

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: P869884

Luminaire Tested: **MEM2-HTN-SA-130-840-U-T2R-HSS**

Issue Date: 08/21/2024



Test Information

Test Method: LM-79-08
Report Number: P869884
Test Lab: INNOVATION CENTER(G3)
Issue Date: 08/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: STREETWORKS
Catalog Number: MEM2-HTN-SA-130-840-U-T2R-HSS
Description: EPIC MODERN TALL HOUSING DISCRETE LED ARRAYS 130W 80CRI 4000K
FITXURE w/ TYPE II ROADWAY DISTRIBUTION OPTIC AND HOUSE SIDE SHIELD
Light Source: (30) 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

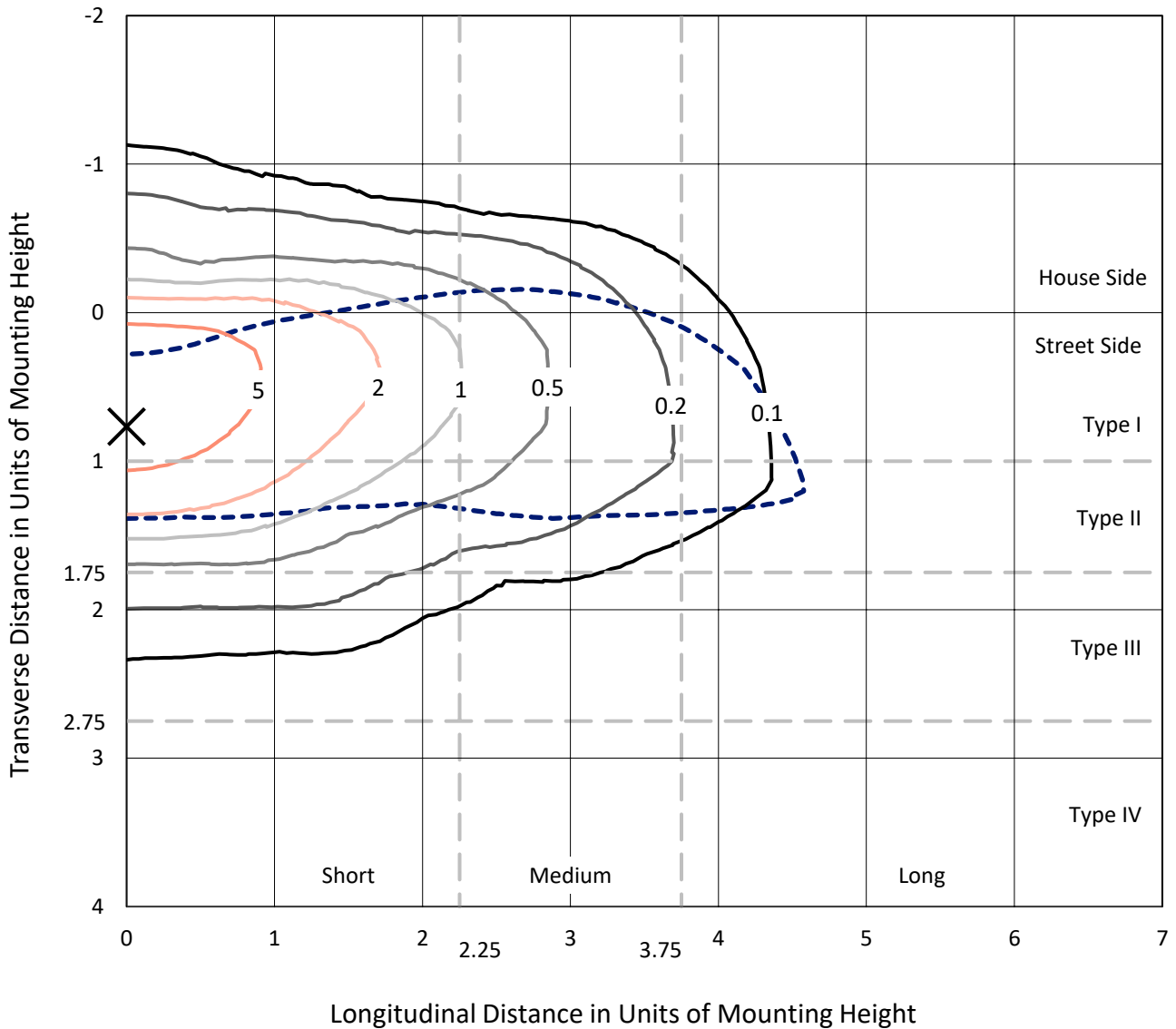
Lumens per Lamp: N/A
Luminaire Lumens: 11448.4 lumens
Efficiency: N/A
Efficacy: 101.3 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 0.33' x H: 0')
IES Classification: Type II - Short
BUG Rating: B1 - U0 - G2

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

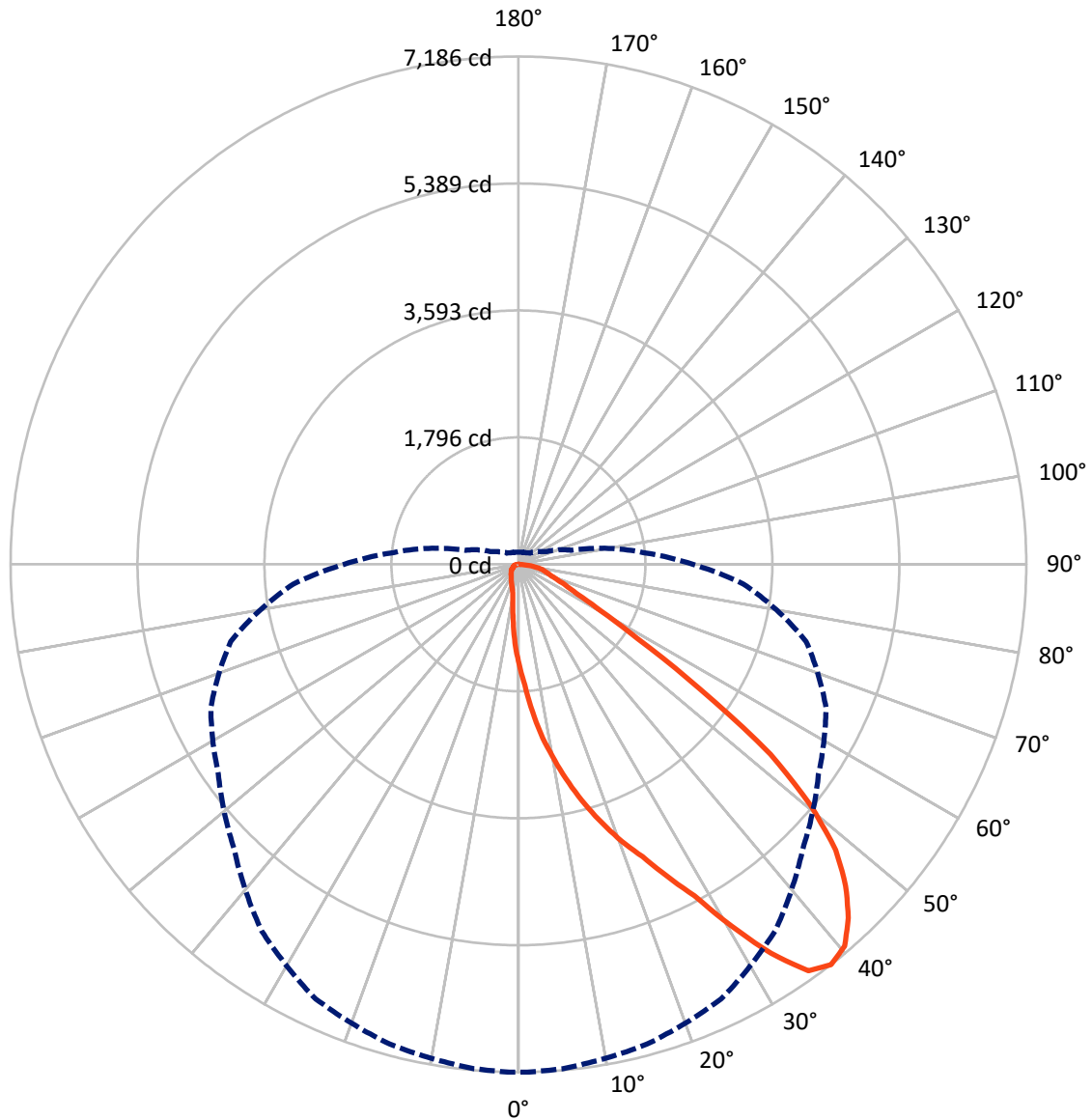
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 9.8 fc
 Type II - Short - N/A

REPORT NUMBER: P869884
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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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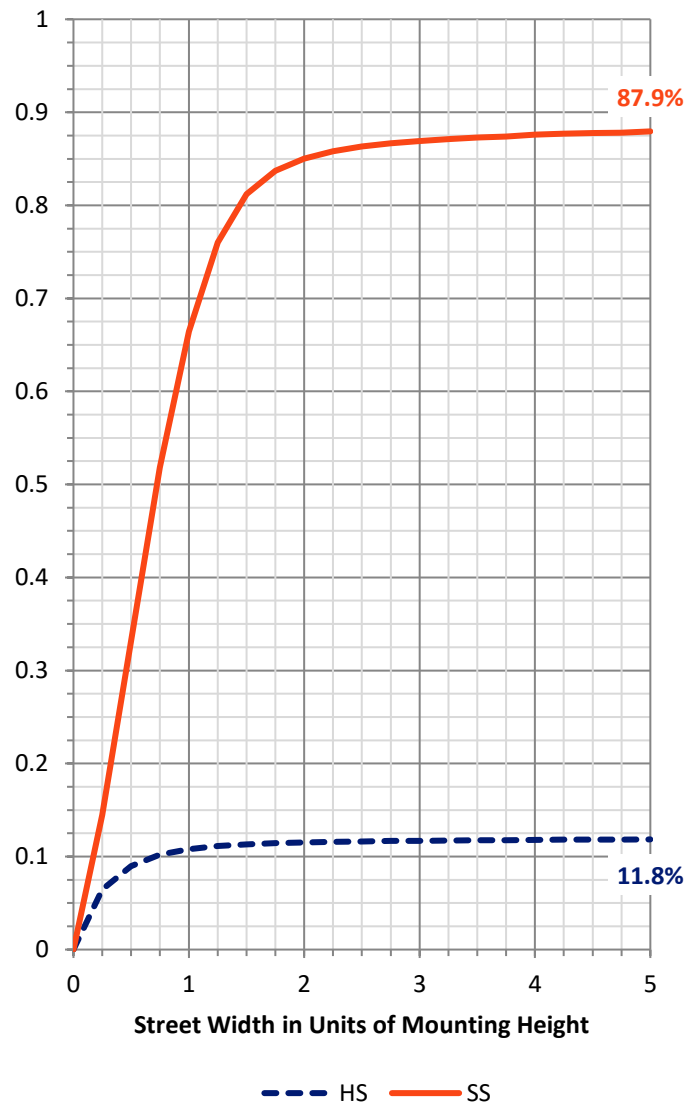
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 1365.4 | 0.0 | 1365.4 |
| | % Fixture | 11.9 | 0.0 | 11.9 |
| Street Side | Lumens | 10082.9 | 0.0 | 10082.9 |
| | % Fixture | 88.1 | 0.0 | 88.1 |
| Total | Lumens | 11448.4 | 0.0 | 11448.4 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 142.3 | 1.2 |
| 10°-20° | 497.5 | 4.3 |
| 20°-30° | 1026.5 | 9.0 |
| 30°-40° | 1806.1 | 15.8 |
| 40°-50° | 2452.2 | 21.4 |
| 50°-60° | 2429.6 | 21.2 |
| 60°-70° | 1870.5 | 16.3 |
| 70°-80° | 1085.6 | 9.5 |
| 80°-90° | 138.1 | 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° | 11448.4 | 100.0 |
| 0°-180° | 11448.4 | 100.0 |



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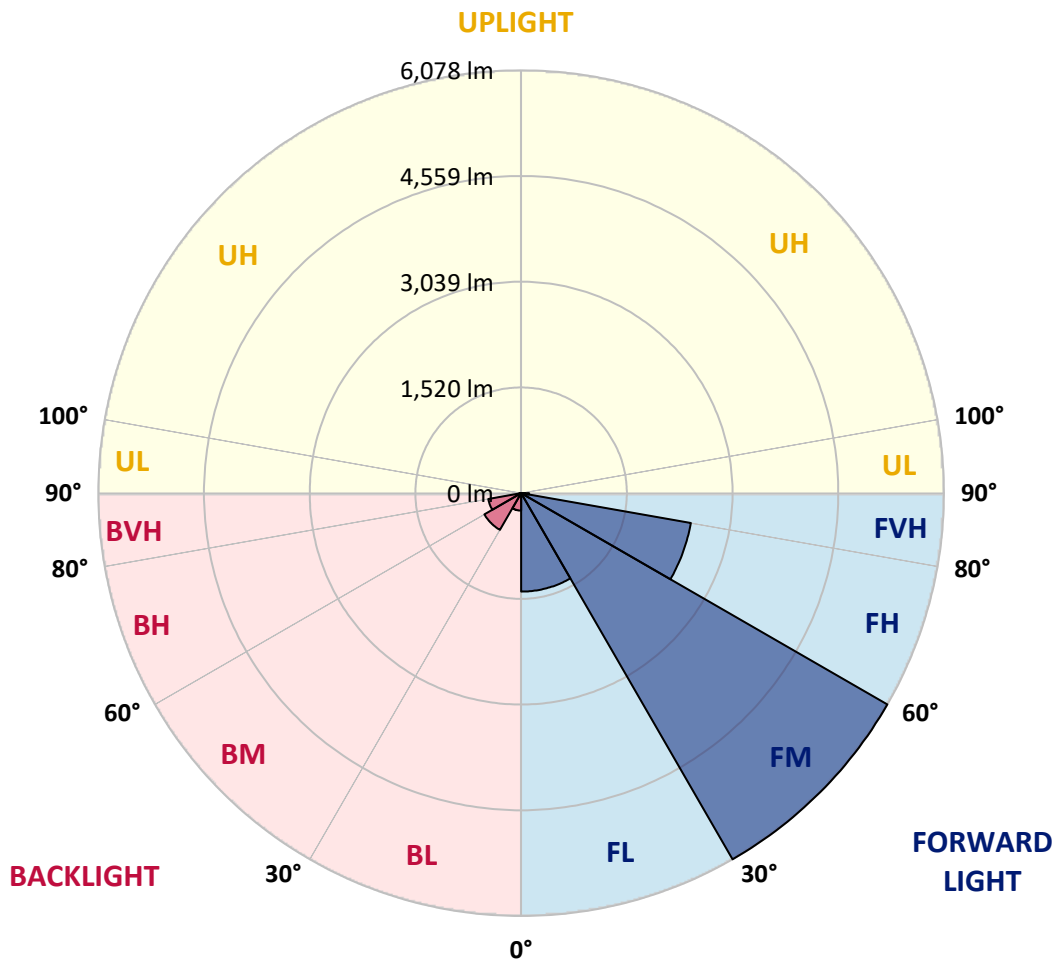
CATALOG NUMBER: MEM2-HTN-SA-130-840-U-T2R-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1415.2 | 12.4 | | | |
| FM (30°-60°) | 6078.1 | 53.1 | | | |
| FH (60°-80°) | 2477.0 | 21.6 | | | G2/5000 |
| FVH (80°-90°) | 112.6 | 1.0 | | | G2/225 |
| BL (0°-30°) | 251.0 | 2.2 | B1/500 | | |
| BM (30°-60°) | 609.9 | 5.3 | B1/1000 | | |
| BH (60°-80°) | 479.1 | 4.2 | B1/500 | | G1/500 |
| BVH (80°-90°) | 25.5 | 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: P869884

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CANDELA DISTRIBUTION (FULL):

| | 0° | 1° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1418.6 | 1418.6 | 1418.6 | 1418.6 | 1418.6 | 1418.6 | 1418.6 | 1418.6 | 1418.6 | 1418.6 | 1418.6 |
| 2.5° | 1709.4 | 1734.9 | 1715.7 | 1699.8 | 1677.4 | 1655.0 | 1623.1 | 1587.9 | 1543.2 | 1488.9 | 1441.0 |
| 5° | 2096.0 | 2108.7 | 2102.4 | 2092.8 | 2022.5 | 1955.4 | 1888.3 | 1805.2 | 1690.2 | 1587.9 | 1479.3 |
| 7.5° | 2482.6 | 2476.2 | 2460.2 | 2431.4 | 2367.5 | 2290.9 | 2169.4 | 2032.1 | 1869.1 | 1690.2 | 1520.8 |
| 10° | 2821.2 | 2830.8 | 2818.0 | 2773.3 | 2693.4 | 2588.0 | 2441.0 | 2284.5 | 2064.0 | 1814.8 | 1578.4 |
| 12.5° | 3175.9 | 3182.3 | 3182.3 | 3086.4 | 3032.1 | 2869.2 | 2712.6 | 2501.7 | 2255.7 | 1968.2 | 1645.5 |
| 15° | 3524.2 | 3511.4 | 3511.4 | 3447.5 | 3351.6 | 3169.5 | 2993.8 | 2738.2 | 2460.2 | 2111.9 | 1722.1 |
| 17.5° | 3856.4 | 3862.8 | 3834.1 | 3763.8 | 3671.1 | 3495.4 | 3278.1 | 2997.0 | 2661.5 | 2284.5 | 1802.0 |
| 20° | 4185.5 | 4166.4 | 4153.6 | 4083.3 | 3984.2 | 3776.6 | 3568.9 | 3249.4 | 2897.9 | 2479.4 | 1913.8 |
| 22.5° | 4492.3 | 4501.8 | 4469.9 | 4358.1 | 4265.4 | 4076.9 | 3840.5 | 3546.5 | 3147.1 | 2674.3 | 2035.3 |
| 25° | 4888.4 | 4856.5 | 4885.3 | 4751.1 | 4607.3 | 4383.6 | 4115.2 | 3824.5 | 3418.7 | 2913.9 | 2185.4 |
| 27.5° | 5310.2 | 5329.4 | 5313.4 | 5166.4 | 4971.5 | 4671.2 | 4390.0 | 4080.1 | 3693.5 | 3140.7 | 2354.8 |
| 30° | 5939.6 | 5930.0 | 5933.2 | 5712.8 | 5390.1 | 5032.2 | 4687.2 | 4348.5 | 3968.3 | 3418.7 | 2552.9 |
| 32.5° | 6562.7 | 6597.8 | 6511.5 | 6316.6 | 5946.0 | 5406.0 | 4984.3 | 4607.3 | 4233.5 | 3658.3 | 2754.1 |
| 35° | 7064.3 | 7054.7 | 7019.6 | 6802.3 | 6434.9 | 5910.9 | 5323.0 | 4894.8 | 4514.6 | 3952.3 | 2977.8 |
| 37.5° | 7185.7 | 7185.7 | 7163.3 | 7029.1 | 6786.3 | 6332.6 | 5690.4 | 5182.4 | 4802.2 | 4214.3 | 3195.1 |
| 40° | 7105.8 | 7089.8 | 7077.1 | 6987.6 | 6856.6 | 6588.2 | 6077.0 | 5479.5 | 5108.9 | 4553.0 | 3434.7 |
| 42.5° | 6843.8 | 6847.0 | 6831.0 | 6779.9 | 6709.6 | 6607.4 | 6316.6 | 5795.8 | 5409.2 | 4872.5 | 3671.1 |
| 45° | 6492.4 | 6498.8 | 6479.6 | 6473.2 | 6438.1 | 6438.1 | 6371.0 | 6045.1 | 5693.6 | 5198.4 | 3929.9 |
| 47.5° | 6041.9 | 6038.7 | 6029.1 | 6013.1 | 6083.4 | 6160.1 | 6220.8 | 6185.6 | 5946.0 | 5549.8 | 4163.2 |
| 50° | 5354.9 | 5348.5 | 5377.3 | 5457.2 | 5629.7 | 5799.0 | 5978.0 | 6144.1 | 6128.1 | 5875.7 | 4444.3 |
| 52.5° | 4463.5 | 4422.0 | 4453.9 | 4699.9 | 5054.6 | 5431.6 | 5684.0 | 5946.0 | 6220.8 | 6220.8 | 4722.3 |
| 55° | 3121.6 | 3156.7 | 3175.9 | 3536.9 | 4236.7 | 4885.3 | 5329.4 | 5668.0 | 6185.6 | 6495.6 | 5029.0 |
| 57.5° | 1987.3 | 2000.1 | 2057.6 | 2447.4 | 3268.5 | 4080.1 | 4866.1 | 5422.0 | 6054.6 | 6725.6 | 5335.8 |
| 60° | 1338.7 | 1294.0 | 1338.7 | 1562.4 | 2351.6 | 3201.5 | 4185.5 | 5112.1 | 5866.1 | 6891.7 | 5674.4 |
| 62.5° | 945.7 | 942.5 | 955.3 | 1086.3 | 1677.4 | 2405.9 | 3332.5 | 4693.5 | 5716.0 | 6901.3 | 5926.8 |
| 65° | 763.6 | 741.3 | 750.8 | 824.3 | 1124.7 | 1763.7 | 2444.2 | 3936.3 | 5581.8 | 6732.0 | 6051.4 |
| 67.5° | 613.5 | 603.9 | 610.3 | 658.2 | 843.5 | 1326.0 | 1722.1 | 2993.8 | 5297.4 | 6444.4 | 5981.2 |
| 70° | 501.6 | 504.8 | 508.0 | 555.9 | 671.0 | 1003.2 | 1230.1 | 2054.4 | 4690.4 | 6118.5 | 5664.8 |
| 72.5° | 434.5 | 434.5 | 437.7 | 469.7 | 562.3 | 795.6 | 929.8 | 1335.5 | 3795.7 | 5767.1 | 5083.3 |
| 75° | 383.4 | 383.4 | 383.4 | 412.2 | 479.3 | 639.0 | 722.1 | 913.8 | 2725.4 | 5115.3 | 4204.7 |
| 77.5° | 332.3 | 335.5 | 335.5 | 361.0 | 412.2 | 498.4 | 555.9 | 632.6 | 1738.1 | 3952.3 | 3182.3 |
| 80° | 255.6 | 255.6 | 258.8 | 287.6 | 351.5 | 389.8 | 409.0 | 447.3 | 913.8 | 2482.6 | 2019.3 |
| 82.5° | 178.9 | 182.1 | 182.1 | 185.3 | 236.4 | 239.6 | 220.5 | 223.7 | 332.3 | 824.3 | 766.8 |
| 85° | 19.2 | 22.4 | 25.6 | 25.6 | 41.5 | 51.1 | 54.3 | 51.1 | 54.3 | 95.9 | 95.9 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 3.2 | 6.4 | 6.4 | 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: P869884

CATALOG NUMBER: MEM2-HTN-SA-130-840-U-T2R-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1418.6 | 1418.6 | 1418.6 | 1418.6 | 1418.6 | 1418.6 | 1418.6 | 1418.6 | 1418.6 | 1418.6 | 1418.6 |
| 2.5° | 1415.4 | 1393.0 | 1345.1 | 1303.6 | 1265.2 | 1233.3 | 1210.9 | 1182.2 | 1159.8 | 1159.8 | 1172.6 |
| 5° | 1425.0 | 1373.9 | 1274.8 | 1182.2 | 1108.7 | 1038.4 | 974.5 | 933.0 | 901.0 | 881.8 | 881.8 |
| 7.5° | 1437.8 | 1361.1 | 1210.9 | 1070.3 | 955.3 | 843.5 | 744.4 | 696.5 | 648.6 | 632.6 | 635.8 |
| 10° | 1463.3 | 1354.7 | 1153.4 | 971.3 | 798.8 | 658.2 | 562.3 | 511.2 | 485.6 | 472.9 | 472.9 |
| 12.5° | 1492.1 | 1354.7 | 1092.7 | 859.5 | 658.2 | 514.4 | 456.9 | 418.6 | 405.8 | 399.4 | 393.0 |
| 15° | 1530.4 | 1361.1 | 1041.6 | 741.3 | 536.8 | 434.5 | 393.0 | 370.6 | 357.8 | 351.5 | 351.5 |
| 17.5° | 1575.2 | 1367.5 | 987.3 | 645.4 | 456.9 | 383.4 | 351.5 | 335.5 | 322.7 | 316.3 | 316.3 |
| 20° | 1632.7 | 1383.5 | 933.0 | 559.1 | 399.4 | 351.5 | 322.7 | 306.7 | 293.9 | 290.8 | 287.6 |
| 22.5° | 1703.0 | 1409.0 | 878.6 | 488.8 | 361.0 | 319.5 | 293.9 | 281.2 | 271.6 | 265.2 | 265.2 |
| 25° | 1786.0 | 1441.0 | 837.1 | 437.7 | 332.3 | 297.1 | 274.8 | 258.8 | 249.2 | 246.0 | 246.0 |
| 27.5° | 1901.1 | 1495.3 | 795.6 | 399.4 | 309.9 | 274.8 | 252.4 | 239.6 | 230.0 | 226.8 | 223.7 |
| 30° | 2009.7 | 1562.4 | 776.4 | 389.8 | 293.9 | 255.6 | 239.6 | 223.7 | 214.1 | 210.9 | 207.7 |
| 32.5° | 2150.3 | 1639.1 | 763.6 | 389.8 | 287.6 | 242.8 | 223.7 | 210.9 | 201.3 | 198.1 | 194.9 |
| 35° | 2300.4 | 1728.5 | 763.6 | 402.6 | 290.8 | 233.2 | 210.9 | 198.1 | 188.5 | 182.1 | 182.1 |
| 37.5° | 2463.4 | 1818.0 | 770.0 | 421.7 | 300.3 | 226.8 | 198.1 | 185.3 | 175.7 | 172.5 | 172.5 |
| 40° | 2635.9 | 1939.4 | 782.8 | 437.7 | 309.9 | 223.7 | 185.3 | 175.7 | 166.1 | 159.8 | 159.8 |
| 42.5° | 2795.7 | 2035.3 | 805.2 | 456.9 | 316.3 | 220.5 | 175.7 | 166.1 | 156.6 | 153.4 | 153.4 |
| 45° | 2981.0 | 2140.7 | 824.3 | 469.7 | 316.3 | 210.9 | 166.1 | 156.6 | 150.2 | 147.0 | 143.8 |
| 47.5° | 3128.0 | 2227.0 | 833.9 | 476.1 | 309.9 | 201.3 | 156.6 | 150.2 | 143.8 | 137.4 | 140.6 |
| 50° | 3306.9 | 2319.6 | 849.9 | 479.3 | 297.1 | 188.5 | 150.2 | 140.6 | 134.2 | 131.0 | 131.0 |
| 52.5° | 3479.4 | 2412.3 | 862.7 | 472.9 | 281.2 | 172.5 | 140.6 | 134.2 | 127.8 | 121.4 | 121.4 |
| 55° | 3683.9 | 2514.5 | 881.8 | 463.3 | 255.6 | 156.6 | 131.0 | 124.6 | 115.0 | 111.8 | 108.6 |
| 57.5° | 3917.1 | 2648.7 | 897.8 | 444.1 | 223.7 | 140.6 | 124.6 | 115.0 | 102.2 | 95.9 | 95.9 |
| 60° | 4131.2 | 2802.1 | 910.6 | 396.2 | 194.9 | 131.0 | 115.0 | 105.4 | 92.7 | 89.5 | 89.5 |
| 62.5° | 4361.3 | 2961.8 | 910.6 | 313.1 | 166.1 | 118.2 | 108.6 | 99.0 | 86.3 | 83.1 | 83.1 |
| 65° | 4521.0 | 3105.6 | 881.8 | 233.2 | 140.6 | 111.8 | 105.4 | 92.7 | 79.9 | 76.7 | 76.7 |
| 67.5° | 4565.7 | 3195.1 | 802.0 | 166.1 | 121.4 | 105.4 | 99.0 | 86.3 | 76.7 | 70.3 | 70.3 |
| 70° | 4422.0 | 3124.8 | 655.0 | 127.8 | 105.4 | 95.9 | 89.5 | 79.9 | 70.3 | 67.1 | 67.1 |
| 72.5° | 4009.8 | 2856.4 | 488.8 | 108.6 | 92.7 | 89.5 | 83.1 | 73.5 | 67.1 | 63.9 | 63.9 |
| 75° | 3358.0 | 2373.9 | 345.1 | 95.9 | 86.3 | 79.9 | 73.5 | 67.1 | 60.7 | 60.7 | 60.7 |
| 77.5° | 2543.3 | 1715.7 | 214.1 | 86.3 | 73.5 | 73.5 | 67.1 | 60.7 | 57.5 | 54.3 | 54.3 |
| 80° | 1642.3 | 1083.1 | 121.4 | 60.7 | 51.1 | 54.3 | 47.9 | 41.5 | 41.5 | 38.3 | 38.3 |
| 82.5° | 696.5 | 428.1 | 63.9 | 35.1 | 25.6 | 22.4 | 16.0 | 16.0 | 12.8 | 12.8 | 12.8 |
| 85° | 70.3 | 25.6 | 12.8 | 9.6 | 9.6 | 6.4 | 6.4 | 6.4 | 6.4 | 3.2 | 3.2 |
| 87.5° | 9.6 | 9.6 | 9.6 | 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-40-840-U-5WQ

Data in this report applies to families of products including MEM2-HTN-SA-40-840-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-40-840-U-5WQ**
 Description: Epic Modern Light Square 40W 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

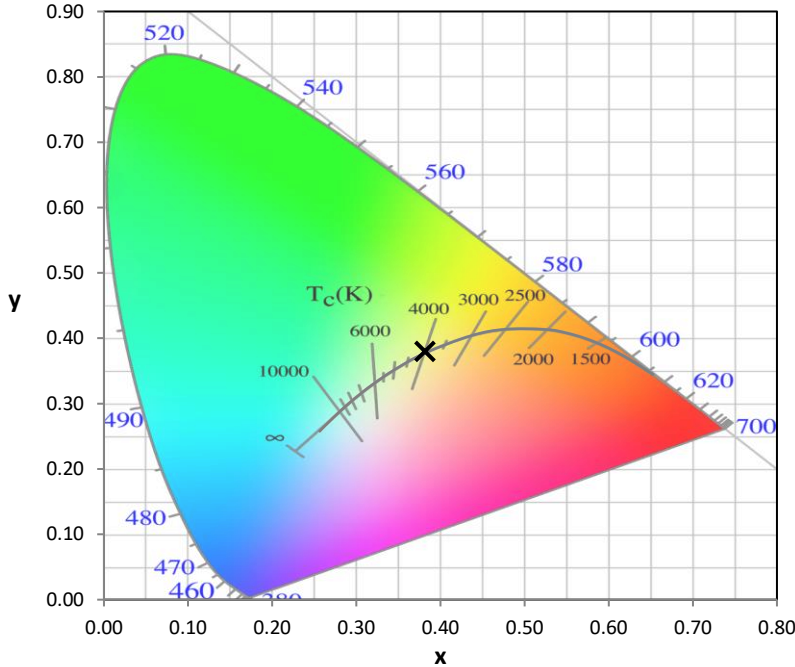
Stabilization Time: 29M
 Operation Time: 1H 29M
 Sphere Temperature (°C): 24.3

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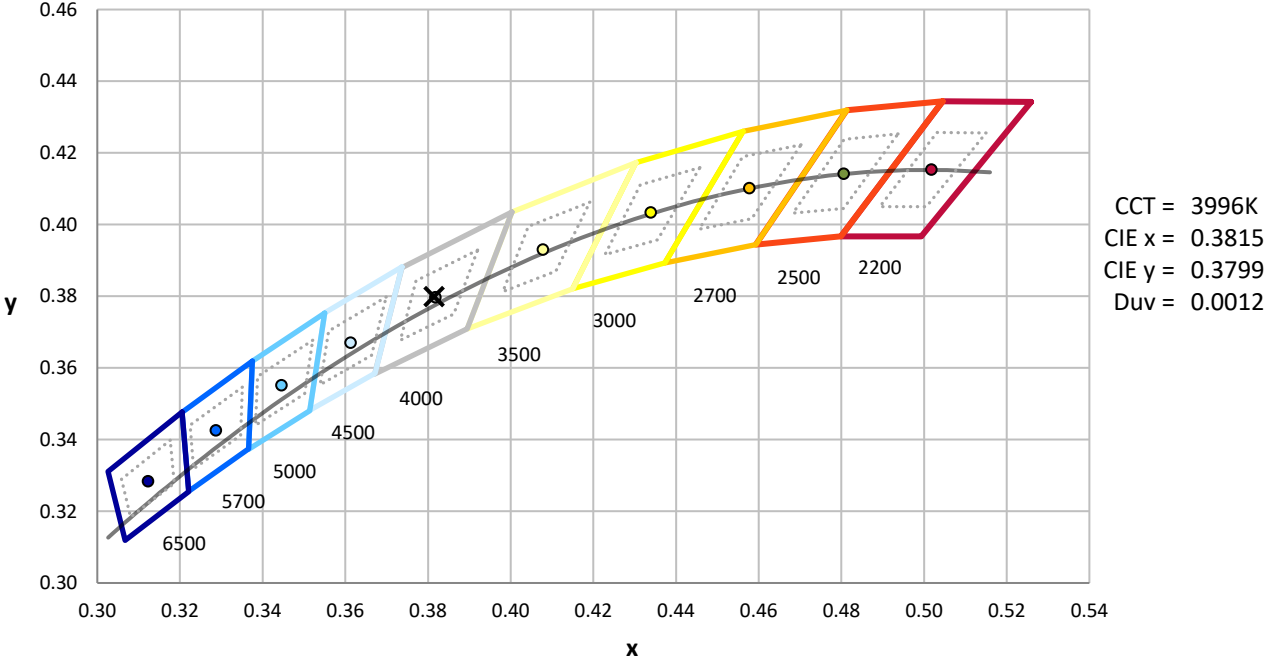
| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 |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



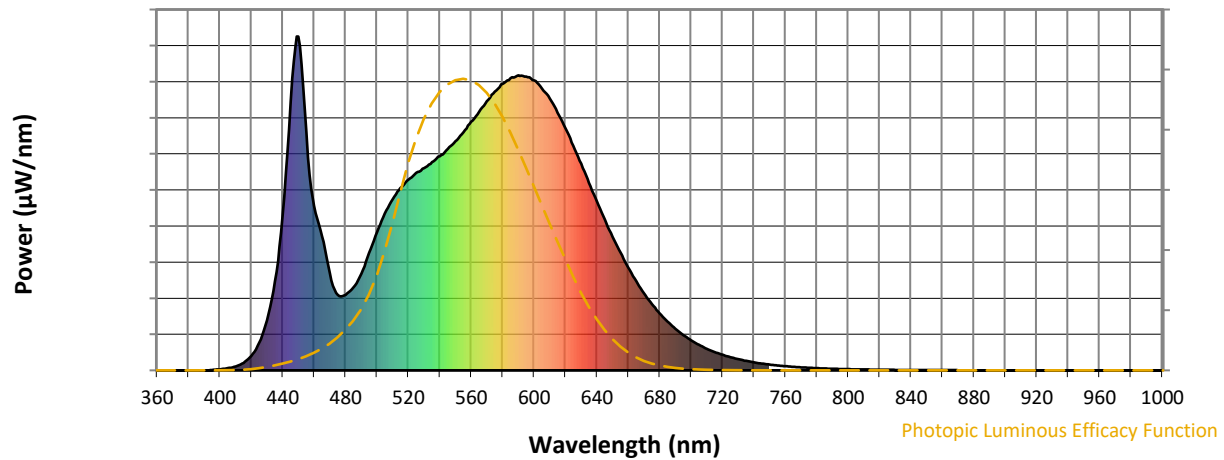
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 4000K 4-step quadrangle

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Photopic Flux vs. Wavelength



Photopic Lumens: NR

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

REPORT NUMBER: SP1-2407-157-8

Scotopic Flux vs. Wavelength



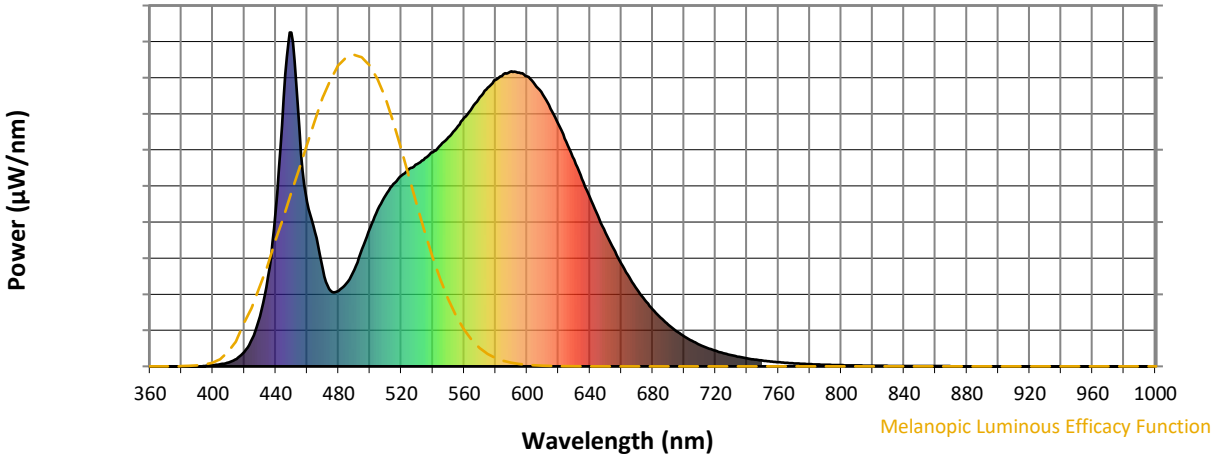
Scotopic Lumens: NR

S/P: 1.66

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

REPORT NUMBER: SP1-2407-157-8

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.37

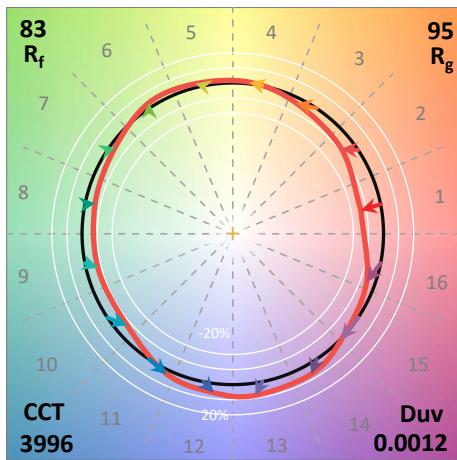
| λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|------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

Summary

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

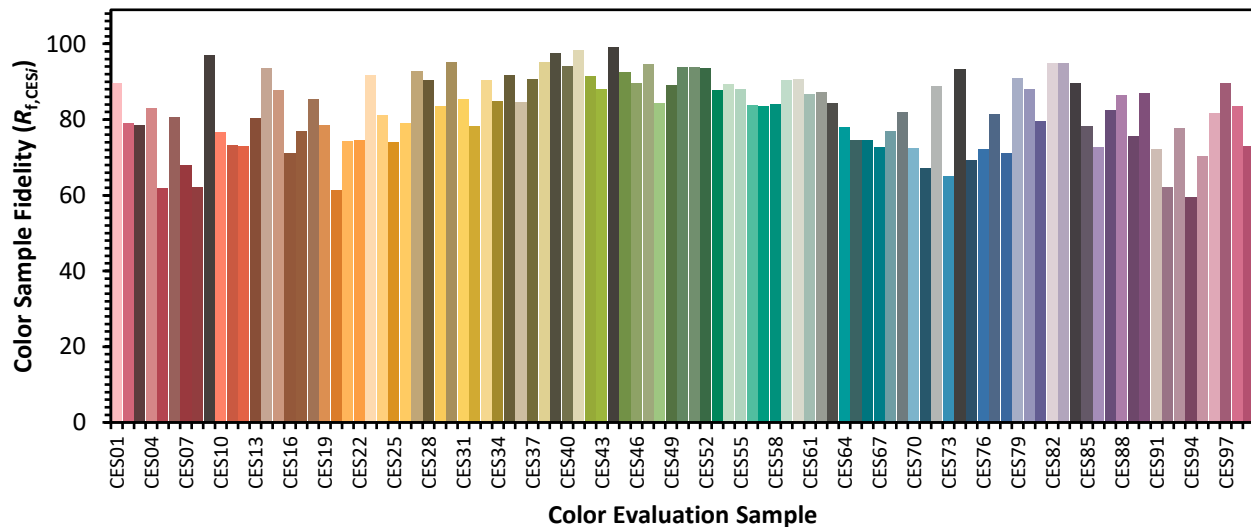


Color Vector Graphics

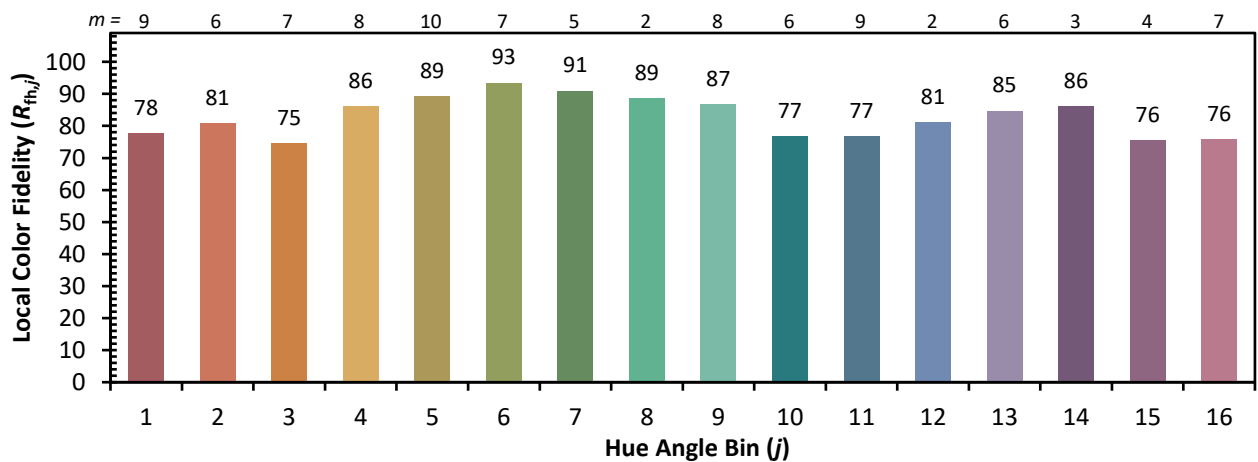
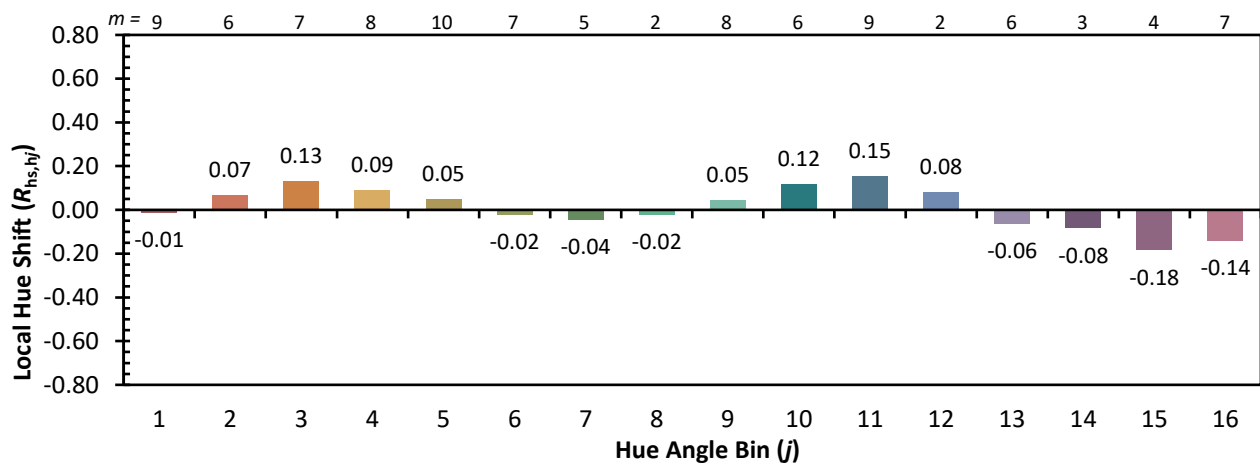
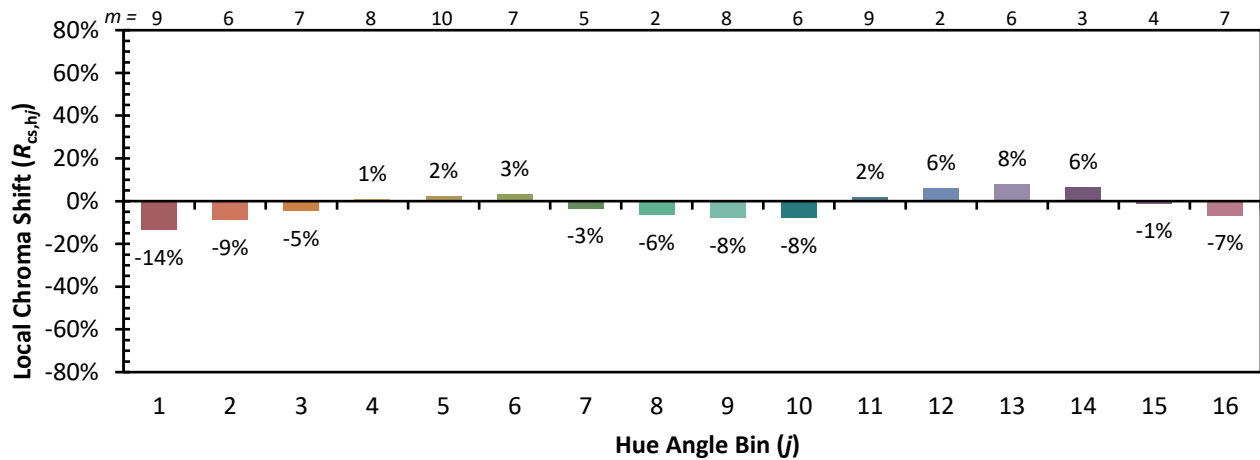


Individual Sample Fidelity Index ($R_{f,i}$)

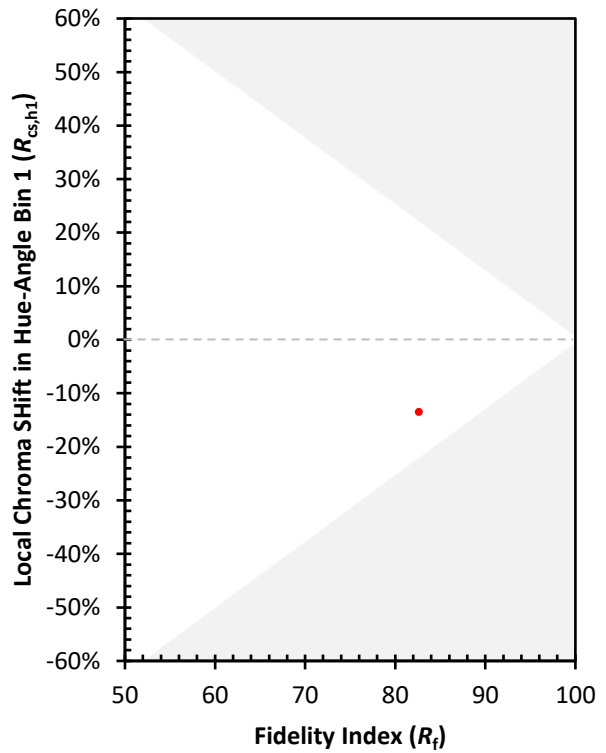
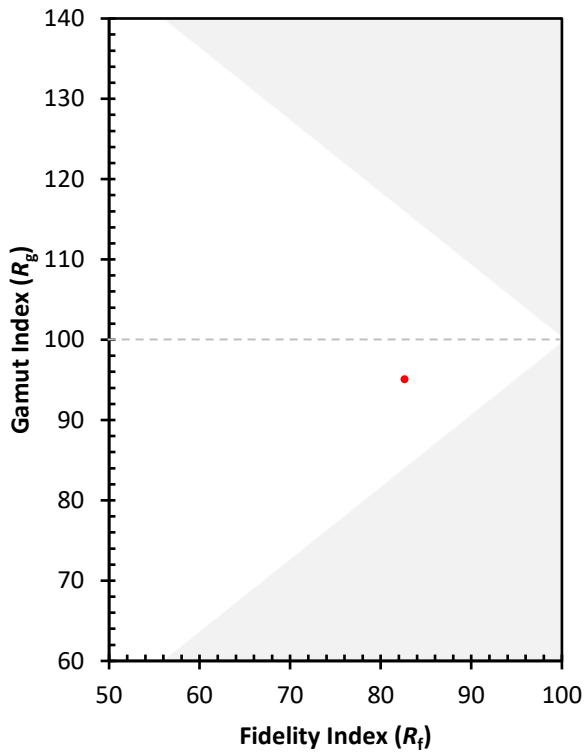
| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 79 | CES51 = 94 | CES76 = 72 |
| CES02 = 61 | CES27 = 93 | CES52 = 94 | CES77 = 82 |
| CES03 = 31 | CES28 = 90 | CES53 = 88 | CES78 = 71 |
| CES04 = 69 | CES29 = 83 | CES54 = 89 | CES79 = 91 |
| CES05 = 48 | CES30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



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)