

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: P870058

Luminaire Tested: **MEM2-HTN-SA-100-840-U-T4W**

Issue Date: 08/21/2024



Test Information

Test Method: LM-79-08
Report Number: P870058
Test Lab: INNOVATION CENTER(G3)
Issue Date: 08/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: STREETWORKS
Catalog Number: MEM2-HTN-SA-100-840-U-T4W
Description: EPIC MODERN TALL HOUSING DISCRETE LED ARRAYS 100W 80CRI 4000K
FITXURE w/ TYPE IV WIDE DISTRIBUTION OPTIC
Light Source: (20) 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

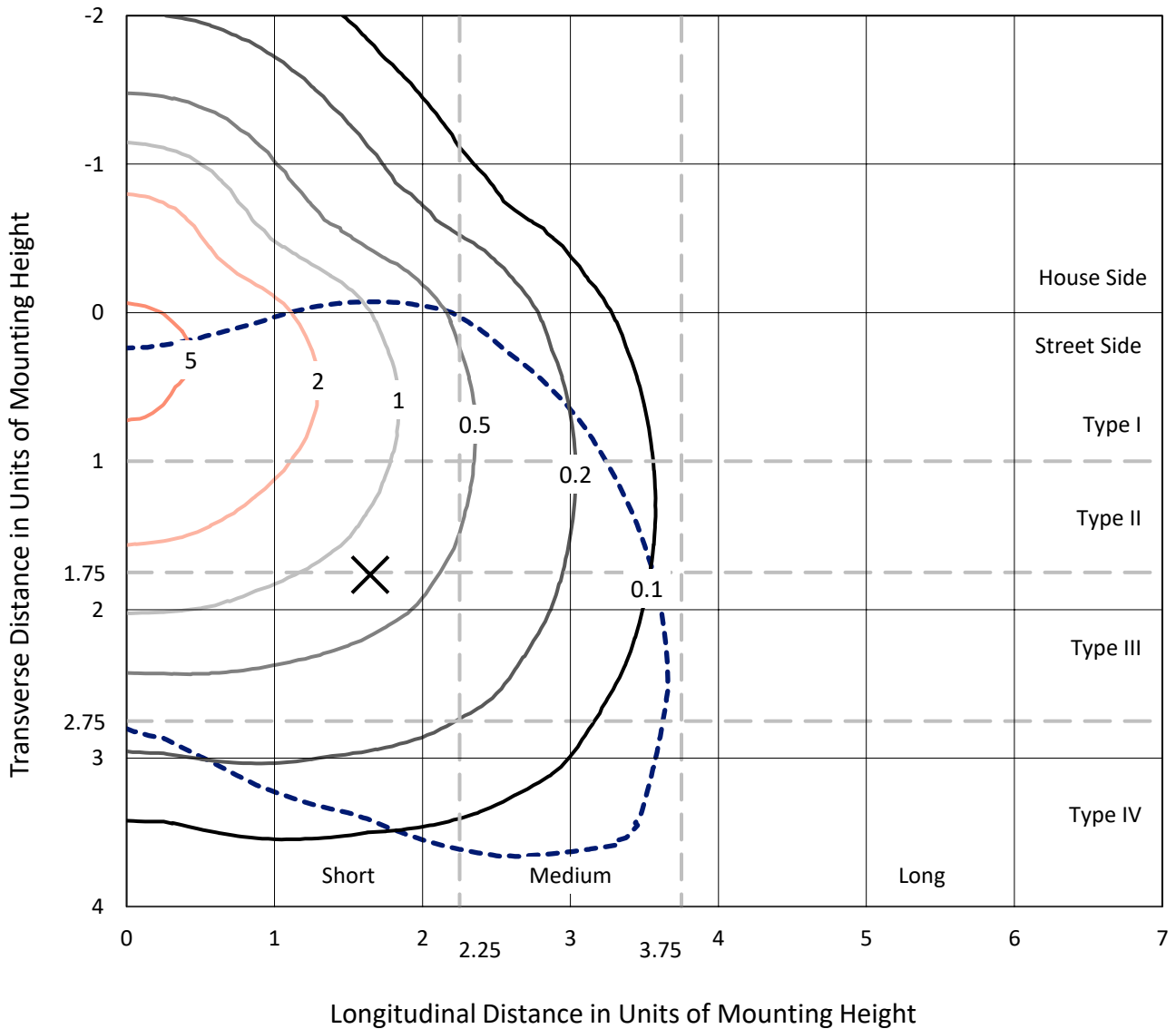
Lumens per Lamp: N/A
Luminaire Lumens: 12867.7 lumens
Efficiency: N/A
Efficacy: 127.4 lumens/watt
Luminous Opening: Rectangular (W 0.67' x L: 0.33' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B2 - U0 - G2

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

REPORT NUMBER: P870058
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Iso-Footcandle Lines of Horizontal Illumination

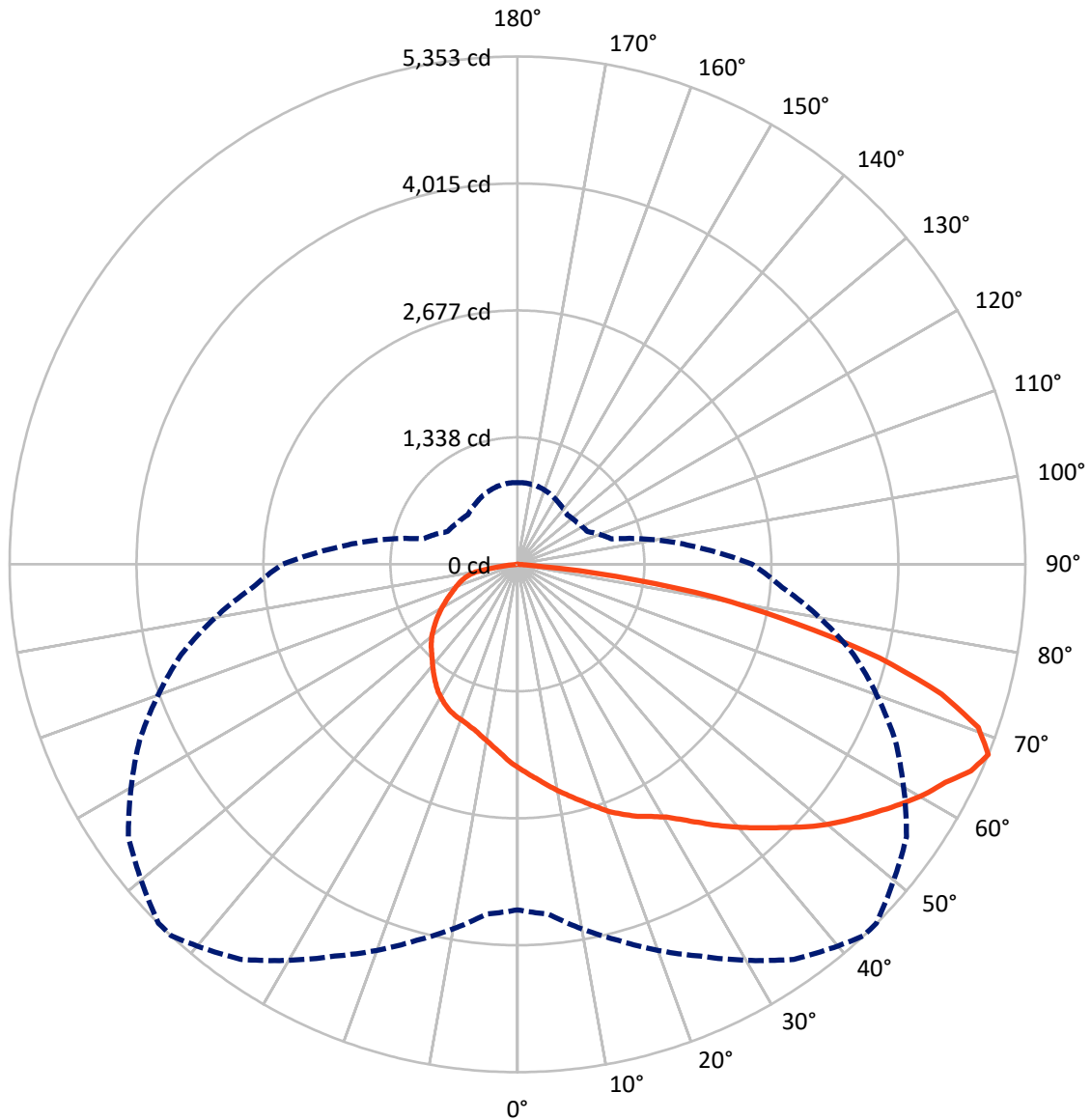
✕ Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 6.2 fc
 Type IV - Short - N/A

REPORT NUMBER: P870058
CATALOG NUMBER: MEM2-HTN-SA-100-840-U-T4W

Luminous Intensity Polar Plot



— Vertical Plane Through 43-Deg Lateral - - - Horizontal Cone Through 67.5-Deg Vertical

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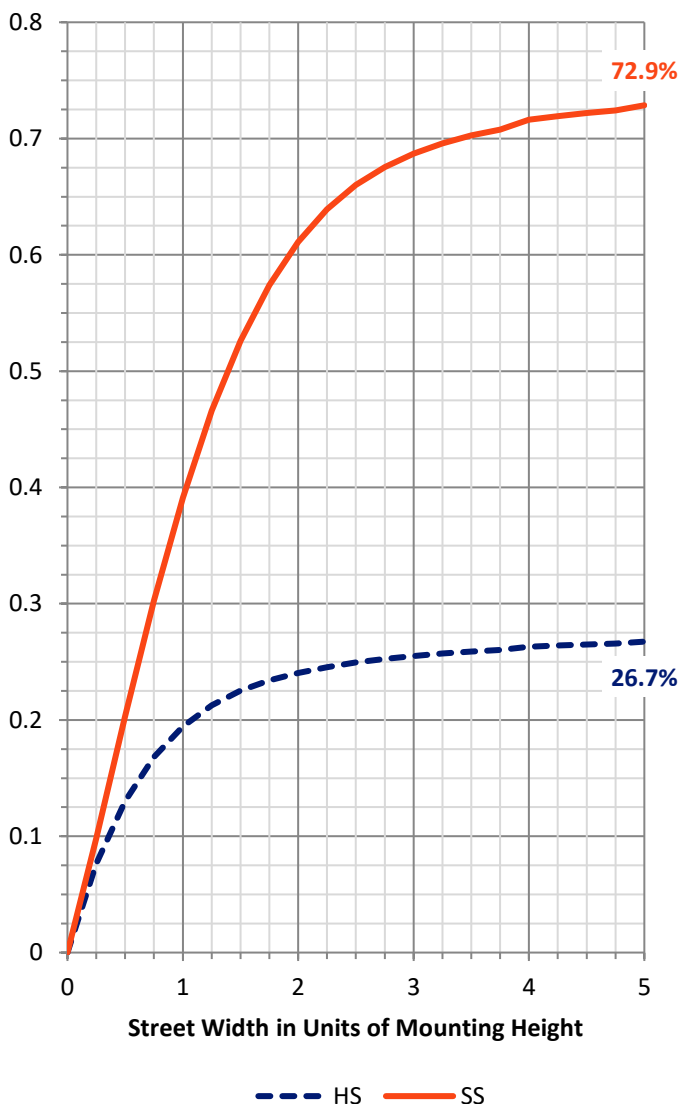
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 3461.5 | 0.0 | 3461.5 |
| | % Fixture | 26.9 | 0.0 | 26.9 |
| Street Side | Lumens | 9406.3 | 0.0 | 9406.3 |
| | % Fixture | 73.1 | 0.0 | 73.1 |
| Total | Lumens | 12867.7 | 0.0 | 12867.7 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 205.6 | 1.6 |
| 10°-20° | 627.8 | 4.9 |
| 20°-30° | 1071.1 | 8.3 |
| 30°-40° | 1562.1 | 12.1 |
| 40°-50° | 2098.6 | 16.3 |
| 50°-60° | 2569.0 | 20.0 |
| 60°-70° | 2703.7 | 21.0 |
| 70°-80° | 1765.1 | 13.7 |
| 80°-90° | 264.8 | 2.1 |
| 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° | 12867.7 | 100.0 |
| 0°-180° | 12867.7 | 100.0 |

Coefficient of Utilization



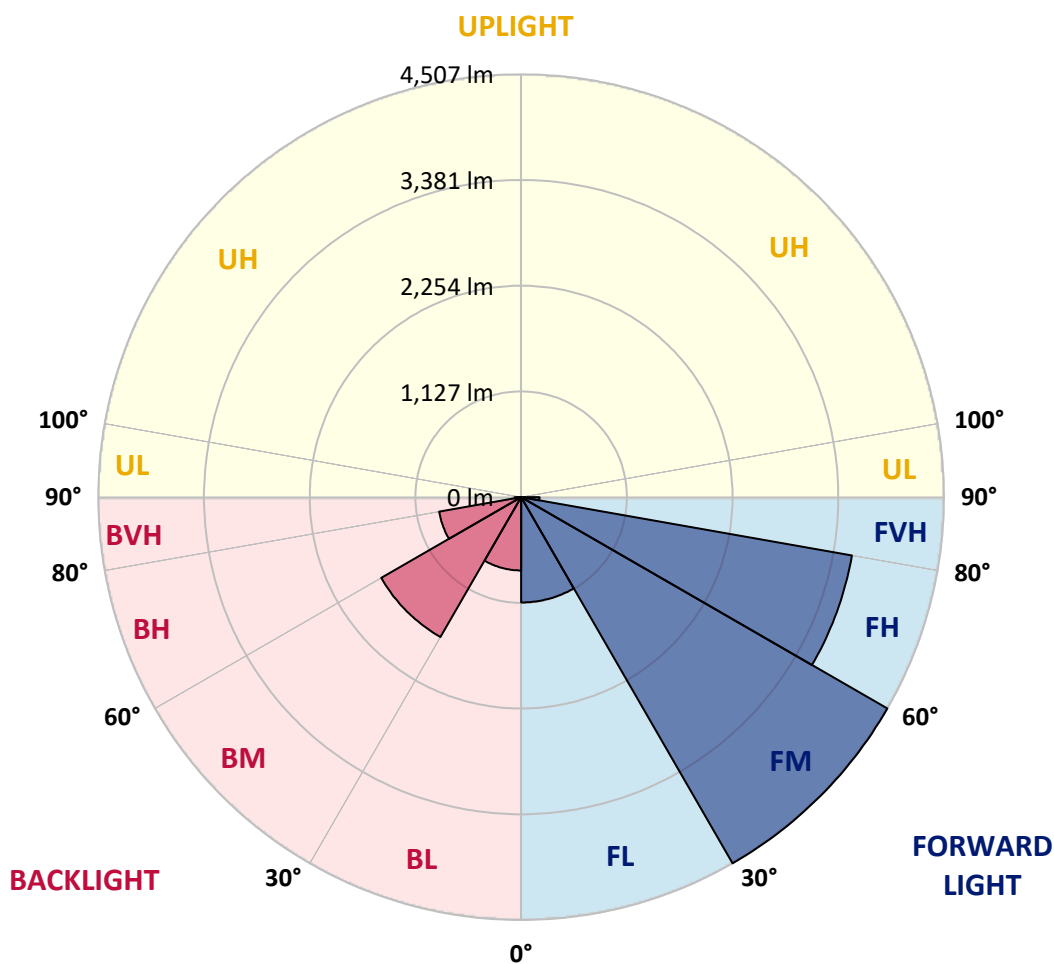
REPORT NUMBER: P870058
 CATALOG NUMBER: MEM2-HTN-SA-100-840-U-T4W

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1123.0 | 8.7 | | | |
| FM (30°-60°) | 4507.5 | 35.0 | | | |
| FH (60°-80°) | 3580.5 | 27.8 | | | G2/5000 |
| FVH (80°-90°) | 195.4 | 1.5 | | | G2/225 |
| BL (0°-30°) | 781.5 | 6.1 | B2/1000 | | |
| BM (30°-60°) | 1722.3 | 13.4 | B2/2500 | | |
| BH (60°-80°) | 888.3 | 6.9 | B2/1000 | | G2/1000 |
| BVH (80°-90°) | 69.4 | 0.5 | | | 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 IV Short





REPORT NUMBER: P870058

CATALOG NUMBER: MEM2-HTN-SA-100-840-U-T4W

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 43° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2148.0 | 2148.0 | 2148.0 | 2148.0 | 2148.0 | 2148.0 | 2148.0 | 2148.0 | 2148.0 | 2148.0 | 2148.0 |
| 2.5° | 2246.9 | 2244.3 | 2236.5 | 2231.3 | 2215.7 | 2213.1 | 2213.1 | 2197.5 | 2179.3 | 2168.8 | 2158.4 |
| 5° | 2348.5 | 2335.5 | 2330.3 | 2319.9 | 2293.8 | 2278.2 | 2283.4 | 2254.8 | 2218.3 | 2192.3 | 2163.6 |
| 7.5° | 2439.6 | 2434.4 | 2416.2 | 2403.2 | 2371.9 | 2356.3 | 2351.1 | 2306.8 | 2260.0 | 2220.9 | 2174.0 |
| 10° | 2549.0 | 2536.0 | 2525.5 | 2499.5 | 2457.8 | 2434.4 | 2426.6 | 2369.3 | 2309.4 | 2257.4 | 2194.9 |
| 12.5° | 2647.9 | 2632.3 | 2619.3 | 2593.2 | 2551.6 | 2512.5 | 2502.1 | 2437.0 | 2361.5 | 2291.2 | 2213.1 |
| 15° | 2723.4 | 2726.0 | 2713.0 | 2689.6 | 2642.7 | 2595.8 | 2588.0 | 2502.1 | 2411.0 | 2325.1 | 2231.3 |
| 17.5° | 2793.7 | 2804.1 | 2796.3 | 2780.7 | 2733.8 | 2687.0 | 2679.2 | 2582.8 | 2473.5 | 2364.1 | 2252.2 |
| 20° | 2861.4 | 2861.4 | 2858.8 | 2848.4 | 2814.5 | 2783.3 | 2767.7 | 2671.3 | 2533.3 | 2405.8 | 2280.8 |
| 22.5° | 2900.5 | 2910.9 | 2910.9 | 2910.9 | 2890.0 | 2864.0 | 2858.8 | 2765.1 | 2614.1 | 2457.8 | 2306.8 |
| 25° | 2960.3 | 2973.4 | 2973.4 | 2968.2 | 2949.9 | 2942.1 | 2934.3 | 2845.8 | 2692.2 | 2517.7 | 2335.5 |
| 27.5° | 3087.9 | 3085.3 | 3064.5 | 3038.5 | 3012.4 | 3009.8 | 2999.4 | 2936.9 | 2783.3 | 2582.8 | 2374.5 |
| 30° | 3265.0 | 3270.2 | 3244.1 | 3163.4 | 3103.5 | 3090.5 | 3093.1 | 3038.5 | 2890.0 | 2658.3 | 2418.8 |
| 32.5° | 3535.8 | 3535.8 | 3434.2 | 3330.1 | 3244.1 | 3210.3 | 3202.5 | 3155.6 | 2999.4 | 2741.6 | 2468.3 |
| 35° | 3738.8 | 3731.0 | 3673.7 | 3551.4 | 3444.6 | 3348.3 | 3335.3 | 3272.8 | 3121.8 | 2835.4 | 2522.9 |
| 37.5° | 3892.5 | 3908.1 | 3863.8 | 3770.1 | 3665.9 | 3499.3 | 3473.3 | 3384.7 | 3233.7 | 2926.5 | 2577.6 |
| 40° | 4189.3 | 4150.2 | 4043.5 | 3957.5 | 3832.6 | 3647.7 | 3624.3 | 3514.9 | 3348.3 | 3028.0 | 2645.3 |
| 42.5° | 4405.4 | 4350.7 | 4228.3 | 4113.8 | 3957.5 | 3796.1 | 3775.3 | 3655.5 | 3481.1 | 3142.6 | 2715.6 |
| 45° | 4715.2 | 4592.8 | 4423.6 | 4322.1 | 4100.7 | 3957.5 | 3931.5 | 3801.3 | 3619.1 | 3265.0 | 2804.1 |
| 47.5° | 5014.6 | 4801.1 | 4621.5 | 4574.6 | 4257.0 | 4132.0 | 4111.2 | 3960.1 | 3767.5 | 3397.8 | 2890.0 |
| 50° | 4975.6 | 4835.0 | 4775.1 | 4730.8 | 4392.4 | 4296.0 | 4275.2 | 4121.6 | 3918.5 | 3538.4 | 2976.0 |
| 52.5° | 4876.6 | 4889.7 | 4892.3 | 4785.5 | 4519.9 | 4449.6 | 4428.8 | 4296.0 | 4074.7 | 3660.7 | 3059.3 |
| 55° | 4980.8 | 4996.4 | 4993.8 | 4832.4 | 4668.3 | 4603.2 | 4590.2 | 4473.1 | 4225.7 | 3775.3 | 3119.2 |
| 57.5° | 5139.6 | 5087.5 | 5079.7 | 4949.5 | 4827.2 | 4767.3 | 4751.7 | 4650.1 | 4353.3 | 3858.6 | 3166.0 |
| 60° | 5168.2 | 5064.1 | 5097.9 | 4975.6 | 4946.9 | 4928.7 | 4923.5 | 4803.7 | 4473.1 | 3926.3 | 3184.3 |
| 62.5° | 4848.0 | 4829.8 | 4962.6 | 4913.1 | 5009.4 | 5061.5 | 5064.1 | 4913.1 | 4538.2 | 3952.3 | 3166.0 |
| 65° | 4301.2 | 4374.1 | 4660.5 | 4803.7 | 5103.2 | 5251.6 | 5246.4 | 4978.2 | 4530.3 | 3876.8 | 3054.1 |
| 67.5° | 3642.5 | 3699.8 | 4103.3 | 4556.4 | 5082.3 | 5353.1 | 5350.5 | 5006.8 | 4395.0 | 3668.5 | 2801.5 |
| 70° | 2762.5 | 2942.1 | 3514.9 | 4111.2 | 4801.1 | 5152.6 | 5196.9 | 4845.4 | 4085.1 | 3288.4 | 2418.8 |
| 72.5° | 2101.1 | 2129.8 | 2822.4 | 3447.2 | 4298.6 | 4676.2 | 4668.3 | 4329.9 | 3567.0 | 2770.3 | 2015.2 |
| 75° | 1491.9 | 1554.4 | 2124.6 | 2671.3 | 3522.7 | 3941.9 | 3923.7 | 3551.4 | 2845.8 | 2155.8 | 1541.4 |
| 77.5° | 1111.8 | 1135.2 | 1554.4 | 1981.4 | 2634.9 | 3012.4 | 3004.6 | 2624.5 | 2093.3 | 1583.0 | 1148.2 |
| 80° | 812.3 | 851.4 | 1119.6 | 1382.5 | 1786.1 | 2111.6 | 2101.1 | 1741.8 | 1343.5 | 1106.6 | 838.4 |
| 82.5° | 455.6 | 484.3 | 650.9 | 835.8 | 942.5 | 1044.1 | 999.8 | 835.8 | 611.9 | 476.5 | 411.4 |
| 85° | 13.0 | 15.6 | 23.4 | 28.6 | 49.5 | 83.3 | 91.1 | 80.7 | 96.3 | 59.9 | 65.1 |
| 87.5° | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 7.8 | 7.8 | 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: P870058

CATALOG NUMBER: MEM2-HTN-SA-100-840-U-T4W

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2148.0 | 2148.0 | 2148.0 | 2148.0 | 2148.0 | 2148.0 | 2148.0 | 2148.0 | 2148.0 | 2148.0 | 2148.0 |
| 2.5° | 2153.2 | 2142.8 | 2122.0 | 2109.0 | 2101.1 | 2090.7 | 2075.1 | 2064.7 | 2056.9 | 2067.3 | 2064.7 |
| 5° | 2150.6 | 2129.8 | 2093.3 | 2067.3 | 2041.3 | 2020.4 | 1997.0 | 1978.8 | 1968.4 | 1973.6 | 1971.0 |
| 7.5° | 2150.6 | 2124.6 | 2067.3 | 2025.6 | 1986.6 | 1955.3 | 1929.3 | 1905.9 | 1895.5 | 1898.1 | 1895.5 |
| 10° | 2161.0 | 2124.6 | 2049.1 | 1989.2 | 1937.1 | 1900.7 | 1872.0 | 1851.2 | 1843.4 | 1851.2 | 1853.8 |
| 12.5° | 2171.4 | 2124.6 | 2033.4 | 1957.9 | 1890.2 | 1851.2 | 1825.2 | 1812.1 | 1817.3 | 1820.0 | 1822.6 |
| 15° | 2176.6 | 2122.0 | 2017.8 | 1921.5 | 1846.0 | 1804.3 | 1788.7 | 1786.1 | 1799.1 | 1812.1 | 1814.7 |
| 17.5° | 2189.7 | 2119.4 | 1994.4 | 1885.0 | 1806.9 | 1773.1 | 1765.3 | 1775.7 | 1801.7 | 1820.0 | 1825.2 |
| 20° | 2205.3 | 2124.6 | 1968.4 | 1840.8 | 1767.9 | 1741.8 | 1754.9 | 1778.3 | 1809.5 | 1835.6 | 1840.8 |
| 22.5° | 2220.9 | 2127.2 | 1944.9 | 1801.7 | 1726.2 | 1721.0 | 1749.7 | 1783.5 | 1820.0 | 1846.0 | 1851.2 |
| 25° | 2239.1 | 2127.2 | 1913.7 | 1752.3 | 1684.6 | 1692.4 | 1736.6 | 1780.9 | 1814.7 | 1848.6 | 1853.8 |
| 27.5° | 2257.4 | 2132.4 | 1879.8 | 1697.6 | 1632.5 | 1655.9 | 1710.6 | 1765.3 | 1801.7 | 1835.6 | 1843.4 |
| 30° | 2288.6 | 2142.8 | 1851.2 | 1650.7 | 1580.4 | 1611.7 | 1676.7 | 1739.2 | 1778.3 | 1814.7 | 1822.6 |
| 32.5° | 2319.9 | 2158.4 | 1827.8 | 1601.2 | 1528.3 | 1564.8 | 1637.7 | 1708.0 | 1749.7 | 1783.5 | 1788.7 |
| 35° | 2361.5 | 2179.3 | 1809.5 | 1551.8 | 1476.3 | 1504.9 | 1583.0 | 1661.1 | 1708.0 | 1734.0 | 1747.0 |
| 37.5° | 2405.8 | 2207.9 | 1793.9 | 1507.5 | 1419.0 | 1445.0 | 1528.3 | 1611.7 | 1661.1 | 1687.2 | 1692.4 |
| 40° | 2460.4 | 2246.9 | 1783.5 | 1465.9 | 1364.3 | 1385.1 | 1468.5 | 1559.6 | 1606.5 | 1624.7 | 1635.1 |
| 42.5° | 2520.3 | 2288.6 | 1775.7 | 1424.2 | 1304.4 | 1325.3 | 1413.8 | 1502.3 | 1549.2 | 1564.8 | 1572.6 |
| 45° | 2595.8 | 2343.3 | 1770.5 | 1379.9 | 1255.0 | 1273.2 | 1361.7 | 1450.2 | 1489.3 | 1510.1 | 1517.9 |
| 47.5° | 2666.1 | 2398.0 | 1754.9 | 1327.9 | 1200.3 | 1226.3 | 1307.0 | 1385.1 | 1429.4 | 1442.4 | 1450.2 |
| 50° | 2736.4 | 2444.8 | 1723.6 | 1270.6 | 1150.8 | 1174.2 | 1247.1 | 1304.4 | 1338.3 | 1353.9 | 1359.1 |
| 52.5° | 2804.1 | 2478.7 | 1674.1 | 1210.7 | 1098.7 | 1114.4 | 1174.2 | 1228.9 | 1252.4 | 1257.6 | 1273.2 |
| 55° | 2848.4 | 2496.9 | 1603.8 | 1140.4 | 1046.7 | 1051.9 | 1096.1 | 1145.6 | 1158.6 | 1161.2 | 1161.2 |
| 57.5° | 2879.6 | 2486.5 | 1520.5 | 1070.1 | 994.6 | 994.6 | 1020.6 | 1059.7 | 1064.9 | 1067.5 | 1072.7 |
| 60° | 2884.8 | 2450.0 | 1413.8 | 1005.0 | 937.3 | 929.5 | 955.5 | 979.0 | 981.6 | 986.8 | 992.0 |
| 62.5° | 2845.8 | 2369.3 | 1299.2 | 942.5 | 882.6 | 864.4 | 887.8 | 911.3 | 924.3 | 932.1 | 937.3 |
| 65° | 2726.0 | 2205.3 | 1169.0 | 880.0 | 830.6 | 799.3 | 828.0 | 867.0 | 893.1 | 895.7 | 895.7 |
| 67.5° | 2476.1 | 1939.7 | 1031.0 | 814.9 | 768.1 | 739.4 | 775.9 | 817.5 | 848.8 | 861.8 | 859.2 |
| 70° | 2098.5 | 1645.5 | 903.5 | 747.2 | 705.6 | 687.4 | 726.4 | 773.3 | 799.3 | 809.7 | 814.9 |
| 72.5° | 1689.8 | 1317.4 | 791.5 | 679.6 | 650.9 | 640.5 | 679.6 | 726.4 | 762.9 | 778.5 | 781.1 |
| 75° | 1314.8 | 1036.3 | 697.8 | 609.3 | 585.8 | 588.4 | 630.1 | 676.9 | 716.0 | 723.8 | 700.4 |
| 77.5° | 1020.6 | 825.4 | 609.3 | 525.9 | 512.9 | 531.1 | 572.8 | 622.3 | 645.7 | 653.5 | 637.9 |
| 80° | 736.8 | 632.7 | 492.1 | 414.0 | 414.0 | 442.6 | 479.1 | 536.4 | 544.2 | 533.7 | 539.0 |
| 82.5° | 348.9 | 307.2 | 242.1 | 200.5 | 187.5 | 208.3 | 221.3 | 239.5 | 260.4 | 265.6 | 252.6 |
| 85° | 46.9 | 31.2 | 23.4 | 26.0 | 23.4 | 15.6 | 10.4 | 10.4 | 10.4 | 7.8 | 7.8 |
| 87.5° | 7.8 | 7.8 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 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 |

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

Report Prepared for

Cooper Lighting Solutions

Streetworks

Report Number: SP1-2407-157-8

Test Date: 09/05/2024

Luminaire Tested: MEM2-HTN-SA-30-840-U-5WQ

Data in this report applies to families of products including MEM2-HTN-SA-30-840-U-5WQ

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-157-8
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 09/05/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: Streetworks
 Catalog Number: **MEM2-HTN-SA-30-840-U-5WQ**
 Description: Epic Modern Light Square 30W 5WQ Optic

Spectral Parameters

CCT (K): 3996
 CIE u': 0.2245
 CIE v': 0.5031
 Duv: 0.0012
 CIE x: 0.3815
 CIE y: 0.3799
 CIE z: 0.2386
 Peak Wavelength (nm): 449
 Dominant Wavelength (nm): 578
 Purity: 28.49233
 Rf: 82.6
 Rg: 95.1

| | | | |
|-----------|------|------|------|
| CRI (Ra): | 80.6 | | |
| R1: | 78.1 | R9: | -5.8 |
| R2: | 87.1 | R10: | 70.3 |
| R3: | 94.5 | R11: | 78.7 |
| R4: | 79.7 | R12: | 60.5 |
| R5: | 78.7 | R13: | 80.2 |
| R6: | 82.7 | R14: | 97.2 |
| R7: | 84.3 | R15: | 70.6 |
| R8: | 59.5 | | |



Test Conditions

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

REPORT NUMBER: SP1-2407-157-8

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

REPORT NUMBER: SP1-2407-157-8

CIE 1931 Chromaticity Diagram



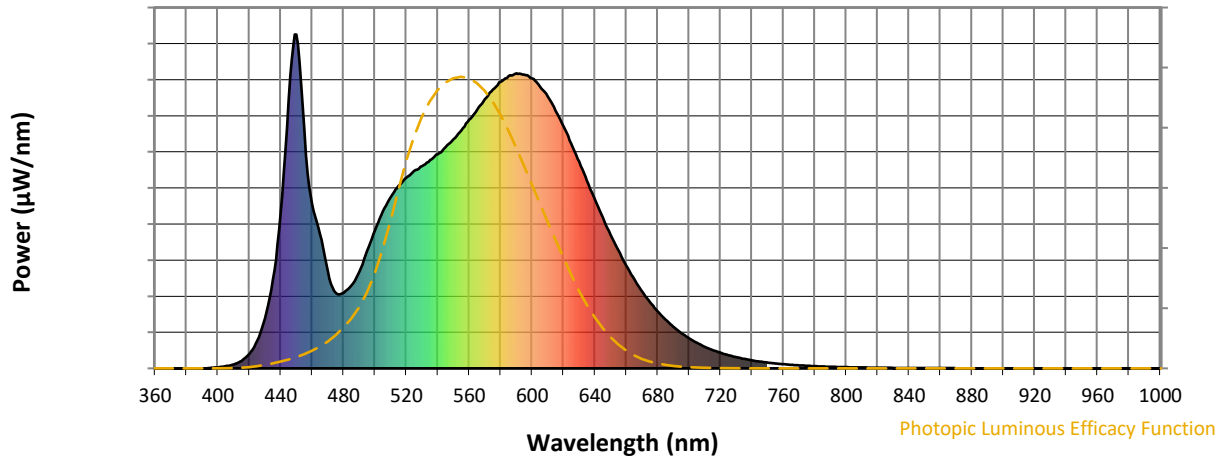
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 4000K 4-step quadrangle

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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

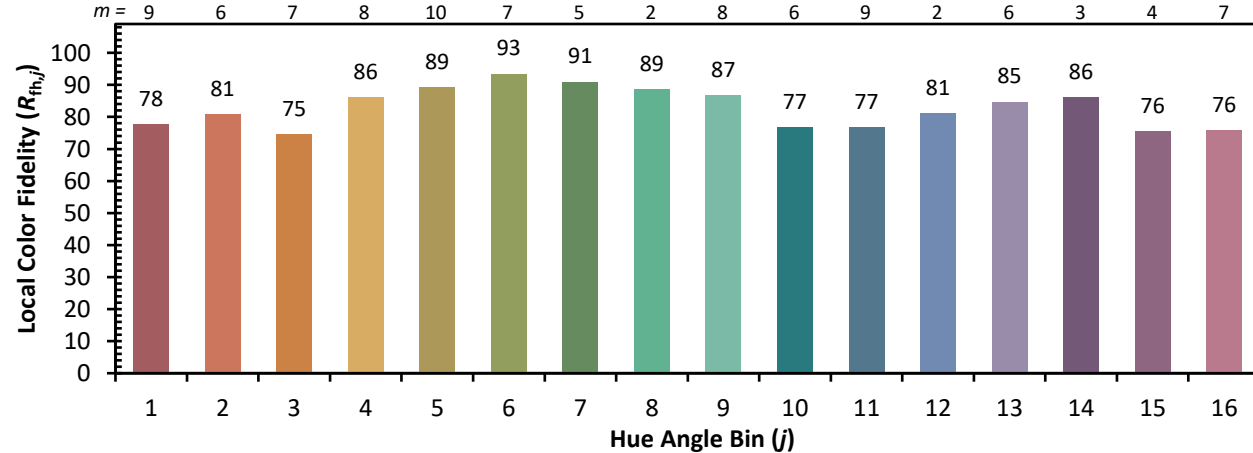


Individual Sample Fidelity Index ($R_{f,i}$)

| | | | |
|------------|------------|------------|------------|
| 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)