

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: P870423

Luminaire Tested: **MEM2-HSN-SA-110-840-U-T3-HSS**

Issue Date: 09/05/2024



Test Information

Test Method: LM-79-08
Report Number: P870423
Test Lab: INNOVATION CENTER(G3)
Issue Date: 09/05/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: STREETWORKS
Catalog Number: MEM2-HSN-SA-110-840-U-T3-HSS
Description: EPIC MODERN SHORT HOUSING DISCRETE LED ARRAYS 110W 80CRI 4000K
FITURE w/ TYPE III DISTRIBUTION OPTIC AND HOUSE SIDE SHIELD
Light Source: (30) 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

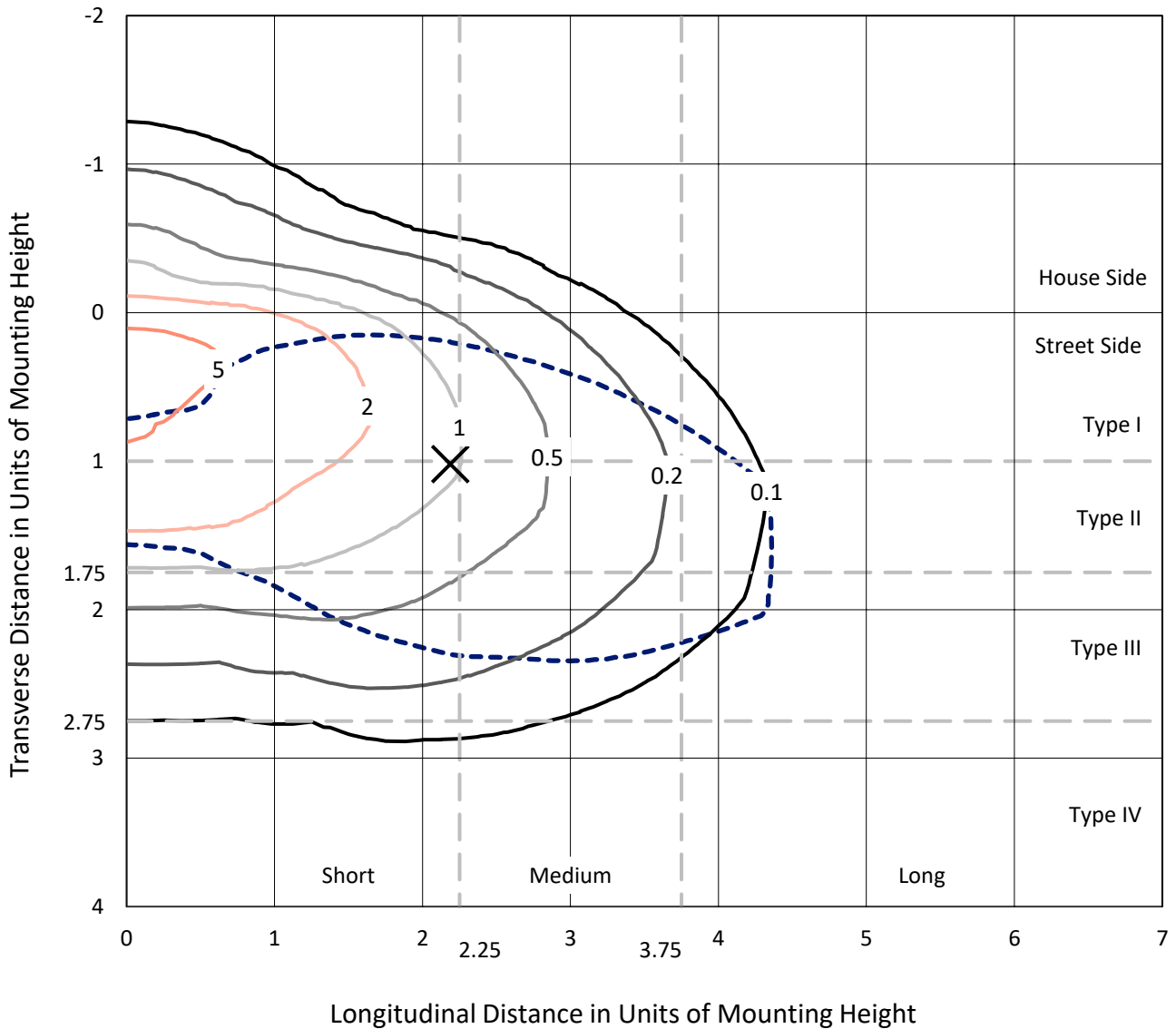
Lumens per Lamp: N/A
Luminaire Lumens: 11195.2 lumens
Efficiency: N/A
Efficacy: 99.1 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 0.33' x H: 0')
IES Classification: Type III - Short
BUG Rating: B1 - U0 - G2

Input Watts (W): 113
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.99
Total Harmonic Distortion (THDi): 7.77%
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

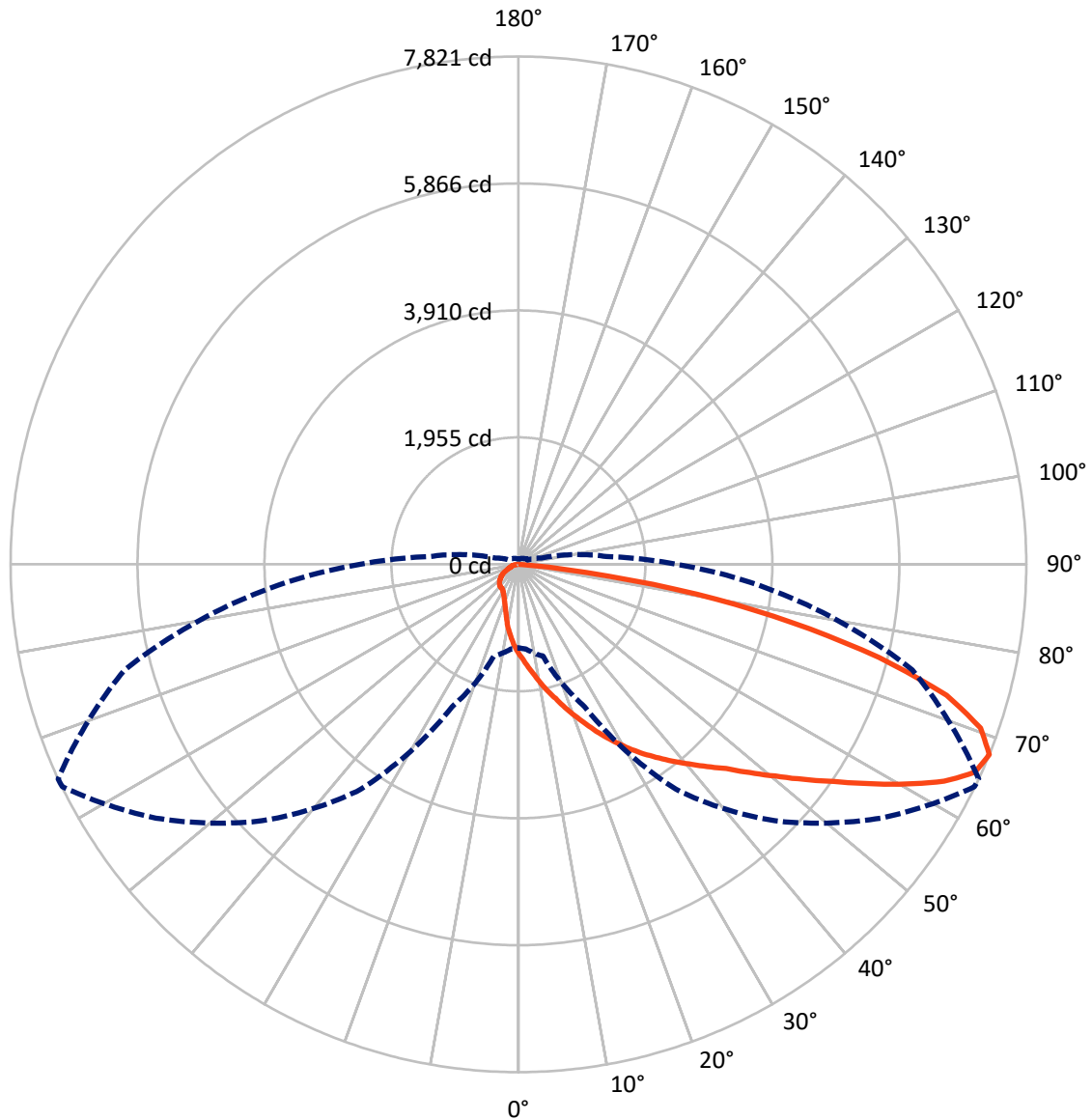
✕ Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 6.4 fc
 Type III - Short - N/A

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CATALOG NUMBER: MEM2-HSN-SA-110-840-U-T3-HSS

Luminous Intensity Polar Plot



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

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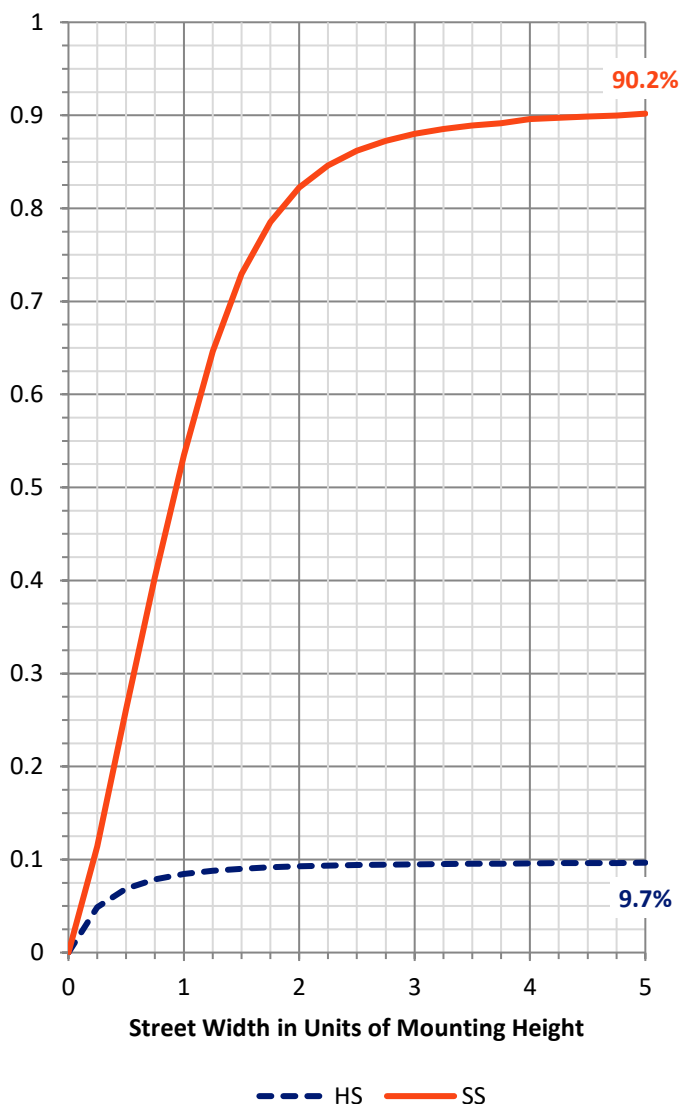
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 1089.6 | 0.0 | 1089.6 |
| | % Fixture | 9.7 | 0.0 | 9.7 |
| Street Side | Lumens | 10105.5 | 0.0 | 10105.5 |
| | % Fixture | 90.3 | 0.0 | 90.3 |
| Total | Lumens | 11195.2 | 0.0 | 11195.2 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 135.4 | 1.2 |
| 10°-20° | 449.2 | 4.0 |
| 20°-30° | 817.6 | 7.3 |
| 30°-40° | 1265.3 | 11.3 |
| 40°-50° | 1912.7 | 17.1 |
| 50°-60° | 2488.3 | 22.2 |
| 60°-70° | 2454.7 | 21.9 |
| 70°-80° | 1494.2 | 13.3 |
| 80°-90° | 177.6 | 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° | 11195.2 | 100.0 |
| 0°-180° | 11195.2 | 100.0 |

Coefficient of Utilization



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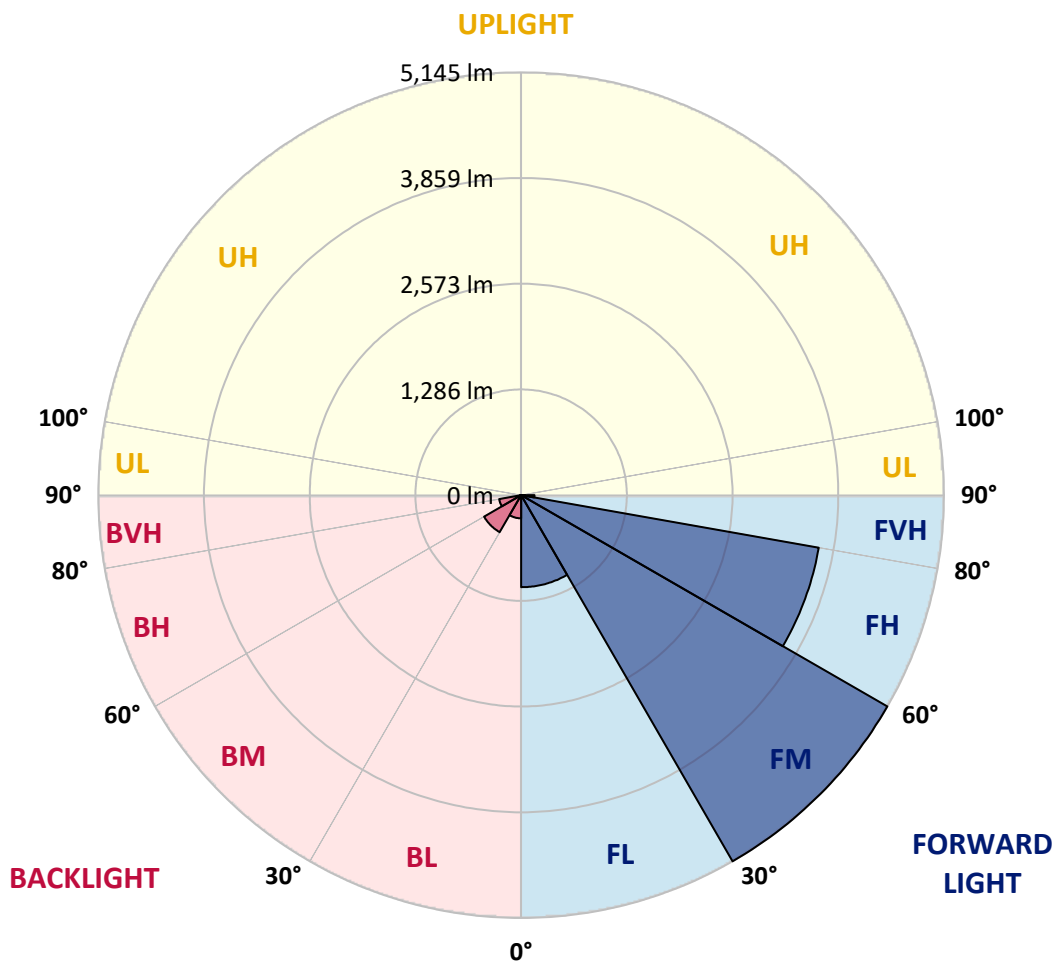
CATALOG NUMBER: MEM2-HSN-SA-110-840-U-T3-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|------|-------------|--------|-----------|-------------------------|------|---------|
| | | | | B | U | G |
| FL | (0°-30°) | 1120.2 | 10.0 | | | |
| FM | (30°-60°) | 5145.3 | 46.0 | | | |
| FH | (60°-80°) | 3677.7 | 32.9 | | | G2/5000 |
| FVH | (80°-90°) | 162.4 | 1.5 | | | G2/225 |
| BL | (0°-30°) | 282.0 | 2.5 | B1/500 | | |
| BM | (30°-60°) | 521.1 | 4.7 | B1/1000 | | |
| BH | (60°-80°) | 271.3 | 2.4 | B1/500 | | G1/500 |
| BVH | (80°-90°) | 15.2 | 0.1 | | | G1/100 |
| 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° | 1383.4 | 1383.4 | 1383.4 | 1383.4 | 1383.4 | 1383.4 | 1383.4 | 1383.4 | 1383.4 | 1383.4 | 1383.4 |
| 2.5° | 1616.6 | 1603.8 | 1613.4 | 1591.0 | 1565.5 | 1546.3 | 1508.0 | 1476.0 | 1472.8 | 1440.9 | 1405.7 |
| 5° | 1926.5 | 1884.9 | 1888.1 | 1843.4 | 1789.1 | 1731.6 | 1670.9 | 1591.0 | 1591.0 | 1514.3 | 1434.5 |
| 7.5° | 2204.4 | 2198.0 | 2169.3 | 2099.0 | 2035.1 | 1945.6 | 1833.8 | 1731.6 | 1709.2 | 1591.0 | 1466.4 |
| 10° | 2472.8 | 2463.2 | 2437.6 | 2383.3 | 2274.7 | 2175.7 | 2035.1 | 1881.7 | 1853.0 | 1683.7 | 1504.8 |
| 12.5° | 2686.8 | 2690.0 | 2661.3 | 2616.6 | 2520.7 | 2402.5 | 2217.2 | 2025.5 | 2000.0 | 1773.1 | 1543.1 |
| 15° | 2875.3 | 2872.1 | 2865.8 | 2827.4 | 2734.8 | 2626.1 | 2408.9 | 2185.3 | 2143.7 | 1869.0 | 1581.4 |
| 17.5° | 3019.1 | 3012.7 | 2999.9 | 2968.0 | 2923.3 | 2817.8 | 2610.2 | 2354.6 | 2319.4 | 1980.8 | 1626.2 |
| 20° | 3060.6 | 3057.4 | 3057.4 | 3079.8 | 3060.6 | 2996.7 | 2811.4 | 2530.3 | 2492.0 | 2099.0 | 1686.9 |
| 22.5° | 3137.3 | 3134.1 | 3130.9 | 3153.3 | 3166.1 | 3159.7 | 2999.9 | 2709.2 | 2674.1 | 2236.4 | 1763.5 |
| 25° | 3236.4 | 3230.0 | 3220.4 | 3242.7 | 3258.7 | 3297.1 | 3188.4 | 2920.1 | 2878.5 | 2396.1 | 1840.2 |
| 27.5° | 3367.3 | 3373.7 | 3361.0 | 3357.8 | 3357.8 | 3380.1 | 3354.6 | 3108.6 | 3070.2 | 2549.5 | 1929.7 |
| 30° | 3539.9 | 3549.4 | 3527.1 | 3511.1 | 3482.4 | 3479.2 | 3485.5 | 3319.4 | 3265.1 | 2715.6 | 2022.3 |
| 32.5° | 3709.2 | 3718.8 | 3706.0 | 3683.6 | 3610.1 | 3581.4 | 3607.0 | 3498.3 | 3463.2 | 2897.7 | 2140.5 |
| 35° | 3846.6 | 3868.9 | 3868.9 | 3824.2 | 3722.0 | 3706.0 | 3747.5 | 3674.0 | 3648.5 | 3111.8 | 2281.1 |
| 37.5° | 4031.9 | 4044.6 | 4031.9 | 3948.8 | 3821.0 | 3840.2 | 3904.1 | 3859.3 | 3843.4 | 3341.8 | 2447.2 |
| 40° | 4428.0 | 4444.0 | 4360.9 | 4162.9 | 3958.4 | 3980.7 | 4092.6 | 4067.0 | 4041.4 | 3568.6 | 2600.6 |
| 42.5° | 4980.7 | 4942.4 | 4926.4 | 4485.5 | 4169.2 | 4156.5 | 4297.0 | 4261.9 | 4258.7 | 3798.6 | 2741.2 |
| 45° | 5344.9 | 5357.7 | 5277.8 | 4859.3 | 4613.3 | 4373.7 | 4523.9 | 4511.1 | 4485.5 | 4031.9 | 2910.5 |
| 47.5° | 5597.3 | 5568.6 | 5370.5 | 5169.2 | 5217.1 | 4658.0 | 4776.3 | 4808.2 | 4792.2 | 4297.0 | 3118.1 |
| 50° | 5702.8 | 5674.0 | 5543.0 | 5408.8 | 5466.3 | 4983.9 | 5035.0 | 5140.5 | 5124.5 | 4565.4 | 3293.9 |
| 52.5° | 5571.8 | 5536.6 | 5546.2 | 5581.4 | 5552.6 | 5239.5 | 5354.5 | 5520.6 | 5501.5 | 4878.5 | 3498.3 |
| 55° | 4737.9 | 4830.6 | 5188.4 | 5546.2 | 5536.6 | 5434.4 | 5696.4 | 5939.2 | 5900.8 | 5204.4 | 3674.0 |
| 57.5° | 3821.0 | 3872.1 | 4325.8 | 5293.8 | 5485.5 | 5597.3 | 6086.1 | 6386.4 | 6373.7 | 5530.2 | 3833.8 |
| 60° | 3038.3 | 3092.6 | 3437.6 | 4769.9 | 5367.3 | 5766.7 | 6485.5 | 6881.6 | 6868.9 | 5859.3 | 3948.8 |
| 62.5° | 2415.3 | 2415.3 | 2722.0 | 4015.9 | 5140.5 | 5865.7 | 6801.8 | 7380.0 | 7357.7 | 6124.5 | 3977.6 |
| 65° | 1738.0 | 1760.3 | 1990.4 | 3230.0 | 4773.1 | 5840.1 | 6955.1 | 7734.7 | 7721.9 | 6274.6 | 3916.8 |
| 67.5° | 1284.3 | 1309.9 | 1463.2 | 2421.7 | 4229.9 | 5584.5 | 6814.6 | 7814.5 | 7820.9 | 6277.8 | 3718.8 |
| 70° | 1003.2 | 1009.6 | 1124.6 | 1683.7 | 3466.4 | 5015.9 | 6287.4 | 7549.4 | 7549.4 | 6121.3 | 3424.8 |
| 72.5° | 763.6 | 770.0 | 869.0 | 1146.9 | 2552.7 | 4146.9 | 5498.3 | 6846.5 | 6894.4 | 5705.9 | 2990.4 |
| 75° | 591.0 | 603.8 | 670.9 | 824.3 | 1600.6 | 2948.8 | 4517.5 | 5606.9 | 5737.9 | 4900.9 | 2463.2 |
| 77.5° | 456.9 | 469.6 | 524.0 | 603.8 | 932.9 | 1817.9 | 3175.7 | 4191.6 | 4309.8 | 3859.3 | 1900.9 |
| 80° | 367.4 | 373.8 | 408.9 | 453.7 | 565.5 | 936.1 | 1939.3 | 2753.9 | 2789.1 | 2622.9 | 1258.8 |
| 82.5° | 169.3 | 182.1 | 220.4 | 249.2 | 281.1 | 434.5 | 827.5 | 1019.1 | 1063.9 | 1041.5 | 517.6 |
| 85° | 19.2 | 19.2 | 22.4 | 25.6 | 28.8 | 44.7 | 57.5 | 51.1 | 51.1 | 60.7 | 54.3 |
| 87.5° | 0.0 | 0.0 | 0.0 | 3.2 | 6.4 | 6.4 | 9.6 | 9.6 | 9.6 | 9.6 | 9.6 |
| 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: P870423

CATALOG NUMBER: MEM2-HSN-SA-110-840-U-T3-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1383.4 | 1383.4 | 1383.4 | 1383.4 | 1383.4 | 1383.4 | 1383.4 | 1383.4 | 1383.4 | 1383.4 | 1383.4 |
| 2.5° | 1386.6 | 1364.2 | 1322.7 | 1287.5 | 1255.6 | 1223.6 | 1207.6 | 1169.3 | 1159.7 | 1166.1 | 1143.7 |
| 5° | 1392.9 | 1348.2 | 1262.0 | 1182.1 | 1115.0 | 1051.1 | 996.8 | 939.3 | 926.5 | 907.3 | 897.7 |
| 7.5° | 1402.5 | 1335.4 | 1201.3 | 1076.7 | 974.4 | 881.8 | 814.7 | 770.0 | 734.8 | 725.2 | 722.0 |
| 10° | 1415.3 | 1319.5 | 1134.2 | 977.6 | 837.0 | 741.2 | 680.5 | 648.5 | 635.8 | 626.2 | 629.4 |
| 12.5° | 1424.9 | 1303.5 | 1070.3 | 865.8 | 728.4 | 642.2 | 613.4 | 587.8 | 581.5 | 578.3 | 578.3 |
| 15° | 1437.7 | 1287.5 | 993.6 | 766.8 | 635.8 | 584.7 | 555.9 | 546.3 | 546.3 | 543.1 | 543.1 |
| 17.5° | 1453.6 | 1274.7 | 929.7 | 690.1 | 581.5 | 533.5 | 520.8 | 508.0 | 508.0 | 508.0 | 504.8 |
| 20° | 1485.6 | 1268.3 | 872.2 | 626.2 | 533.5 | 501.6 | 482.4 | 472.8 | 469.6 | 466.4 | 466.4 |
| 22.5° | 1517.5 | 1268.3 | 808.3 | 578.3 | 501.6 | 466.4 | 447.3 | 437.7 | 434.5 | 434.5 | 434.5 |
| 25° | 1562.3 | 1265.1 | 757.2 | 536.7 | 472.8 | 431.3 | 412.1 | 402.5 | 396.2 | 396.2 | 393.0 |
| 27.5° | 1613.4 | 1265.1 | 712.4 | 504.8 | 440.9 | 399.4 | 377.0 | 367.4 | 357.8 | 357.8 | 354.6 |
| 30° | 1664.5 | 1271.5 | 674.1 | 479.2 | 408.9 | 370.6 | 341.8 | 329.1 | 322.7 | 319.5 | 319.5 |
| 32.5° | 1731.6 | 1290.7 | 648.5 | 460.1 | 380.2 | 341.8 | 313.1 | 300.3 | 293.9 | 290.7 | 290.7 |
| 35° | 1833.8 | 1338.6 | 651.7 | 450.5 | 361.0 | 316.3 | 287.5 | 271.6 | 268.4 | 268.4 | 265.2 |
| 37.5° | 1942.5 | 1383.4 | 661.3 | 444.1 | 341.8 | 297.1 | 268.4 | 252.4 | 249.2 | 249.2 | 249.2 |
| 40° | 2035.1 | 1421.7 | 674.1 | 440.9 | 325.9 | 277.9 | 252.4 | 239.6 | 233.2 | 233.2 | 233.2 |
| 42.5° | 2127.8 | 1444.1 | 677.3 | 431.3 | 316.3 | 262.0 | 239.6 | 226.8 | 220.4 | 223.6 | 223.6 |
| 45° | 2220.4 | 1460.0 | 667.7 | 418.5 | 306.7 | 249.2 | 226.8 | 214.1 | 207.7 | 207.7 | 207.7 |
| 47.5° | 2332.2 | 1495.2 | 651.7 | 399.4 | 300.3 | 239.6 | 214.1 | 201.3 | 198.1 | 198.1 | 198.1 |
| 50° | 2444.0 | 1523.9 | 639.0 | 377.0 | 284.3 | 226.8 | 204.5 | 188.5 | 185.3 | 185.3 | 185.3 |
| 52.5° | 2536.7 | 1536.7 | 623.0 | 348.2 | 268.4 | 214.1 | 191.7 | 175.7 | 169.3 | 169.3 | 169.3 |
| 55° | 2607.0 | 1539.9 | 600.6 | 325.9 | 246.0 | 201.3 | 178.9 | 162.9 | 156.5 | 153.4 | 153.4 |
| 57.5° | 2664.5 | 1536.7 | 578.3 | 303.5 | 226.8 | 185.3 | 162.9 | 150.2 | 140.6 | 137.4 | 137.4 |
| 60° | 2696.4 | 1527.1 | 546.3 | 274.8 | 201.3 | 169.3 | 150.2 | 134.2 | 127.8 | 124.6 | 124.6 |
| 62.5° | 2677.3 | 1501.6 | 501.6 | 230.0 | 182.1 | 153.4 | 137.4 | 124.6 | 115.0 | 111.8 | 111.8 |
| 65° | 2587.8 | 1450.4 | 444.1 | 188.5 | 162.9 | 137.4 | 124.6 | 111.8 | 99.0 | 95.8 | 95.8 |
| 67.5° | 2431.3 | 1364.2 | 367.4 | 159.7 | 150.2 | 124.6 | 111.8 | 99.0 | 89.5 | 83.1 | 83.1 |
| 70° | 2214.0 | 1249.2 | 287.5 | 137.4 | 134.2 | 115.0 | 102.2 | 89.5 | 79.9 | 73.5 | 73.5 |
| 72.5° | 1904.1 | 1060.7 | 214.1 | 118.2 | 118.2 | 105.4 | 92.6 | 83.1 | 73.5 | 67.1 | 67.1 |
| 75° | 1539.9 | 801.9 | 162.9 | 108.6 | 105.4 | 95.8 | 83.1 | 73.5 | 67.1 | 60.7 | 60.7 |
| 77.5° | 1124.6 | 533.5 | 134.2 | 99.0 | 99.0 | 86.3 | 76.7 | 67.1 | 60.7 | 57.5 | 57.5 |
| 80° | 683.7 | 306.7 | 95.8 | 76.7 | 76.7 | 73.5 | 63.9 | 57.5 | 54.3 | 47.9 | 44.7 |
| 82.5° | 277.9 | 118.2 | 51.1 | 38.3 | 38.3 | 35.1 | 22.4 | 19.2 | 19.2 | 19.2 | 16.0 |
| 85° | 28.8 | 19.2 | 12.8 | 9.6 | 9.6 | 9.6 | 6.4 | 6.4 | 6.4 | 6.4 | 6.4 |
| 87.5° | 9.6 | 9.6 | 6.4 | 6.4 | 6.4 | 6.4 | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 |
| 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

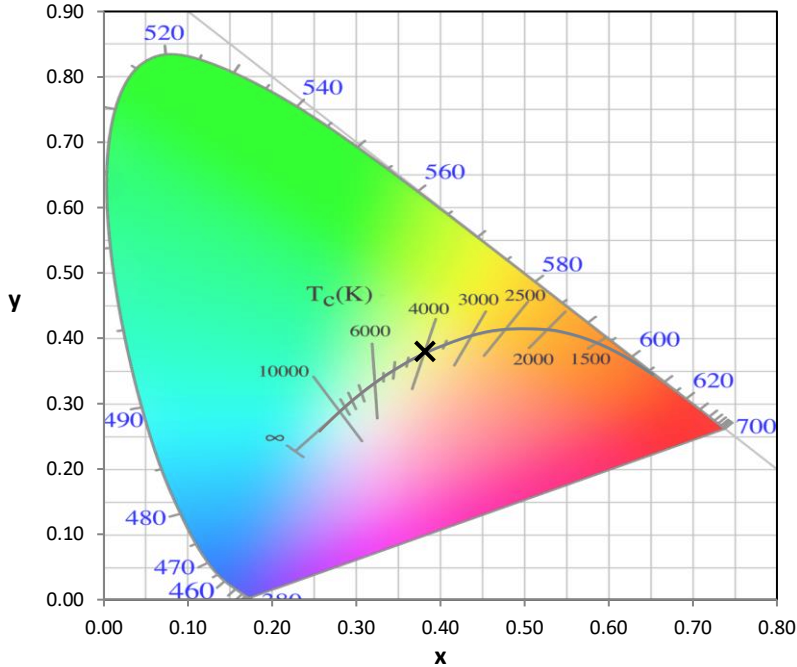
Stabilization Time: 29M
 Operation Time: 1H 29M
 Sphere Temperature (°C): 24.3

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 |

REPORT NUMBER: SP1-2407-157-8

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

REPORT NUMBER: SP1-2407-157-8

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

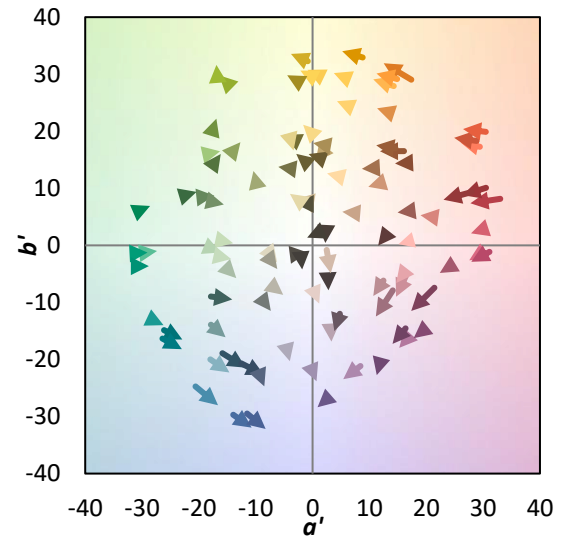
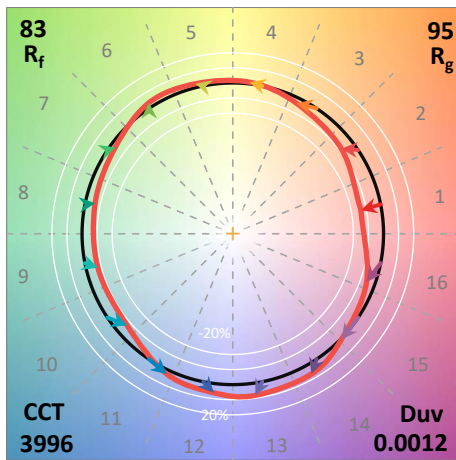
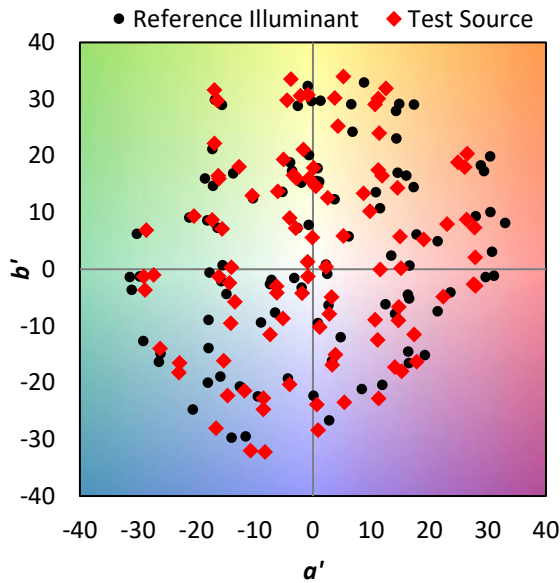
| λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 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)