

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: P867500

Luminaire Tested: **MEM2-HTN-SA-70-722-U-T2R-HSS**

Issue Date: 08/21/2024



Test Information

Test Method: LM-79-08
Report Number: P867500
Test Lab: INNOVATION CENTER(G3)
Issue Date: 08/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: STREETWORKS
Catalog Number: MEM2-HTN-SA-70-722-U-T2R-HSS
Description: EPIC MODERN TALL HOUSING DISCRETE LED ARRAYS 70W 70CRI 2200K
FIXTURE w/ TYPE II ROADWAY DISTRIBUTION OPTIC AND HOUSE SIDE SHIELD
Light Source: (20) 2200K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

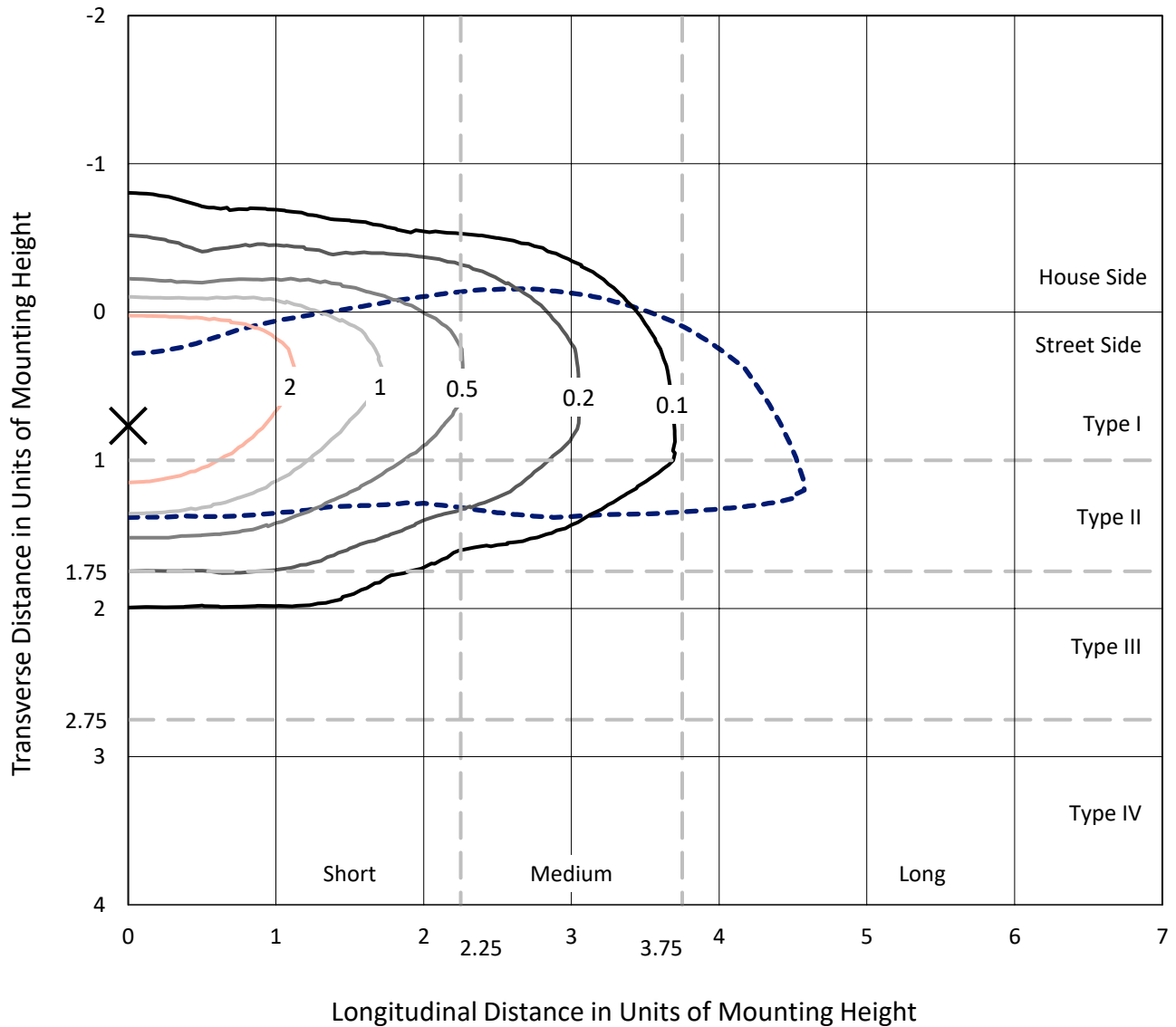
Lumens per Lamp: N/A
Luminaire Lumens: 5741.2 lumens
Efficiency: N/A
Efficacy: 94.1 lumens/watt
Luminous Opening: Rectangular (W 0.67' x L: 0.33' x H: 0')
IES Classification: Type II - Short
BUG Rating: B1 - U0 - G1

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

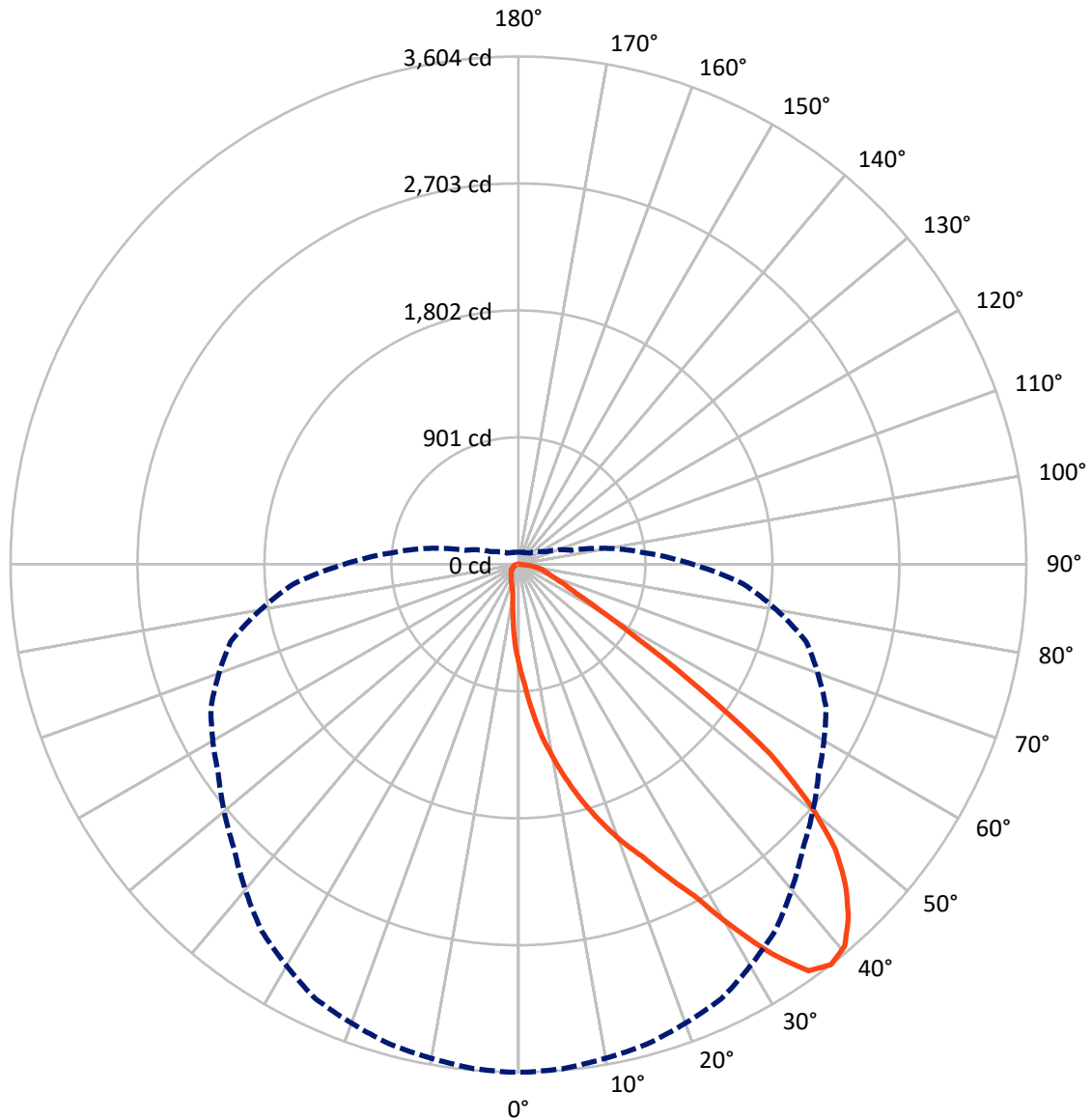
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 4.9 fc
 Type II - Short - N/A

REPORT NUMBER: P867500
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Luminous Intensity Polar Plot



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

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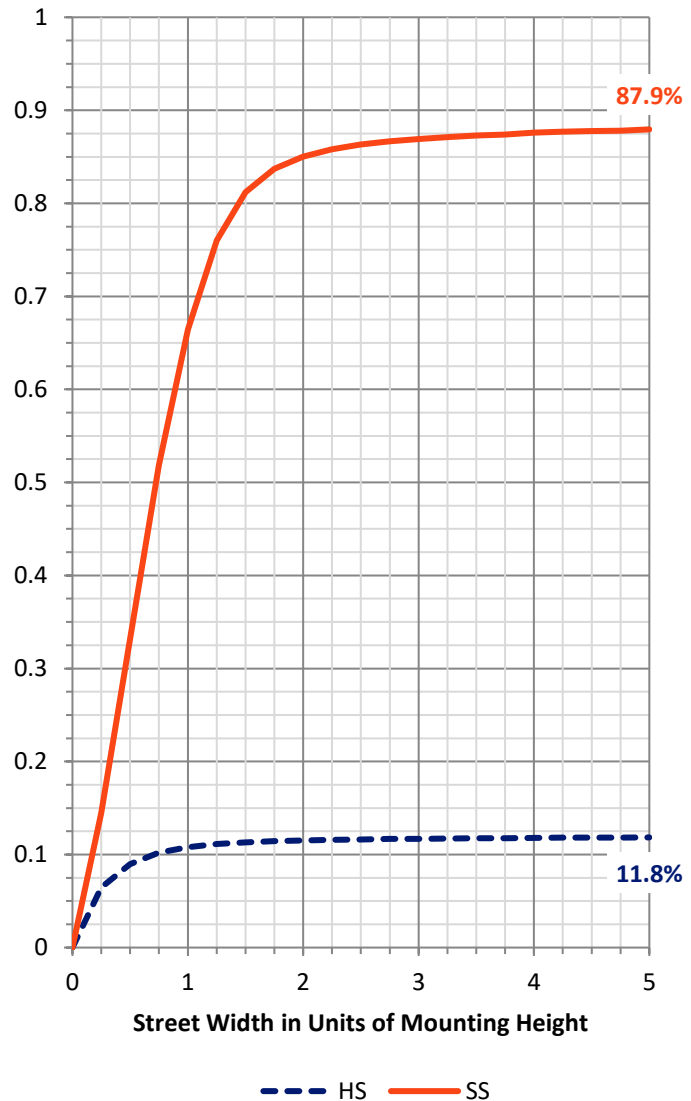
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 684.8 | 0.0 | 684.8 |
| | % Fixture | 11.9 | 0.0 | 11.9 |
| Street Side | Lumens | 5056.5 | 0.0 | 5056.5 |
| | % Fixture | 88.1 | 0.0 | 88.1 |
| Total | Lumens | 5741.2 | 0.0 | 5741.2 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 71.4 | 1.2 |
| 10°-20° | 249.5 | 4.3 |
| 20°-30° | 514.8 | 9.0 |
| 30°-40° | 905.7 | 15.8 |
| 40°-50° | 1229.8 | 21.4 |
| 50°-60° | 1218.4 | 21.2 |
| 60°-70° | 938.0 | 16.3 |
| 70°-80° | 544.4 | 9.5 |
| 80°-90° | 69.2 | 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° | 5741.2 | 100.0 |
| 0°-180° | 5741.2 | 100.0 |



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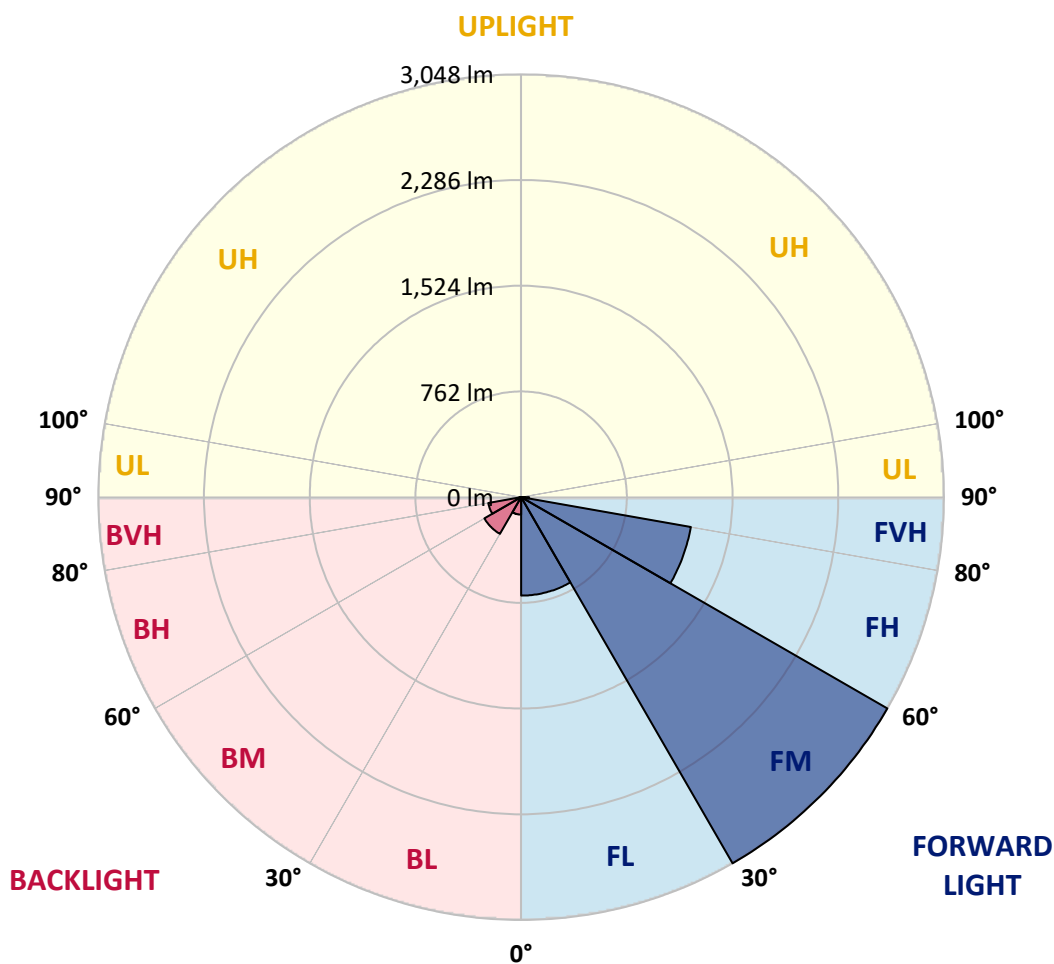
CATALOG NUMBER: MEM2-HTN-SA-70-722-U-T2R-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 709.7 | 12.4 | | | |
| FM (30°-60°) | 3048.1 | 53.1 | | | |
| FH (60°-80°) | 1242.2 | 21.6 | | | G1/1800 |
| FVH (80°-90°) | 56.5 | 1.0 | | | G1/100 |
| BL (0°-30°) | 125.9 | 2.2 | B1/500 | | |
| BM (30°-60°) | 305.8 | 5.3 | B1/1000 | | |
| BH (60°-80°) | 240.3 | 4.2 | B1/500 | | G1/500 |
| BVH (80°-90°) | 12.8 | 0.2 | | | G1/100 |
| 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: P867500

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CANDELA DISTRIBUTION (FULL):

| | 0° | 1° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 711.4 | 711.4 | 711.4 | 711.4 | 711.4 | 711.4 | 711.4 | 711.4 | 711.4 | 711.4 | 711.4 |
| 2.5° | 857.2 | 870.0 | 860.4 | 852.4 | 841.2 | 830.0 | 814.0 | 796.3 | 773.9 | 746.7 | 722.6 |
| 5° | 1051.1 | 1057.5 | 1054.3 | 1049.5 | 1014.2 | 980.6 | 947.0 | 905.3 | 847.6 | 796.3 | 741.9 |
| 7.5° | 1245.0 | 1241.8 | 1233.8 | 1219.3 | 1187.3 | 1148.8 | 1088.0 | 1019.1 | 937.3 | 847.6 | 762.7 |
| 10° | 1414.8 | 1419.6 | 1413.2 | 1390.8 | 1350.7 | 1297.9 | 1224.1 | 1145.6 | 1035.1 | 910.1 | 791.5 |
| 12.5° | 1592.7 | 1595.9 | 1595.9 | 1547.8 | 1520.6 | 1438.9 | 1360.3 | 1254.6 | 1131.2 | 987.0 | 825.2 |
| 15° | 1767.3 | 1760.9 | 1760.9 | 1728.9 | 1680.8 | 1589.5 | 1501.3 | 1373.2 | 1233.8 | 1059.1 | 863.6 |
| 17.5° | 1934.0 | 1937.2 | 1922.7 | 1887.5 | 1841.0 | 1752.9 | 1643.9 | 1502.9 | 1334.7 | 1145.6 | 903.7 |
| 20° | 2099.0 | 2089.4 | 2083.0 | 2047.7 | 1998.1 | 1893.9 | 1789.8 | 1629.5 | 1453.3 | 1243.4 | 959.8 |
| 22.5° | 2252.8 | 2257.6 | 2241.6 | 2185.5 | 2139.1 | 2044.5 | 1925.9 | 1778.5 | 1578.3 | 1341.1 | 1020.7 |
| 25° | 2451.5 | 2435.5 | 2449.9 | 2382.6 | 2310.5 | 2198.3 | 2063.7 | 1917.9 | 1714.4 | 1461.3 | 1096.0 |
| 27.5° | 2663.0 | 2672.6 | 2664.6 | 2590.9 | 2493.2 | 2342.5 | 2201.5 | 2046.1 | 1852.2 | 1575.0 | 1180.9 |
| 30° | 2978.7 | 2973.8 | 2975.4 | 2864.9 | 2703.1 | 2523.6 | 2350.6 | 2180.7 | 1990.0 | 1714.4 | 1280.2 |
| 32.5° | 3291.1 | 3308.7 | 3265.5 | 3167.7 | 2981.9 | 2711.1 | 2499.6 | 2310.5 | 2123.0 | 1834.6 | 1381.2 |
| 35° | 3542.7 | 3537.9 | 3520.2 | 3411.3 | 3227.0 | 2964.2 | 2669.4 | 2454.7 | 2264.0 | 1982.0 | 1493.3 |
| 37.5° | 3603.5 | 3603.5 | 3592.3 | 3525.0 | 3403.3 | 3175.7 | 2853.7 | 2598.9 | 2408.2 | 2113.4 | 1602.3 |
| 40° | 3563.5 | 3555.5 | 3549.1 | 3504.2 | 3438.5 | 3303.9 | 3047.6 | 2747.9 | 2562.1 | 2283.3 | 1722.5 |
| 42.5° | 3432.1 | 3433.7 | 3425.7 | 3400.1 | 3364.8 | 3313.5 | 3167.7 | 2906.5 | 2712.7 | 2443.5 | 1841.0 |
| 45° | 3255.8 | 3259.1 | 3249.4 | 3246.2 | 3228.6 | 3228.6 | 3195.0 | 3031.5 | 2855.3 | 2606.9 | 1970.8 |
| 47.5° | 3029.9 | 3028.3 | 3023.5 | 3015.5 | 3050.8 | 3089.2 | 3119.7 | 3102.0 | 2981.9 | 2783.2 | 2087.8 |
| 50° | 2685.4 | 2682.2 | 2696.6 | 2736.7 | 2823.2 | 2908.2 | 2997.9 | 3081.2 | 3073.2 | 2946.6 | 2228.8 |
| 52.5° | 2238.4 | 2217.6 | 2233.6 | 2357.0 | 2534.8 | 2723.9 | 2850.5 | 2981.9 | 3119.7 | 3119.7 | 2368.2 |
| 55° | 1565.4 | 1583.1 | 1592.7 | 1773.7 | 2124.6 | 2449.9 | 2672.6 | 2842.5 | 3102.0 | 3257.5 | 2522.0 |
| 57.5° | 996.6 | 1003.0 | 1031.9 | 1227.4 | 1639.1 | 2046.1 | 2440.3 | 2719.1 | 3036.3 | 3372.8 | 2675.8 |
| 60° | 671.4 | 648.9 | 671.4 | 783.5 | 1179.3 | 1605.5 | 2099.0 | 2563.7 | 2941.8 | 3456.1 | 2845.7 |
| 62.5° | 474.3 | 472.7 | 479.1 | 544.8 | 841.2 | 1206.5 | 1671.2 | 2353.8 | 2866.5 | 3460.9 | 2972.2 |
| 65° | 382.9 | 371.7 | 376.5 | 413.4 | 564.0 | 884.5 | 1225.7 | 1974.0 | 2799.2 | 3376.0 | 3034.7 |
| 67.5° | 307.6 | 302.8 | 306.0 | 330.1 | 423.0 | 664.9 | 863.6 | 1501.3 | 2656.6 | 3231.8 | 2999.5 |
| 70° | 251.6 | 253.2 | 254.8 | 278.8 | 336.5 | 503.1 | 616.9 | 1030.3 | 2352.2 | 3068.4 | 2840.9 |
| 72.5° | 217.9 | 217.9 | 219.5 | 235.5 | 282.0 | 399.0 | 466.3 | 669.8 | 1903.5 | 2892.1 | 2549.2 |
| 75° | 192.3 | 192.3 | 192.3 | 206.7 | 240.3 | 320.5 | 362.1 | 458.3 | 1366.8 | 2565.3 | 2108.6 |
| 77.5° | 166.6 | 168.2 | 168.2 | 181.1 | 206.7 | 250.0 | 278.8 | 317.3 | 871.6 | 1982.0 | 1595.9 |
| 80° | 128.2 | 128.2 | 129.8 | 144.2 | 176.3 | 195.5 | 205.1 | 224.3 | 458.3 | 1245.0 | 1012.6 |
| 82.5° | 89.7 | 91.3 | 91.3 | 92.9 | 118.6 | 120.2 | 110.6 | 112.2 | 166.6 | 413.4 | 384.5 |
| 85° | 9.6 | 11.2 | 12.8 | 12.8 | 20.8 | 25.6 | 27.2 | 25.6 | 27.2 | 48.1 | 48.1 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 1.6 | 3.2 | 3.2 | 4.8 | 4.8 | 4.8 | 4.8 |
| 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: P867500

CATALOG NUMBER: MEM2-HTN-SA-70-722-U-T2R-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 711.4 | 711.4 | 711.4 | 711.4 | 711.4 | 711.4 | 711.4 | 711.4 | 711.4 | 711.4 | 711.4 |
| 2.5° | 709.8 | 698.6 | 674.6 | 653.7 | 634.5 | 618.5 | 607.3 | 592.8 | 581.6 | 581.6 | 588.0 |
| 5° | 714.6 | 689.0 | 639.3 | 592.8 | 556.0 | 520.7 | 488.7 | 467.9 | 451.8 | 442.2 | 442.2 |
| 7.5° | 721.0 | 682.6 | 607.3 | 536.8 | 479.1 | 423.0 | 373.3 | 349.3 | 325.3 | 317.3 | 318.9 |
| 10° | 733.8 | 679.4 | 578.4 | 487.1 | 400.6 | 330.1 | 282.0 | 256.4 | 243.5 | 237.1 | 237.1 |
| 12.5° | 748.3 | 679.4 | 548.0 | 431.0 | 330.1 | 258.0 | 229.1 | 209.9 | 203.5 | 200.3 | 197.1 |
| 15° | 767.5 | 682.6 | 522.3 | 371.7 | 269.2 | 217.9 | 197.1 | 185.9 | 179.5 | 176.3 | 176.3 |
| 17.5° | 789.9 | 685.8 | 495.1 | 323.7 | 229.1 | 192.3 | 176.3 | 168.2 | 161.8 | 158.6 | 158.6 |
| 20° | 818.8 | 693.8 | 467.9 | 280.4 | 200.3 | 176.3 | 161.8 | 153.8 | 147.4 | 145.8 | 144.2 |
| 22.5° | 854.0 | 706.6 | 440.6 | 245.1 | 181.1 | 160.2 | 147.4 | 141.0 | 136.2 | 133.0 | 133.0 |
| 25° | 895.7 | 722.6 | 419.8 | 219.5 | 166.6 | 149.0 | 137.8 | 129.8 | 125.0 | 123.4 | 123.4 |
| 27.5° | 953.4 | 749.9 | 399.0 | 200.3 | 155.4 | 137.8 | 126.6 | 120.2 | 115.4 | 113.8 | 112.2 |
| 30° | 1007.8 | 783.5 | 389.4 | 195.5 | 147.4 | 128.2 | 120.2 | 112.2 | 107.4 | 105.8 | 104.1 |
| 32.5° | 1078.3 | 822.0 | 382.9 | 195.5 | 144.2 | 121.8 | 112.2 | 105.8 | 100.9 | 99.3 | 97.7 |
| 35° | 1153.6 | 866.8 | 382.9 | 201.9 | 145.8 | 117.0 | 105.8 | 99.3 | 94.5 | 91.3 | 91.3 |
| 37.5° | 1235.4 | 911.7 | 386.2 | 211.5 | 150.6 | 113.8 | 99.3 | 92.9 | 88.1 | 86.5 | 86.5 |
| 40° | 1321.9 | 972.6 | 392.6 | 219.5 | 155.4 | 112.2 | 92.9 | 88.1 | 83.3 | 80.1 | 80.1 |
| 42.5° | 1402.0 | 1020.7 | 403.8 | 229.1 | 158.6 | 110.6 | 88.1 | 83.3 | 78.5 | 76.9 | 76.9 |
| 45° | 1494.9 | 1073.5 | 413.4 | 235.5 | 158.6 | 105.8 | 83.3 | 78.5 | 75.3 | 73.7 | 72.1 |
| 47.5° | 1568.6 | 1116.8 | 418.2 | 238.7 | 155.4 | 100.9 | 78.5 | 75.3 | 72.1 | 68.9 | 70.5 |
| 50° | 1658.4 | 1163.3 | 426.2 | 240.3 | 149.0 | 94.5 | 75.3 | 70.5 | 67.3 | 65.7 | 65.7 |
| 52.5° | 1744.9 | 1209.7 | 432.6 | 237.1 | 141.0 | 86.5 | 70.5 | 67.3 | 64.1 | 60.9 | 60.9 |
| 55° | 1847.4 | 1261.0 | 442.2 | 232.3 | 128.2 | 78.5 | 65.7 | 62.5 | 57.7 | 56.1 | 54.5 |
| 57.5° | 1964.4 | 1328.3 | 450.2 | 222.7 | 112.2 | 70.5 | 62.5 | 57.7 | 51.3 | 48.1 | 48.1 |
| 60° | 2071.8 | 1405.2 | 456.7 | 198.7 | 97.7 | 65.7 | 57.7 | 52.9 | 46.5 | 44.9 | 44.9 |
| 62.5° | 2187.1 | 1485.3 | 456.7 | 157.0 | 83.3 | 59.3 | 54.5 | 49.7 | 43.3 | 41.7 | 41.7 |
| 65° | 2267.2 | 1557.4 | 442.2 | 117.0 | 70.5 | 56.1 | 52.9 | 46.5 | 40.1 | 38.5 | 38.5 |
| 67.5° | 2289.7 | 1602.3 | 402.2 | 83.3 | 60.9 | 52.9 | 49.7 | 43.3 | 38.5 | 35.3 | 35.3 |
| 70° | 2217.6 | 1567.0 | 328.5 | 64.1 | 52.9 | 48.1 | 44.9 | 40.1 | 35.3 | 33.6 | 33.6 |
| 72.5° | 2010.9 | 1432.4 | 245.1 | 54.5 | 46.5 | 44.9 | 41.7 | 36.9 | 33.6 | 32.0 | 32.0 |
| 75° | 1684.0 | 1190.5 | 173.0 | 48.1 | 43.3 | 40.1 | 36.9 | 33.6 | 30.4 | 30.4 | 30.4 |
| 77.5° | 1275.4 | 860.4 | 107.4 | 43.3 | 36.9 | 36.9 | 33.6 | 30.4 | 28.8 | 27.2 | 27.2 |
| 80° | 823.6 | 543.2 | 60.9 | 30.4 | 25.6 | 27.2 | 24.0 | 20.8 | 20.8 | 19.2 | 19.2 |
| 82.5° | 349.3 | 214.7 | 32.0 | 17.6 | 12.8 | 11.2 | 8.0 | 8.0 | 6.4 | 6.4 | 6.4 |
| 85° | 35.3 | 12.8 | 6.4 | 4.8 | 4.8 | 3.2 | 3.2 | 3.2 | 3.2 | 1.6 | 1.6 |
| 87.5° | 4.8 | 4.8 | 4.8 | 3.2 | 3.2 | 3.2 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 |
| 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: SP1-2407-157-2

Test Date: 08/07/2024

Luminaire Tested: MEM2-HTN-SA-40-722-U-5WQ-2

Data in this report applies to families of products including MEM2-HTN-SA-40-722-U-5WQ-2

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-157-2
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 08/20/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: Streetworks
 Catalog Number: **MEM2-HTN-SA-40-722-U-5WQ-2**
 Description: Epic Modern Light Square 40W 5WQ Optic and Flare Trim

Spectral Parameters

CCT (K): 2253
 CIE u': 0.2868
 CIE v': 0.5332
 Duv: -0.0014
 CIE x: 0.4974
 CIE y: 0.4110
 CIE z: 0.0915
 Peak Wavelength (nm): 603
 Dominant Wavelength (nm): 587
 Purity: 72.69432
 Rf: 76.9
 Rg: 92.7

CRI (Ra): 70.6
 R1: 68.4
 R2: 88.7
 R3: 85.4
 R4: 63.5
 R5: 69.0
 R6: 88.9
 R7: 68.5
 R8: 32.0
 R9: -36.0
 R10: 78.2
 R11: 61.0
 R12: 74.2
 R13: 72.8
 R14: 92.2
 R15: 58.0



Test Conditions

Stabilization Time: 29M
 Operation Time: 1H 29M
 Sphere Temperature (°C): 24.1

REPORT NUMBER: SP1-2407-157-2

| 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



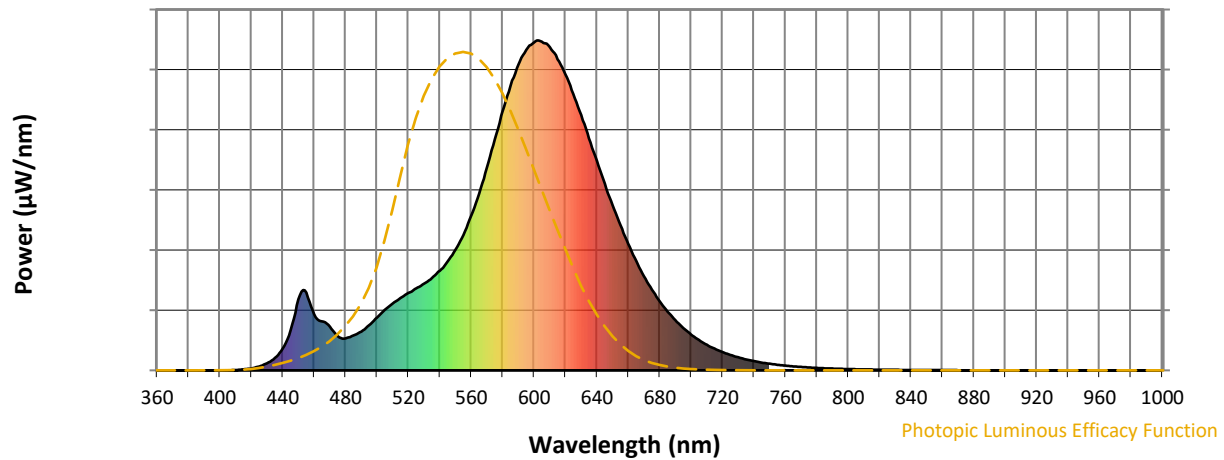
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 2200K 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 | 117 | NR | 620 | 896 | NR | 750 | 20 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 137 | NR | 625 | 838 | NR | 755 | 17 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 160 | NR | 630 | 774 | NR | 760 | 14 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 183 | NR | 635 | 704 | NR | 765 | 12 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 202 | NR | 640 | 635 | NR | 770 | 10 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 219 | NR | 645 | 565 | NR | 775 | 9 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 235 | NR | 650 | 501 | NR | 780 | 7 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 249 | NR | 655 | 440 | NR | 785 | 6 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 263 | NR | 660 | 383 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 0 | NR | 535 | 281 | NR | 665 | 332 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 1 | NR | 540 | 302 | NR | 670 | 286 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 3 | NR | 545 | 331 | NR | 675 | 245 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 6 | NR | 550 | 366 | NR | 680 | 210 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 12 | NR | 555 | 411 | NR | 685 | 178 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 21 | NR | 560 | 469 | NR | 690 | 152 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 38 | NR | 565 | 536 | NR | 695 | 129 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 66 | NR | 570 | 614 | NR | 700 | 109 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 122 | NR | 575 | 701 | NR | 705 | 92 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 215 | NR | 580 | 785 | NR | 710 | 77 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 236 | NR | 585 | 863 | NR | 715 | 66 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 170 | NR | 590 | 928 | NR | 720 | 55 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 148 | NR | 595 | 971 | NR | 725 | 47 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 132 | NR | 600 | 994 | NR | 730 | 40 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 104 | NR | 605 | 996 | NR | 735 | 33 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 97 | NR | 610 | 979 | NR | 740 | 28 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 105 | NR | 615 | 943 | NR | 745 | 24 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2407-157-2

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 0.96

| 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 | 117 | NR | 620 | 896 | NR | 750 | 20 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 137 | NR | 625 | 838 | NR | 755 | 17 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 160 | NR | 630 | 774 | NR | 760 | 14 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 183 | NR | 635 | 704 | NR | 765 | 12 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 202 | NR | 640 | 635 | NR | 770 | 10 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 219 | NR | 645 | 565 | NR | 775 | 9 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 235 | NR | 650 | 501 | NR | 780 | 7 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 249 | NR | 655 | 440 | NR | 785 | 6 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 263 | NR | 660 | 383 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 0 | NR | 535 | 281 | NR | 665 | 332 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 1 | NR | 540 | 302 | NR | 670 | 286 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 3 | NR | 545 | 331 | NR | 675 | 245 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 6 | NR | 550 | 366 | NR | 680 | 210 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 12 | NR | 555 | 411 | NR | 685 | 178 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 21 | NR | 560 | 469 | NR | 690 | 152 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 38 | NR | 565 | 536 | NR | 695 | 129 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 66 | NR | 570 | 614 | NR | 700 | 109 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 122 | NR | 575 | 701 | NR | 705 | 92 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 215 | NR | 580 | 785 | NR | 710 | 77 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 236 | NR | 585 | 863 | NR | 715 | 66 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 170 | NR | 590 | 928 | NR | 720 | 55 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 148 | NR | 595 | 971 | NR | 725 | 47 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 132 | NR | 600 | 994 | NR | 730 | 40 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 104 | NR | 605 | 996 | NR | 735 | 33 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 97 | NR | 610 | 979 | NR | 740 | 28 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 105 | NR | 615 | 943 | NR | 745 | 24 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2407-157-2

Melanopic Flux vs. Wavelength



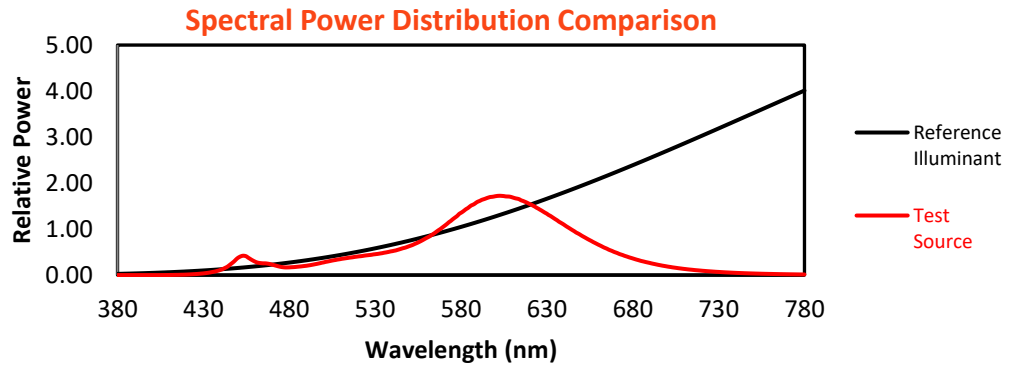
Melanopic Lumens: NR

M/P: 1.71

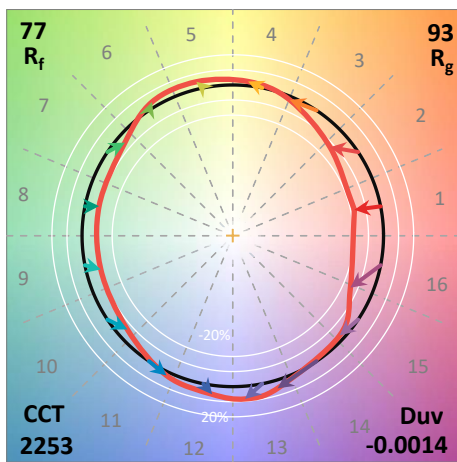
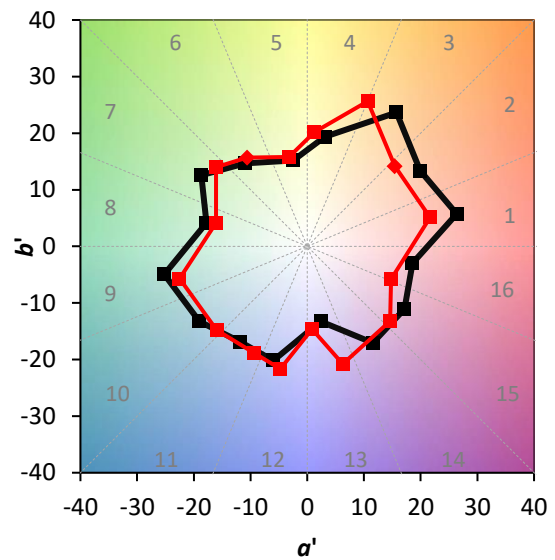
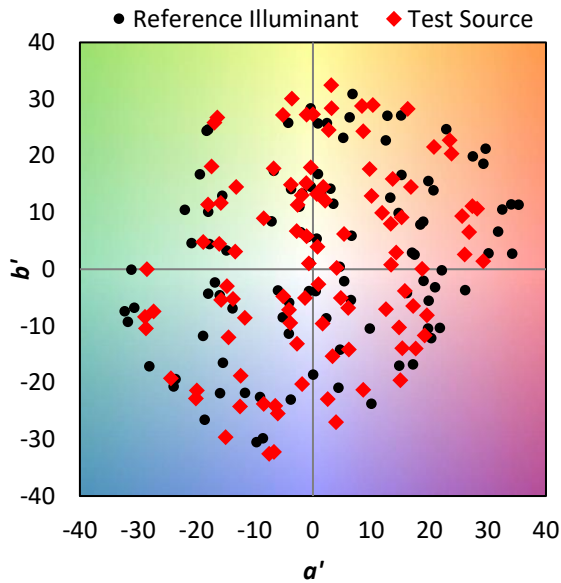
| λ (nm) | Power W ² /nm | Lumens (φ/nm) | λ (nm) | Power W ² /nm | Lumens (φ/nm) | λ (nm) | Power W ² /nm | Lumens (φ/nm) | λ (nm) | Power W ² /nm | Lumens (φ/nm) | λ (nm) | Power W ² /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360 | 0 | NR | 490 | 117 | NR | 620 | 896 | NR | 750 | 20 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 137 | NR | 625 | 838 | NR | 755 | 17 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 160 | NR | 630 | 774 | NR | 760 | 14 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 183 | NR | 635 | 704 | NR | 765 | 12 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 202 | NR | 640 | 635 | NR | 770 | 10 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 219 | NR | 645 | 565 | NR | 775 | 9 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 235 | NR | 650 | 501 | NR | 780 | 7 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 249 | NR | 655 | 440 | NR | 785 | 6 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 263 | NR | 660 | 383 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 0 | NR | 535 | 281 | NR | 665 | 332 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 1 | NR | 540 | 302 | NR | 670 | 286 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 3 | NR | 545 | 331 | NR | 675 | 245 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 6 | NR | 550 | 366 | NR | 680 | 210 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 12 | NR | 555 | 411 | NR | 685 | 178 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 21 | NR | 560 | 469 | NR | 690 | 152 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 38 | NR | 565 | 536 | NR | 695 | 129 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 66 | NR | 570 | 614 | NR | 700 | 109 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 122 | NR | 575 | 701 | NR | 705 | 92 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 215 | NR | 580 | 785 | NR | 710 | 77 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 236 | NR | 585 | 863 | NR | 715 | 66 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 170 | NR | 590 | 928 | NR | 720 | 55 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 148 | NR | 595 | 971 | NR | 725 | 47 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 132 | NR | 600 | 994 | NR | 730 | 40 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 104 | NR | 605 | 996 | NR | 735 | 33 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 97 | NR | 610 | 979 | NR | 740 | 28 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 105 | NR | 615 | 943 | NR | 745 | 24 | NR | 875 | 0 | NR | | | |

Summary

$R_f = 76.9$
 $R_g = 92.7$
 CIE $R_a = 70.6$
 $R_9 = -36.0$



Color Vector Graphics

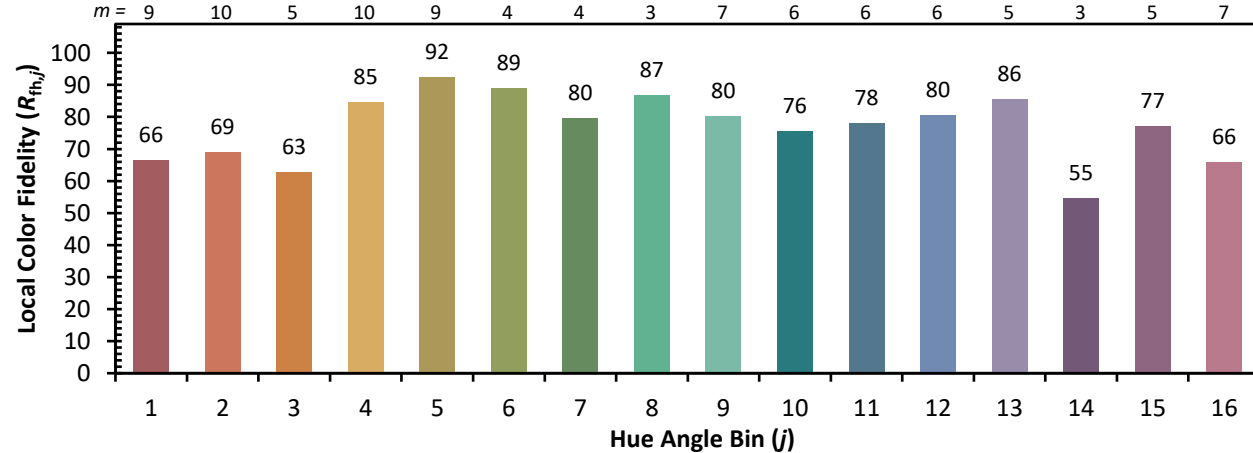


Individual Sample Fidelity Index ($R_{f,i}$)

| | | | |
|------------|------------|------------|------------|
| CES01 = 87 | CES26 = 76 | CES51 = 88 | CES76 = 78 |
| CES02 = 65 | CES27 = 94 | CES52 = 85 | CES77 = 75 |
| CES03 = 32 | CES28 = 93 | CES53 = 80 | CES78 = 79 |
| CES04 = 72 | CES29 = 81 | CES54 = 86 | CES79 = 82 |
| CES05 = 51 | CES30 = 91 | CES55 = 83 | CES80 = 81 |
| CES06 = 52 | CES31 = 83 | CES56 = 77 | CES81 = 51 |
| CES07 = 44 | CES32 = 75 | CES57 = 75 | CES82 = 92 |
| CES08 = 42 | CES33 = 88 | CES58 = 76 | CES83 = 88 |
| CES09 = 29 | CES34 = 88 | CES59 = 84 | CES84 = 90 |
| CES10 = 79 | CES35 = 94 | CES60 = 91 | CES85 = 65 |
| CES11 = 62 | CES36 = 90 | CES61 = 82 | CES86 = 48 |
| CES12 = 68 | CES37 = 97 | CES62 = 91 | CES87 = 76 |
| CES13 = 45 | CES38 = 98 | CES63 = 86 | CES88 = 78 |
| CES14 = 75 | CES39 = 97 | CES64 = 70 | CES89 = 61 |
| CES15 = 72 | CES40 = 94 | CES65 = 71 | CES90 = 80 |
| CES16 = 48 | CES41 = 95 | CES66 = 71 | CES91 = 80 |
| CES17 = 51 | CES42 = 89 | CES67 = 70 | CES92 = 51 |
| CES18 = 57 | CES43 = 80 | CES68 = 74 | CES93 = 68 |
| CES19 = 74 | CES44 = 99 | CES69 = 84 | CES94 = 44 |
| CES20 = 68 | CES45 = 83 | CES70 = 72 | CES95 = 66 |
| CES21 = 88 | CES46 = 81 | CES71 = 75 | CES96 = 75 |
| CES22 = 81 | CES47 = 88 | CES72 = 89 | CES97 = 76 |
| CES23 = 92 | CES48 = 73 | CES73 = 68 | CES98 = 72 |
| CES24 = 92 | CES49 = 82 | CES74 = 85 | CES99 = 63 |
| CES25 = 73 | CES50 = 87 | CES75 = 80 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)