

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: P867479

Luminaire Tested: **MEM2-HTN-SA-60-730-U-T2R**

Issue Date: 08/21/2024



Test Information

Test Method: LM-79-08
Report Number: P867479
Test Lab: INNOVATION CENTER(G3)
Issue Date: 08/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: STREETWORKS
Catalog Number: MEM2-HTN-SA-60-730-U-T2R
Description: EPIC MODERN TALL HOUSING DISCRETE LED ARRAYS 60W 70CRI 3000K
FIXTURE w/ TYPE II ROADWAY DISTRIBUTION OPTIC
Light Source: (20) 3000K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

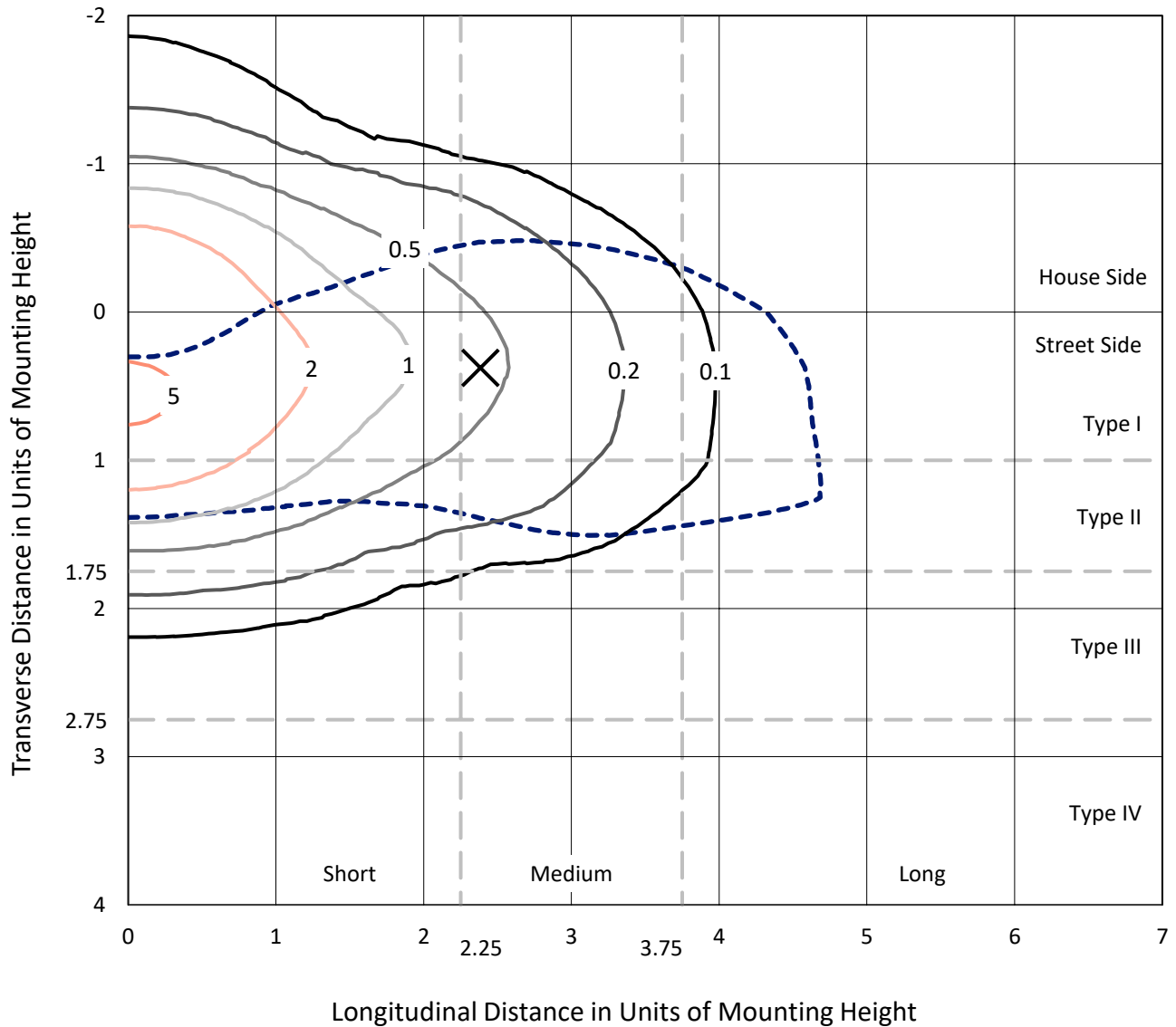
Lumens per Lamp: N/A
Luminaire Lumens: 8858.1 lumens
Efficiency: N/A
Efficacy: 145.2 lumens/watt
Luminous Opening: Rectangular (W 0.67' x L: 0.33' x H: 0')
IES Classification: Type II - Medium
BUG Rating: B2 - U0 - G2

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

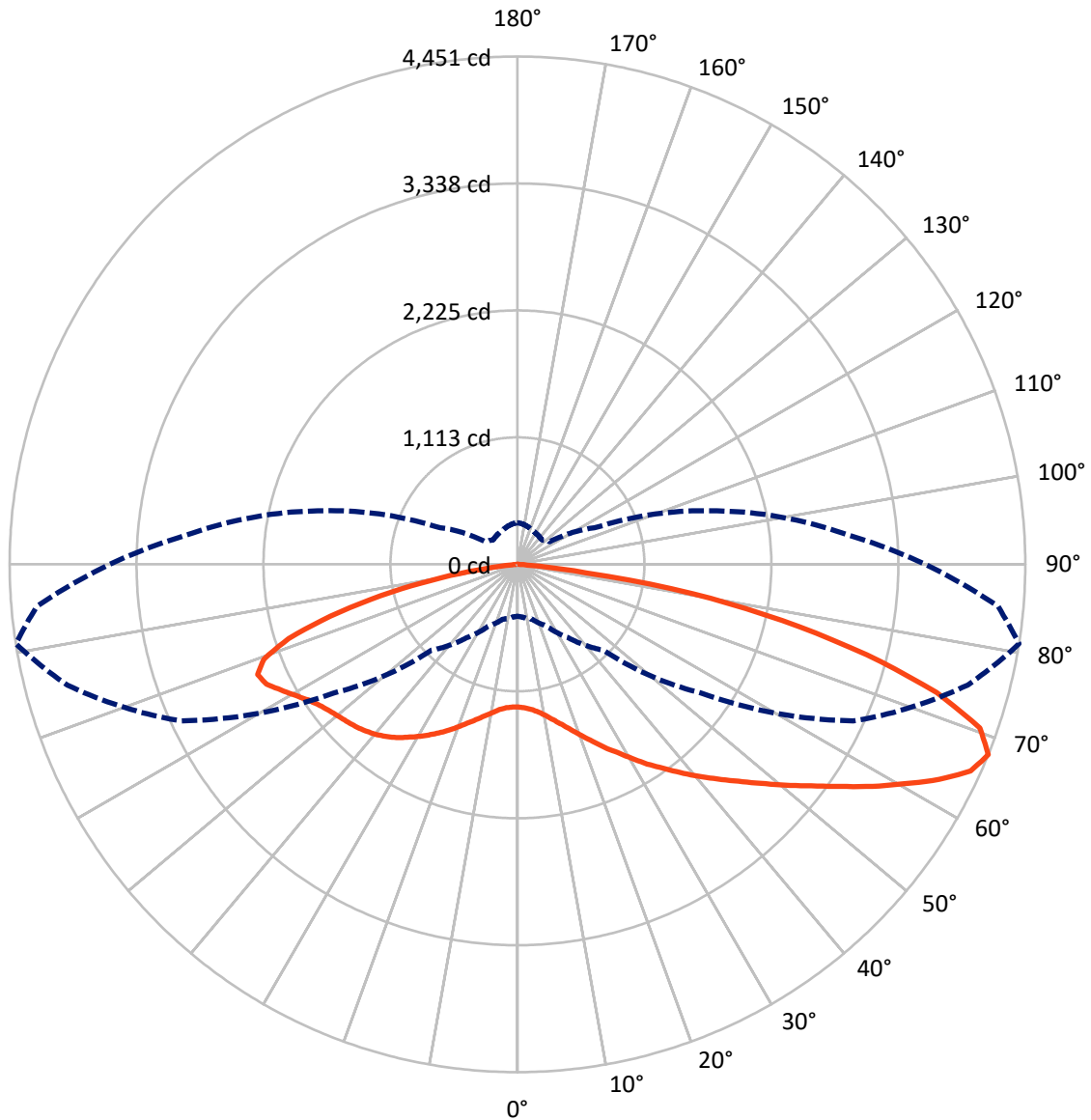
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 5.6 fc
 Type II - Medium - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 81-Deg Lateral - - - Horizontal Cone Through 67.5-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 2714.3 | 0.0 | 2714.3 |
| | % Fixture | 30.6 | 0.0 | 30.6 |
| Street Side | Lumens | 6143.8 | 0.0 | 6143.8 |
| | % Fixture | 69.4 | 0.0 | 69.4 |
| Total | Lumens | 8858.1 | 0.0 | 8858.1 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 127.5 | 1.4 |
| 10°-20° | 452.7 | 5.1 |
| 20°-30° | 901.7 | 10.2 |
| 30°-40° | 1416.5 | 16.0 |
| 40°-50° | 1756.7 | 19.8 |
| 50°-60° | 1717.3 | 19.4 |
| 60°-70° | 1444.2 | 16.3 |
| 70°-80° | 917.6 | 10.4 |
| 80°-90° | 123.9 | 1.4 |
| 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° | 8858.1 | 100.0 |
| 0°-180° | 8858.1 | 100.0 |



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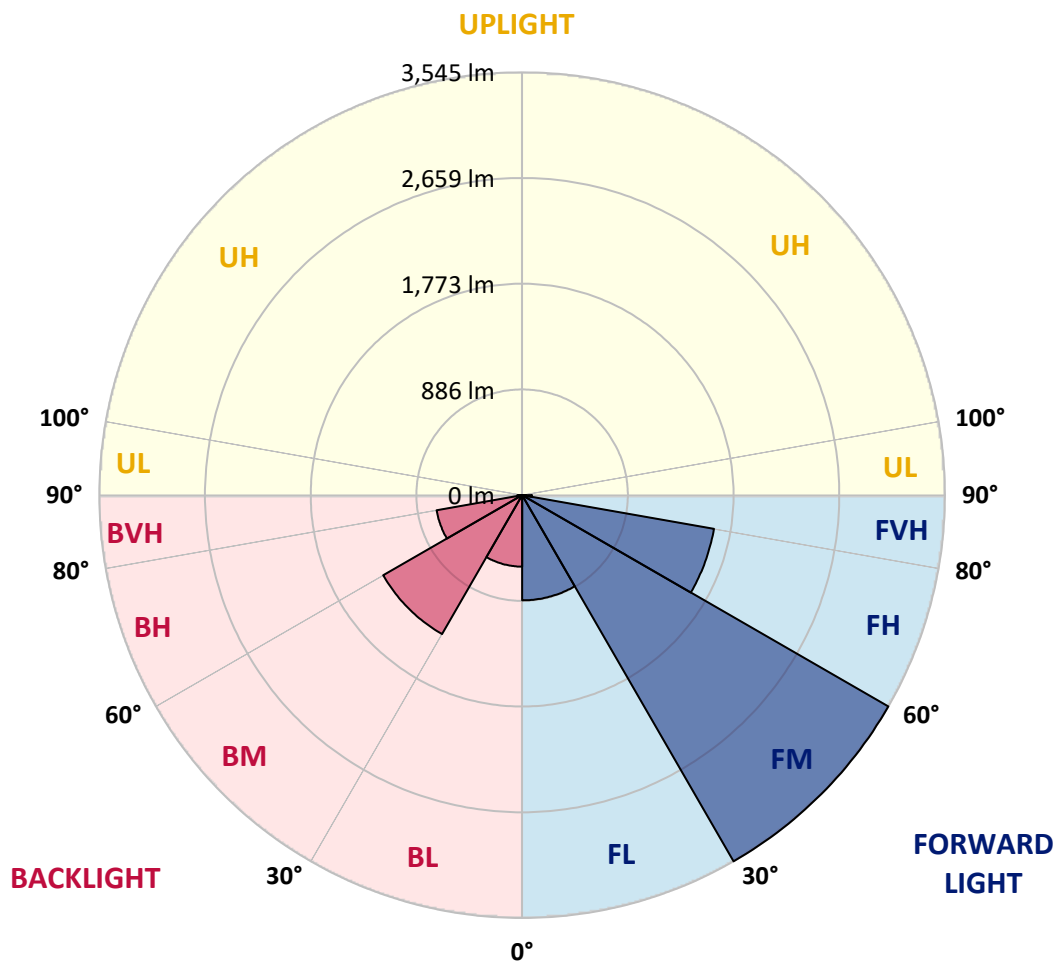
CATALOG NUMBER: MEM2-HTN-SA-60-730-U-T2R

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 882.3 | 10.0 | | | |
| FM (30°-60°) | 3545.3 | 40.0 | | | |
| FH (60°-80°) | 1633.2 | 18.4 | | | G1/1800 |
| FVH (80°-90°) | 83.0 | 0.9 | | | G1/100 |
| BL (0°-30°) | 599.6 | 6.8 | B2/1000 | | |
| BM (30°-60°) | 1345.3 | 15.2 | B2/2500 | | |
| BH (60°-80°) | 728.6 | 8.2 | B2/1000 | | G2/1000 |
| BVH (80°-90°) | 40.9 | 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 II Medium





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 81° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1250.6 | 1250.6 | 1250.6 | 1250.6 | 1250.6 | 1250.6 | 1250.6 | 1250.6 | 1250.6 | 1250.6 | 1250.6 |
| 2.5° | 1294.5 | 1292.8 | 1292.8 | 1278.7 | 1278.7 | 1275.2 | 1277.0 | 1266.4 | 1261.2 | 1259.4 | 1257.6 |
| 5° | 1387.6 | 1387.6 | 1377.1 | 1368.3 | 1350.7 | 1334.9 | 1320.9 | 1299.8 | 1284.0 | 1277.0 | 1271.7 |
| 7.5° | 1528.1 | 1517.6 | 1514.1 | 1487.7 | 1450.8 | 1419.2 | 1391.1 | 1345.5 | 1315.6 | 1305.1 | 1298.0 |
| 10° | 1700.3 | 1686.2 | 1659.9 | 1630.0 | 1582.6 | 1535.2 | 1479.0 | 1417.5 | 1368.3 | 1347.2 | 1338.4 |
| 12.5° | 1877.7 | 1858.4 | 1821.5 | 1793.4 | 1731.9 | 1659.9 | 1580.8 | 1496.5 | 1428.0 | 1398.2 | 1382.3 |
| 15° | 2072.6 | 2062.1 | 2018.2 | 1962.0 | 1890.0 | 1788.1 | 1689.7 | 1586.1 | 1498.3 | 1456.1 | 1429.8 |
| 17.5° | 2283.4 | 2267.6 | 2220.2 | 2151.7 | 2049.8 | 1928.6 | 1814.4 | 1680.9 | 1579.1 | 1524.6 | 1494.8 |
| 20° | 2490.7 | 2487.2 | 2416.9 | 2351.9 | 2232.5 | 2081.4 | 1933.9 | 1793.4 | 1665.1 | 1601.9 | 1563.3 |
| 22.5° | 2722.5 | 2699.7 | 2638.2 | 2546.9 | 2404.6 | 2265.9 | 2092.0 | 1909.3 | 1758.2 | 1684.5 | 1640.5 |
| 25° | 2963.2 | 2961.4 | 2885.9 | 2773.5 | 2606.6 | 2431.0 | 2243.0 | 2041.0 | 1868.9 | 1779.3 | 1721.3 |
| 27.5° | 3261.8 | 3238.9 | 3142.3 | 3014.1 | 2820.9 | 2618.9 | 2401.1 | 2178.0 | 1974.3 | 1867.1 | 1796.9 |
| 30° | 3523.5 | 3516.5 | 3407.6 | 3263.5 | 3047.5 | 2806.8 | 2571.5 | 2332.6 | 2099.0 | 1972.5 | 1895.2 |
| 32.5° | 3736.0 | 3727.2 | 3634.2 | 3490.1 | 3258.3 | 3008.8 | 2738.3 | 2478.4 | 2223.7 | 2086.7 | 1984.8 |
| 35° | 3913.4 | 3899.4 | 3802.8 | 3658.7 | 3458.5 | 3205.6 | 2917.5 | 2631.2 | 2360.7 | 2193.8 | 2097.2 |
| 37.5° | 3983.7 | 3971.4 | 3892.4 | 3772.9 | 3588.5 | 3356.6 | 3079.1 | 2799.8 | 2497.7 | 2315.0 | 2206.1 |
| 40° | 3957.3 | 3950.3 | 3894.1 | 3811.6 | 3671.0 | 3477.8 | 3233.7 | 2975.5 | 2652.3 | 2443.3 | 2313.3 |
| 42.5° | 3832.6 | 3832.6 | 3797.5 | 3755.3 | 3685.1 | 3546.3 | 3370.7 | 3144.1 | 2801.6 | 2571.5 | 2415.2 |
| 45° | 3657.0 | 3650.0 | 3637.7 | 3621.9 | 3611.3 | 3558.6 | 3460.3 | 3289.9 | 2966.7 | 2712.0 | 2538.1 |
| 47.5° | 3423.4 | 3428.6 | 3419.9 | 3426.9 | 3470.8 | 3504.2 | 3498.9 | 3425.1 | 3135.3 | 2866.6 | 2659.3 |
| 50° | 3056.3 | 3080.9 | 3109.0 | 3191.5 | 3281.1 | 3374.2 | 3460.3 | 3521.7 | 3333.8 | 3042.2 | 2799.8 |
| 52.5° | 2601.3 | 2611.9 | 2687.4 | 2882.4 | 3073.8 | 3196.8 | 3360.1 | 3565.6 | 3509.4 | 3224.9 | 2964.9 |
| 55° | 2041.0 | 2060.3 | 2174.5 | 2450.3 | 2791.0 | 3026.4 | 3217.9 | 3546.3 | 3688.6 | 3433.9 | 3158.1 |
| 57.5° | 1463.1 | 1475.4 | 1658.1 | 1942.7 | 2387.1 | 2782.3 | 3056.3 | 3469.0 | 3832.6 | 3671.0 | 3356.6 |
| 60° | 1039.8 | 1062.7 | 1180.4 | 1457.9 | 1884.7 | 2445.0 | 2908.7 | 3356.6 | 3966.1 | 3902.9 | 3616.6 |
| 62.5° | 767.6 | 779.9 | 862.4 | 1064.4 | 1415.7 | 1984.8 | 2717.3 | 3274.1 | 4053.9 | 4152.3 | 3876.5 |
| 65° | 577.9 | 583.2 | 639.4 | 778.1 | 1059.2 | 1463.1 | 2415.2 | 3258.3 | 4103.1 | 4364.8 | 4106.6 |
| 67.5° | 454.9 | 463.7 | 498.8 | 593.7 | 788.7 | 1064.4 | 1967.3 | 3247.7 | 4085.6 | 4450.9 | 4227.8 |
| 70° | 382.9 | 384.7 | 411.0 | 463.7 | 590.2 | 765.8 | 1470.2 | 3089.6 | 3987.2 | 4299.9 | 4115.4 |
| 72.5° | 332.0 | 332.0 | 344.3 | 386.4 | 474.2 | 579.6 | 1001.2 | 2712.0 | 3737.8 | 3841.4 | 3725.5 |
| 75° | 268.7 | 267.0 | 288.1 | 328.5 | 381.2 | 446.1 | 672.7 | 2053.3 | 3214.4 | 3161.7 | 3066.8 |
| 77.5° | 233.6 | 231.9 | 249.4 | 284.5 | 314.4 | 356.6 | 460.2 | 1333.2 | 2529.3 | 2371.2 | 2311.5 |
| 80° | 200.2 | 195.0 | 209.0 | 242.4 | 258.2 | 277.5 | 317.9 | 776.4 | 1652.8 | 1554.5 | 1482.5 |
| 82.5° | 151.1 | 138.8 | 135.2 | 163.4 | 173.9 | 161.6 | 161.6 | 272.3 | 600.7 | 606.0 | 560.3 |
| 85° | 12.3 | 14.1 | 17.6 | 21.1 | 29.9 | 33.4 | 35.1 | 58.0 | 89.6 | 86.1 | 87.8 |
| 87.5° | 1.8 | 1.8 | 1.8 | 3.5 | 3.5 | 5.3 | 5.3 | 5.3 | 7.0 | 7.0 | 7.0 |
| 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: P867479

CATALOG NUMBER: MEM2-HTN-SA-60-730-U-T2R

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1250.6 | 1250.6 | 1250.6 | 1250.6 | 1250.6 | 1250.6 | 1250.6 | 1250.6 | 1250.6 | 1250.6 | 1250.6 |
| 2.5° | 1255.9 | 1252.4 | 1248.9 | 1248.9 | 1248.9 | 1245.3 | 1243.6 | 1243.6 | 1241.8 | 1236.6 | 1234.8 |
| 5° | 1268.2 | 1262.9 | 1257.6 | 1257.6 | 1257.6 | 1255.9 | 1254.1 | 1255.9 | 1254.1 | 1248.9 | 1247.1 |
| 7.5° | 1292.8 | 1285.7 | 1278.7 | 1278.7 | 1282.2 | 1280.5 | 1280.5 | 1282.2 | 1280.5 | 1275.2 | 1273.4 |
| 10° | 1327.9 | 1317.4 | 1313.8 | 1313.8 | 1317.4 | 1315.6 | 1313.8 | 1313.8 | 1312.1 | 1303.3 | 1306.8 |
| 12.5° | 1366.5 | 1356.0 | 1352.5 | 1354.2 | 1352.5 | 1349.0 | 1350.7 | 1345.5 | 1343.7 | 1329.7 | 1327.9 |
| 15° | 1415.7 | 1403.4 | 1396.4 | 1398.2 | 1392.9 | 1385.9 | 1378.8 | 1375.3 | 1368.3 | 1356.0 | 1352.5 |
| 17.5° | 1471.9 | 1452.6 | 1443.8 | 1443.8 | 1433.3 | 1419.2 | 1408.7 | 1398.2 | 1387.6 | 1373.6 | 1370.1 |
| 20° | 1526.4 | 1508.8 | 1494.8 | 1491.2 | 1470.2 | 1447.3 | 1428.0 | 1410.5 | 1398.2 | 1382.3 | 1378.8 |
| 22.5° | 1594.9 | 1570.3 | 1551.0 | 1535.2 | 1503.5 | 1466.7 | 1436.8 | 1412.2 | 1394.6 | 1377.1 | 1371.8 |
| 25° | 1666.9 | 1631.8 | 1600.2 | 1570.3 | 1526.4 | 1473.7 | 1431.5 | 1396.4 | 1373.6 | 1354.2 | 1350.7 |
| 27.5° | 1738.9 | 1693.2 | 1647.6 | 1600.2 | 1533.4 | 1464.9 | 1405.2 | 1363.0 | 1333.2 | 1308.6 | 1305.1 |
| 30° | 1816.2 | 1760.0 | 1688.0 | 1619.5 | 1531.6 | 1442.1 | 1366.5 | 1306.8 | 1271.7 | 1243.6 | 1240.1 |
| 32.5° | 1895.2 | 1825.0 | 1726.6 | 1633.5 | 1522.9 | 1408.7 | 1310.3 | 1247.1 | 1203.2 | 1171.6 | 1162.8 |
| 35° | 1983.1 | 1897.0 | 1761.7 | 1638.8 | 1498.3 | 1359.5 | 1250.6 | 1171.6 | 1120.6 | 1089.0 | 1082.0 |
| 37.5° | 2072.6 | 1963.7 | 1784.6 | 1635.3 | 1463.1 | 1301.5 | 1173.3 | 1092.5 | 1032.8 | 988.9 | 981.9 |
| 40° | 2164.0 | 2025.2 | 1798.6 | 1617.7 | 1414.0 | 1229.5 | 1101.3 | 1002.9 | 916.9 | 876.5 | 857.2 |
| 42.5° | 2248.3 | 2081.4 | 1805.7 | 1593.1 | 1359.5 | 1154.0 | 1006.5 | 878.2 | 797.4 | 753.5 | 762.3 |
| 45° | 2336.1 | 2134.1 | 1807.4 | 1563.3 | 1287.5 | 1057.4 | 887.0 | 767.6 | 686.8 | 653.4 | 649.9 |
| 47.5° | 2411.6 | 2178.0 | 1803.9 | 1521.1 | 1206.7 | 946.7 | 762.3 | 648.1 | 588.4 | 556.8 | 553.3 |
| 50° | 2511.8 | 2227.2 | 1798.6 | 1471.9 | 1101.3 | 820.3 | 646.4 | 553.3 | 498.8 | 474.2 | 472.5 |
| 52.5° | 2611.9 | 2281.7 | 1795.1 | 1403.4 | 990.7 | 700.8 | 541.0 | 467.2 | 430.3 | 418.0 | 414.5 |
| 55° | 2743.6 | 2348.4 | 1796.9 | 1324.4 | 864.2 | 577.9 | 458.4 | 407.5 | 388.2 | 382.9 | 382.9 |
| 57.5° | 2894.7 | 2434.5 | 1807.4 | 1236.6 | 732.5 | 477.8 | 398.7 | 375.9 | 374.1 | 377.6 | 379.4 |
| 60° | 3077.3 | 2548.6 | 1828.5 | 1145.2 | 611.3 | 404.0 | 363.6 | 361.8 | 367.1 | 379.4 | 382.9 |
| 62.5° | 3282.9 | 2673.4 | 1854.8 | 1025.8 | 495.3 | 354.8 | 344.3 | 351.3 | 358.3 | 372.4 | 374.1 |
| 65° | 3463.8 | 2813.9 | 1870.6 | 911.6 | 414.5 | 326.7 | 332.0 | 335.5 | 353.1 | 372.4 | 372.4 |
| 67.5° | 3572.7 | 2915.8 | 1810.9 | 767.6 | 346.0 | 302.1 | 312.7 | 323.2 | 342.5 | 360.1 | 363.6 |
| 70° | 3535.8 | 2882.4 | 1607.2 | 595.4 | 293.3 | 279.3 | 291.6 | 307.4 | 326.7 | 347.8 | 358.3 |
| 72.5° | 3279.3 | 2645.3 | 1305.1 | 433.8 | 254.7 | 258.2 | 274.0 | 295.1 | 312.7 | 335.5 | 349.5 |
| 75° | 2741.9 | 2207.9 | 941.5 | 312.7 | 223.1 | 237.1 | 261.7 | 279.3 | 291.6 | 296.8 | 298.6 |
| 77.5° | 2081.4 | 1623.0 | 641.1 | 233.6 | 193.2 | 212.5 | 238.9 | 258.2 | 261.7 | 265.2 | 268.7 |
| 80° | 1359.5 | 1032.8 | 361.8 | 163.4 | 147.5 | 173.9 | 195.0 | 216.0 | 209.0 | 219.6 | 223.1 |
| 82.5° | 574.4 | 451.4 | 165.1 | 80.8 | 68.5 | 73.8 | 79.0 | 70.3 | 65.0 | 65.0 | 56.2 |
| 85° | 75.5 | 58.0 | 24.6 | 10.5 | 8.8 | 5.3 | 5.3 | 5.3 | 3.5 | 3.5 | 3.5 |
| 87.5° | 7.0 | 7.0 | 5.3 | 5.3 | 3.5 | 3.5 | 1.8 | 3.5 | 1.8 | 1.8 | 1.8 |
| 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: SP1-2407-157-4

Test Date: 08/07/2024

Luminaire Tested: MEM2-HTN-SA-30-730-U-5WQ-2

Data in this report applies to families of products including MEM2-HTN-SA-30-730-U-5WQ-2

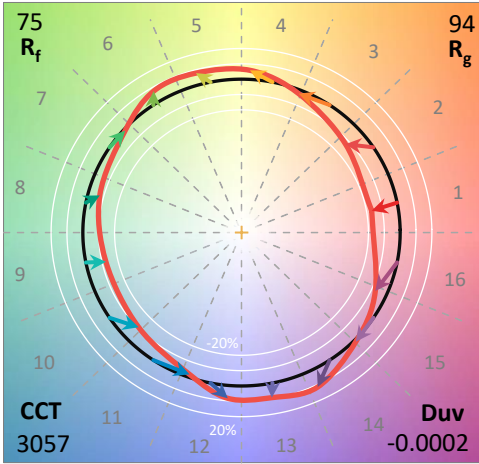
Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-157-4
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 08/20/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: Streetworks
 Catalog Number: **MEM2-HTN-SA-30-730-U-5WQ-2**
 Description: Epic Modern Light Square 30W 5WQ Optic and Flare Trim

Spectral Parameters

CCT (K): 3057
 CIE u': 0.2487
 CIE v': 0.5199
 Duv: -0.0002
 CIE x: 0.4326
 CIE y: 0.4020
 CIE z: 0.1654
 Peak Wavelength (nm): 593
 Dominant Wavelength (nm): 582
 Purity: 50.50735
 Rf: 74.6
 Rg: 94

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 71.7 | | |
| R1: | 68.1 | R9: | -34.8 |
| R2: | 82.0 | R10: | 58.5 |
| R3: | 93.5 | R11: | 62.5 |
| R4: | 67.5 | R12: | 47.5 |
| R5: | 67.2 | R13: | 70.7 |
| R6: | 74.9 | R14: | 96.4 |
| R7: | 77.4 | R15: | 60.0 |
| R8: | 43.1 | | |



Test Conditions

Stabilization Time: 21M
 Operation Time: 1H 21M
 Sphere Temperature (°C): 24.2

REPORT NUMBER: SP1-2407-157-4

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

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CIE 1931 Chromaticity Diagram



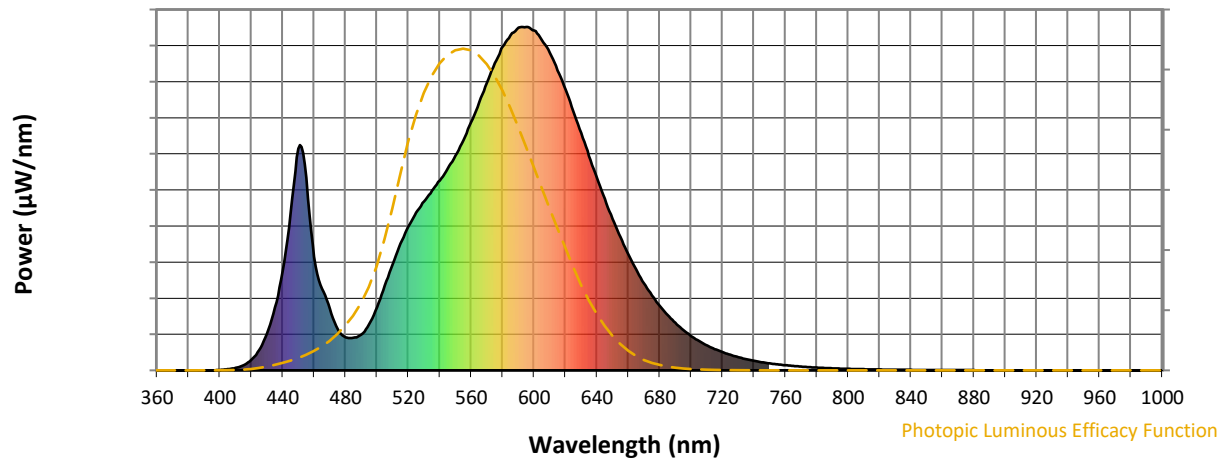
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2407-157-4

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 | 104 | NR | 620 | 818 | NR | 750 | 20 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 135 | NR | 625 | 755 | NR | 755 | 17 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 184 | NR | 630 | 691 | NR | 760 | 15 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 247 | NR | 635 | 625 | NR | 765 | 13 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 309 | NR | 640 | 561 | NR | 770 | 11 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 369 | NR | 645 | 499 | NR | 775 | 9 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 419 | NR | 650 | 441 | NR | 780 | 8 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 460 | NR | 655 | 388 | NR | 785 | 7 | NR | 915 | 0 | NR |
| 400 | 1 | NR | 530 | 492 | NR | 660 | 338 | NR | 790 | 6 | NR | 920 | 0 | NR |
| 405 | 3 | NR | 535 | 524 | NR | 665 | 294 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 7 | NR | 540 | 553 | NR | 670 | 253 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 15 | NR | 545 | 588 | NR | 675 | 218 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 31 | NR | 550 | 625 | NR | 680 | 188 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 60 | NR | 555 | 670 | NR | 685 | 161 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 107 | NR | 560 | 723 | NR | 690 | 139 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 183 | NR | 565 | 780 | NR | 695 | 118 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 289 | NR | 570 | 837 | NR | 700 | 100 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 460 | NR | 575 | 894 | NR | 705 | 85 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 646 | NR | 580 | 942 | NR | 710 | 73 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 561 | NR | 585 | 976 | NR | 715 | 62 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 331 | NR | 590 | 998 | NR | 720 | 53 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 238 | NR | 595 | 1000 | NR | 725 | 45 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 178 | NR | 600 | 990 | NR | 730 | 39 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 120 | NR | 605 | 962 | NR | 735 | 33 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 96 | NR | 610 | 925 | NR | 740 | 28 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 95 | NR | 615 | 873 | NR | 745 | 24 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2407-157-4

Scotopic Flux vs. Wavelength



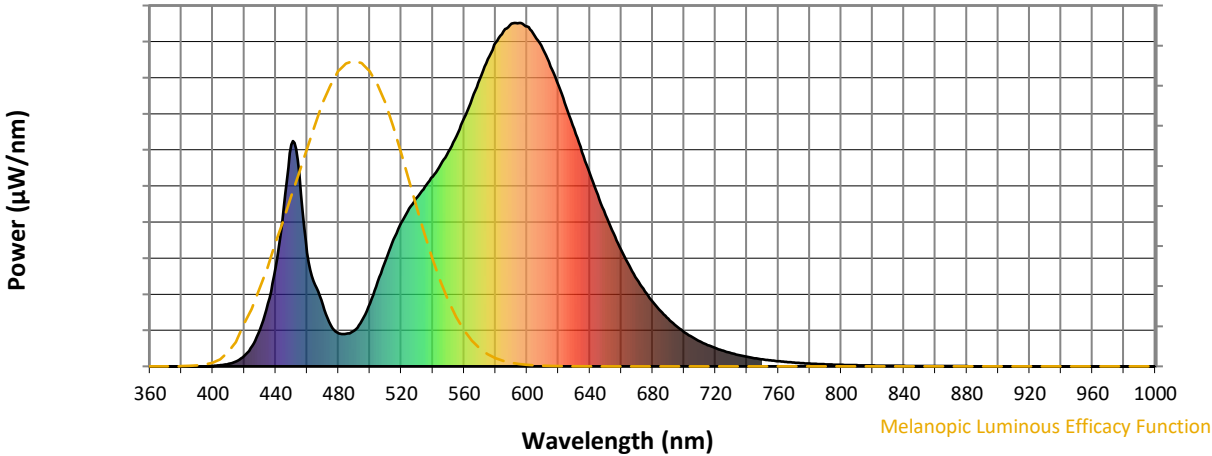
Scotopic Lumens: NR

S/P: 1.23

| 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 | 104 | NR | 620 | 818 | NR | 750 | 20 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 135 | NR | 625 | 755 | NR | 755 | 17 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 184 | NR | 630 | 691 | NR | 760 | 15 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 247 | NR | 635 | 625 | NR | 765 | 13 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 309 | NR | 640 | 561 | NR | 770 | 11 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 369 | NR | 645 | 499 | NR | 775 | 9 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 419 | NR | 650 | 441 | NR | 780 | 8 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 460 | NR | 655 | 388 | NR | 785 | 7 | NR | 915 | 0 | NR |
| 400 | 1 | NR | 530 | 492 | NR | 660 | 338 | NR | 790 | 6 | NR | 920 | 0 | NR |
| 405 | 3 | NR | 535 | 524 | NR | 665 | 294 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 7 | NR | 540 | 553 | NR | 670 | 253 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 15 | NR | 545 | 588 | NR | 675 | 218 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 31 | NR | 550 | 625 | NR | 680 | 188 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 60 | NR | 555 | 670 | NR | 685 | 161 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 107 | NR | 560 | 723 | NR | 690 | 139 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 183 | NR | 565 | 780 | NR | 695 | 118 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 289 | NR | 570 | 837 | NR | 700 | 100 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 460 | NR | 575 | 894 | NR | 705 | 85 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 646 | NR | 580 | 942 | NR | 710 | 73 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 561 | NR | 585 | 976 | NR | 715 | 62 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 331 | NR | 590 | 998 | NR | 720 | 53 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 238 | NR | 595 | 1000 | NR | 725 | 45 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 178 | NR | 600 | 990 | NR | 730 | 39 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 120 | NR | 605 | 962 | NR | 735 | 33 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 96 | NR | 610 | 925 | NR | 740 | 28 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 95 | NR | 615 | 873 | NR | 745 | 24 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2407-157-4

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.27

| 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 | 104 | NR | 620 | 818 | NR | 750 | 20 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 135 | NR | 625 | 755 | NR | 755 | 17 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 184 | NR | 630 | 691 | NR | 760 | 15 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 247 | NR | 635 | 625 | NR | 765 | 13 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 309 | NR | 640 | 561 | NR | 770 | 11 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 369 | NR | 645 | 499 | NR | 775 | 9 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 419 | NR | 650 | 441 | NR | 780 | 8 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 460 | NR | 655 | 388 | NR | 785 | 7 | NR | 915 | 0 | NR |
| 400 | 1 | NR | 530 | 492 | NR | 660 | 338 | NR | 790 | 6 | NR | 920 | 0 | NR |
| 405 | 3 | NR | 535 | 524 | NR | 665 | 294 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 7 | NR | 540 | 553 | NR | 670 | 253 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 15 | NR | 545 | 588 | NR | 675 | 218 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 31 | NR | 550 | 625 | NR | 680 | 188 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 60 | NR | 555 | 670 | NR | 685 | 161 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 107 | NR | 560 | 723 | NR | 690 | 139 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 183 | NR | 565 | 780 | NR | 695 | 118 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 289 | NR | 570 | 837 | NR | 700 | 100 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 460 | NR | 575 | 894 | NR | 705 | 85 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 646 | NR | 580 | 942 | NR | 710 | 73 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 561 | NR | 585 | 976 | NR | 715 | 62 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 331 | NR | 590 | 998 | NR | 720 | 53 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 238 | NR | 595 | 1000 | NR | 725 | 45 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 178 | NR | 600 | 990 | NR | 730 | 39 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 120 | NR | 605 | 962 | NR | 735 | 33 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 96 | NR | 610 | 925 | NR | 740 | 28 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 95 | NR | 615 | 873 | NR | 745 | 24 | NR | 875 | 1 | NR | | | |

Summary

$R_f = 74.6$
 $R_g = 94$
 $CIE R_a = 71.7$
 $R_9 = -34.8$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 65 | CES51 = 87 | CES76 = 58 |
| CES02 = 62 | CES27 = 89 | CES52 = 85 | CES77 = 76 |
| CES03 = 31 | CES28 = 84 | CES53 = 77 | CES78 = 61 |
| CES04 = 71 | CES29 = 68 | CES54 = 85 | CES79 = 86 |
| CES05 = 49 | CES30 = 83 | CES55 = 84 | CES80 = 83 |
| CES06 = 51 | CES31 = 71 | CES56 = 74 | CES81 = 73 |
| CES07 = 41 | CES32 = 64 | CES57 = 74 | CES82 = 93 |
| CES08 = 40 | CES33 = 78 | CES58 = 75 | CES83 = 91 |
| CES09 = 29 | CES34 = 75 | CES59 = 85 | CES84 = 88 |
| CES10 = 76 | CES35 = 87 | CES60 = 90 | CES85 = 75 |
| CES11 = 59 | CES36 = 92 | CES61 = 81 | CES86 = 64 |
| CES12 = 65 | CES37 = 84 | CES62 = 89 | CES87 = 77 |
| CES13 = 43 | CES38 = 92 | CES63 = 75 | CES88 = 80 |
| CES14 = 74 | CES39 = 96 | CES64 = 65 | CES89 = 67 |
| CES15 = 71 | CES40 = 92 | CES65 = 64 | CES90 = 80 |
| CES16 = 47 | CES41 = 93 | CES66 = 60 | CES91 = 78 |
| CES17 = 50 | CES42 = 86 | CES67 = 58 | CES92 = 56 |
| CES18 = 56 | CES43 = 77 | CES68 = 66 | CES93 = 73 |
| CES19 = 73 | CES44 = 99 | CES69 = 75 | CES94 = 49 |
| CES20 = 66 | CES45 = 85 | CES70 = 60 | CES95 = 66 |
| CES21 = 87 | CES46 = 81 | CES71 = 56 | CES96 = 76 |
| CES22 = 79 | CES47 = 86 | CES72 = 85 | CES97 = 82 |
| CES23 = 92 | CES48 = 75 | CES73 = 52 | CES98 = 76 |
| CES24 = 91 | CES49 = 79 | CES74 = 95 | CES99 = 64 |
| CES25 = 73 | CES50 = 86 | CES75 = 60 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)