

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: P870352

Luminaire Tested: **MEM2-HSN-SA-120-840-U-T2U-HSS**

Issue Date: 09/05/2024



Test Information

Test Method: LM-79-08
Report Number: P870352
Test Lab: INNOVATION CENTER(G3)
Issue Date: 09/05/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: STREETWORKS
Catalog Number: MEM2-HSN-SA-120-840-U-T2U-HSS
Description: EPIC MODERN SHORT HOUSING DISCRETE LED ARRAYS 120W 80CRI 4000K
FITURE w/ TYPE II URBAN DISTRIBUTION OPTIC AND HOUSE SIDE SHIELD
Light Source: (20) 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

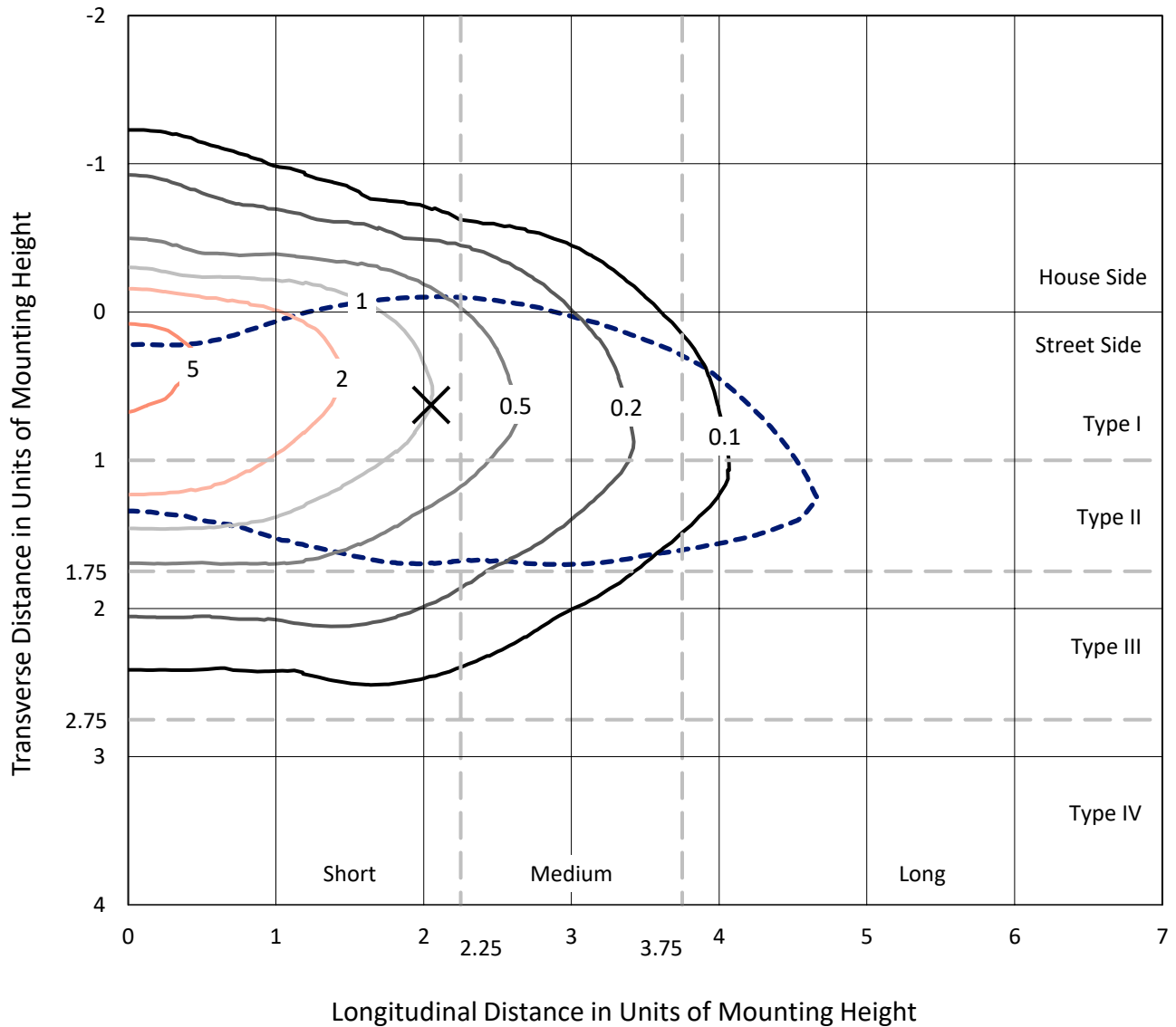
Lumens per Lamp: N/A
Luminaire Lumens: 8850.3 lumens
Efficiency: N/A
Efficacy: 87.6 lumens/watt
Luminous Opening: Rectangular (W 0.67' x L: 0.33' x H: 0')
IES Classification: Type II - Short
BUG Rating: B1 - U0 - G2

Input Watts (W): 101
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.99
Total Harmonic Distortion (THDi): 9.45%
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

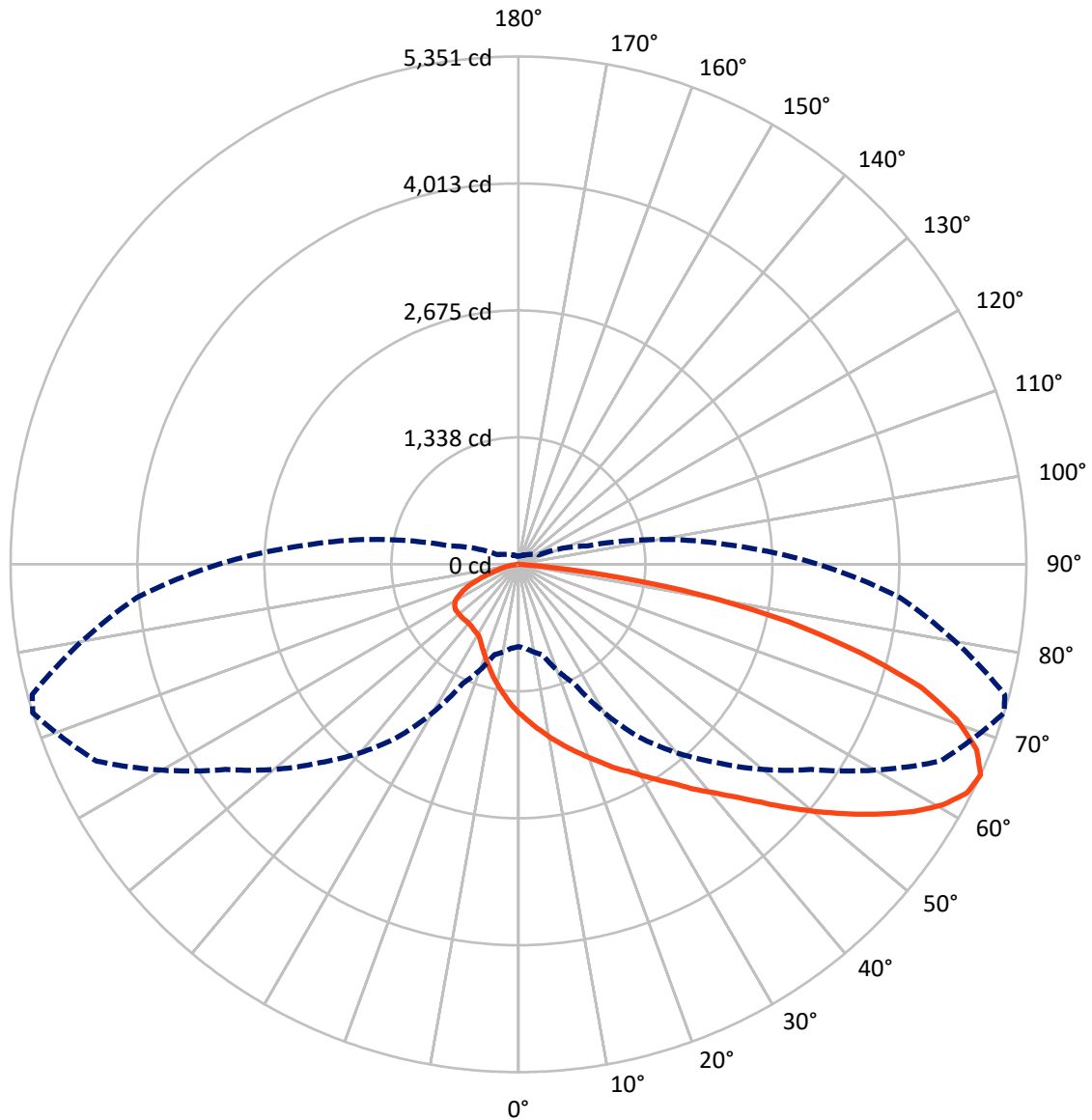
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 6.3 fc
 Type II - Short - N/A

REPORT NUMBER: P870352
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Luminous Intensity Polar Plot



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

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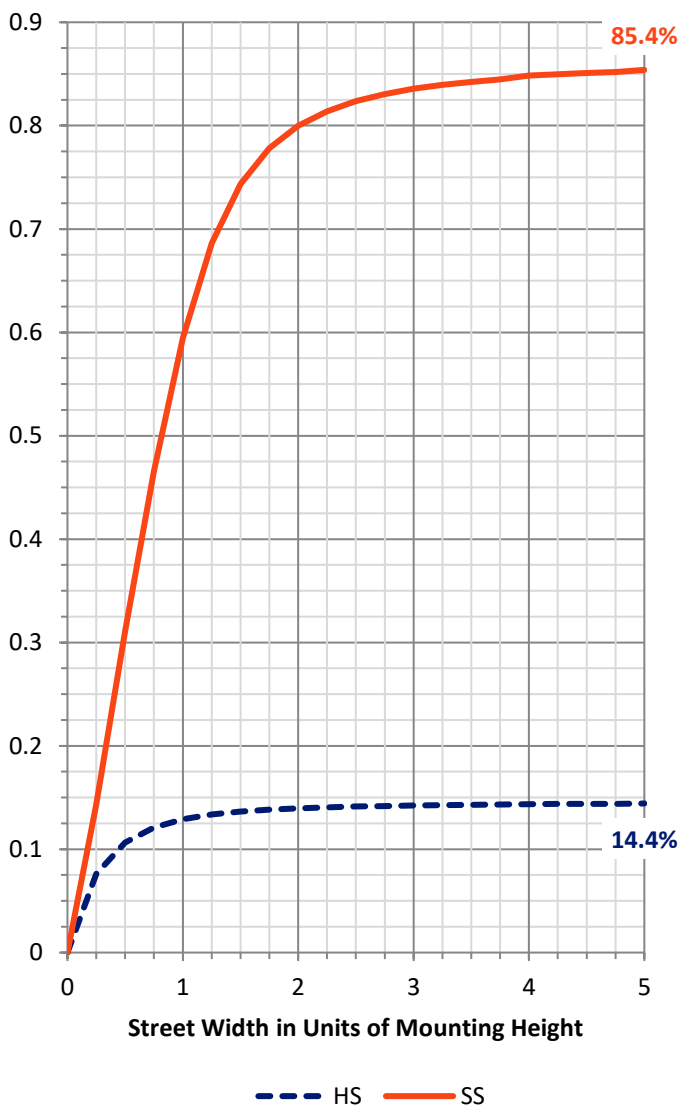
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 1287.0 | 0.0 | 1287.0 |
| | % Fixture | 14.5 | 0.0 | 14.5 |
| Street Side | Lumens | 7563.4 | 0.0 | 7563.4 |
| | % Fixture | 85.5 | 0.0 | 85.5 |
| Total | Lumens | 8850.3 | 0.0 | 8850.3 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 151.5 | 1.7 |
| 10°-20° | 460.6 | 5.2 |
| 20°-30° | 771.4 | 8.7 |
| 30°-40° | 1163.6 | 13.1 |
| 40°-50° | 1644.1 | 18.6 |
| 50°-60° | 1850.0 | 20.9 |
| 60°-70° | 1658.9 | 18.7 |
| 70°-80° | 1009.0 | 11.4 |
| 80°-90° | 141.2 | 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° | 8850.3 | 100.0 |
| 0°-180° | 8850.3 | 100.0 |

Coefficient of Utilization



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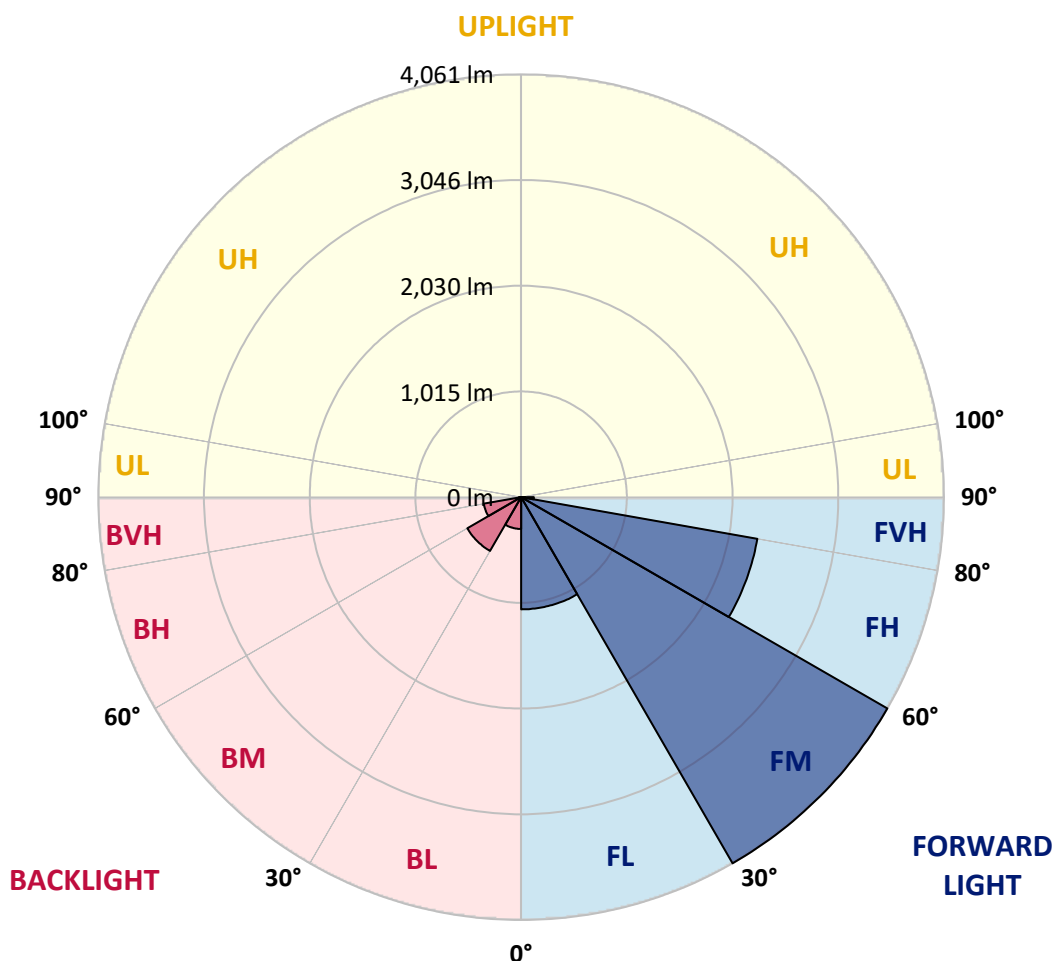
CATALOG NUMBER: MEM2-HSN-SA-120-840-U-T2U-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1077.8 | 12.2 | | | |
| FM (30°-60°) | 4060.9 | 45.9 | | | |
| FH (60°-80°) | 2303.4 | 26.0 | | | G2/5000 |
| FVH (80°-90°) | 121.3 | 1.4 | | | G2/225 |
| BL (0°-30°) | 305.7 | 3.5 | B1/500 | | |
| BM (30°-60°) | 596.8 | 6.7 | B1/1000 | | |
| BH (60°-80°) | 364.5 | 4.1 | B1/500 | | G1/500 |
| BVH (80°-90°) | 19.9 | 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





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 73° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1570.1 | 1570.1 | 1570.1 | 1570.1 | 1570.1 | 1570.1 | 1570.1 | 1570.1 | 1570.1 | 1570.1 | 1570.1 |
| 2.5° | 1812.2 | 1801.8 | 1786.2 | 1773.2 | 1749.7 | 1718.5 | 1692.4 | 1658.6 | 1635.2 | 1627.4 | 1593.5 |
| 5° | 2075.2 | 2062.2 | 2044.0 | 2012.7 | 1950.2 | 1913.8 | 1846.1 | 1768.0 | 1705.5 | 1692.4 | 1614.3 |
| 7.5° | 2346.0 | 2340.8 | 2299.1 | 2252.3 | 2176.7 | 2096.0 | 1991.9 | 1869.5 | 1778.4 | 1757.5 | 1637.8 |
| 10° | 2575.1 | 2551.7 | 2528.3 | 2484.0 | 2403.3 | 2288.7 | 2153.3 | 1984.1 | 1856.5 | 1822.6 | 1661.2 |
| 12.5° | 2713.1 | 2705.3 | 2684.5 | 2632.4 | 2554.3 | 2455.3 | 2293.9 | 2096.0 | 1932.0 | 1885.1 | 1684.6 |
| 15° | 2814.7 | 2822.5 | 2801.6 | 2767.8 | 2687.1 | 2593.3 | 2437.1 | 2213.2 | 2012.7 | 1958.0 | 1710.7 |
| 17.5° | 2911.0 | 2905.8 | 2903.2 | 2864.1 | 2791.2 | 2697.5 | 2538.7 | 2309.5 | 2093.4 | 2033.5 | 1736.7 |
| 20° | 2965.7 | 2968.3 | 2963.1 | 2947.5 | 2877.2 | 2786.0 | 2637.6 | 2424.1 | 2182.0 | 2114.3 | 1770.6 |
| 22.5° | 2994.3 | 3004.7 | 3015.2 | 3012.6 | 2955.3 | 2885.0 | 2731.3 | 2515.2 | 2273.1 | 2202.8 | 1812.2 |
| 25° | 3012.6 | 3020.4 | 3043.8 | 3075.0 | 3023.0 | 2965.7 | 2835.5 | 2624.6 | 2379.8 | 2299.1 | 1861.7 |
| 27.5° | 3028.2 | 3038.6 | 3067.2 | 3114.1 | 3072.4 | 3038.6 | 2926.6 | 2718.3 | 2471.0 | 2398.1 | 1919.0 |
| 30° | 3129.7 | 3142.7 | 3142.7 | 3166.2 | 3119.3 | 3111.5 | 3028.2 | 2830.3 | 2585.5 | 2507.4 | 1991.9 |
| 32.5° | 3397.9 | 3371.9 | 3325.0 | 3301.6 | 3189.6 | 3192.2 | 3127.1 | 2942.2 | 2707.9 | 2629.8 | 2083.0 |
| 35° | 3629.6 | 3629.6 | 3572.4 | 3496.9 | 3317.2 | 3280.7 | 3241.7 | 3090.7 | 2840.7 | 2765.2 | 2202.8 |
| 37.5° | 3853.6 | 3856.2 | 3796.3 | 3731.2 | 3525.5 | 3395.3 | 3374.5 | 3233.9 | 3004.7 | 2916.2 | 2327.8 |
| 40° | 3994.2 | 4009.8 | 3994.2 | 3944.7 | 3746.8 | 3595.8 | 3504.7 | 3395.3 | 3161.0 | 3093.3 | 2471.0 |
| 42.5° | 4017.6 | 4048.8 | 4106.1 | 4121.8 | 3908.2 | 3775.5 | 3671.3 | 3561.9 | 3348.4 | 3272.9 | 2635.0 |
| 45° | 3957.7 | 3968.1 | 4095.7 | 4113.9 | 4028.0 | 3918.7 | 3848.4 | 3757.2 | 3572.4 | 3507.3 | 2817.3 |
| 47.5° | 3793.7 | 3772.8 | 3817.1 | 3975.9 | 4009.8 | 4004.6 | 4022.8 | 3978.5 | 3832.7 | 3749.4 | 3017.8 |
| 50° | 3442.2 | 3450.0 | 3593.2 | 3785.9 | 3903.0 | 4035.8 | 4153.0 | 4202.5 | 4095.7 | 4012.4 | 3233.9 |
| 52.5° | 2801.6 | 2838.1 | 3111.5 | 3567.2 | 3770.2 | 4015.0 | 4246.7 | 4413.4 | 4369.1 | 4288.4 | 3447.4 |
| 55° | 2301.7 | 2356.4 | 2629.8 | 3215.6 | 3588.0 | 3913.5 | 4301.4 | 4634.7 | 4642.5 | 4580.0 | 3642.7 |
| 57.5° | 1801.8 | 1846.1 | 2135.1 | 2671.5 | 3327.6 | 3754.6 | 4309.2 | 4824.8 | 4913.3 | 4840.4 | 3814.5 |
| 60° | 1411.2 | 1442.5 | 1611.7 | 2226.2 | 3007.3 | 3528.1 | 4251.9 | 4975.8 | 5142.4 | 5087.7 | 3962.9 |
| 62.5° | 1070.1 | 1093.6 | 1244.6 | 1760.1 | 2614.2 | 3262.5 | 4059.3 | 5030.5 | 5303.9 | 5251.8 | 4046.2 |
| 65° | 867.1 | 887.9 | 986.8 | 1382.6 | 2226.2 | 2955.3 | 3767.6 | 4905.5 | 5350.7 | 5303.9 | 4035.8 |
| 67.5° | 708.2 | 716.0 | 796.8 | 1078.0 | 1882.5 | 2609.0 | 3340.6 | 4580.0 | 5207.5 | 5204.9 | 3916.1 |
| 70° | 572.8 | 593.7 | 661.4 | 859.2 | 1564.9 | 2210.6 | 2843.3 | 4069.7 | 4897.7 | 4923.7 | 3676.5 |
| 72.5° | 486.9 | 492.1 | 552.0 | 710.8 | 1275.8 | 1794.0 | 2353.8 | 3481.2 | 4442.0 | 4462.8 | 3301.6 |
| 75° | 411.4 | 419.2 | 463.5 | 575.4 | 1036.3 | 1424.3 | 1892.9 | 2812.1 | 3718.2 | 3806.7 | 2780.8 |
| 77.5° | 354.1 | 356.7 | 388.0 | 473.9 | 736.9 | 1070.1 | 1387.8 | 2109.0 | 2911.0 | 2973.5 | 2184.6 |
| 80° | 278.6 | 283.8 | 317.7 | 374.9 | 512.9 | 695.2 | 958.2 | 1442.5 | 1945.0 | 2015.3 | 1512.8 |
| 82.5° | 130.2 | 145.8 | 153.6 | 205.7 | 268.2 | 343.7 | 453.1 | 601.5 | 880.1 | 877.5 | 705.6 |
| 85° | 13.0 | 10.4 | 10.4 | 15.6 | 23.4 | 23.4 | 28.6 | 33.8 | 67.7 | 80.7 | 62.5 |
| 87.5° | 0.0 | 0.0 | 0.0 | 2.6 | 5.2 | 5.2 | 5.2 | 7.8 | 7.8 | 7.8 | 7.8 |
| 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: P870352

CATALOG NUMBER: MEM2-HSN-SA-120-840-U-T2U-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1570.1 | 1570.1 | 1570.1 | 1570.1 | 1570.1 | 1570.1 | 1570.1 | 1570.1 | 1570.1 | 1570.1 | 1570.1 |
| 2.5° | 1577.9 | 1554.4 | 1512.8 | 1473.7 | 1447.7 | 1426.9 | 1393.0 | 1372.2 | 1356.6 | 1335.7 | 1333.1 |
| 5° | 1572.7 | 1531.0 | 1447.7 | 1377.4 | 1309.7 | 1252.4 | 1192.5 | 1156.1 | 1117.0 | 1098.8 | 1114.4 |
| 7.5° | 1577.9 | 1510.2 | 1380.0 | 1273.2 | 1171.7 | 1080.6 | 1002.4 | 953.0 | 916.5 | 898.3 | 900.9 |
| 10° | 1580.5 | 1492.0 | 1322.7 | 1174.3 | 1044.1 | 937.4 | 848.8 | 781.1 | 736.9 | 726.4 | 713.4 |
| 12.5° | 1575.3 | 1468.5 | 1265.4 | 1078.0 | 921.7 | 804.6 | 700.4 | 648.3 | 604.1 | 583.2 | 583.2 |
| 15° | 1580.5 | 1450.3 | 1205.5 | 989.4 | 812.4 | 677.0 | 588.4 | 531.2 | 505.1 | 486.9 | 489.5 |
| 17.5° | 1580.5 | 1434.7 | 1148.3 | 903.5 | 705.6 | 580.6 | 499.9 | 453.1 | 427.0 | 416.6 | 414.0 |
| 20° | 1598.7 | 1421.7 | 1093.6 | 822.8 | 611.9 | 494.7 | 429.6 | 393.2 | 372.3 | 361.9 | 356.7 |
| 22.5° | 1611.7 | 1411.2 | 1044.1 | 744.7 | 533.8 | 432.2 | 377.5 | 343.7 | 328.1 | 322.9 | 322.9 |
| 25° | 1635.2 | 1408.6 | 999.8 | 669.2 | 471.3 | 385.4 | 335.9 | 309.8 | 296.8 | 291.6 | 291.6 |
| 27.5° | 1669.0 | 1413.8 | 958.2 | 604.1 | 424.4 | 338.5 | 302.0 | 281.2 | 273.4 | 270.8 | 268.2 |
| 30° | 1718.5 | 1437.3 | 932.1 | 554.6 | 380.1 | 309.8 | 276.0 | 263.0 | 257.8 | 255.2 | 255.2 |
| 32.5° | 1783.6 | 1478.9 | 921.7 | 528.6 | 354.1 | 286.4 | 257.8 | 247.4 | 242.1 | 242.1 | 239.5 |
| 35° | 1864.3 | 1525.8 | 913.9 | 505.1 | 335.9 | 270.8 | 244.8 | 234.3 | 231.7 | 231.7 | 231.7 |
| 37.5° | 1960.6 | 1575.3 | 900.9 | 489.5 | 325.5 | 257.8 | 234.3 | 223.9 | 223.9 | 223.9 | 223.9 |
| 40° | 2067.4 | 1648.2 | 898.3 | 479.1 | 317.7 | 250.0 | 223.9 | 213.5 | 213.5 | 213.5 | 213.5 |
| 42.5° | 2187.2 | 1726.3 | 895.7 | 471.3 | 312.5 | 244.8 | 213.5 | 203.1 | 203.1 | 203.1 | 203.1 |
| 45° | 2333.0 | 1825.2 | 900.9 | 466.1 | 312.5 | 239.5 | 205.7 | 192.7 | 190.1 | 190.1 | 190.1 |
| 47.5° | 2476.2 | 1919.0 | 906.1 | 460.9 | 307.2 | 231.7 | 195.3 | 182.3 | 179.7 | 177.1 | 177.1 |
| 50° | 2629.8 | 2015.3 | 906.1 | 455.7 | 302.0 | 223.9 | 187.5 | 169.2 | 166.6 | 164.0 | 164.0 |
| 52.5° | 2780.8 | 2096.0 | 908.7 | 447.8 | 289.0 | 210.9 | 174.5 | 158.8 | 153.6 | 151.0 | 148.4 |
| 55° | 2926.6 | 2182.0 | 911.3 | 434.8 | 273.4 | 197.9 | 166.6 | 148.4 | 140.6 | 135.4 | 135.4 |
| 57.5° | 3036.0 | 2252.3 | 898.3 | 408.8 | 252.6 | 184.9 | 153.6 | 135.4 | 125.0 | 119.8 | 119.8 |
| 60° | 3140.1 | 2296.5 | 874.9 | 369.7 | 231.7 | 171.8 | 143.2 | 122.4 | 112.0 | 106.8 | 106.8 |
| 62.5° | 3181.8 | 2304.3 | 820.2 | 302.0 | 205.7 | 158.8 | 130.2 | 112.0 | 104.2 | 101.5 | 101.5 |
| 65° | 3158.4 | 2270.5 | 747.3 | 239.5 | 182.3 | 143.2 | 119.8 | 104.2 | 93.7 | 85.9 | 85.9 |
| 67.5° | 3030.8 | 2153.3 | 648.3 | 190.1 | 158.8 | 130.2 | 109.4 | 93.7 | 83.3 | 75.5 | 75.5 |
| 70° | 2788.6 | 1965.8 | 505.1 | 151.0 | 138.0 | 114.6 | 98.9 | 85.9 | 75.5 | 67.7 | 67.7 |
| 72.5° | 2431.9 | 1705.5 | 367.1 | 127.6 | 119.8 | 101.5 | 88.5 | 78.1 | 67.7 | 62.5 | 62.5 |
| 75° | 2004.9 | 1314.9 | 260.4 | 109.4 | 106.8 | 91.1 | 80.7 | 70.3 | 62.5 | 57.3 | 57.3 |
| 77.5° | 1505.0 | 916.5 | 203.1 | 96.3 | 93.7 | 83.3 | 72.9 | 65.1 | 57.3 | 54.7 | 52.1 |
| 80° | 1002.4 | 567.6 | 153.6 | 72.9 | 70.3 | 65.1 | 59.9 | 54.7 | 46.9 | 41.7 | 41.7 |
| 82.5° | 447.8 | 239.5 | 78.1 | 41.7 | 36.5 | 31.2 | 26.0 | 18.2 | 18.2 | 15.6 | 15.6 |
| 85° | 46.9 | 31.2 | 15.6 | 10.4 | 10.4 | 7.8 | 7.8 | 7.8 | 5.2 | 5.2 | 5.2 |
| 87.5° | 7.8 | 7.8 | 5.2 | 5.2 | 5.2 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 |
| 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

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 |

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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 $R_a = 80.6$
 $R_9 = -5.8$

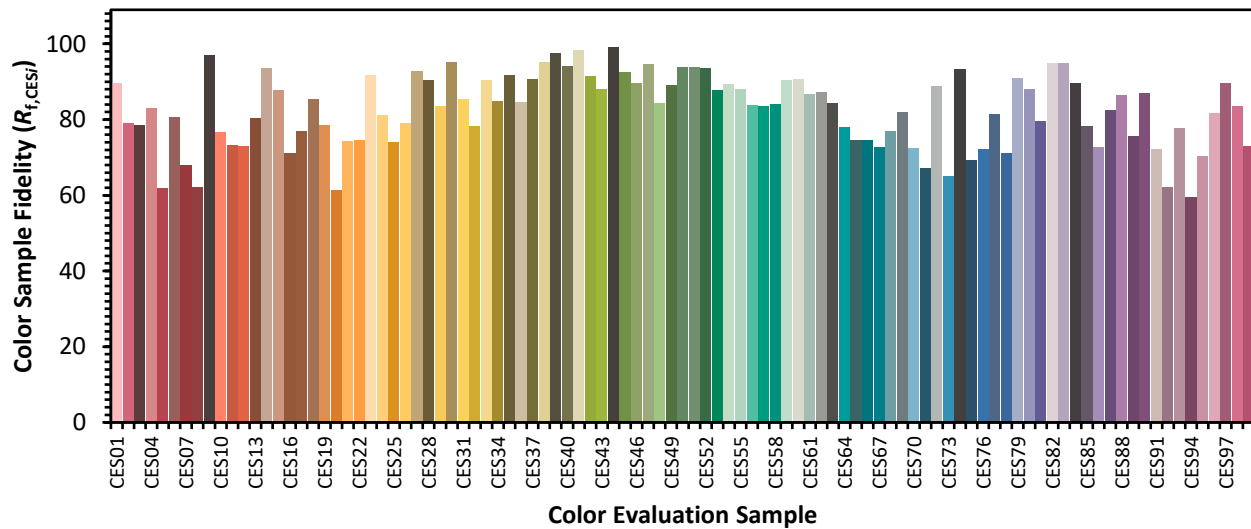


Color Vector Graphics



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)