

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: P868008

Luminaire Tested: **MEM2-HSN-SA-130-730-U-T2U-HSS**

Issue Date: 08/21/2024



Test Information

Test Method: LM-79-08
Report Number: P868008
Test Lab: INNOVATION CENTER(G3)
Issue Date: 08/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: STREETWORKS
Catalog Number: MEM2-HSN-SA-130-730-U-T2U-HSS
Description: EPIC MODERN SHORT HOUSING DISCRETE LED ARRAYS 130W 70CRI 3000K
FITURE w/ TYPE II URBAN DISTRIBUTION OPTIC AND HOUSE SIDE SHIELD
Light Source: (30) 3000K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

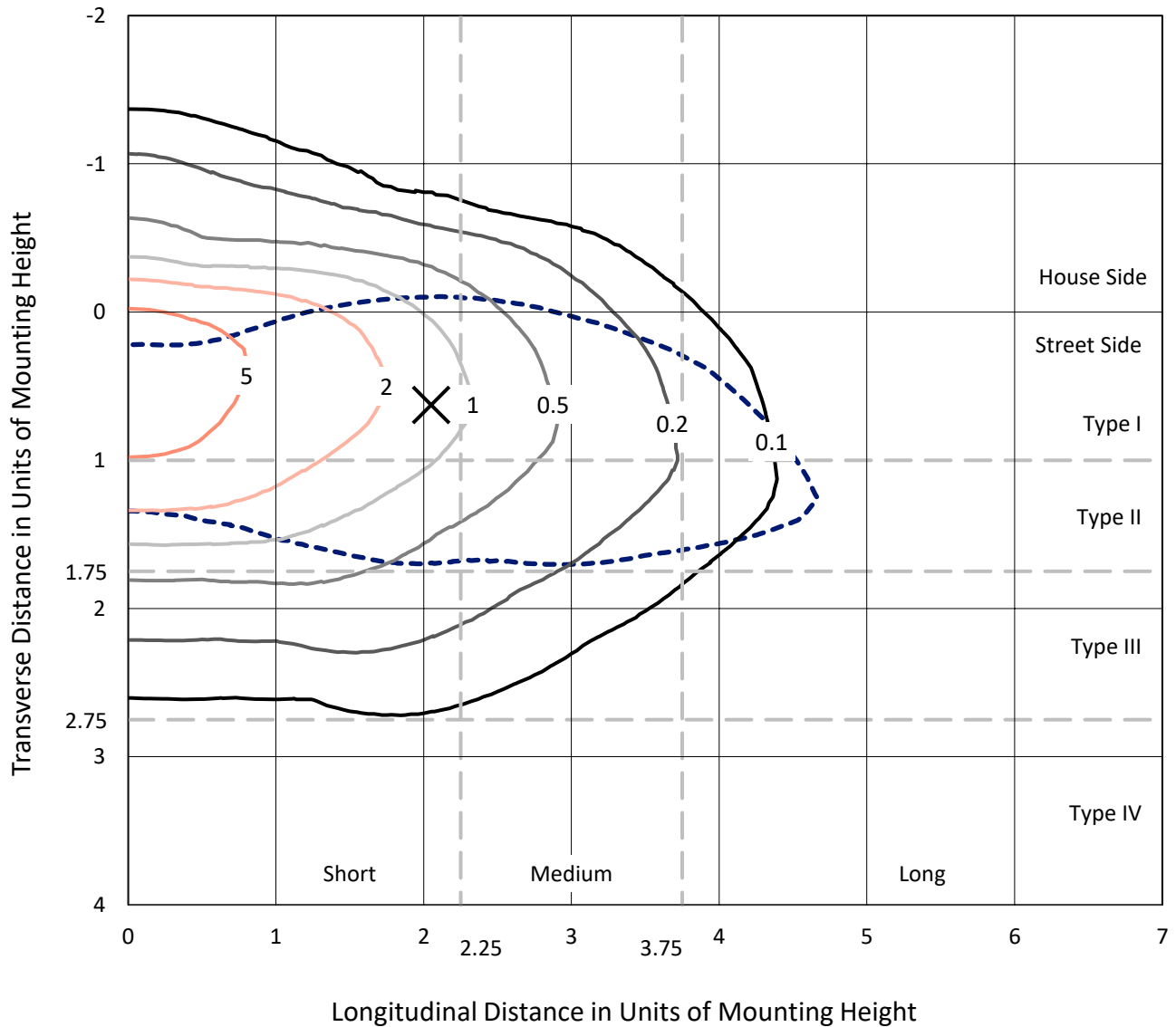
Lumens per Lamp: N/A
Luminaire Lumens: 12191.8 lumens
Efficiency: N/A
Efficacy: 91.0 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 0.33' x H: 0')
IES Classification: Type II - Short
BUG Rating: B2 - U0 - G2

Input Watts (W): 134
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.99
Total Harmonic Distortion (THDi): 6.70%
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

REPORT NUMBER: P868008
 CATALOG NUMBER: MEM2-HSN-SA-130-730-U-T2U-HSS

Iso-Footcandle Lines of Horizontal Illumination

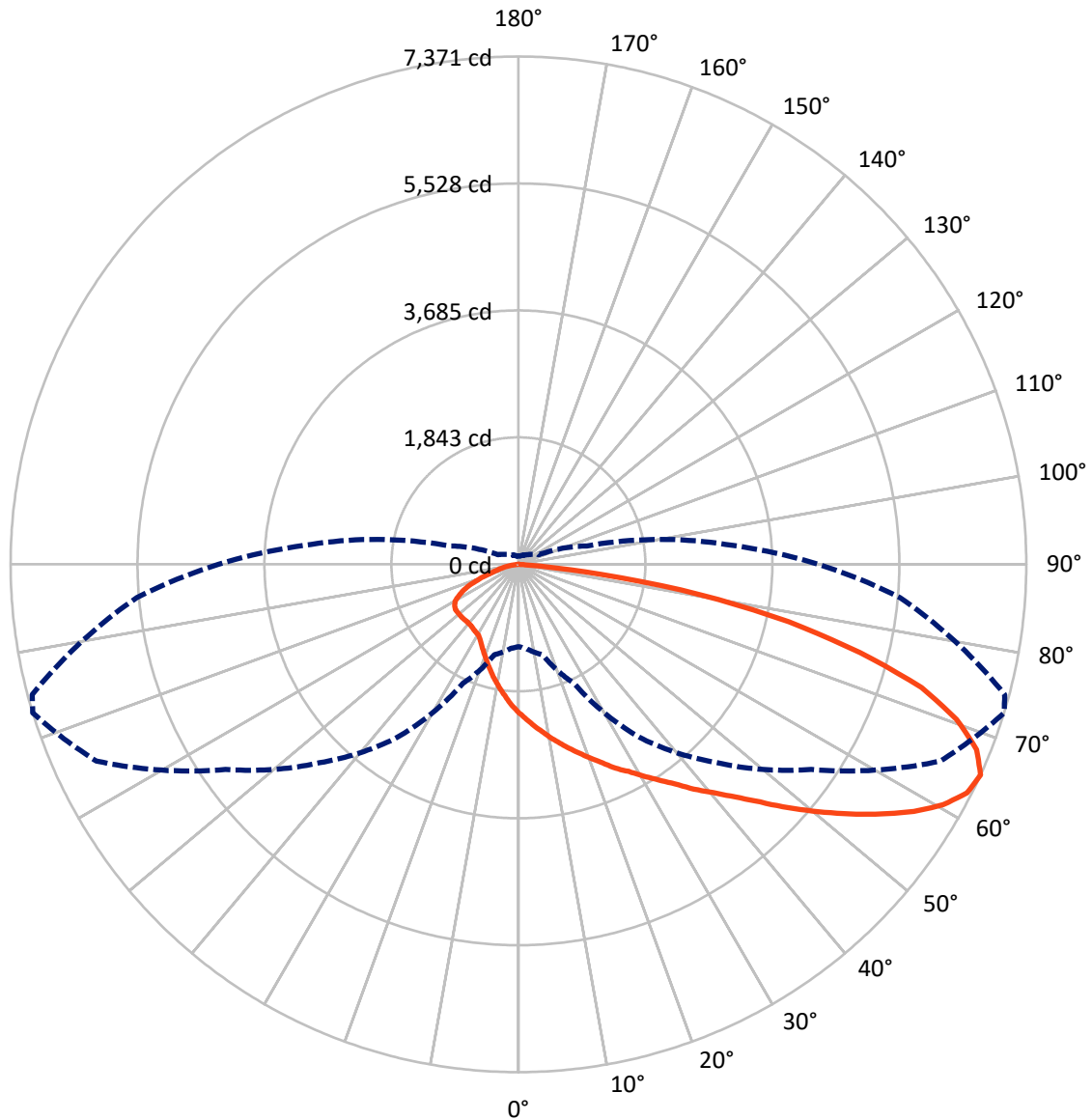
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 8.7 fc
 Type II - Short - N/A

REPORT NUMBER: P868008
CATALOG NUMBER: MEM2-HSN-SA-130-730-U-T2U-HSS

Luminous Intensity Polar Plot



— Vertical Plane Through 73-Deg Lateral - - - Horizontal Cone Through 65-Deg Vertical

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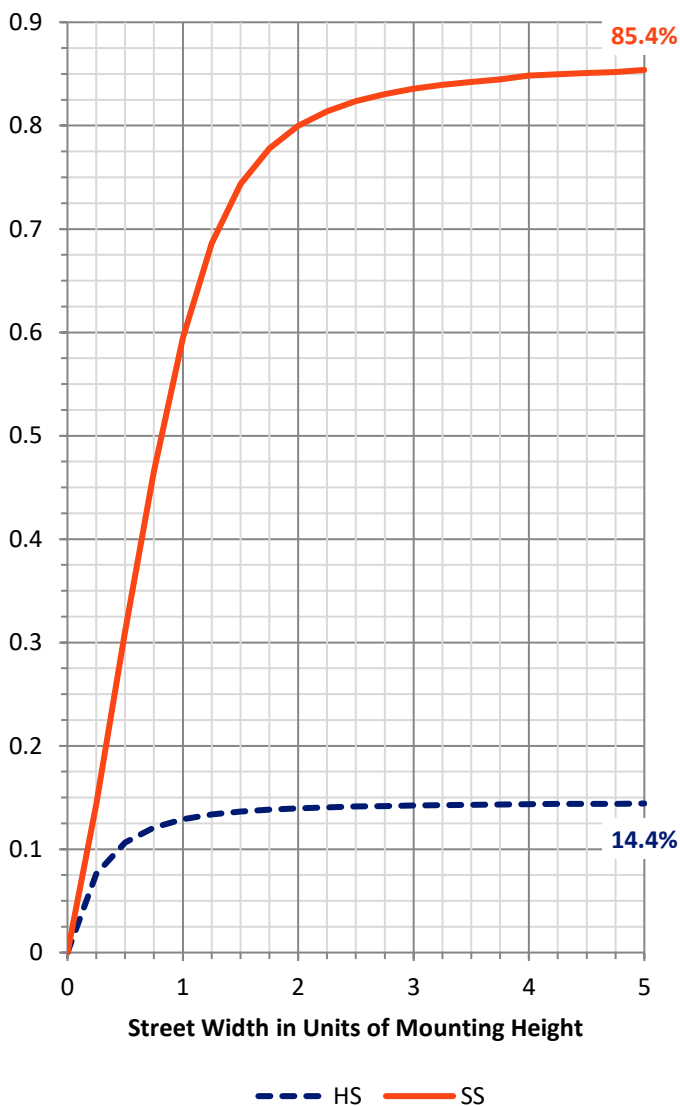
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 1772.9 | 0.0 | 1772.9 |
| | % Fixture | 14.5 | 0.0 | 14.5 |
| Street Side | Lumens | 10418.9 | 0.0 | 10418.9 |
| | % Fixture | 85.5 | 0.0 | 85.5 |
| Total | Lumens | 12191.8 | 0.0 | 12191.8 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 208.8 | 1.7 |
| 10°-20° | 634.5 | 5.2 |
| 20°-30° | 1062.6 | 8.7 |
| 30°-40° | 1602.9 | 13.1 |
| 40°-50° | 2264.9 | 18.6 |
| 50°-60° | 2548.5 | 20.9 |
| 60°-70° | 2285.3 | 18.7 |
| 70°-80° | 1389.9 | 11.4 |
| 80°-90° | 194.5 | 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° | 12191.8 | 100.0 |
| 0°-180° | 12191.8 | 100.0 |

Coefficient of Utilization



REPORT NUMBER: P868008

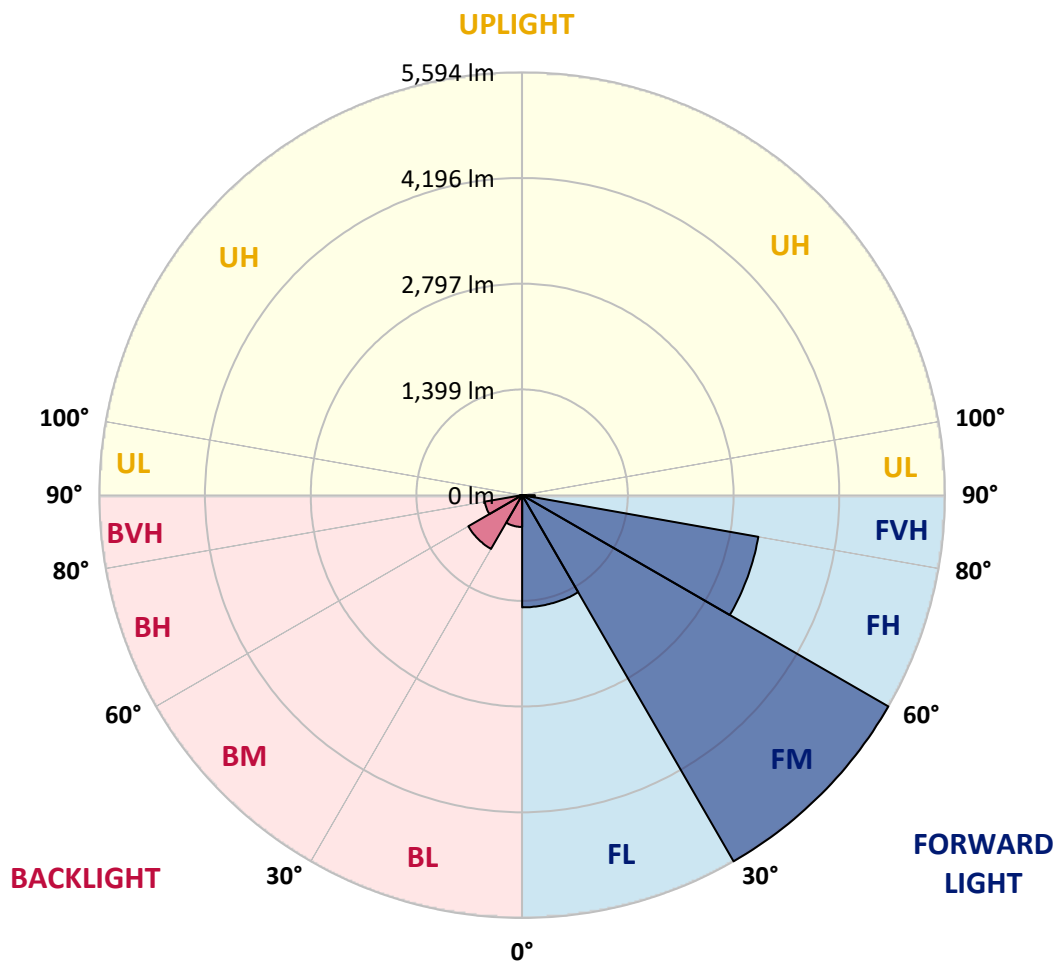
CATALOG NUMBER: MEM2-HSN-SA-130-730-U-T2U-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1484.7 | 12.2 | | | |
| FM (30°-60°) | 5594.1 | 45.9 | | | |
| FH (60°-80°) | 3173.0 | 26.0 | | | G2/5000 |
| FVH (80°-90°) | 167.1 | 1.4 | | | G2/225 |
| BL (0°-30°) | 421.2 | 3.5 | B1/500 | | |
| BM (30°-60°) | 822.1 | 6.7 | B1/1000 | | |
| BH (60°-80°) | 502.2 | 4.1 | B2/1000 | | G2/1000 |
| BVH (80°-90°) | 27.4 | 0.2 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B2-U0-G2

Type II Short





REPORT NUMBER: P868008

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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 73° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2162.8 | 2162.8 | 2162.8 | 2162.8 | 2162.8 | 2162.8 | 2162.8 | 2162.8 | 2162.8 | 2162.8 | 2162.8 |
| 2.5° | 2496.4 | 2482.1 | 2460.6 | 2442.6 | 2410.3 | 2367.3 | 2331.4 | 2284.8 | 2252.5 | 2241.8 | 2195.1 |
| 5° | 2858.7 | 2840.8 | 2815.6 | 2772.6 | 2686.5 | 2636.3 | 2543.1 | 2435.4 | 2349.4 | 2331.4 | 2223.8 |
| 7.5° | 3231.7 | 3224.5 | 3167.2 | 3102.6 | 2998.6 | 2887.4 | 2743.9 | 2575.3 | 2449.8 | 2421.1 | 2256.1 |
| 10° | 3547.4 | 3515.1 | 3482.8 | 3421.8 | 3310.6 | 3152.8 | 2966.3 | 2733.2 | 2557.4 | 2510.8 | 2288.4 |
| 12.5° | 3737.5 | 3726.7 | 3698.0 | 3626.3 | 3518.7 | 3382.4 | 3160.0 | 2887.4 | 2661.4 | 2596.9 | 2320.7 |
| 15° | 3877.3 | 3888.1 | 3859.4 | 3812.8 | 3701.6 | 3572.5 | 3357.3 | 3048.8 | 2772.6 | 2697.3 | 2356.5 |
| 17.5° | 4010.1 | 4002.9 | 3999.3 | 3945.5 | 3845.1 | 3715.9 | 3497.1 | 3181.5 | 2883.8 | 2801.3 | 2392.4 |
| 20° | 4085.4 | 4089.0 | 4081.8 | 4060.3 | 3963.4 | 3837.9 | 3633.4 | 3339.3 | 3005.8 | 2912.5 | 2439.0 |
| 22.5° | 4124.8 | 4139.2 | 4153.5 | 4149.9 | 4071.0 | 3974.2 | 3762.6 | 3464.9 | 3131.3 | 3034.4 | 2496.4 |
| 25° | 4149.9 | 4160.7 | 4193.0 | 4236.0 | 4164.3 | 4085.4 | 3906.0 | 3615.5 | 3278.3 | 3167.2 | 2564.6 |
| 27.5° | 4171.5 | 4185.8 | 4225.3 | 4289.8 | 4232.4 | 4185.8 | 4031.6 | 3744.6 | 3403.9 | 3303.5 | 2643.5 |
| 30° | 4311.4 | 4329.3 | 4329.3 | 4361.6 | 4297.0 | 4286.2 | 4171.5 | 3898.9 | 3561.7 | 3454.1 | 2743.9 |
| 32.5° | 4680.8 | 4644.9 | 4580.4 | 4548.1 | 4393.8 | 4397.4 | 4307.8 | 4053.1 | 3730.3 | 3622.7 | 2869.5 |
| 35° | 5000.0 | 5000.0 | 4921.1 | 4817.1 | 4569.6 | 4519.4 | 4465.6 | 4257.5 | 3913.2 | 3809.2 | 3034.4 |
| 37.5° | 5308.5 | 5312.1 | 5229.6 | 5139.9 | 4856.5 | 4677.2 | 4648.5 | 4454.8 | 4139.2 | 4017.2 | 3206.6 |
| 40° | 5502.2 | 5523.7 | 5502.2 | 5434.0 | 5161.4 | 4953.4 | 4827.9 | 4677.2 | 4354.4 | 4261.1 | 3403.9 |
| 42.5° | 5534.5 | 5577.5 | 5656.4 | 5677.9 | 5383.8 | 5200.9 | 5057.4 | 4906.8 | 4612.6 | 4508.6 | 3629.9 |
| 45° | 5452.0 | 5466.3 | 5642.1 | 5667.2 | 5548.8 | 5398.2 | 5301.3 | 5175.8 | 4921.1 | 4831.4 | 3880.9 |
| 47.5° | 5226.0 | 5197.3 | 5258.3 | 5477.1 | 5523.7 | 5516.5 | 5541.6 | 5480.7 | 5279.8 | 5165.0 | 4157.1 |
| 50° | 4741.8 | 4752.5 | 4949.8 | 5215.2 | 5376.6 | 5559.6 | 5721.0 | 5789.1 | 5642.1 | 5527.3 | 4454.8 |
| 52.5° | 3859.4 | 3909.6 | 4286.2 | 4913.9 | 5193.7 | 5530.9 | 5850.1 | 6079.7 | 6018.7 | 5907.5 | 4748.9 |
| 55° | 3170.7 | 3246.1 | 3622.7 | 4429.7 | 4942.6 | 5391.0 | 5925.4 | 6384.5 | 6395.3 | 6309.2 | 5018.0 |
| 57.5° | 2482.1 | 2543.1 | 2941.2 | 3680.1 | 4583.9 | 5172.2 | 5936.2 | 6646.4 | 6768.3 | 6667.9 | 5254.7 |
| 60° | 1944.1 | 1987.1 | 2220.2 | 3066.7 | 4142.8 | 4860.1 | 5857.3 | 6854.4 | 7084.0 | 7008.6 | 5459.1 |
| 62.5° | 1474.2 | 1506.5 | 1714.5 | 2424.7 | 3601.2 | 4494.3 | 5591.8 | 6929.7 | 7306.3 | 7234.6 | 5573.9 |
| 65° | 1194.4 | 1223.1 | 1359.4 | 1904.6 | 3066.7 | 4071.0 | 5190.1 | 6757.6 | 7370.9 | 7306.3 | 5559.6 |
| 67.5° | 975.6 | 986.4 | 1097.6 | 1484.9 | 2593.3 | 3594.0 | 4601.9 | 6309.2 | 7173.6 | 7170.0 | 5394.6 |
| 70° | 789.1 | 817.8 | 911.1 | 1183.6 | 2155.7 | 3045.2 | 3916.8 | 5606.2 | 6746.8 | 6782.7 | 5064.6 |
| 72.5° | 670.7 | 677.9 | 760.4 | 979.2 | 1757.5 | 2471.3 | 3242.5 | 4795.6 | 6119.1 | 6147.8 | 4548.1 |
| 75° | 566.7 | 577.5 | 638.5 | 792.7 | 1427.6 | 1962.0 | 2607.6 | 3873.8 | 5122.0 | 5243.9 | 3830.7 |
| 77.5° | 487.8 | 491.4 | 534.4 | 652.8 | 1015.1 | 1474.2 | 1911.8 | 2905.3 | 4010.1 | 4096.1 | 3009.3 |
| 80° | 383.8 | 391.0 | 437.6 | 516.5 | 706.6 | 957.7 | 1319.9 | 1987.1 | 2679.4 | 2776.2 | 2083.9 |
| 82.5° | 179.3 | 200.9 | 211.6 | 283.4 | 369.4 | 473.5 | 624.1 | 828.6 | 1212.3 | 1208.8 | 972.0 |
| 85° | 17.9 | 14.3 | 14.3 | 21.5 | 32.3 | 32.3 | 39.5 | 46.6 | 93.3 | 111.2 | 86.1 |
| 87.5° | 0.0 | 0.0 | 0.0 | 3.6 | 7.2 | 7.2 | 7.2 | 10.8 | 10.8 | 10.8 | 10.8 |
| 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: P868008

CATALOG NUMBER: MEM2-HSN-SA-130-730-U-T2U-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2162.8 | 2162.8 | 2162.8 | 2162.8 | 2162.8 | 2162.8 | 2162.8 | 2162.8 | 2162.8 | 2162.8 | 2162.8 |
| 2.5° | 2173.6 | 2141.3 | 2083.9 | 2030.1 | 1994.3 | 1965.6 | 1918.9 | 1890.3 | 1868.7 | 1840.0 | 1836.4 |
| 5° | 2166.4 | 2109.0 | 1994.3 | 1897.4 | 1804.2 | 1725.3 | 1642.8 | 1592.5 | 1538.7 | 1513.6 | 1535.2 |
| 7.5° | 2173.6 | 2080.4 | 1901.0 | 1754.0 | 1614.1 | 1488.5 | 1380.9 | 1312.8 | 1262.6 | 1237.5 | 1241.0 |
| 10° | 2177.2 | 2055.2 | 1822.1 | 1617.7 | 1438.3 | 1291.3 | 1169.3 | 1076.0 | 1015.1 | 1000.7 | 982.8 |
| 12.5° | 2170.0 | 2023.0 | 1743.2 | 1484.9 | 1269.7 | 1108.3 | 964.9 | 893.1 | 832.1 | 803.4 | 803.4 |
| 15° | 2177.2 | 1997.9 | 1660.7 | 1363.0 | 1119.1 | 932.6 | 810.6 | 731.7 | 695.8 | 670.7 | 674.3 |
| 17.5° | 2177.2 | 1976.3 | 1581.8 | 1244.6 | 972.0 | 799.9 | 688.7 | 624.1 | 588.2 | 573.9 | 570.3 |
| 20° | 2202.3 | 1958.4 | 1506.5 | 1133.4 | 842.9 | 681.5 | 591.8 | 541.6 | 512.9 | 498.6 | 491.4 |
| 22.5° | 2220.2 | 1944.1 | 1438.3 | 1025.8 | 735.3 | 595.4 | 520.1 | 473.5 | 451.9 | 444.8 | 444.8 |
| 25° | 2252.5 | 1940.5 | 1377.3 | 921.8 | 649.2 | 530.8 | 462.7 | 426.8 | 408.9 | 401.7 | 401.7 |
| 27.5° | 2299.1 | 1947.6 | 1319.9 | 832.1 | 584.7 | 466.3 | 416.1 | 387.4 | 376.6 | 373.0 | 369.4 |
| 30° | 2367.3 | 1979.9 | 1284.1 | 764.0 | 523.7 | 426.8 | 380.2 | 362.3 | 355.1 | 351.5 | 351.5 |
| 32.5° | 2457.0 | 2037.3 | 1269.7 | 728.1 | 487.8 | 394.5 | 355.1 | 340.7 | 333.6 | 333.6 | 330.0 |
| 35° | 2568.2 | 2101.9 | 1259.0 | 695.8 | 462.7 | 373.0 | 337.2 | 322.8 | 319.2 | 319.2 | 319.2 |
| 37.5° | 2700.9 | 2170.0 | 1241.0 | 674.3 | 448.4 | 355.1 | 322.8 | 308.5 | 308.5 | 308.5 | 308.5 |
| 40° | 2847.9 | 2270.5 | 1237.5 | 660.0 | 437.6 | 344.3 | 308.5 | 294.1 | 294.1 | 294.1 | 294.1 |
| 42.5° | 3012.9 | 2378.1 | 1233.9 | 649.2 | 430.4 | 337.2 | 294.1 | 279.8 | 279.8 | 279.8 | 279.8 |
| 45° | 3213.8 | 2514.4 | 1241.0 | 642.0 | 430.4 | 330.0 | 283.4 | 265.4 | 261.8 | 261.8 | 261.8 |
| 47.5° | 3411.1 | 2643.5 | 1248.2 | 634.9 | 423.2 | 319.2 | 269.0 | 251.1 | 247.5 | 243.9 | 243.9 |
| 50° | 3622.7 | 2776.2 | 1248.2 | 627.7 | 416.1 | 308.5 | 258.3 | 233.1 | 229.6 | 226.0 | 226.0 |
| 52.5° | 3830.7 | 2887.4 | 1251.8 | 616.9 | 398.1 | 290.5 | 240.3 | 218.8 | 211.6 | 208.0 | 204.4 |
| 55° | 4031.6 | 3005.8 | 1255.4 | 599.0 | 376.6 | 272.6 | 229.6 | 204.4 | 193.7 | 186.5 | 186.5 |
| 57.5° | 4182.2 | 3102.6 | 1237.5 | 563.1 | 347.9 | 254.7 | 211.6 | 186.5 | 172.2 | 165.0 | 165.0 |
| 60° | 4325.7 | 3163.6 | 1205.2 | 509.3 | 319.2 | 236.7 | 197.3 | 168.6 | 154.2 | 147.1 | 147.1 |
| 62.5° | 4383.1 | 3174.3 | 1129.8 | 416.1 | 283.4 | 218.8 | 179.3 | 154.2 | 143.5 | 139.9 | 139.9 |
| 65° | 4350.8 | 3127.7 | 1029.4 | 330.0 | 251.1 | 197.3 | 165.0 | 143.5 | 129.1 | 118.4 | 118.4 |
| 67.5° | 4175.1 | 2966.3 | 893.1 | 261.8 | 218.8 | 179.3 | 150.6 | 129.1 | 114.8 | 104.0 | 104.0 |
| 70° | 3841.5 | 2708.0 | 695.8 | 208.0 | 190.1 | 157.8 | 136.3 | 118.4 | 104.0 | 93.3 | 93.3 |
| 72.5° | 3350.1 | 2349.4 | 505.7 | 175.8 | 165.0 | 139.9 | 122.0 | 107.6 | 93.3 | 86.1 | 86.1 |
| 75° | 2761.8 | 1811.3 | 358.7 | 150.6 | 147.1 | 125.5 | 111.2 | 96.8 | 86.1 | 78.9 | 78.9 |
| 77.5° | 2073.2 | 1262.6 | 279.8 | 132.7 | 129.1 | 114.8 | 100.4 | 89.7 | 78.9 | 75.3 | 71.7 |
| 80° | 1380.9 | 781.9 | 211.6 | 100.4 | 96.8 | 89.7 | 82.5 | 75.3 | 64.6 | 57.4 | 57.4 |
| 82.5° | 616.9 | 330.0 | 107.6 | 57.4 | 50.2 | 43.0 | 35.9 | 25.1 | 25.1 | 21.5 | 21.5 |
| 85° | 64.6 | 43.0 | 21.5 | 14.3 | 14.3 | 10.8 | 10.8 | 10.8 | 7.2 | 7.2 | 7.2 |
| 87.5° | 10.8 | 10.8 | 7.2 | 7.2 | 7.2 | 3.6 | 3.6 | 3.6 | 3.6 | 3.6 | 3.6 |
| 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: SP1-2407-157-4

Test Date: 08/07/2024

Luminaire Tested: MEM2-HTN-SA-30-730-U-5WQ-2

Data in this report applies to families of products including MEM2-HTN-SA-30-730-U-5WQ-2

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-157-4
 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-30-730-U-5WQ-2**
 Description: Epic Modern Light Square 30W 5WQ Optic and Flare Trim

Spectral Parameters

CCT (K): 3057
 CIE u': 0.2487
 CIE v': 0.5199
 Duv: -0.0002
 CIE x: 0.4326
 CIE y: 0.4020
 CIE z: 0.1654
 Peak Wavelength (nm): 593
 Dominant Wavelength (nm): 582
 Purity: 50.50735
 Rf: 74.6
 Rg: 94

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 71.7 | | |
| R1: | 68.1 | R9: | -34.8 |
| R2: | 82.0 | R10: | 58.5 |
| R3: | 93.5 | R11: | 62.5 |
| R4: | 67.5 | R12: | 47.5 |
| R5: | 67.2 | R13: | 70.7 |
| R6: | 74.9 | R14: | 96.4 |
| R7: | 77.4 | R15: | 60.0 |
| R8: | 43.1 | | |



Test Conditions

Stabilization Time: 21M
 Operation Time: 1H 21M
 Sphere Temperature (°C): 24.2

REPORT NUMBER: SP1-2407-157-4

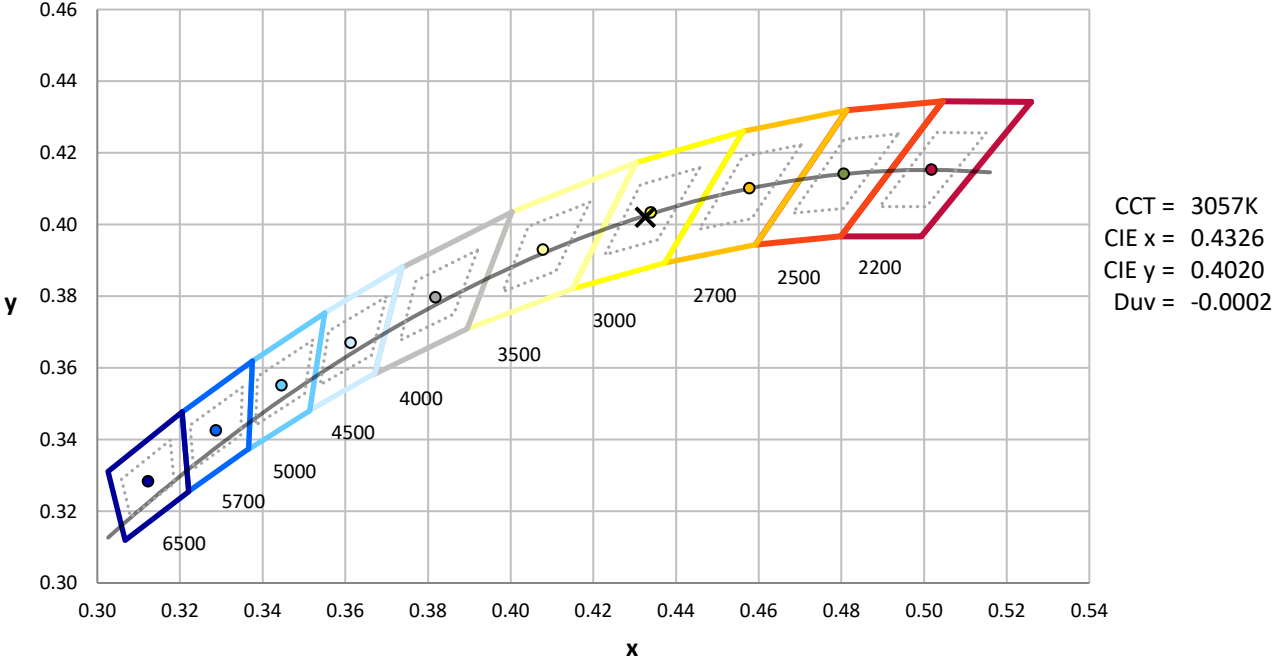
| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 2/8/2024 | 2/8/2025 |
| AC Power Source | IN0063 | 10/24/2023 | 10/24/2024 |
| DC Power Source | IN0208 | 10/24/2023 | 10/24/2024 |
| Sphere Thermometer | IN0085 | 10/24/2023 | 10/24/2024 |
| Room Thermometer | IN0046 | 10/24/2023 | 10/24/2024 |

REPORT NUMBER: SP1-2407-157-4

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: SP1-2407-157-4

Photopic Flux vs. Wavelength



Photopic Lumens: NR

| λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) |
|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|
| 360 | 0 | NR | 490 | 104 | NR | 620 | 818 | NR | 750 | 20 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 135 | NR | 625 | 755 | NR | 755 | 17 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 184 | NR | 630 | 691 | NR | 760 | 15 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 247 | NR | 635 | 625 | NR | 765 | 13 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 309 | NR | 640 | 561 | NR | 770 | 11 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 369 | NR | 645 | 499 | NR | 775 | 9 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 419 | NR | 650 | 441 | NR | 780 | 8 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 460 | NR | 655 | 388 | NR | 785 | 7 | NR | 915 | 0 | NR |
| 400 | 1 | NR | 530 | 492 | NR | 660 | 338 | NR | 790 | 6 | NR | 920 | 0 | NR |
| 405 | 3 | NR | 535 | 524 | NR | 665 | 294 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 7 | NR | 540 | 553 | NR | 670 | 253 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 15 | NR | 545 | 588 | NR | 675 | 218 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 31 | NR | 550 | 625 | NR | 680 | 188 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 60 | NR | 555 | 670 | NR | 685 | 161 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 107 | NR | 560 | 723 | NR | 690 | 139 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 183 | NR | 565 | 780 | NR | 695 | 118 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 289 | NR | 570 | 837 | NR | 700 | 100 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 460 | NR | 575 | 894 | NR | 705 | 85 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 646 | NR | 580 | 942 | NR | 710 | 73 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 561 | NR | 585 | 976 | NR | 715 | 62 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 331 | NR | 590 | 998 | NR | 720 | 53 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 238 | NR | 595 | 1000 | NR | 725 | 45 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 178 | NR | 600 | 990 | NR | 730 | 39 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 120 | NR | 605 | 962 | NR | 735 | 33 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 96 | NR | 610 | 925 | NR | 740 | 28 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 95 | NR | 615 | 873 | NR | 745 | 24 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2407-157-4

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR S/P: 1.23

| 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 | 104 | NR | 620 | 818 | NR | 750 | 20 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 135 | NR | 625 | 755 | NR | 755 | 17 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 184 | NR | 630 | 691 | NR | 760 | 15 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 247 | NR | 635 | 625 | NR | 765 | 13 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 309 | NR | 640 | 561 | NR | 770 | 11 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 369 | NR | 645 | 499 | NR | 775 | 9 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 419 | NR | 650 | 441 | NR | 780 | 8 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 460 | NR | 655 | 388 | NR | 785 | 7 | NR | 915 | 0 | NR |
| 400 | 1 | NR | 530 | 492 | NR | 660 | 338 | NR | 790 | 6 | NR | 920 | 0 | NR |
| 405 | 3 | NR | 535 | 524 | NR | 665 | 294 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 7 | NR | 540 | 553 | NR | 670 | 253 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 15 | NR | 545 | 588 | NR | 675 | 218 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 31 | NR | 550 | 625 | NR | 680 | 188 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 60 | NR | 555 | 670 | NR | 685 | 161 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 107 | NR | 560 | 723 | NR | 690 | 139 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 183 | NR | 565 | 780 | NR | 695 | 118 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 289 | NR | 570 | 837 | NR | 700 | 100 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 460 | NR | 575 | 894 | NR | 705 | 85 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 646 | NR | 580 | 942 | NR | 710 | 73 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 561 | NR | 585 | 976 | NR | 715 | 62 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 331 | NR | 590 | 998 | NR | 720 | 53 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 238 | NR | 595 | 1000 | NR | 725 | 45 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 178 | NR | 600 | 990 | NR | 730 | 39 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 120 | NR | 605 | 962 | NR | 735 | 33 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 96 | NR | 610 | 925 | NR | 740 | 28 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 95 | NR | 615 | 873 | NR | 745 | 24 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2407-157-4

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.27

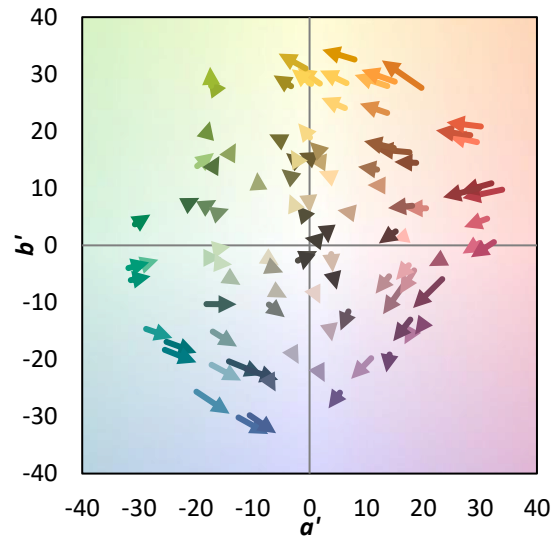
| λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360 | 0 | NR | 490 | 104 | NR | 620 | 818 | NR | 750 | 20 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 135 | NR | 625 | 755 | NR | 755 | 17 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 184 | NR | 630 | 691 | NR | 760 | 15 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 247 | NR | 635 | 625 | NR | 765 | 13 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 309 | NR | 640 | 561 | NR | 770 | 11 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 369 | NR | 645 | 499 | NR | 775 | 9 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 419 | NR | 650 | 441 | NR | 780 | 8 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 460 | NR | 655 | 388 | NR | 785 | 7 | NR | 915 | 0 | NR |
| 400 | 1 | NR | 530 | 492 | NR | 660 | 338 | NR | 790 | 6 | NR | 920 | 0 | NR |
| 405 | 3 | NR | 535 | 524 | NR | 665 | 294 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 7 | NR | 540 | 553 | NR | 670 | 253 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 15 | NR | 545 | 588 | NR | 675 | 218 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 31 | NR | 550 | 625 | NR | 680 | 188 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 60 | NR | 555 | 670 | NR | 685 | 161 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 107 | NR | 560 | 723 | NR | 690 | 139 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 183 | NR | 565 | 780 | NR | 695 | 118 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 289 | NR | 570 | 837 | NR | 700 | 100 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 460 | NR | 575 | 894 | NR | 705 | 85 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 646 | NR | 580 | 942 | NR | 710 | 73 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 561 | NR | 585 | 976 | NR | 715 | 62 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 331 | NR | 590 | 998 | NR | 720 | 53 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 238 | NR | 595 | 1000 | NR | 725 | 45 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 178 | NR | 600 | 990 | NR | 730 | 39 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 120 | NR | 605 | 962 | NR | 735 | 33 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 96 | NR | 610 | 925 | NR | 740 | 28 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 95 | NR | 615 | 873 | NR | 745 | 24 | NR | 875 | 1 | NR | | | |

Summary

$R_f = 74.6$
 $R_g = 94$
 $CIE R_a = 71.7$
 $R_9 = -34.8$

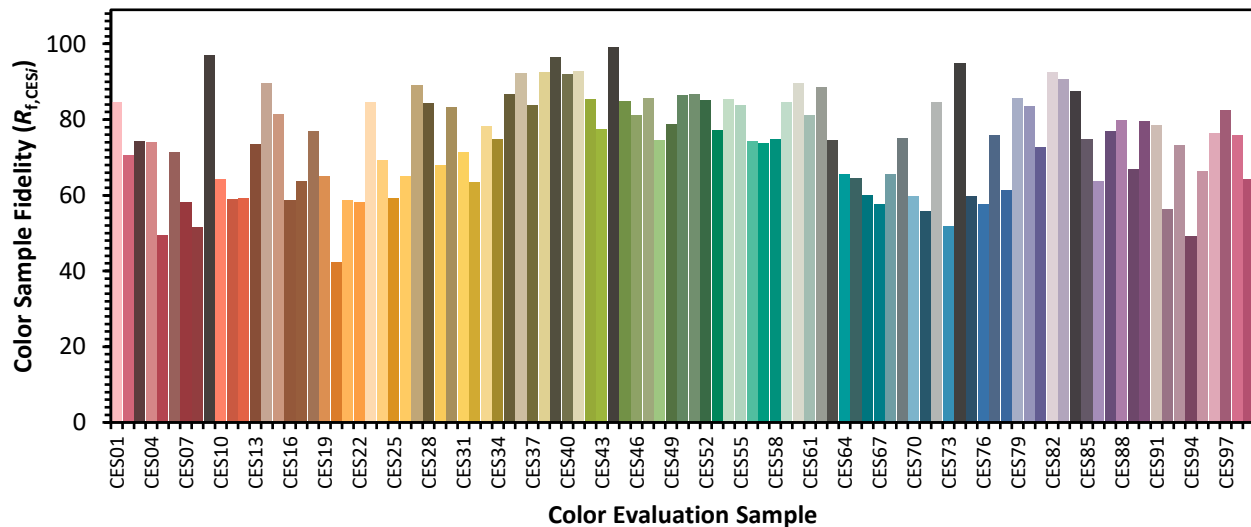


Color Vector Graphics

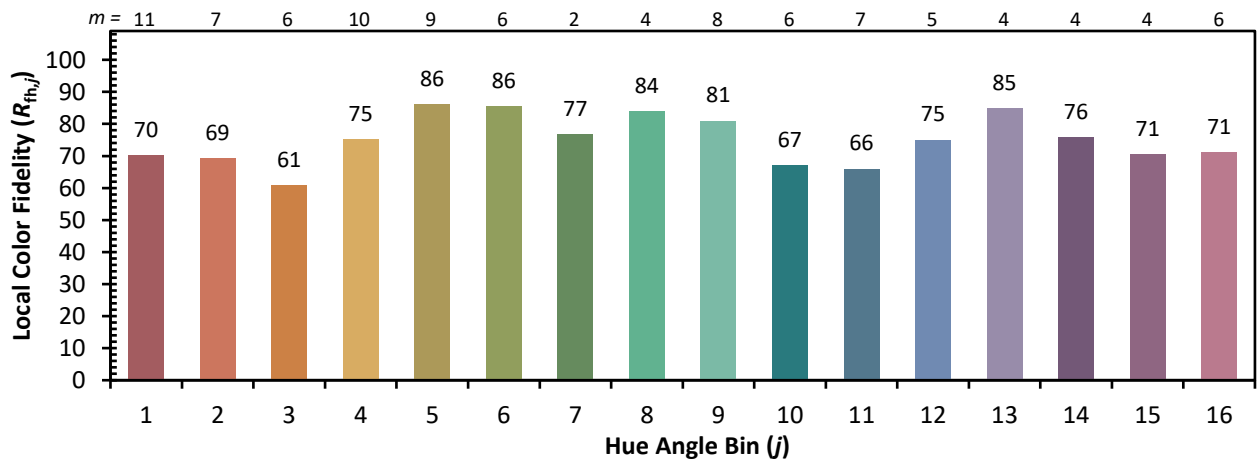


Individual Sample Fidelity Index ($R_{f,i}$)

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 65 | CES51 = 87 | CES76 = 58 |
| CES02 = 62 | CES27 = 89 | CES52 = 85 | CES77 = 76 |
| CES03 = 31 | CES28 = 84 | CES53 = 77 | CES78 = 61 |
| CES04 = 71 | CES29 = 68 | CES54 = 85 | CES79 = 86 |
| CES05 = 49 | CES30 = 83 | CES55 = 84 | CES80 = 83 |
| CES06 = 51 | CES31 = 71 | CES56 = 74 | CES81 = 73 |
| CES07 = 41 | CES32 = 64 | CES57 = 74 | CES82 = 93 |
| CES08 = 40 | CES33 = 78 | CES58 = 75 | CES83 = 91 |
| CES09 = 29 | CES34 = 75 | CES59 = 85 | CES84 = 88 |
| CES10 = 76 | CES35 = 87 | CES60 = 90 | CES85 = 75 |
| CES11 = 59 | CES36 = 92 | CES61 = 81 | CES86 = 64 |
| CES12 = 65 | CES37 = 84 | CES62 = 89 | CES87 = 77 |
| CES13 = 43 | CES38 = 92 | CES63 = 75 | CES88 = 80 |
| CES14 = 74 | CES39 = 96 | CES64 = 65 | CES89 = 67 |
| CES15 = 71 | CES40 = 92 | CES65 = 64 | CES90 = 80 |
| CES16 = 47 | CES41 = 93 | CES66 = 60 | CES91 = 78 |
| CES17 = 50 | CES42 = 86 | CES67 = 58 | CES92 = 56 |
| CES18 = 56 | CES43 = 77 | CES68 = 66 | CES93 = 73 |
| CES19 = 73 | CES44 = 99 | CES69 = 75 | CES94 = 49 |
| CES20 = 66 | CES45 = 85 | CES70 = 60 | CES95 = 66 |
| CES21 = 87 | CES46 = 81 | CES71 = 56 | CES96 = 76 |
| CES22 = 79 | CES47 = 86 | CES72 = 85 | CES97 = 82 |
| CES23 = 92 | CES48 = 75 | CES73 = 52 | CES98 = 76 |
| CES24 = 91 | CES49 = 79 | CES74 = 95 | CES99 = 64 |
| CES25 = 73 | CES50 = 86 | CES75 = 60 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)