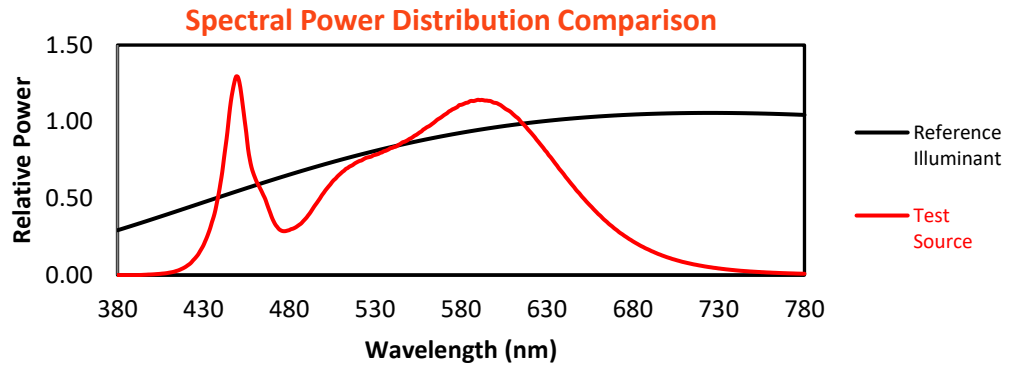
Melanopic Lumens: NR

M/P: 3.37

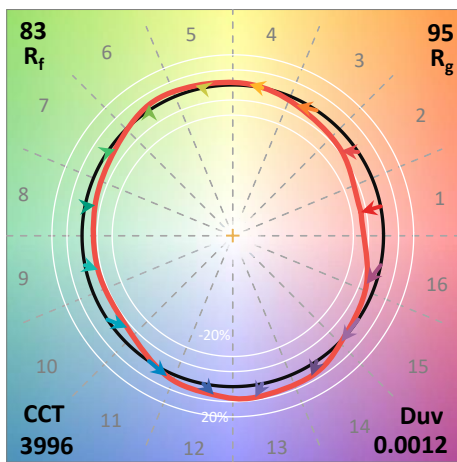
| λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360 | 0 | NR | 490 | 289 | NR | 620 | 725 | NR | 750 | 17 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 351 | NR | 625 | 673 | NR | 755 | 15 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 414 | NR | 630 | 619 | NR | 760 | 13 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 470 | NR | 635 | 562 | NR | 765 | 11 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 513 | NR | 640 | 506 | NR | 770 | 9 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 546 | NR | 645 | 452 | NR | 775 | 8 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 571 | NR | 650 | 400 | NR | 780 | 7 | NR | 910 | 0 | NR |
| 395 | 1 | NR | 525 | 592 | NR | 655 | 352 | NR | 785 | 6 | NR | 915 | 0 | NR |
| 400 | 3 | NR | 530 | 606 | NR | 660 | 307 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 6 | NR | 535 | 624 | NR | 665 | 267 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 12 | NR | 540 | 642 | NR | 670 | 231 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 22 | NR | 545 | 663 | NR | 675 | 199 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 44 | NR | 550 | 686 | NR | 680 | 171 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 83 | NR | 555 | 713 | NR | 685 | 146 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 150 | NR | 560 | 745 | NR | 690 | 125 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 267 | NR | 565 | 774 | NR | 695 | 106 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 466 | NR | 570 | 806 | NR | 700 | 90 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 804 | NR | 575 | 835 | NR | 705 | 76 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 1000 | NR | 580 | 858 | NR | 710 | 65 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 715 | NR | 585 | 875 | NR | 715 | 55 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 492 | NR | 590 | 884 | NR | 720 | 47 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 402 | NR | 595 | 880 | NR | 725 | 40 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 288 | NR | 600 | 868 | NR | 730 | 34 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 226 | NR | 605 | 844 | NR | 735 | 28 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 227 | NR | 610 | 814 | NR | 740 | 24 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 248 | NR | 615 | 771 | NR | 745 | 20 | NR | 875 | 0 | NR | | | |

Summary

$R_f = 82.6$
 $R_g = 95.1$
 CIE $R_a = 80.6$
 $R_9 = -5.8$



Color Vector Graphics



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

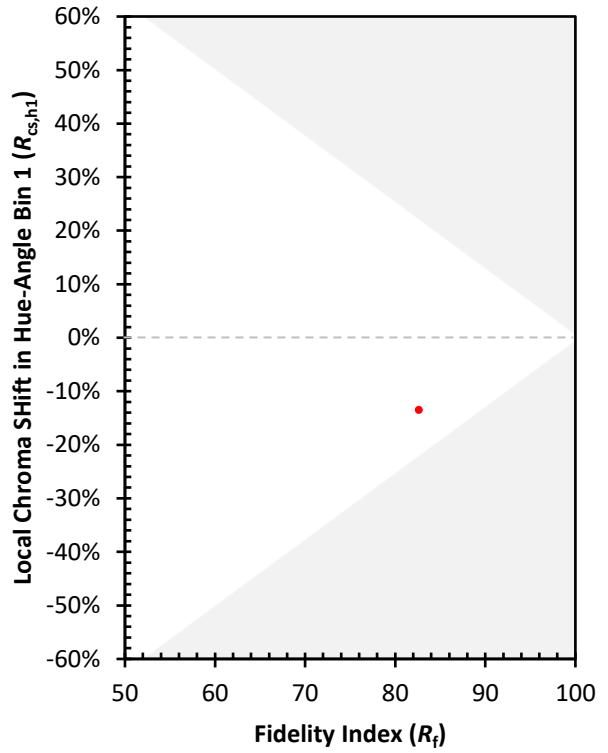
| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 79 | CES51 = 94 | CES76 = 72 |
| CES02 = 61 | CES27 = 93 | CES52 = 94 | CES77 = 82 |
| CES03 = 31 | CES28 = 90 | CES53 = 88 | CES78 = 71 |
| CES04 = 69 | CES29 = 83 | CES54 = 89 | CES79 = 91 |
| CES05 = 48 | CES30 = 95 | CES55 = 88 | CES80 = 88 |
| CES06 = 50 | CES31 = 86 | CES56 = 84 | CES81 = 80 |
| CES07 = 40 | CES32 = 78 | CES57 = 84 | CES82 = 95 |
| CES08 = 39 | CES33 = 90 | CES58 = 84 | CES83 = 95 |
| CES09 = 29 | CES34 = 85 | CES59 = 90 | CES84 = 90 |
| CES10 = 74 | CES35 = 92 | CES60 = 91 | CES85 = 78 |
| CES11 = 57 | CES36 = 85 | CES61 = 87 | CES86 = 73 |
| CES12 = 63 | CES37 = 91 | CES62 = 87 | CES87 = 83 |
| CES13 = 42 | CES38 = 95 | CES63 = 84 | CES88 = 86 |
| CES14 = 74 | CES39 = 98 | CES64 = 78 | CES89 = 76 |
| CES15 = 71 | CES40 = 94 | CES65 = 75 | CES90 = 87 |
| CES16 = 46 | CES41 = 98 | CES66 = 75 | CES91 = 72 |
| CES17 = 49 | CES42 = 92 | CES67 = 73 | CES92 = 62 |
| CES18 = 56 | CES43 = 88 | CES68 = 77 | CES93 = 78 |
| CES19 = 71 | CES44 = 99 | CES69 = 82 | CES94 = 60 |
| CES20 = 65 | CES45 = 93 | CES70 = 72 | CES95 = 70 |
| CES21 = 86 | CES46 = 90 | CES71 = 67 | CES96 = 82 |
| CES22 = 78 | CES47 = 95 | CES72 = 89 | CES97 = 90 |
| CES23 = 91 | CES48 = 84 | CES73 = 65 | CES98 = 84 |
| CES24 = 90 | CES49 = 89 | CES74 = 93 | CES99 = 73 |
| CES25 = 71 | CES50 = 94 | CES75 = 69 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)