

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: P867514

Luminaire Tested: **MEM2-HTN-SA-70-730-U-T2R-HSS**

Issue Date: 08/21/2024



Test Information

Test Method: LM-79-08
Report Number: P867514
Test Lab: INNOVATION CENTER(G3)
Issue Date: 08/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: STREETWORKS
Catalog Number: MEM2-HTN-SA-70-730-U-T2R-HSS
Description: EPIC MODERN TALL HOUSING DISCRETE LED ARRAYS 70W 70CRI 3000K
FIXTURE w/ TYPE II ROADWAY DISTRIBUTION OPTIC AND HOUSE SIDE SHIELD
Light Source: (20) 3000K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

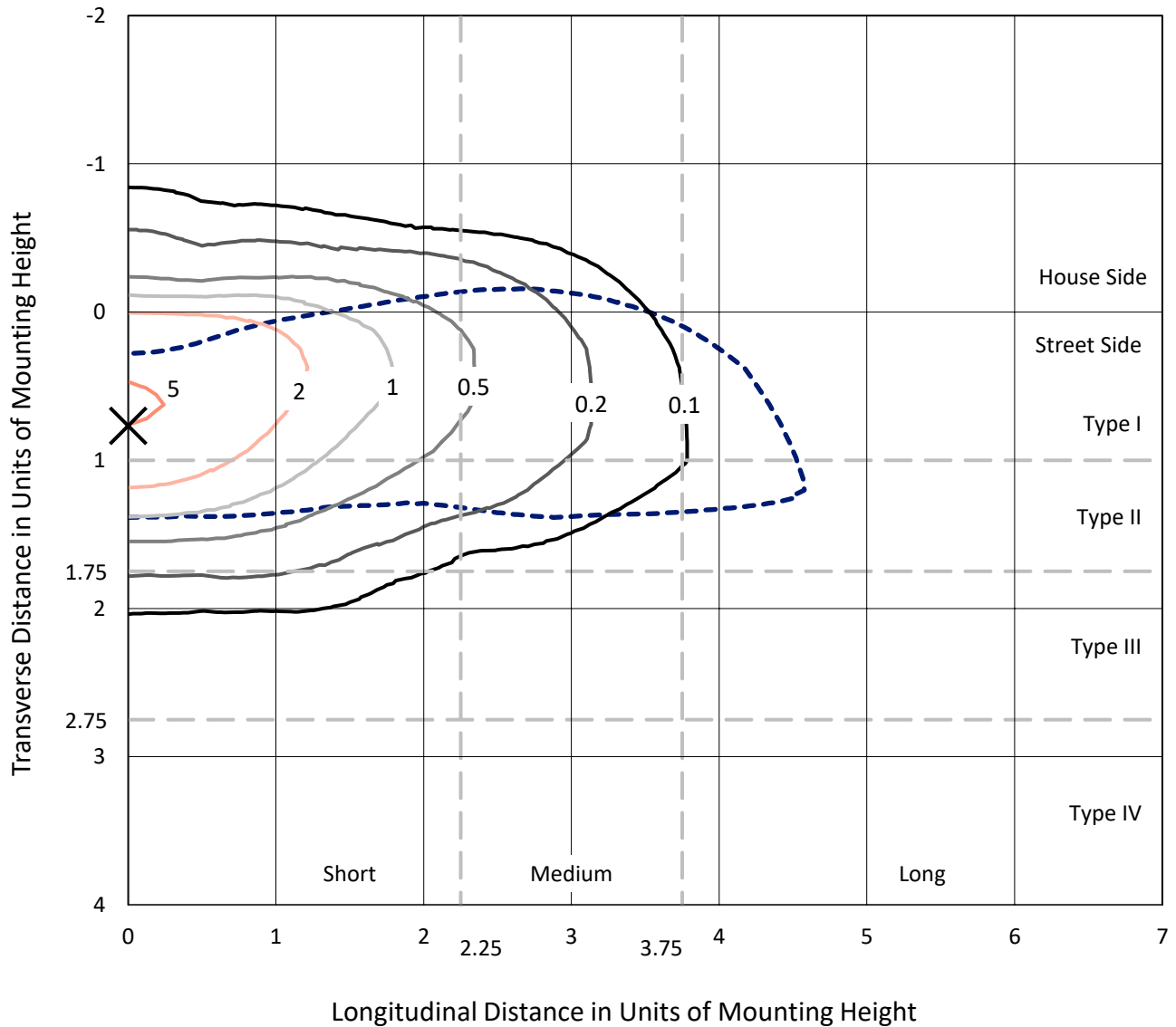
Lumens per Lamp: N/A
Luminaire Lumens: 6293.8 lumens
Efficiency: N/A
Efficacy: 103.2 lumens/watt
Luminous Opening: Rectangular (W 0.67' x L: 0.33' x H: 0')
IES Classification: Type II - Short
BUG Rating: B1 - U0 - G1

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

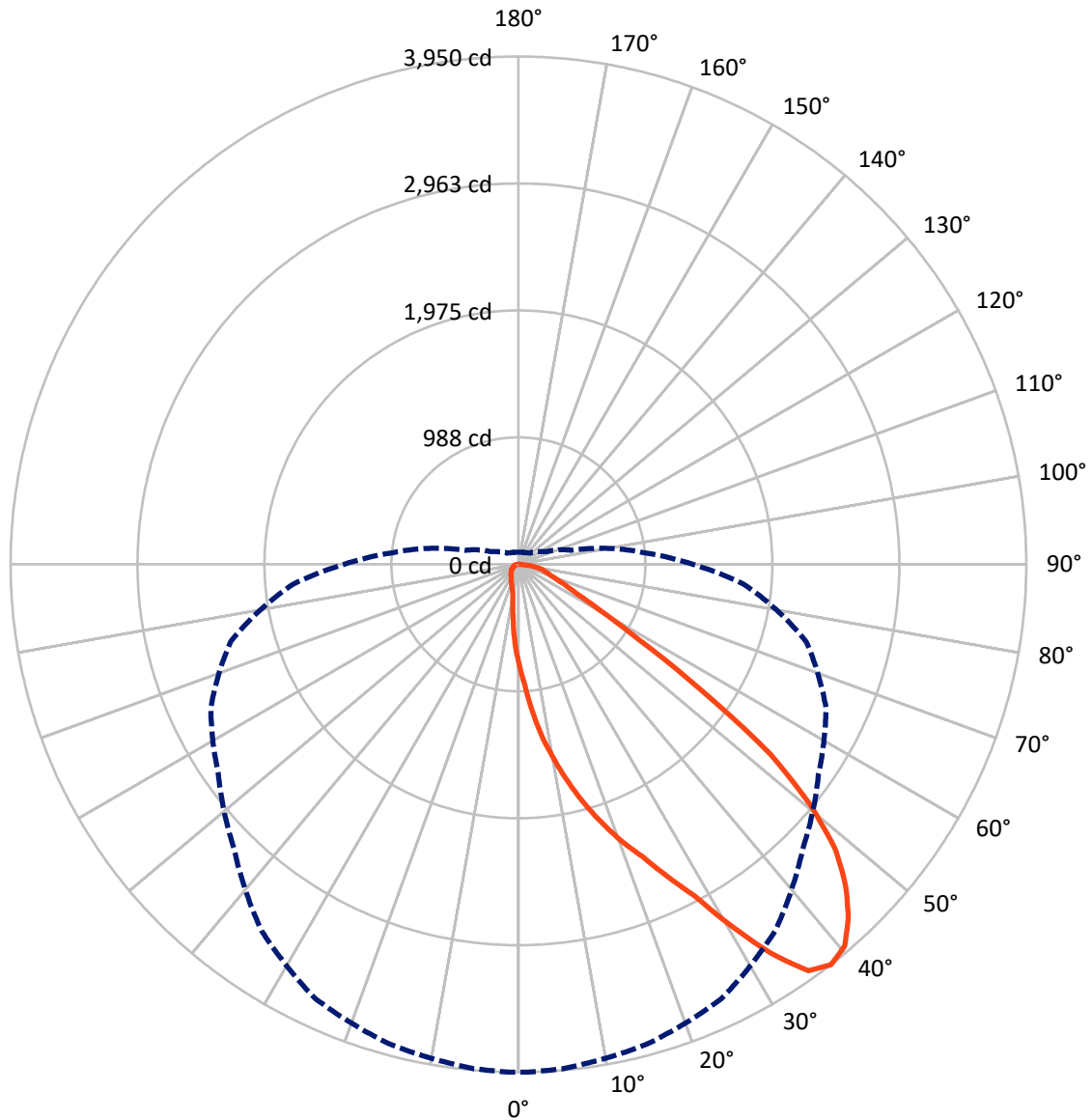
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 5.4 fc
 Type II - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 0-Deg Lateral - - - Horizontal Cone Through 37.5-Deg Vertical

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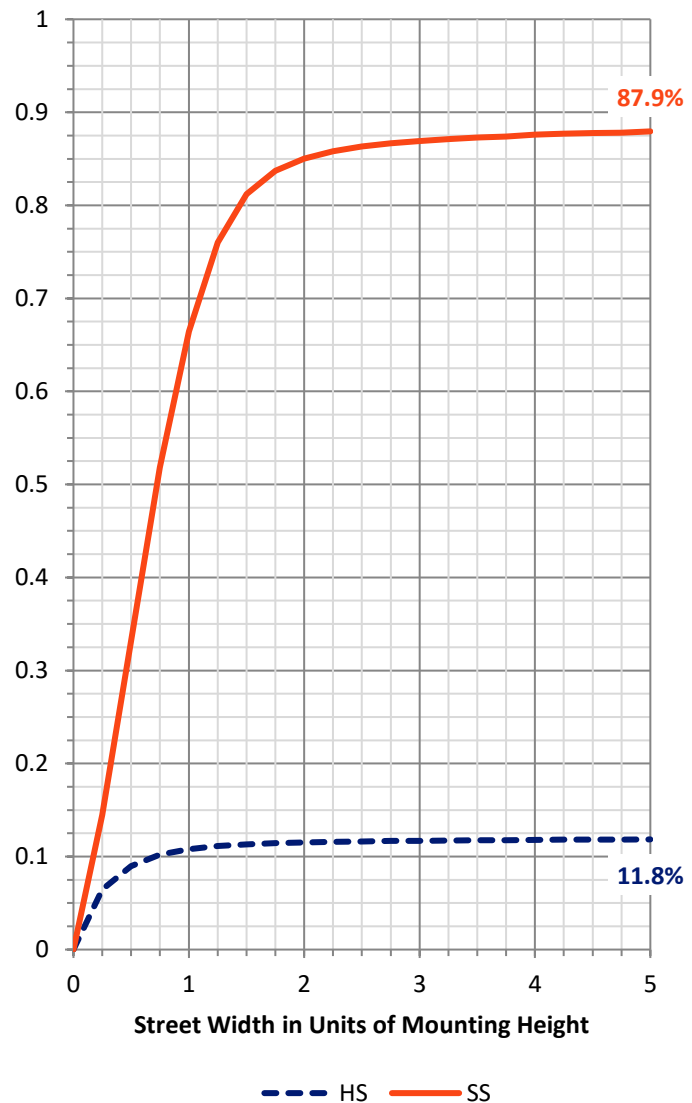
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 750.7 | 0.0 | 750.7 |
| | % Fixture | 11.9 | 0.0 | 11.9 |
| Street Side | Lumens | 5543.1 | 0.0 | 5543.1 |
| | % Fixture | 88.1 | 0.0 | 88.1 |
| Total | Lumens | 6293.8 | 0.0 | 6293.8 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 78.2 | 1.2 |
| 10°-20° | 273.5 | 4.3 |
| 20°-30° | 564.3 | 9.0 |
| 30°-40° | 992.9 | 15.8 |
| 40°-50° | 1348.1 | 21.4 |
| 50°-60° | 1335.7 | 21.2 |
| 60°-70° | 1028.3 | 16.3 |
| 70°-80° | 596.8 | 9.5 |
| 80°-90° | 75.9 | 1.2 |
| 90°-100° | 0.0 | 0.0 |
| 100°-110° | 0.0 | 0.0 |
| 110°-120° | 0.0 | 0.0 |
| 120°-130° | 0.0 | 0.0 |
| 130°-140° | 0.0 | 0.0 |
| 140°-150° | 0.0 | 0.0 |
| 150°-160° | 0.0 | 0.0 |
| 160°-170° | 0.0 | 0.0 |
| 170°-180° | 0.0 | 0.0 |
| 0°-90° | 6293.8 | 100.0 |
| 0°-180° | 6293.8 | 100.0 |



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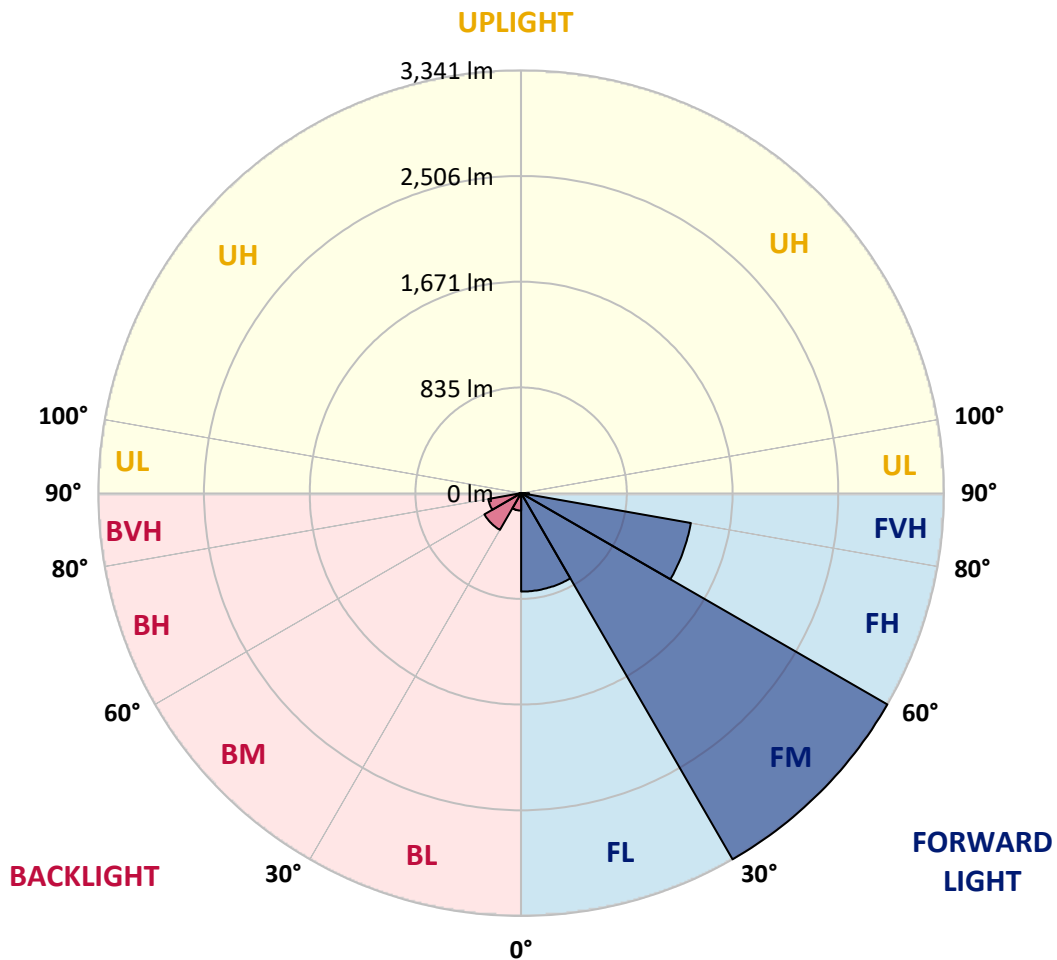
CATALOG NUMBER: MEM2-HTN-SA-70-730-U-T2R-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 778.0 | 12.4 | | | |
| FM (30°-60°) | 3341.5 | 53.1 | | | |
| FH (60°-80°) | 1361.7 | 21.6 | | | G1/1800 |
| FVH (80°-90°) | 61.9 | 1.0 | | | G1/100 |
| BL (0°-30°) | 138.0 | 2.2 | B1/500 | | |
| BM (30°-60°) | 335.3 | 5.3 | B1/1000 | | |
| BH (60°-80°) | 263.4 | 4.2 | B1/500 | | G1/500 |
| BVH (80°-90°) | 14.0 | 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-G1

Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 1° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 779.9 | 779.9 | 779.9 | 779.9 | 779.9 | 779.9 | 779.9 | 779.9 | 779.9 | 779.9 | 779.9 |
| 2.5° | 939.7 | 953.8 | 943.2 | 934.5 | 922.2 | 909.9 | 892.3 | 873.0 | 848.4 | 818.5 | 792.2 |
| 5° | 1152.3 | 1159.3 | 1155.8 | 1150.5 | 1111.9 | 1075.0 | 1038.1 | 992.4 | 929.2 | 873.0 | 813.3 |
| 7.5° | 1364.8 | 1361.3 | 1352.5 | 1336.7 | 1301.6 | 1259.4 | 1192.7 | 1117.1 | 1027.6 | 929.2 | 836.1 |
| 10° | 1551.0 | 1556.3 | 1549.2 | 1524.6 | 1480.7 | 1422.8 | 1342.0 | 1255.9 | 1134.7 | 997.7 | 867.7 |
| 12.5° | 1746.0 | 1749.5 | 1749.5 | 1696.8 | 1666.9 | 1577.3 | 1491.3 | 1375.3 | 1240.1 | 1082.0 | 904.6 |
| 15° | 1937.4 | 1930.4 | 1930.4 | 1895.3 | 1842.6 | 1742.4 | 1645.8 | 1505.3 | 1352.5 | 1161.0 | 946.8 |
| 17.5° | 2120.1 | 2123.6 | 2107.8 | 2069.2 | 2018.2 | 1921.6 | 1802.2 | 1647.6 | 1463.2 | 1255.9 | 990.7 |
| 20° | 2301.0 | 2290.5 | 2283.5 | 2244.8 | 2190.4 | 2076.2 | 1962.0 | 1786.4 | 1593.1 | 1363.0 | 1052.1 |
| 22.5° | 2469.6 | 2474.9 | 2457.3 | 2395.9 | 2344.9 | 2241.3 | 2111.3 | 1949.7 | 1730.2 | 1470.2 | 1118.9 |
| 25° | 2687.4 | 2669.9 | 2685.7 | 2611.9 | 2532.9 | 2409.9 | 2262.4 | 2102.5 | 1879.5 | 1601.9 | 1201.4 |
| 27.5° | 2919.3 | 2929.8 | 2921.1 | 2840.3 | 2733.1 | 2568.0 | 2413.4 | 2243.1 | 2030.5 | 1726.6 | 1294.5 |
| 30° | 3265.3 | 3260.1 | 3261.8 | 3140.6 | 2963.2 | 2766.5 | 2576.8 | 2390.6 | 2181.6 | 1879.5 | 1403.4 |
| 32.5° | 3607.9 | 3627.2 | 3579.7 | 3472.6 | 3268.8 | 2972.0 | 2740.1 | 2532.9 | 2327.4 | 2011.2 | 1514.1 |
| 35° | 3883.6 | 3878.4 | 3859.0 | 3739.6 | 3537.6 | 3249.5 | 2926.3 | 2691.0 | 2481.9 | 2172.8 | 1637.1 |
| 37.5° | 3950.4 | 3950.4 | 3938.1 | 3864.3 | 3730.8 | 3481.4 | 3128.3 | 2849.0 | 2640.0 | 2316.8 | 1756.5 |
| 40° | 3906.5 | 3897.7 | 3890.6 | 3841.5 | 3769.4 | 3621.9 | 3340.9 | 3012.4 | 2808.6 | 2503.0 | 1888.2 |
| 42.5° | 3762.4 | 3764.2 | 3755.4 | 3727.3 | 3688.7 | 3632.4 | 3472.6 | 3186.3 | 2973.8 | 2678.7 | 2018.2 |
| 45° | 3569.2 | 3572.7 | 3562.2 | 3558.7 | 3539.3 | 3539.3 | 3502.5 | 3323.3 | 3130.1 | 2857.8 | 2160.5 |
| 47.5° | 3321.5 | 3319.8 | 3314.5 | 3305.7 | 3344.4 | 3386.5 | 3419.9 | 3400.6 | 3268.8 | 3051.0 | 2288.7 |
| 50° | 2943.9 | 2940.4 | 2956.2 | 3000.1 | 3095.0 | 3188.0 | 3286.4 | 3377.8 | 3369.0 | 3230.2 | 2443.3 |
| 52.5° | 2453.8 | 2431.0 | 2448.6 | 2583.8 | 2778.8 | 2986.1 | 3124.8 | 3268.8 | 3419.9 | 3419.9 | 2596.1 |
| 55° | 1716.1 | 1735.4 | 1746.0 | 1944.4 | 2329.1 | 2685.7 | 2929.8 | 3116.0 | 3400.6 | 3571.0 | 2764.7 |
| 57.5° | 1092.5 | 1099.6 | 1131.2 | 1345.5 | 1796.9 | 2243.1 | 2675.1 | 2980.8 | 3328.6 | 3697.4 | 2933.4 |
| 60° | 736.0 | 711.4 | 736.0 | 858.9 | 1292.8 | 1760.0 | 2301.0 | 2810.4 | 3224.9 | 3788.8 | 3119.5 |
| 62.5° | 519.9 | 518.2 | 525.2 | 597.2 | 922.2 | 1322.6 | 1832.0 | 2580.3 | 3142.4 | 3794.0 | 3258.3 |
| 65° | 419.8 | 407.5 | 412.8 | 453.2 | 618.3 | 969.6 | 1343.7 | 2164.0 | 3068.6 | 3700.9 | 3326.8 |
| 67.5° | 337.2 | 332.0 | 335.5 | 361.8 | 463.7 | 728.9 | 946.8 | 1645.8 | 2912.3 | 3542.9 | 3288.2 |
| 70° | 275.8 | 277.5 | 279.3 | 305.6 | 368.9 | 551.5 | 676.3 | 1129.4 | 2578.5 | 3363.7 | 3114.3 |
| 72.5° | 238.9 | 238.9 | 240.6 | 258.2 | 309.1 | 437.4 | 511.1 | 734.2 | 2086.7 | 3170.5 | 2794.6 |
| 75° | 210.8 | 210.8 | 210.8 | 226.6 | 263.5 | 351.3 | 397.0 | 502.4 | 1498.3 | 2812.2 | 2311.6 |
| 77.5° | 182.7 | 184.4 | 184.4 | 198.5 | 226.6 | 274.0 | 305.6 | 347.8 | 955.5 | 2172.8 | 1749.5 |
| 80° | 140.5 | 140.5 | 142.3 | 158.1 | 193.2 | 214.3 | 224.8 | 245.9 | 502.4 | 1364.8 | 1110.1 |
| 82.5° | 98.4 | 100.1 | 100.1 | 101.9 | 130.0 | 131.7 | 121.2 | 123.0 | 182.7 | 453.2 | 421.6 |
| 85° | 10.5 | 12.3 | 14.1 | 14.1 | 22.8 | 28.1 | 29.9 | 28.1 | 29.9 | 52.7 | 52.7 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 3.5 | 3.5 | 5.3 | 5.3 | 5.3 | 5.3 |
| 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: P867514

CATALOG NUMBER: MEM2-HTN-SA-70-730-U-T2R-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 779.9 | 779.9 | 779.9 | 779.9 | 779.9 | 779.9 | 779.9 | 779.9 | 779.9 | 779.9 | 779.9 |
| 2.5° | 778.1 | 765.8 | 739.5 | 716.7 | 695.6 | 678.0 | 665.7 | 649.9 | 637.6 | 637.6 | 644.6 |
| 5° | 783.4 | 755.3 | 700.8 | 649.9 | 609.5 | 570.9 | 535.7 | 512.9 | 495.3 | 484.8 | 484.8 |
| 7.5° | 790.4 | 748.3 | 665.7 | 588.4 | 525.2 | 463.7 | 409.3 | 382.9 | 356.6 | 347.8 | 349.5 |
| 10° | 804.5 | 744.8 | 634.1 | 534.0 | 439.1 | 361.8 | 309.1 | 281.0 | 267.0 | 260.0 | 260.0 |
| 12.5° | 820.3 | 744.8 | 600.7 | 472.5 | 361.8 | 282.8 | 251.2 | 230.1 | 223.1 | 219.6 | 216.0 |
| 15° | 841.4 | 748.3 | 572.6 | 407.5 | 295.1 | 238.9 | 216.0 | 203.8 | 196.7 | 193.2 | 193.2 |
| 17.5° | 866.0 | 751.8 | 542.8 | 354.8 | 251.2 | 210.8 | 193.2 | 184.4 | 177.4 | 173.9 | 173.9 |
| 20° | 897.6 | 760.6 | 512.9 | 307.4 | 219.6 | 193.2 | 177.4 | 168.6 | 161.6 | 159.8 | 158.1 |
| 22.5° | 936.2 | 774.6 | 483.0 | 268.7 | 198.5 | 175.7 | 161.6 | 154.6 | 149.3 | 145.8 | 145.8 |
| 25° | 981.9 | 792.2 | 460.2 | 240.6 | 182.7 | 163.4 | 151.1 | 142.3 | 137.0 | 135.3 | 135.3 |
| 27.5° | 1045.1 | 822.0 | 437.4 | 219.6 | 170.4 | 151.1 | 138.8 | 131.7 | 126.5 | 124.7 | 123.0 |
| 30° | 1104.8 | 858.9 | 426.8 | 214.3 | 161.6 | 140.5 | 131.7 | 123.0 | 117.7 | 115.9 | 114.2 |
| 32.5° | 1182.1 | 901.1 | 419.8 | 214.3 | 158.1 | 133.5 | 123.0 | 115.9 | 110.7 | 108.9 | 107.1 |
| 35° | 1264.7 | 950.3 | 419.8 | 221.3 | 159.8 | 128.2 | 115.9 | 108.9 | 103.6 | 100.1 | 100.1 |
| 37.5° | 1354.3 | 999.4 | 423.3 | 231.9 | 165.1 | 124.7 | 108.9 | 101.9 | 96.6 | 94.9 | 94.9 |
| 40° | 1449.1 | 1066.2 | 430.3 | 240.6 | 170.4 | 123.0 | 101.9 | 96.6 | 91.3 | 87.8 | 87.8 |
| 42.5° | 1536.9 | 1118.9 | 442.6 | 251.2 | 173.9 | 121.2 | 96.6 | 91.3 | 86.1 | 84.3 | 84.3 |
| 45° | 1638.8 | 1176.9 | 453.2 | 258.2 | 173.9 | 115.9 | 91.3 | 86.1 | 82.6 | 80.8 | 79.0 |
| 47.5° | 1719.6 | 1224.3 | 458.4 | 261.7 | 170.4 | 110.7 | 86.1 | 82.6 | 79.0 | 75.5 | 77.3 |
| 50° | 1818.0 | 1275.2 | 467.2 | 263.5 | 163.4 | 103.6 | 82.6 | 77.3 | 73.8 | 72.0 | 72.0 |
| 52.5° | 1912.8 | 1326.2 | 474.3 | 260.0 | 154.6 | 94.9 | 77.3 | 73.8 | 70.3 | 66.7 | 66.7 |
| 55° | 2025.2 | 1382.4 | 484.8 | 254.7 | 140.5 | 86.1 | 72.0 | 68.5 | 63.2 | 61.5 | 59.7 |
| 57.5° | 2153.5 | 1456.1 | 493.6 | 244.2 | 123.0 | 77.3 | 68.5 | 63.2 | 56.2 | 52.7 | 52.7 |
| 60° | 2271.2 | 1540.5 | 500.6 | 217.8 | 107.1 | 72.0 | 63.2 | 58.0 | 50.9 | 49.2 | 49.2 |
| 62.5° | 2397.6 | 1628.3 | 500.6 | 172.1 | 91.3 | 65.0 | 59.7 | 54.5 | 47.4 | 45.7 | 45.7 |
| 65° | 2485.4 | 1707.3 | 484.8 | 128.2 | 77.3 | 61.5 | 58.0 | 50.9 | 43.9 | 42.2 | 42.2 |
| 67.5° | 2510.0 | 1756.5 | 440.9 | 91.3 | 66.7 | 58.0 | 54.5 | 47.4 | 42.2 | 38.6 | 38.6 |
| 70° | 2431.0 | 1717.9 | 360.1 | 70.3 | 58.0 | 52.7 | 49.2 | 43.9 | 38.6 | 36.9 | 36.9 |
| 72.5° | 2204.4 | 1570.3 | 268.7 | 59.7 | 50.9 | 49.2 | 45.7 | 40.4 | 36.9 | 35.1 | 35.1 |
| 75° | 1846.1 | 1305.1 | 189.7 | 52.7 | 47.4 | 43.9 | 40.4 | 36.9 | 33.4 | 33.4 | 33.4 |
| 77.5° | 1398.2 | 943.2 | 117.7 | 47.4 | 40.4 | 40.4 | 36.9 | 33.4 | 31.6 | 29.9 | 29.9 |
| 80° | 902.8 | 595.5 | 66.7 | 33.4 | 28.1 | 29.9 | 26.3 | 22.8 | 22.8 | 21.1 | 21.1 |
| 82.5° | 382.9 | 235.4 | 35.1 | 19.3 | 14.1 | 12.3 | 8.8 | 8.8 | 7.0 | 7.0 | 7.0 |
| 85° | 38.6 | 14.1 | 7.0 | 5.3 | 5.3 | 3.5 | 3.5 | 3.5 | 3.5 | 1.8 | 1.8 |
| 87.5° | 5.3 | 5.3 | 5.3 | 3.5 | 3.5 | 3.5 | 1.8 | 1.8 | 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 |

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-40-730-U-5WQ-2

Data in this report applies to families of products including MEM2-HTN-SA-40-730-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-40-730-U-5WQ-2**
 Description: Epic Modern Light Square 40W 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

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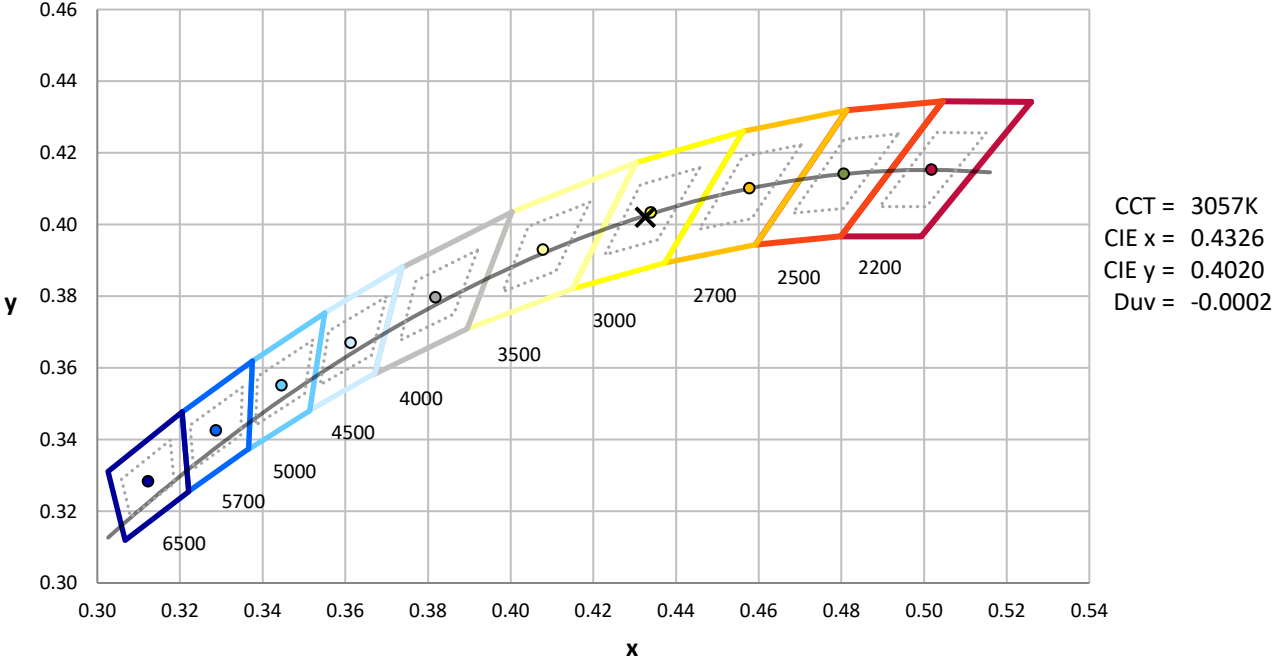
| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 |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

REPORT NUMBER: SP1-2407-157-4

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

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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 | 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

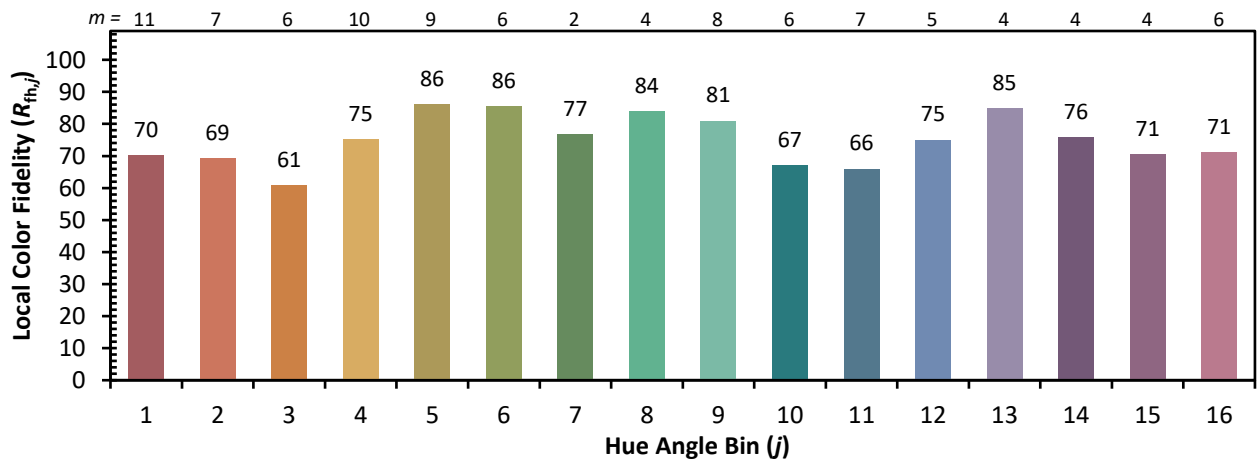


Individual Sample Fidelity Index ($R_{f,i}$)

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