

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: P869947

Luminaire Tested: **MEM2-HTN-SA-110-830-U-T2U-HSS**

Issue Date: 08/21/2024



Test Information

Test Method: LM-79-08
Report Number: P869947
Test Lab: INNOVATION CENTER(G3)
Issue Date: 08/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: STREETWORKS
Catalog Number: MEM2-HTN-SA-110-830-U-T2U-HSS
Description: EPIC MODERN TALL HOUSING DISCRETE LED ARRAYS 110W 80CRI 3000K
FIXTURE w/ TYPE II URBAN DISTRIBUTION OPTIC AND HOUSE SIDE SHIELD
Light Source: (30) 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

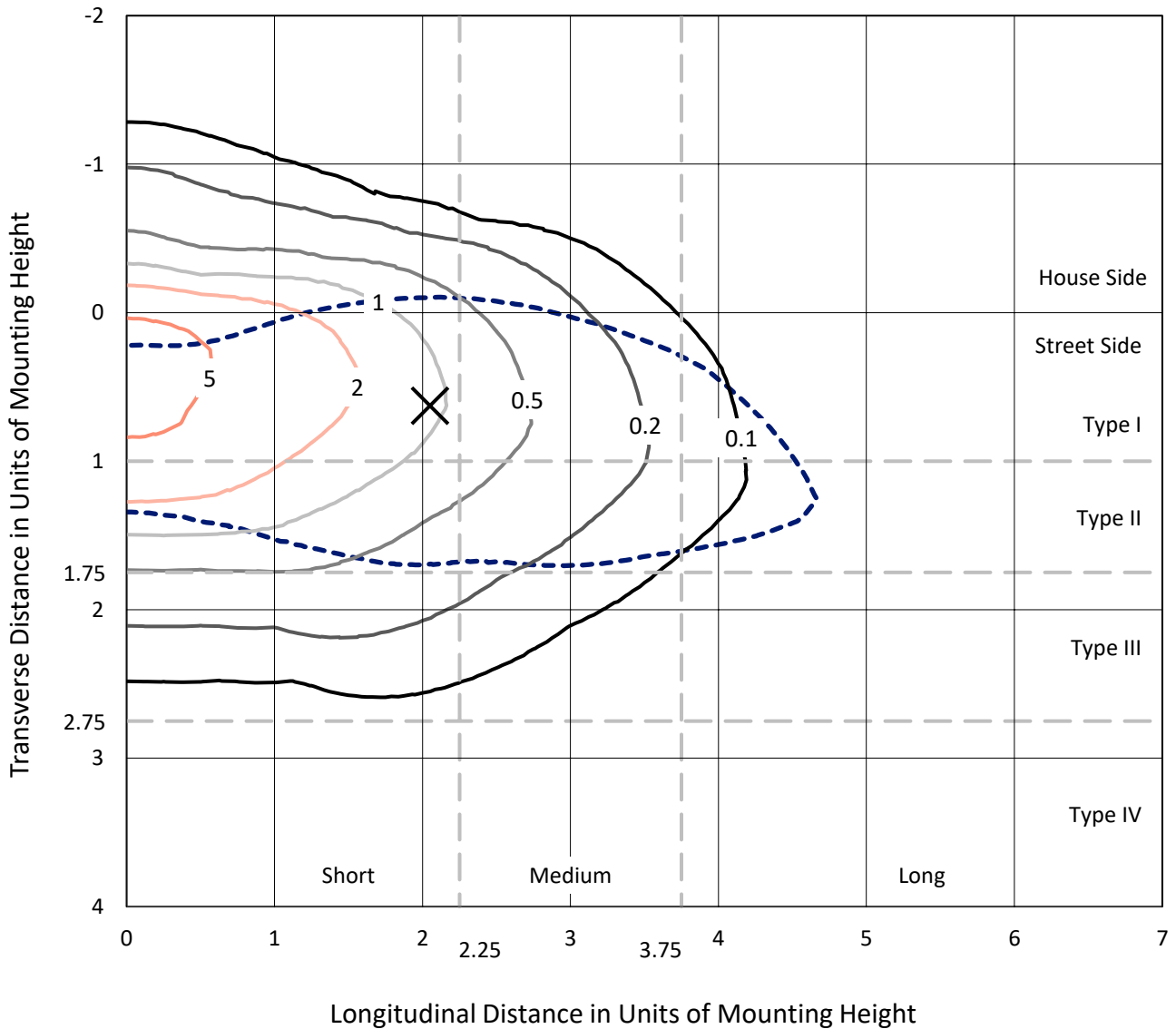
Lumens per Lamp: N/A
Luminaire Lumens: 9991.1 lumens
Efficiency: N/A
Efficacy: 88.4 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 0.33' x H: 0')
IES Classification: Type II - Short
BUG Rating: B1 - U0 - G2

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

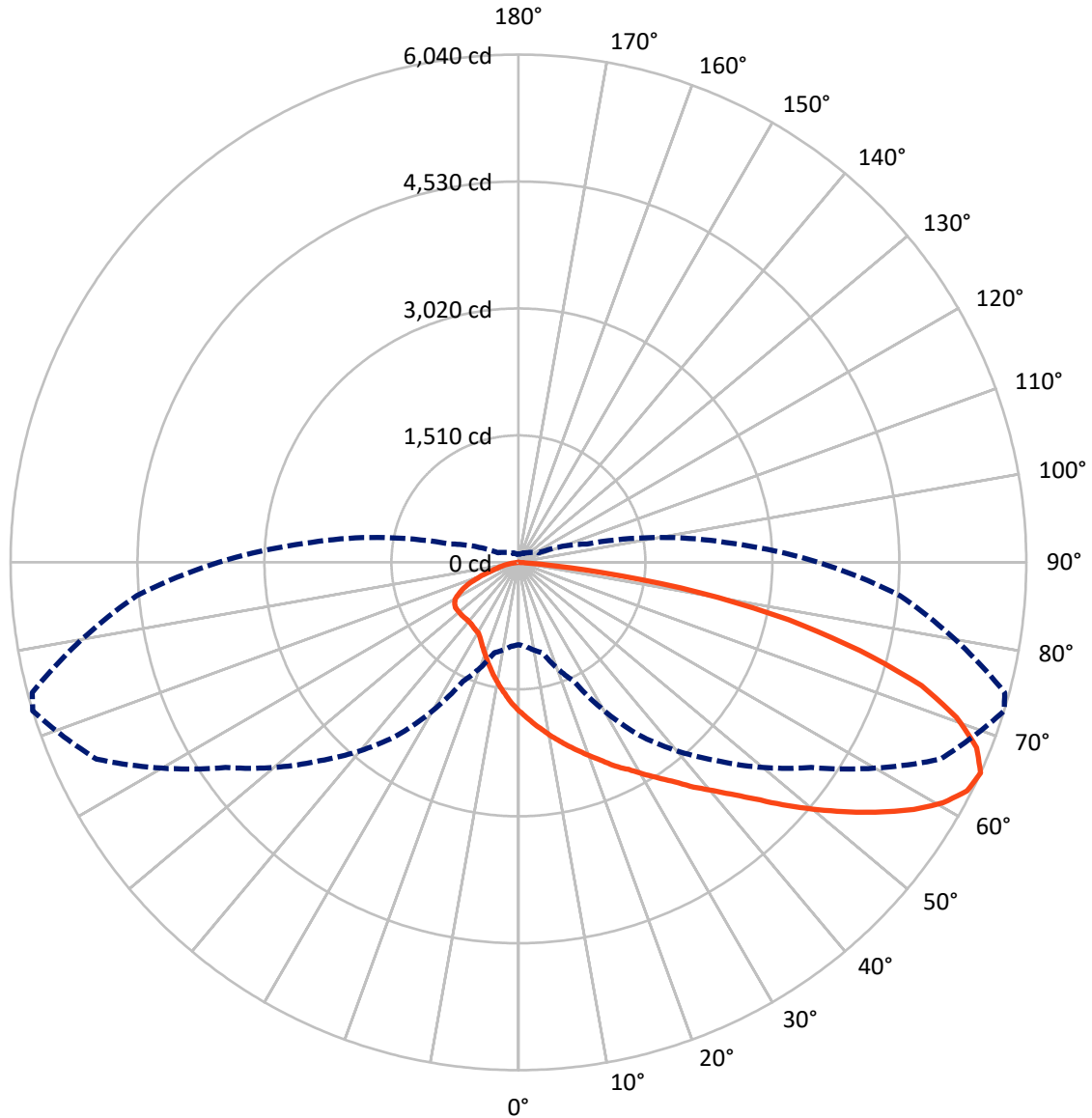
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 7.2 fc
 Type II - Short - N/A

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Luminous Intensity Polar Plot



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

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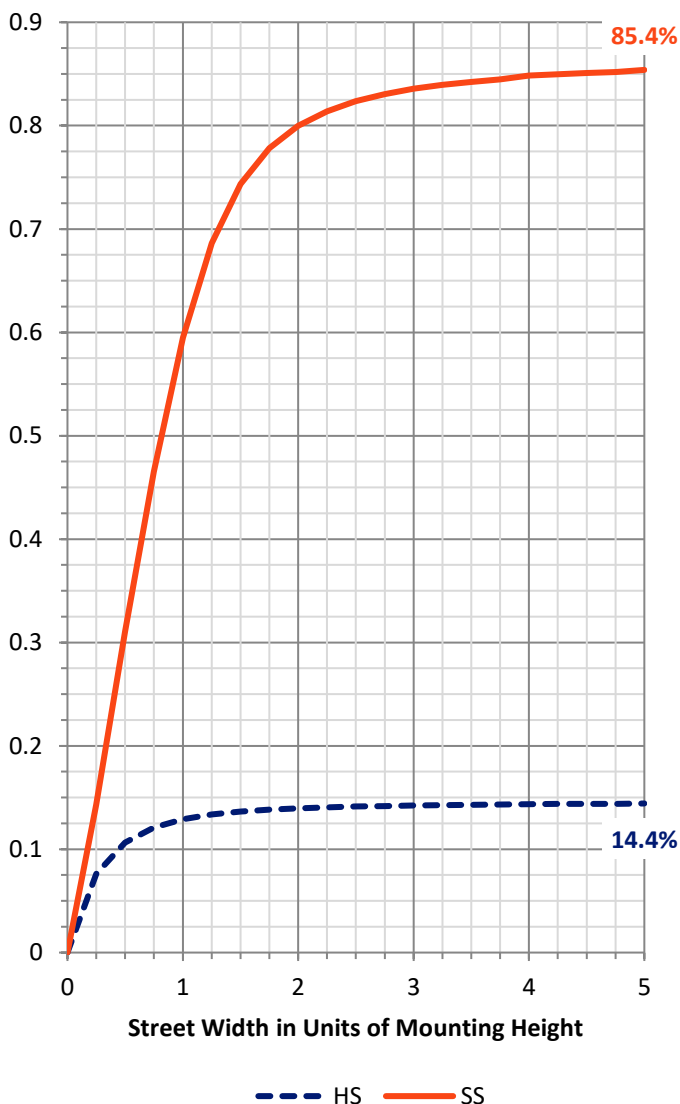
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 1452.9 | 0.0 | 1452.9 |
| | % Fixture | 14.5 | 0.0 | 14.5 |
| Street Side | Lumens | 8538.2 | 0.0 | 8538.2 |
| | % Fixture | 85.5 | 0.0 | 85.5 |
| Total | Lumens | 9991.1 | 0.0 | 9991.1 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 171.1 | 1.7 |
| 10°-20° | 520.0 | 5.2 |
| 20°-30° | 870.8 | 8.7 |
| 30°-40° | 1313.6 | 13.1 |
| 40°-50° | 1856.0 | 18.6 |
| 50°-60° | 2088.4 | 20.9 |
| 60°-70° | 1872.8 | 18.7 |
| 70°-80° | 1139.0 | 11.4 |
| 80°-90° | 159.4 | 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° | 9991.1 | 100.0 |
| 0°-180° | 9991.1 | 100.0 |

Coefficient of Utilization



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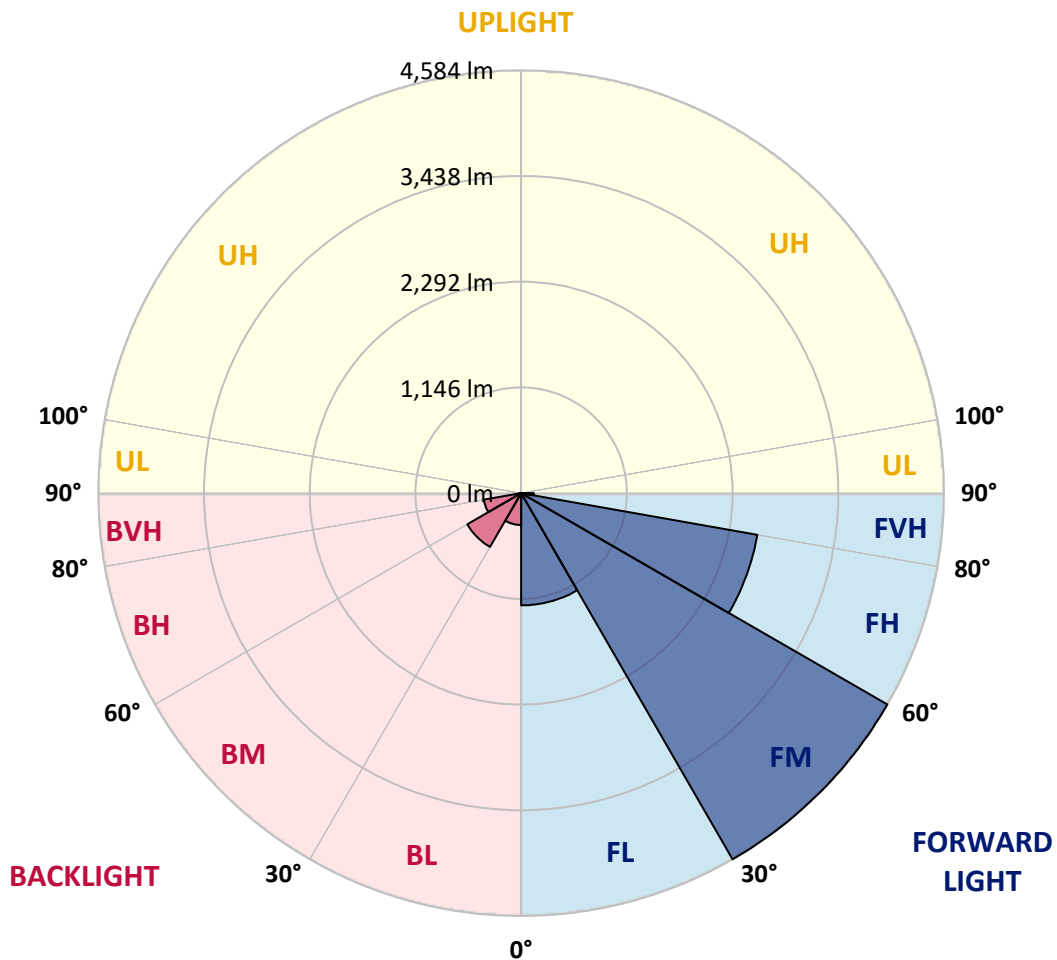
CATALOG NUMBER: MEM2-HTN-SA-110-830-U-T2U-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1216.7 | 12.2 | | | |
| FM (30°-60°) | 4584.3 | 45.9 | | | |
| FH (60°-80°) | 2600.3 | 26.0 | | | G2/5000 |
| FVH (80°-90°) | 136.9 | 1.4 | | | G2/225 |
| BL (0°-30°) | 345.2 | 3.5 | B1/500 | | |
| BM (30°-60°) | 673.7 | 6.7 | B1/1000 | | |
| BH (60°-80°) | 411.5 | 4.1 | B1/500 | | G1/500 |
| BVH (80°-90°) | 22.5 | 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-G2

Type II Short





REPORT NUMBER: P869947

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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 73° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1772.4 | 1772.4 | 1772.4 | 1772.4 | 1772.4 | 1772.4 | 1772.4 | 1772.4 | 1772.4 | 1772.4 | 1772.4 |
| 2.5° | 2045.8 | 2034.0 | 2016.4 | 2001.7 | 1975.3 | 1940.0 | 1910.6 | 1872.4 | 1845.9 | 1837.1 | 1798.9 |
| 5° | 2342.7 | 2328.0 | 2307.4 | 2272.1 | 2201.6 | 2160.4 | 2084.0 | 1995.8 | 1925.3 | 1910.6 | 1822.4 |
| 7.5° | 2648.4 | 2642.5 | 2595.5 | 2542.6 | 2457.3 | 2366.2 | 2248.6 | 2110.5 | 2007.6 | 1984.1 | 1848.9 |
| 10° | 2907.0 | 2880.6 | 2854.1 | 2804.2 | 2713.0 | 2583.7 | 2430.9 | 2239.8 | 2095.8 | 2057.6 | 1875.3 |
| 12.5° | 3062.8 | 3054.0 | 3030.5 | 2971.7 | 2883.5 | 2771.8 | 2589.6 | 2366.2 | 2181.0 | 2128.1 | 1901.8 |
| 15° | 3177.5 | 3186.3 | 3162.8 | 3124.5 | 3033.4 | 2927.6 | 2751.2 | 2498.5 | 2272.1 | 2210.4 | 1931.2 |
| 17.5° | 3286.2 | 3280.3 | 3277.4 | 3233.3 | 3151.0 | 3045.2 | 2865.9 | 2607.2 | 2363.3 | 2295.6 | 1960.6 |
| 20° | 3347.9 | 3350.9 | 3345.0 | 3327.4 | 3248.0 | 3145.1 | 2977.6 | 2736.6 | 2463.2 | 2386.8 | 1998.8 |
| 22.5° | 3380.3 | 3392.0 | 3403.8 | 3400.8 | 3336.2 | 3256.8 | 3083.4 | 2839.4 | 2566.1 | 2486.7 | 2045.8 |
| 25° | 3400.8 | 3409.7 | 3436.1 | 3471.4 | 3412.6 | 3347.9 | 3201.0 | 2962.9 | 2686.6 | 2595.5 | 2101.6 |
| 27.5° | 3418.5 | 3430.2 | 3462.6 | 3515.5 | 3468.5 | 3430.2 | 3303.9 | 3068.7 | 2789.5 | 2707.2 | 2166.3 |
| 30° | 3533.1 | 3547.8 | 3547.8 | 3574.3 | 3521.4 | 3512.5 | 3418.5 | 3195.1 | 2918.8 | 2830.6 | 2248.6 |
| 32.5° | 3835.9 | 3806.5 | 3753.6 | 3727.1 | 3600.7 | 3603.7 | 3530.2 | 3321.5 | 3056.9 | 2968.8 | 2351.5 |
| 35° | 4097.5 | 4097.5 | 4032.8 | 3947.6 | 3744.8 | 3703.6 | 3659.5 | 3489.0 | 3206.9 | 3121.6 | 2486.7 |
| 37.5° | 4350.3 | 4353.2 | 4285.6 | 4212.1 | 3979.9 | 3832.9 | 3809.4 | 3650.7 | 3392.0 | 3292.1 | 2627.8 |
| 40° | 4509.0 | 4526.6 | 4509.0 | 4453.1 | 4229.8 | 4059.3 | 3956.4 | 3832.9 | 3568.4 | 3492.0 | 2789.5 |
| 42.5° | 4535.4 | 4570.7 | 4635.4 | 4653.0 | 4412.0 | 4262.1 | 4144.5 | 4021.1 | 3780.0 | 3694.8 | 2974.6 |
| 45° | 4467.8 | 4479.6 | 4623.6 | 4644.2 | 4547.2 | 4423.7 | 4344.4 | 4241.5 | 4032.8 | 3959.3 | 3180.4 |
| 47.5° | 4282.7 | 4259.1 | 4309.1 | 4488.4 | 4526.6 | 4520.7 | 4541.3 | 4491.4 | 4326.8 | 4232.7 | 3406.7 |
| 50° | 3885.8 | 3894.7 | 4056.3 | 4273.8 | 4406.1 | 4556.0 | 4688.3 | 4744.1 | 4623.6 | 4529.6 | 3650.7 |
| 52.5° | 3162.8 | 3203.9 | 3512.5 | 4026.9 | 4256.2 | 4532.5 | 4794.1 | 4982.2 | 4932.3 | 4841.1 | 3891.7 |
| 55° | 2598.4 | 2660.1 | 2968.8 | 3630.1 | 4050.4 | 4417.9 | 4855.8 | 5232.1 | 5240.9 | 5170.3 | 4112.2 |
| 57.5° | 2034.0 | 2084.0 | 2410.3 | 3015.8 | 3756.5 | 4238.6 | 4864.7 | 5446.6 | 5546.6 | 5464.3 | 4306.2 |
| 60° | 1593.1 | 1628.4 | 1819.5 | 2513.2 | 3395.0 | 3982.8 | 4800.0 | 5617.1 | 5805.3 | 5743.5 | 4473.7 |
| 62.5° | 1208.1 | 1234.5 | 1405.0 | 1987.0 | 2951.1 | 3683.0 | 4582.5 | 5678.9 | 5987.5 | 5928.7 | 4567.8 |
| 65° | 978.8 | 1002.3 | 1114.0 | 1560.8 | 2513.2 | 3336.2 | 4253.3 | 5537.8 | 6040.4 | 5987.5 | 4556.0 |
| 67.5° | 799.5 | 808.3 | 899.4 | 1216.9 | 2125.2 | 2945.2 | 3771.2 | 5170.3 | 5878.7 | 5875.8 | 4420.8 |
| 70° | 646.7 | 670.2 | 746.6 | 970.0 | 1766.6 | 2495.5 | 3209.8 | 4594.2 | 5529.0 | 5558.3 | 4150.4 |
| 72.5° | 549.7 | 555.5 | 623.1 | 802.4 | 1440.3 | 2025.2 | 2657.2 | 3929.9 | 5014.6 | 5038.1 | 3727.1 |
| 75° | 464.4 | 473.2 | 523.2 | 649.6 | 1169.9 | 1607.8 | 2136.9 | 3174.5 | 4197.4 | 4297.4 | 3139.2 |
| 77.5° | 399.8 | 402.7 | 438.0 | 535.0 | 831.8 | 1208.1 | 1566.7 | 2380.9 | 3286.2 | 3356.8 | 2466.1 |
| 80° | 314.5 | 320.4 | 358.6 | 423.3 | 579.1 | 784.8 | 1081.7 | 1628.4 | 2195.7 | 2275.1 | 1707.8 |
| 82.5° | 147.0 | 164.6 | 173.4 | 232.2 | 302.8 | 388.0 | 511.5 | 679.0 | 993.5 | 990.6 | 796.6 |
| 85° | 14.7 | 11.8 | 11.8 | 17.6 | 26.5 | 26.5 | 32.3 | 38.2 | 76.4 | 91.1 | 70.5 |
| 87.5° | 0.0 | 0.0 | 0.0 | 2.9 | 5.9 | 5.9 | 5.9 | 8.8 | 8.8 | 8.8 | 8.8 |
| 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: P869947

CATALOG NUMBER: MEM2-HTN-SA-110-830-U-T2U-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1772.4 | 1772.4 | 1772.4 | 1772.4 | 1772.4 | 1772.4 | 1772.4 | 1772.4 | 1772.4 | 1772.4 | 1772.4 |
| 2.5° | 1781.3 | 1754.8 | 1707.8 | 1663.7 | 1634.3 | 1610.8 | 1572.6 | 1549.0 | 1531.4 | 1507.9 | 1505.0 |
| 5° | 1775.4 | 1728.3 | 1634.3 | 1554.9 | 1478.5 | 1413.8 | 1346.2 | 1305.1 | 1261.0 | 1240.4 | 1258.0 |
| 7.5° | 1781.3 | 1704.8 | 1557.9 | 1437.4 | 1322.7 | 1219.8 | 1131.7 | 1075.8 | 1034.7 | 1014.1 | 1017.0 |
| 10° | 1784.2 | 1684.3 | 1493.2 | 1325.7 | 1178.7 | 1058.2 | 958.2 | 881.8 | 831.8 | 820.1 | 805.4 |
| 12.5° | 1778.3 | 1657.8 | 1428.5 | 1216.9 | 1040.5 | 908.3 | 790.7 | 731.9 | 681.9 | 658.4 | 658.4 |
| 15° | 1784.2 | 1637.2 | 1360.9 | 1117.0 | 917.1 | 764.2 | 664.3 | 599.6 | 570.2 | 549.7 | 552.6 |
| 17.5° | 1784.2 | 1619.6 | 1296.3 | 1020.0 | 796.6 | 655.5 | 564.4 | 511.5 | 482.1 | 470.3 | 467.4 |
| 20° | 1804.8 | 1604.9 | 1234.5 | 928.8 | 690.8 | 558.5 | 485.0 | 443.8 | 420.3 | 408.6 | 402.7 |
| 22.5° | 1819.5 | 1593.1 | 1178.7 | 840.7 | 602.6 | 487.9 | 426.2 | 388.0 | 370.4 | 364.5 | 364.5 |
| 25° | 1845.9 | 1590.2 | 1128.7 | 755.4 | 532.0 | 435.0 | 379.2 | 349.8 | 335.1 | 329.2 | 329.2 |
| 27.5° | 1884.1 | 1596.1 | 1081.7 | 681.9 | 479.1 | 382.1 | 341.0 | 317.5 | 308.6 | 305.7 | 302.8 |
| 30° | 1940.0 | 1622.5 | 1052.3 | 626.1 | 429.1 | 349.8 | 311.6 | 296.9 | 291.0 | 288.1 | 288.1 |
| 32.5° | 2013.5 | 1669.6 | 1040.5 | 596.7 | 399.8 | 323.3 | 291.0 | 279.2 | 273.4 | 273.4 | 270.4 |
| 35° | 2104.6 | 1722.5 | 1031.7 | 570.2 | 379.2 | 305.7 | 276.3 | 264.5 | 261.6 | 261.6 | 261.6 |
| 37.5° | 2213.3 | 1778.3 | 1017.0 | 552.6 | 367.4 | 291.0 | 264.5 | 252.8 | 252.8 | 252.8 | 252.8 |
| 40° | 2333.9 | 1860.6 | 1014.1 | 540.8 | 358.6 | 282.2 | 252.8 | 241.0 | 241.0 | 241.0 | 241.0 |
| 42.5° | 2469.1 | 1948.8 | 1011.1 | 532.0 | 352.7 | 276.3 | 241.0 | 229.3 | 229.3 | 229.3 | 229.3 |
| 45° | 2633.7 | 2060.5 | 1017.0 | 526.1 | 352.7 | 270.4 | 232.2 | 217.5 | 214.6 | 214.6 | 214.6 |
| 47.5° | 2795.3 | 2166.3 | 1022.9 | 520.3 | 346.8 | 261.6 | 220.5 | 205.8 | 202.8 | 199.9 | 199.9 |
| 50° | 2968.8 | 2275.1 | 1022.9 | 514.4 | 341.0 | 252.8 | 211.6 | 191.1 | 188.1 | 185.2 | 185.2 |
| 52.5° | 3139.2 | 2366.2 | 1025.8 | 505.6 | 326.3 | 238.1 | 196.9 | 179.3 | 173.4 | 170.5 | 167.5 |
| 55° | 3303.9 | 2463.2 | 1028.8 | 490.9 | 308.6 | 223.4 | 188.1 | 167.5 | 158.7 | 152.8 | 152.8 |
| 57.5° | 3427.3 | 2542.6 | 1014.1 | 461.5 | 285.1 | 208.7 | 173.4 | 152.8 | 141.1 | 135.2 | 135.2 |
| 60° | 3544.9 | 2592.5 | 987.6 | 417.4 | 261.6 | 194.0 | 161.7 | 138.2 | 126.4 | 120.5 | 120.5 |
| 62.5° | 3591.9 | 2601.3 | 925.9 | 341.0 | 232.2 | 179.3 | 147.0 | 126.4 | 117.6 | 114.6 | 114.6 |
| 65° | 3565.5 | 2563.1 | 843.6 | 270.4 | 205.8 | 161.7 | 135.2 | 117.6 | 105.8 | 97.0 | 97.0 |
| 67.5° | 3421.4 | 2430.9 | 731.9 | 214.6 | 179.3 | 147.0 | 123.5 | 105.8 | 94.1 | 85.2 | 85.2 |
| 70° | 3148.1 | 2219.2 | 570.2 | 170.5 | 155.8 | 129.3 | 111.7 | 97.0 | 85.2 | 76.4 | 76.4 |
| 72.5° | 2745.4 | 1925.3 | 414.5 | 144.0 | 135.2 | 114.6 | 99.9 | 88.2 | 76.4 | 70.5 | 70.5 |
| 75° | 2263.3 | 1484.4 | 293.9 | 123.5 | 120.5 | 102.9 | 91.1 | 79.4 | 70.5 | 64.7 | 64.7 |
| 77.5° | 1699.0 | 1034.7 | 229.3 | 108.8 | 105.8 | 94.1 | 82.3 | 73.5 | 64.7 | 61.7 | 58.8 |
| 80° | 1131.7 | 640.8 | 173.4 | 82.3 | 79.4 | 73.5 | 67.6 | 61.7 | 52.9 | 47.0 | 47.0 |
| 82.5° | 505.6 | 270.4 | 88.2 | 47.0 | 41.2 | 35.3 | 29.4 | 20.6 | 20.6 | 17.6 | 17.6 |
| 85° | 52.9 | 35.3 | 17.6 | 11.8 | 11.8 | 8.8 | 8.8 | 8.8 | 5.9 | 5.9 | 5.9 |
| 87.5° | 8.8 | 8.8 | 5.9 | 5.9 | 5.9 | 2.9 | 2.9 | 2.9 | 2.9 | 2.9 | 2.9 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

Streetworks

Report Number: SP1-2407-157-7

Test Date: 09/05/2024

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

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

Test Information

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

Spectral Parameters

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

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



Test Conditions

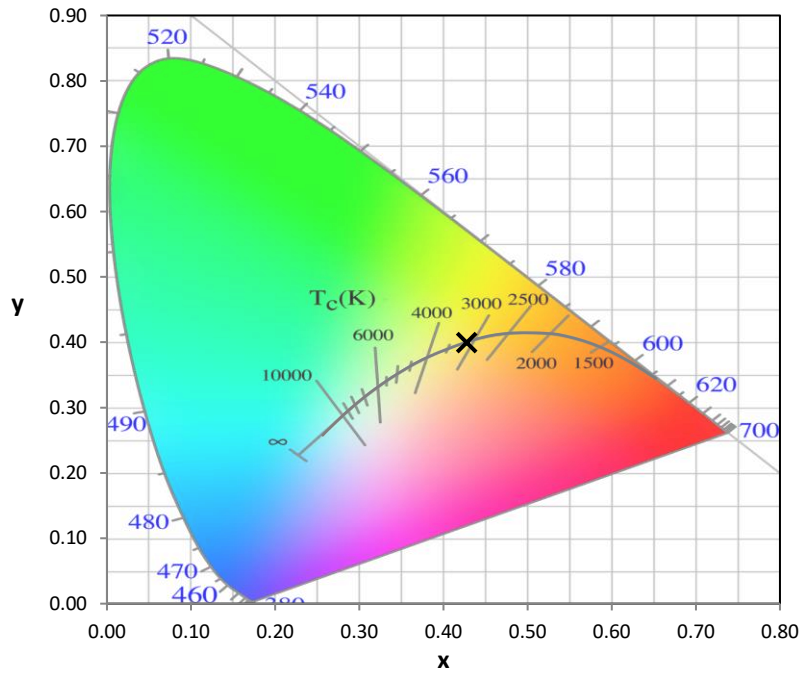
Stabilization Time: 22M
 Operation Time: 1H 22M
 Sphere Temperature (°C): 24.3

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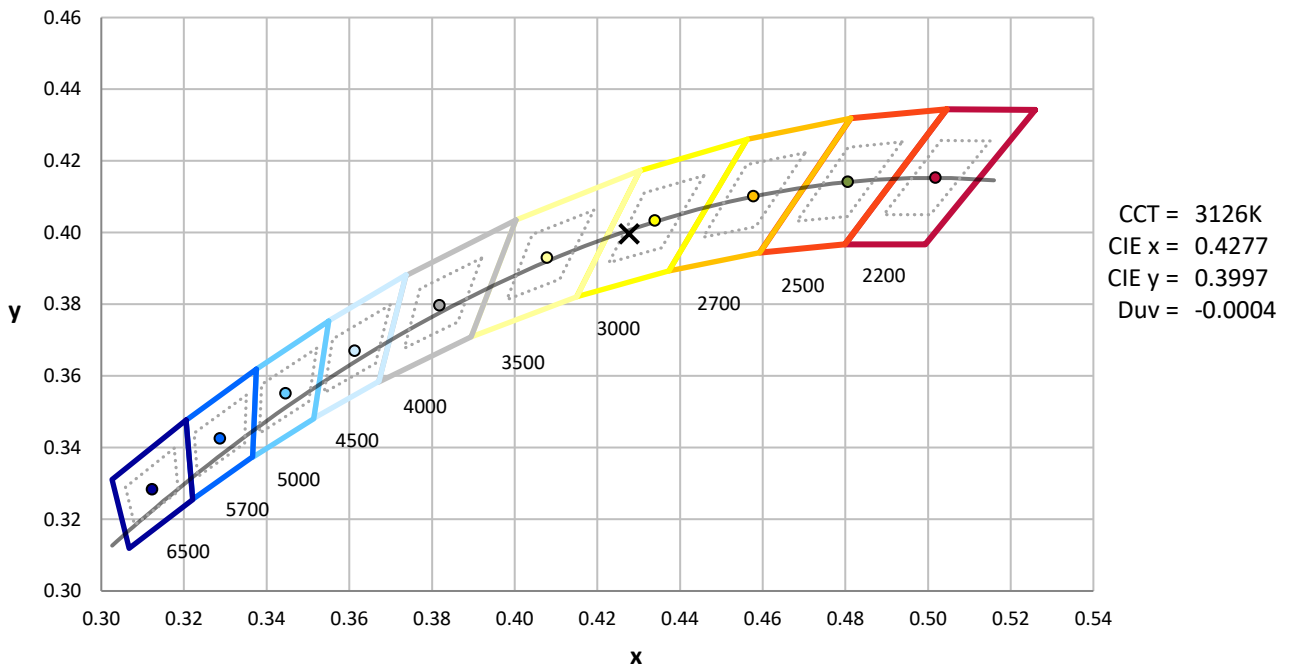
| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 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 3000K 4-step quadrangle

REPORT NUMBER: SP1-2407-157-7

Photopic Flux vs. Wavelength

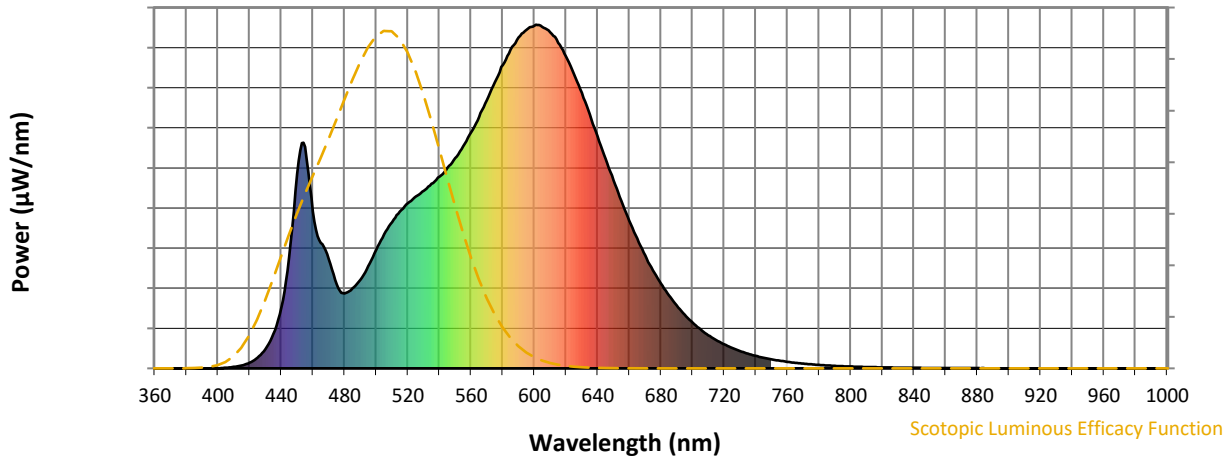


Photopic Lumens: NR

| λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) |
|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|
| 360 | 0 | NR | 490 | 258 | NR | 620 | 908 | NR | 750 | 26 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 297 | NR | 625 | 857 | NR | 755 | 22 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 345 | NR | 630 | 801 | NR | 760 | 19 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 391 | NR | 635 | 738 | NR | 765 | 16 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 426 | NR | 640 | 675 | NR | 770 | 14 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 456 | NR | 645 | 610 | NR | 775 | 12 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 480 | NR | 650 | 547 | NR | 780 | 10 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 500 | NR | 655 | 488 | NR | 785 | 9 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 517 | NR | 660 | 429 | NR | 790 | 7 | NR | 920 | 0 | NR |
| 405 | 2 | NR | 535 | 538 | NR | 665 | 378 | NR | 795 | 6 | NR | 925 | 0 | NR |
| 410 | 4 | NR | 540 | 558 | NR | 670 | 328 | NR | 800 | 5 | NR | 930 | 0 | NR |
| 415 | 9 | NR | 545 | 584 | NR | 675 | 285 | NR | 805 | 5 | NR | 935 | 0 | NR |
| 420 | 16 | NR | 550 | 611 | NR | 680 | 247 | NR | 810 | 4 | NR | 940 | 0 | NR |
| 425 | 31 | NR | 555 | 646 | NR | 685 | 212 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 56 | NR | 560 | 687 | NR | 690 | 183 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 101 | NR | 565 | 731 | NR | 695 | 156 | NR | 825 | 3 | NR | 955 | 0 | NR |
| 440 | 178 | NR | 570 | 780 | NR | 700 | 133 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 323 | NR | 575 | 832 | NR | 705 | 114 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 566 | NR | 580 | 883 | NR | 710 | 96 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 645 | NR | 585 | 927 | NR | 715 | 82 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 457 | NR | 590 | 963 | NR | 720 | 70 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 365 | NR | 595 | 985 | NR | 725 | 59 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 317 | NR | 600 | 998 | NR | 730 | 50 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 244 | NR | 605 | 994 | NR | 735 | 43 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 218 | NR | 610 | 978 | NR | 740 | 36 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 233 | NR | 615 | 947 | NR | 745 | 31 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2407-157-7

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.42

| λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360 | 0 | NR | 490 | 258 | NR | 620 | 908 | NR | 750 | 26 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 297 | NR | 625 | 857 | NR | 755 | 22 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 345 | NR | 630 | 801 | NR | 760 | 19 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 391 | NR | 635 | 738 | NR | 765 | 16 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 426 | NR | 640 | 675 | NR | 770 | 14 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 456 | NR | 645 | 610 | NR | 775 | 12 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 480 | NR | 650 | 547 | NR | 780 | 10 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 500 | NR | 655 | 488 | NR | 785 | 9 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 517 | NR | 660 | 429 | NR | 790 | 7 | NR | 920 | 0 | NR |
| 405 | 2 | NR | 535 | 538 | NR | 665 | 378 | NR | 795 | 6 | NR | 925 | 0 | NR |
| 410 | 4 | NR | 540 | 558 | NR | 670 | 328 | NR | 800 | 5 | NR | 930 | 0 | NR |
| 415 | 9 | NR | 545 | 584 | NR | 675 | 285 | NR | 805 | 5 | NR | 935 | 0 | NR |
| 420 | 16 | NR | 550 | 611 | NR | 680 | 247 | NR | 810 | 4 | NR | 940 | 0 | NR |
| 425 | 31 | NR | 555 | 646 | NR | 685 | 212 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 56 | NR | 560 | 687 | NR | 690 | 183 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 101 | NR | 565 | 731 | NR | 695 | 156 | NR | 825 | 3 | NR | 955 | 0 | NR |
| 440 | 178 | NR | 570 | 780 | NR | 700 | 133 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 323 | NR | 575 | 832 | NR | 705 | 114 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 566 | NR | 580 | 883 | NR | 710 | 96 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 645 | NR | 585 | 927 | NR | 715 | 82 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 457 | NR | 590 | 963 | NR | 720 | 70 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 365 | NR | 595 | 985 | NR | 725 | 59 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 317 | NR | 600 | 998 | NR | 730 | 50 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 244 | NR | 605 | 994 | NR | 735 | 43 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 218 | NR | 610 | 978 | NR | 740 | 36 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 233 | NR | 615 | 947 | NR | 745 | 31 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2407-157-7

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.79

| λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360 | 0 | NR | 490 | 258 | NR | 620 | 908 | NR | 750 | 26 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 297 | NR | 625 | 857 | NR | 755 | 22 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 345 | NR | 630 | 801 | NR | 760 | 19 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 391 | NR | 635 | 738 | NR | 765 | 16 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 426 | NR | 640 | 675 | NR | 770 | 14 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 456 | NR | 645 | 610 | NR | 775 | 12 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 480 | NR | 650 | 547 | NR | 780 | 10 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 500 | NR | 655 | 488 | NR | 785 | 9 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 517 | NR | 660 | 429 | NR | 790 | 7 | NR | 920 | 0 | NR |
| 405 | 2 | NR | 535 | 538 | NR | 665 | 378 | NR | 795 | 6 | NR | 925 | 0 | NR |
| 410 | 4 | NR | 540 | 558 | NR | 670 | 328 | NR | 800 | 5 | NR | 930 | 0 | NR |
| 415 | 9 | NR | 545 | 584 | NR | 675 | 285 | NR | 805 | 5 | NR | 935 | 0 | NR |
| 420 | 16 | NR | 550 | 611 | NR | 680 | 247 | NR | 810 | 4 | NR | 940 | 0 | NR |
| 425 | 31 | NR | 555 | 646 | NR | 685 | 212 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 56 | NR | 560 | 687 | NR | 690 | 183 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 101 | NR | 565 | 731 | NR | 695 | 156 | NR | 825 | 3 | NR | 955 | 0 | NR |
| 440 | 178 | NR | 570 | 780 | NR | 700 | 133 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 323 | NR | 575 | 832 | NR | 705 | 114 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 566 | NR | 580 | 883 | NR | 710 | 96 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 645 | NR | 585 | 927 | NR | 715 | 82 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 457 | NR | 590 | 963 | NR | 720 | 70 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 365 | NR | 595 | 985 | NR | 725 | 59 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 317 | NR | 600 | 998 | NR | 730 | 50 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 244 | NR | 605 | 994 | NR | 735 | 43 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 218 | NR | 610 | 978 | NR | 740 | 36 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 233 | NR | 615 | 947 | NR | 745 | 31 | NR | 875 | 1 | NR | | | |

Summary

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



Color Vector Graphics



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

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



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)