

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: P870014

Luminaire Tested: **MEM2-HTN-SA-70-830-U-T3-HSS**

Issue Date: 08/21/2024

Test Information

Test Method: LM-79-08
Report Number: P870014
Test Lab: INNOVATION CENTER(G3)
Issue Date: 08/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: STREETWORKS
Catalog Number: MEM2-HTN-SA-70-830-U-T3-HSS
Description: EPIC MODERN TALL HOUSING DISCRETE LED ARRAYS 70W 80CRI 3000K
FITXURE w/ TYPE III DISTRIBUTION OPTIC AND HOUSE SIDE SHIELD
Light Source: (20) 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

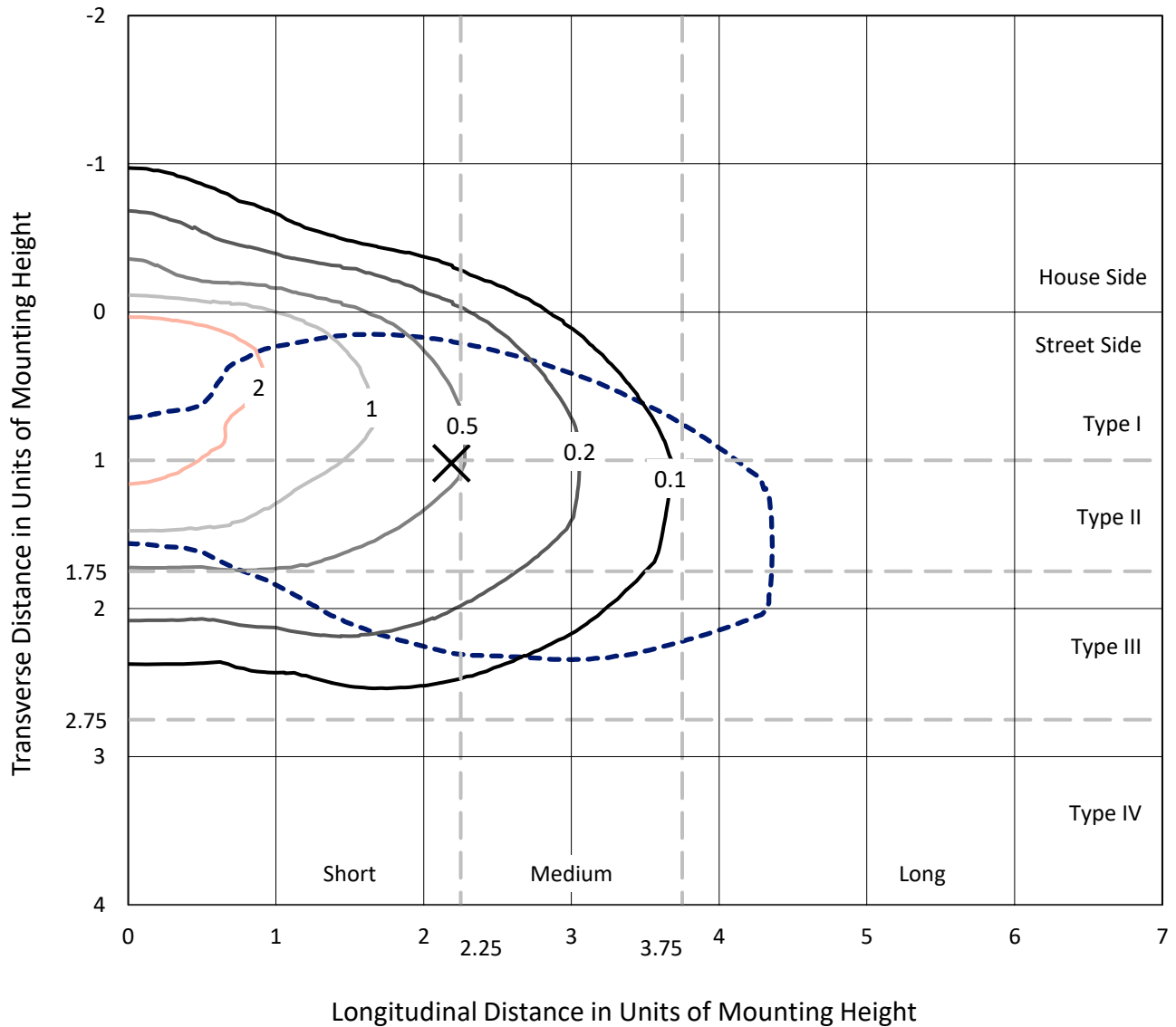
Lumens per Lamp: N/A
Luminaire Lumens: 5699.7 lumens
Efficiency: N/A
Efficacy: 93.4 lumens/watt
Luminous Opening: Rectangular (W 0.67' x L: 0.33' x H: 0')
IES Classification: Type III - Short
BUG Rating: B1 - U0 - G2

Input Watts (W): 61
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.99
Total Harmonic Distortion (THDi): 9.89%
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

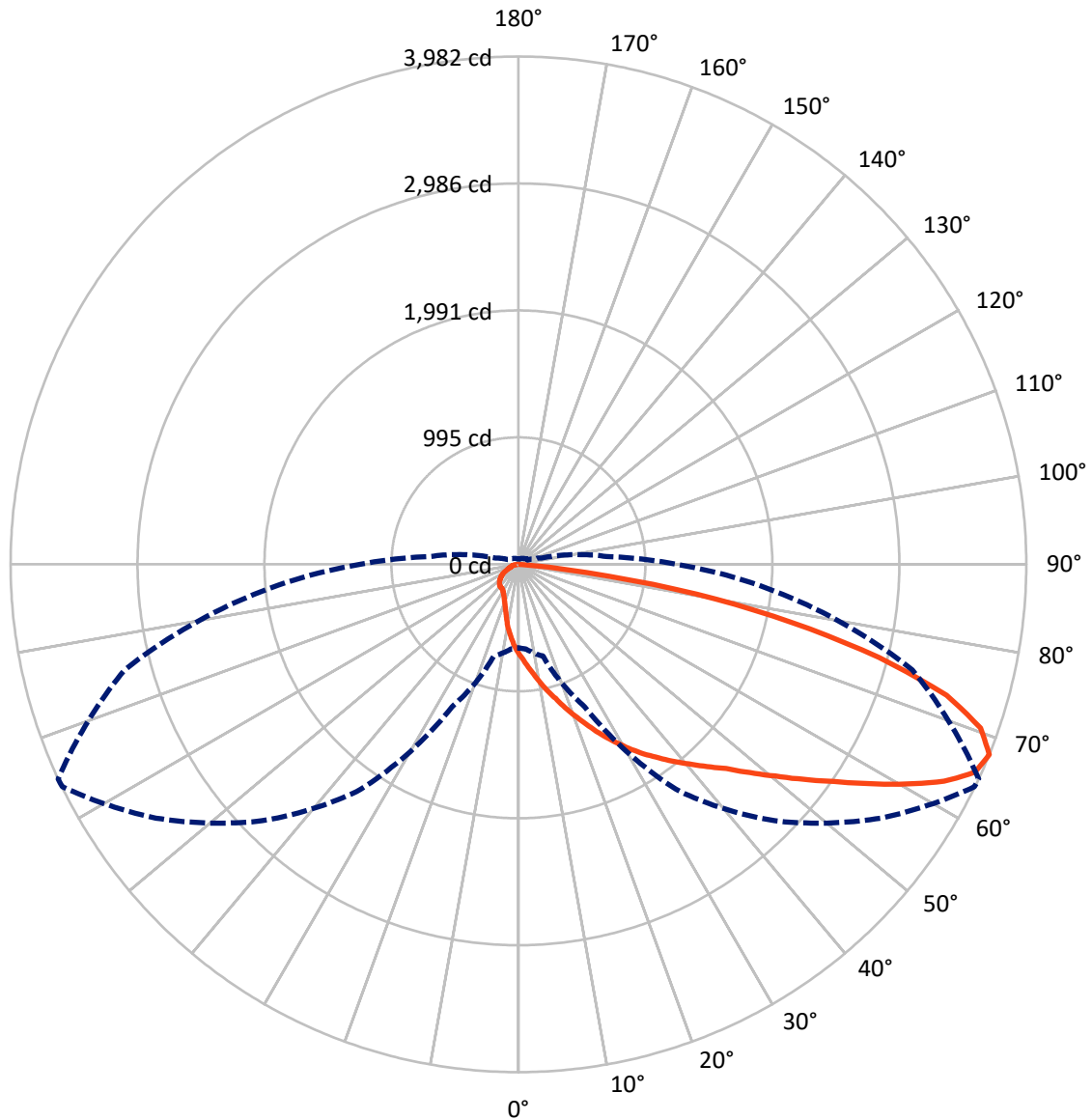
✕ Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 3.3 fc
 Type III - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 65-Deg Lateral - - - Horizontal Cone Through 67.5-Deg Vertical

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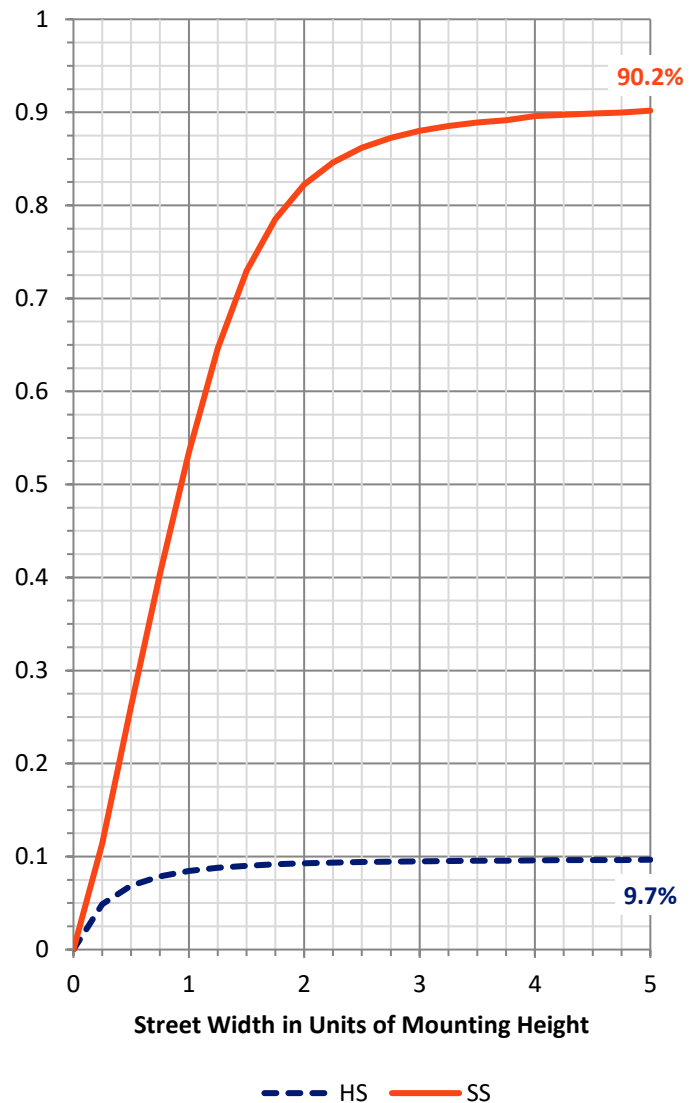
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 554.8 | 0.0 | 554.8 |
| | % Fixture | 9.7 | 0.0 | 9.7 |
| Street Side | Lumens | 5145.0 | 0.0 | 5145.0 |
| | % Fixture | 90.3 | 0.0 | 90.3 |
| Total | Lumens | 5699.7 | 0.0 | 5699.7 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 68.9 | 1.2 |
| 10°-20° | 228.7 | 4.0 |
| 20°-30° | 416.3 | 7.3 |
| 30°-40° | 644.2 | 11.3 |
| 40°-50° | 973.8 | 17.1 |
| 50°-60° | 1266.9 | 22.2 |
| 60°-70° | 1249.8 | 21.9 |
| 70°-80° | 760.8 | 13.3 |
| 80°-90° | 90.4 | 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° | 5699.7 | 100.0 |
| 0°-180° | 5699.7 | 100.0 |



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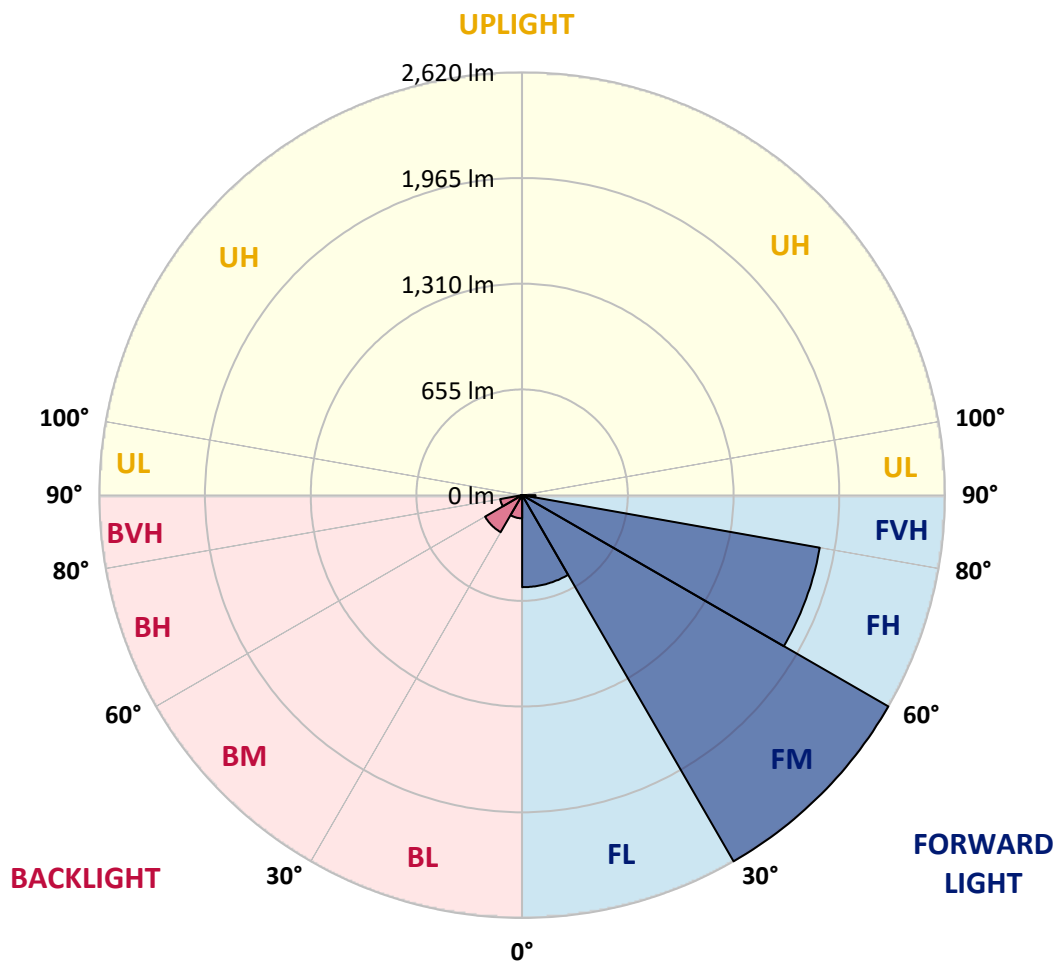
CATALOG NUMBER: MEM2-HTN-SA-70-830-U-T3-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 570.3 | 10.0 | | | |
| FM (30°-60°) | 2619.6 | 46.0 | | | |
| FH (60°-80°) | 1872.4 | 32.9 | | | G2/5000 |
| FVH (80°-90°) | 82.7 | 1.5 | | | G1/100 |
| BL (0°-30°) | 143.6 | 2.5 | B1/500 | | |
| BM (30°-60°) | 265.3 | 4.7 | B1/1000 | | |
| BH (60°-80°) | 138.1 | 2.4 | B1/500 | | G1/500 |
| BVH (80°-90°) | 7.8 | 0.1 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G2

Type III Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 64° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 704.3 | 704.3 | 704.3 | 704.3 | 704.3 | 704.3 | 704.3 | 704.3 | 704.3 | 704.3 | 704.3 |
| 2.5° | 823.0 | 816.5 | 821.4 | 810.0 | 797.0 | 787.3 | 767.7 | 751.5 | 749.8 | 733.6 | 715.7 |
| 5° | 980.8 | 959.7 | 961.3 | 938.5 | 910.9 | 881.6 | 850.7 | 810.0 | 810.0 | 771.0 | 730.3 |
| 7.5° | 1122.3 | 1119.1 | 1104.4 | 1068.7 | 1036.1 | 990.6 | 933.6 | 881.6 | 870.2 | 810.0 | 746.6 |
| 10° | 1259.0 | 1254.1 | 1241.1 | 1213.4 | 1158.1 | 1107.7 | 1036.1 | 958.0 | 943.4 | 857.2 | 766.1 |
| 12.5° | 1367.9 | 1369.6 | 1354.9 | 1332.2 | 1283.4 | 1223.2 | 1128.8 | 1031.2 | 1018.2 | 902.7 | 785.6 |
| 15° | 1463.9 | 1462.3 | 1459.0 | 1439.5 | 1392.3 | 1337.0 | 1226.4 | 1112.6 | 1091.4 | 951.5 | 805.1 |
| 17.5° | 1537.1 | 1533.8 | 1527.3 | 1511.1 | 1488.3 | 1434.6 | 1328.9 | 1198.8 | 1180.9 | 1008.5 | 827.9 |
| 20° | 1558.2 | 1556.6 | 1556.6 | 1568.0 | 1558.2 | 1525.7 | 1431.4 | 1288.2 | 1268.7 | 1068.7 | 858.8 |
| 22.5° | 1597.3 | 1595.7 | 1594.0 | 1605.4 | 1611.9 | 1608.7 | 1527.3 | 1379.3 | 1361.4 | 1138.6 | 897.9 |
| 25° | 1647.7 | 1644.5 | 1639.6 | 1651.0 | 1659.1 | 1678.6 | 1623.3 | 1486.7 | 1465.5 | 1219.9 | 936.9 |
| 27.5° | 1714.4 | 1717.7 | 1711.1 | 1709.5 | 1709.5 | 1720.9 | 1707.9 | 1582.6 | 1563.1 | 1298.0 | 982.4 |
| 30° | 1802.2 | 1807.1 | 1795.7 | 1787.6 | 1773.0 | 1771.3 | 1774.6 | 1690.0 | 1662.3 | 1382.6 | 1029.6 |
| 32.5° | 1888.4 | 1893.3 | 1886.8 | 1875.4 | 1838.0 | 1823.4 | 1836.4 | 1781.1 | 1763.2 | 1475.3 | 1089.8 |
| 35° | 1958.4 | 1969.8 | 1969.8 | 1947.0 | 1894.9 | 1886.8 | 1908.0 | 1870.5 | 1857.5 | 1584.3 | 1161.4 |
| 37.5° | 2052.7 | 2059.2 | 2052.7 | 2010.4 | 1945.4 | 1955.1 | 1987.7 | 1964.9 | 1956.8 | 1701.4 | 1245.9 |
| 40° | 2254.4 | 2262.5 | 2220.3 | 2119.4 | 2015.3 | 2026.7 | 2083.6 | 2070.6 | 2057.6 | 1816.9 | 1324.0 |
| 42.5° | 2535.8 | 2516.3 | 2508.2 | 2283.7 | 2122.7 | 2116.2 | 2187.7 | 2169.8 | 2168.2 | 1934.0 | 1395.6 |
| 45° | 2721.2 | 2727.7 | 2687.1 | 2474.0 | 2348.8 | 2226.8 | 2303.2 | 2296.7 | 2283.7 | 2052.7 | 1481.8 |
| 47.5° | 2849.7 | 2835.1 | 2734.3 | 2631.8 | 2656.2 | 2371.5 | 2431.7 | 2448.0 | 2439.8 | 2187.7 | 1587.5 |
| 50° | 2903.4 | 2888.8 | 2822.1 | 2753.8 | 2783.0 | 2537.4 | 2563.5 | 2617.1 | 2609.0 | 2324.4 | 1677.0 |
| 52.5° | 2836.7 | 2818.8 | 2823.7 | 2841.6 | 2827.0 | 2667.6 | 2726.1 | 2810.7 | 2800.9 | 2483.8 | 1781.1 |
| 55° | 2412.2 | 2459.4 | 2641.5 | 2823.7 | 2818.8 | 2766.8 | 2900.2 | 3023.8 | 3004.3 | 2649.7 | 1870.5 |
| 57.5° | 1945.4 | 1971.4 | 2202.4 | 2695.2 | 2792.8 | 2849.7 | 3098.6 | 3251.5 | 3245.0 | 2815.6 | 1951.9 |
| 60° | 1546.9 | 1574.5 | 1750.2 | 2428.5 | 2732.6 | 2935.9 | 3301.9 | 3503.6 | 3497.1 | 2983.1 | 2010.4 |
| 62.5° | 1229.7 | 1229.7 | 1385.8 | 2044.6 | 2617.1 | 2986.4 | 3463.0 | 3757.4 | 3746.0 | 3118.1 | 2025.1 |
| 65° | 884.9 | 896.2 | 1013.3 | 1644.5 | 2430.1 | 2973.4 | 3541.0 | 3937.9 | 3931.4 | 3194.6 | 1994.2 |
| 67.5° | 653.9 | 666.9 | 745.0 | 1232.9 | 2153.6 | 2843.2 | 3469.5 | 3978.6 | 3981.8 | 3196.2 | 1893.3 |
| 70° | 510.7 | 514.0 | 572.6 | 857.2 | 1764.8 | 2553.7 | 3201.1 | 3843.6 | 3843.6 | 3116.5 | 1743.7 |
| 72.5° | 388.7 | 392.0 | 442.4 | 583.9 | 1299.6 | 2111.3 | 2799.3 | 3485.7 | 3510.1 | 2905.0 | 1522.5 |
| 75° | 300.9 | 307.4 | 341.6 | 419.7 | 814.9 | 1501.3 | 2300.0 | 2854.6 | 2921.3 | 2495.1 | 1254.1 |
| 77.5° | 232.6 | 239.1 | 266.8 | 307.4 | 475.0 | 925.5 | 1616.8 | 2134.1 | 2194.2 | 1964.9 | 967.8 |
| 80° | 187.1 | 190.3 | 208.2 | 231.0 | 287.9 | 476.6 | 987.3 | 1402.1 | 1420.0 | 1335.4 | 640.9 |
| 82.5° | 86.2 | 92.7 | 112.2 | 126.9 | 143.1 | 221.2 | 421.3 | 518.9 | 541.6 | 530.3 | 263.5 |
| 85° | 9.8 | 9.8 | 11.4 | 13.0 | 14.6 | 22.8 | 29.3 | 26.0 | 26.0 | 30.9 | 27.7 |
| 87.5° | 0.0 | 0.0 | 0.0 | 1.6 | 3.3 | 3.3 | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 |
| 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: P870014

CATALOG NUMBER: MEM2-HTN-SA-70-830-U-T3-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 704.3 | 704.3 | 704.3 | 704.3 | 704.3 | 704.3 | 704.3 | 704.3 | 704.3 | 704.3 | 704.3 |
| 2.5° | 705.9 | 694.5 | 673.4 | 655.5 | 639.2 | 623.0 | 614.8 | 595.3 | 590.4 | 593.7 | 582.3 |
| 5° | 709.2 | 686.4 | 642.5 | 601.8 | 567.7 | 535.1 | 507.5 | 478.2 | 471.7 | 461.9 | 457.1 |
| 7.5° | 714.1 | 679.9 | 611.6 | 548.2 | 496.1 | 448.9 | 414.8 | 392.0 | 374.1 | 369.2 | 367.6 |
| 10° | 720.6 | 671.8 | 577.4 | 497.7 | 426.2 | 377.4 | 346.5 | 330.2 | 323.7 | 318.8 | 320.4 |
| 12.5° | 725.4 | 663.6 | 544.9 | 440.8 | 370.9 | 326.9 | 312.3 | 299.3 | 296.0 | 294.4 | 294.4 |
| 15° | 732.0 | 655.5 | 505.9 | 390.4 | 323.7 | 297.7 | 283.0 | 278.1 | 278.1 | 276.5 | 276.5 |
| 17.5° | 740.1 | 649.0 | 473.3 | 351.3 | 296.0 | 271.6 | 265.1 | 258.6 | 258.6 | 258.6 | 257.0 |
| 20° | 756.4 | 645.7 | 444.1 | 318.8 | 271.6 | 255.4 | 245.6 | 240.7 | 239.1 | 237.5 | 237.5 |
| 22.5° | 772.6 | 645.7 | 411.5 | 294.4 | 255.4 | 237.5 | 227.7 | 222.8 | 221.2 | 221.2 | 221.2 |
| 25° | 795.4 | 644.1 | 385.5 | 273.3 | 240.7 | 219.6 | 209.8 | 204.9 | 201.7 | 201.7 | 200.1 |
| 27.5° | 821.4 | 644.1 | 362.7 | 257.0 | 224.5 | 203.3 | 191.9 | 187.1 | 182.2 | 182.2 | 180.5 |
| 30° | 847.4 | 647.4 | 343.2 | 244.0 | 208.2 | 188.7 | 174.0 | 167.5 | 164.3 | 162.7 | 162.7 |
| 32.5° | 881.6 | 657.1 | 330.2 | 234.2 | 193.6 | 174.0 | 159.4 | 152.9 | 149.6 | 148.0 | 148.0 |
| 35° | 933.6 | 681.5 | 331.8 | 229.3 | 183.8 | 161.0 | 146.4 | 138.3 | 136.6 | 136.6 | 135.0 |
| 37.5° | 989.0 | 704.3 | 336.7 | 226.1 | 174.0 | 151.3 | 136.6 | 128.5 | 126.9 | 126.9 | 126.9 |
| 40° | 1036.1 | 723.8 | 343.2 | 224.5 | 165.9 | 141.5 | 128.5 | 122.0 | 118.7 | 118.7 | 118.7 |
| 42.5° | 1083.3 | 735.2 | 344.8 | 219.6 | 161.0 | 133.4 | 122.0 | 115.5 | 112.2 | 113.9 | 113.9 |
| 45° | 1130.5 | 743.3 | 340.0 | 213.1 | 156.2 | 126.9 | 115.5 | 109.0 | 105.7 | 105.7 | 105.7 |
| 47.5° | 1187.4 | 761.2 | 331.8 | 203.3 | 152.9 | 122.0 | 109.0 | 102.5 | 100.8 | 100.8 | 100.8 |
| 50° | 1244.3 | 775.9 | 325.3 | 191.9 | 144.8 | 115.5 | 104.1 | 96.0 | 94.3 | 94.3 | 94.3 |
| 52.5° | 1291.5 | 782.4 | 317.2 | 177.3 | 136.6 | 109.0 | 97.6 | 89.5 | 86.2 | 86.2 | 86.2 |
| 55° | 1327.3 | 784.0 | 305.8 | 165.9 | 125.2 | 102.5 | 91.1 | 83.0 | 79.7 | 78.1 | 78.1 |
| 57.5° | 1356.6 | 782.4 | 294.4 | 154.5 | 115.5 | 94.3 | 83.0 | 76.4 | 71.6 | 69.9 | 69.9 |
| 60° | 1372.8 | 777.5 | 278.1 | 139.9 | 102.5 | 86.2 | 76.4 | 68.3 | 65.1 | 63.4 | 63.4 |
| 62.5° | 1363.1 | 764.5 | 255.4 | 117.1 | 92.7 | 78.1 | 69.9 | 63.4 | 58.6 | 56.9 | 56.9 |
| 65° | 1317.5 | 738.5 | 226.1 | 96.0 | 83.0 | 69.9 | 63.4 | 56.9 | 50.4 | 48.8 | 48.8 |
| 67.5° | 1237.8 | 694.5 | 187.1 | 81.3 | 76.4 | 63.4 | 56.9 | 50.4 | 45.5 | 42.3 | 42.3 |
| 70° | 1127.2 | 636.0 | 146.4 | 69.9 | 68.3 | 58.6 | 52.1 | 45.5 | 40.7 | 37.4 | 37.4 |
| 72.5° | 969.4 | 540.0 | 109.0 | 60.2 | 60.2 | 53.7 | 47.2 | 42.3 | 37.4 | 34.2 | 34.2 |
| 75° | 784.0 | 408.3 | 83.0 | 55.3 | 53.7 | 48.8 | 42.3 | 37.4 | 34.2 | 30.9 | 30.9 |
| 77.5° | 572.6 | 271.6 | 68.3 | 50.4 | 50.4 | 43.9 | 39.0 | 34.2 | 30.9 | 29.3 | 29.3 |
| 80° | 348.1 | 156.2 | 48.8 | 39.0 | 39.0 | 37.4 | 32.5 | 29.3 | 27.7 | 24.4 | 22.8 |
| 82.5° | 141.5 | 60.2 | 26.0 | 19.5 | 19.5 | 17.9 | 11.4 | 9.8 | 9.8 | 9.8 | 8.1 |
| 85° | 14.6 | 9.8 | 6.5 | 4.9 | 4.9 | 4.9 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 |
| 87.5° | 4.9 | 4.9 | 3.3 | 3.3 | 3.3 | 3.3 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 |
| 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: SP1-2407-157-7

Test Date: 09/05/2024

Luminaire Tested: MEM2-HTN-SA-40-830-U-5WQ

Data in this report applies to families of products including MEM2-HTN-SA-40-830-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-40-830-U-5WQ**
 Description: Epic Modern Light Square 40W 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

REPORT NUMBER: SP1-2407-157-7

| 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

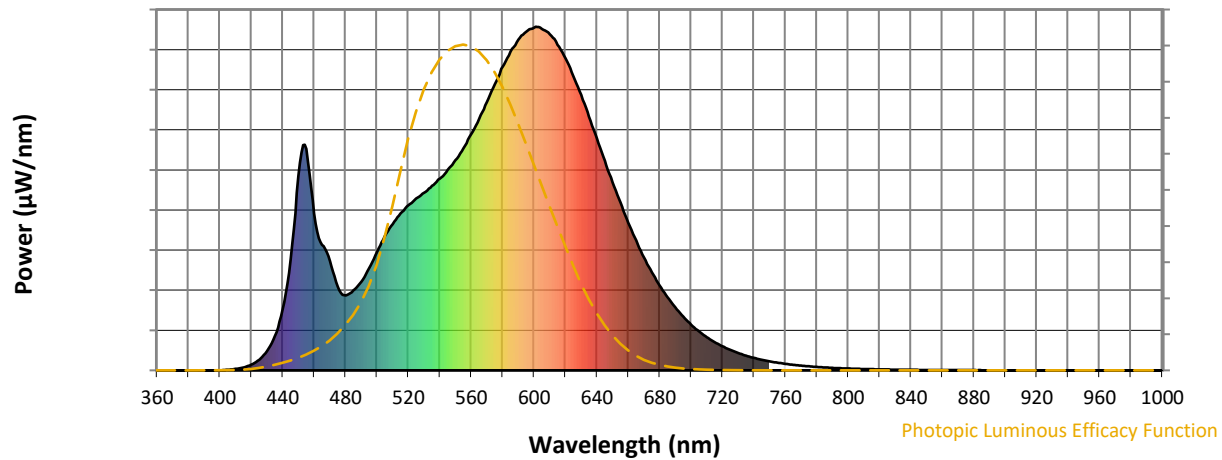


CCT = 3126K
 CIE x = 0.4277
 CIE y = 0.3997
 Duv = -0.0004

Point lies inside the ANSI 3000K 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 | 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)