

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: P867615

Luminaire Tested: **MEM2-HTN-SA-110-727-U-T3**

Issue Date: 08/21/2024



Test Information

Test Method: LM-79-08
Report Number: P867615
Test Lab: INNOVATION CENTER(G3)
Issue Date: 08/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: STREETWORKS
Catalog Number: MEM2-HTN-SA-110-727-U-T3
Description: EPIC MODERN TALL HOUSING DISCRETE LED ARRAYS 110W 70CRI 2700K
FIXTURE w/ TYPE III DISTRIBUTION OPTIC
Light Source: (30) 2700K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

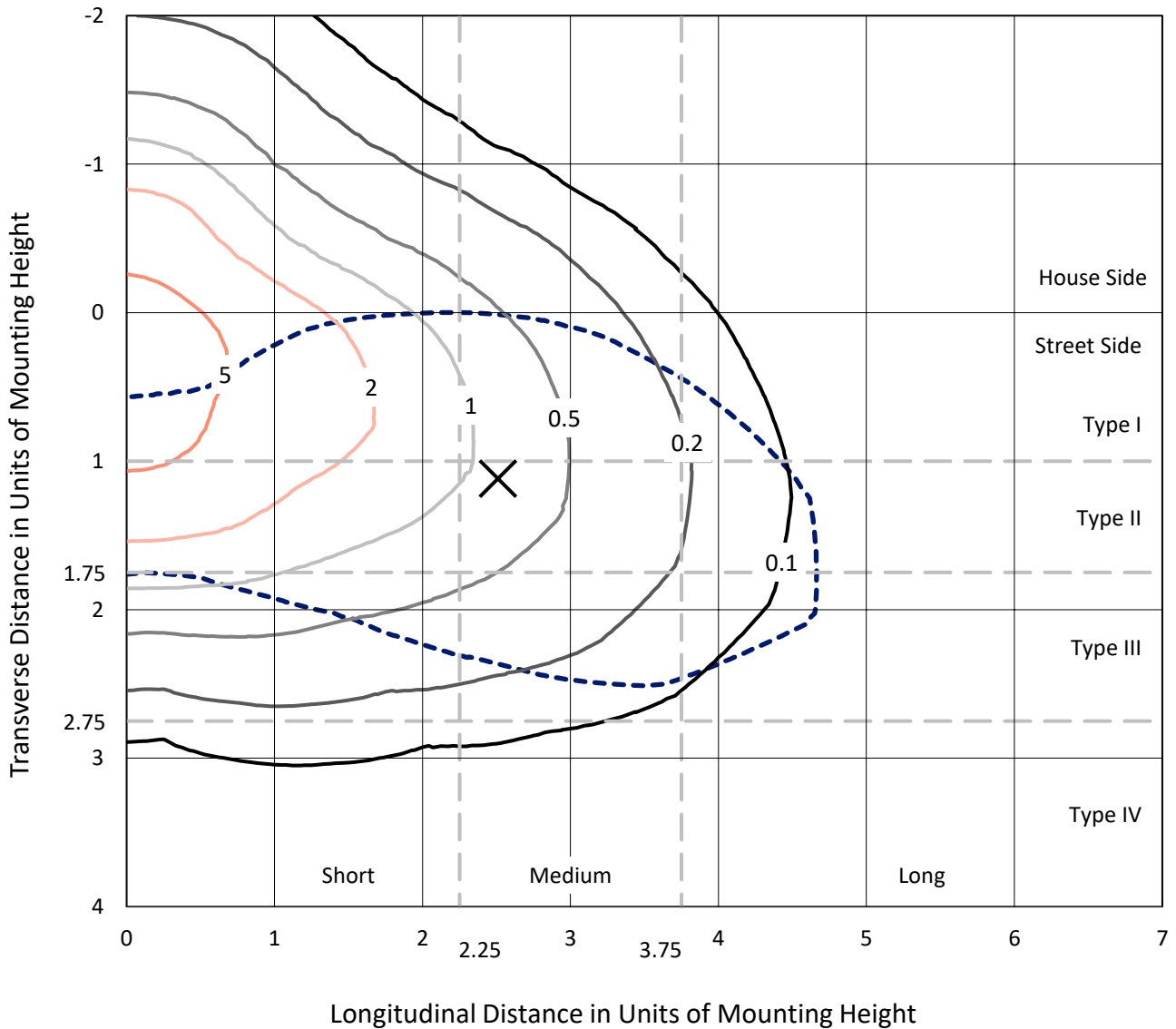
Lumens per Lamp: N/A
Luminaire Lumens: 15634.8 lumens
Efficiency: N/A
Efficacy: 138.4 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 0.33' x H: 0')
IES Classification: Type III - Medium
BUG Rating: B3 - U0 - G3

Input Watts (W): 113
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.99
Total Harmonic Distortion (THDi): 7.77%
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

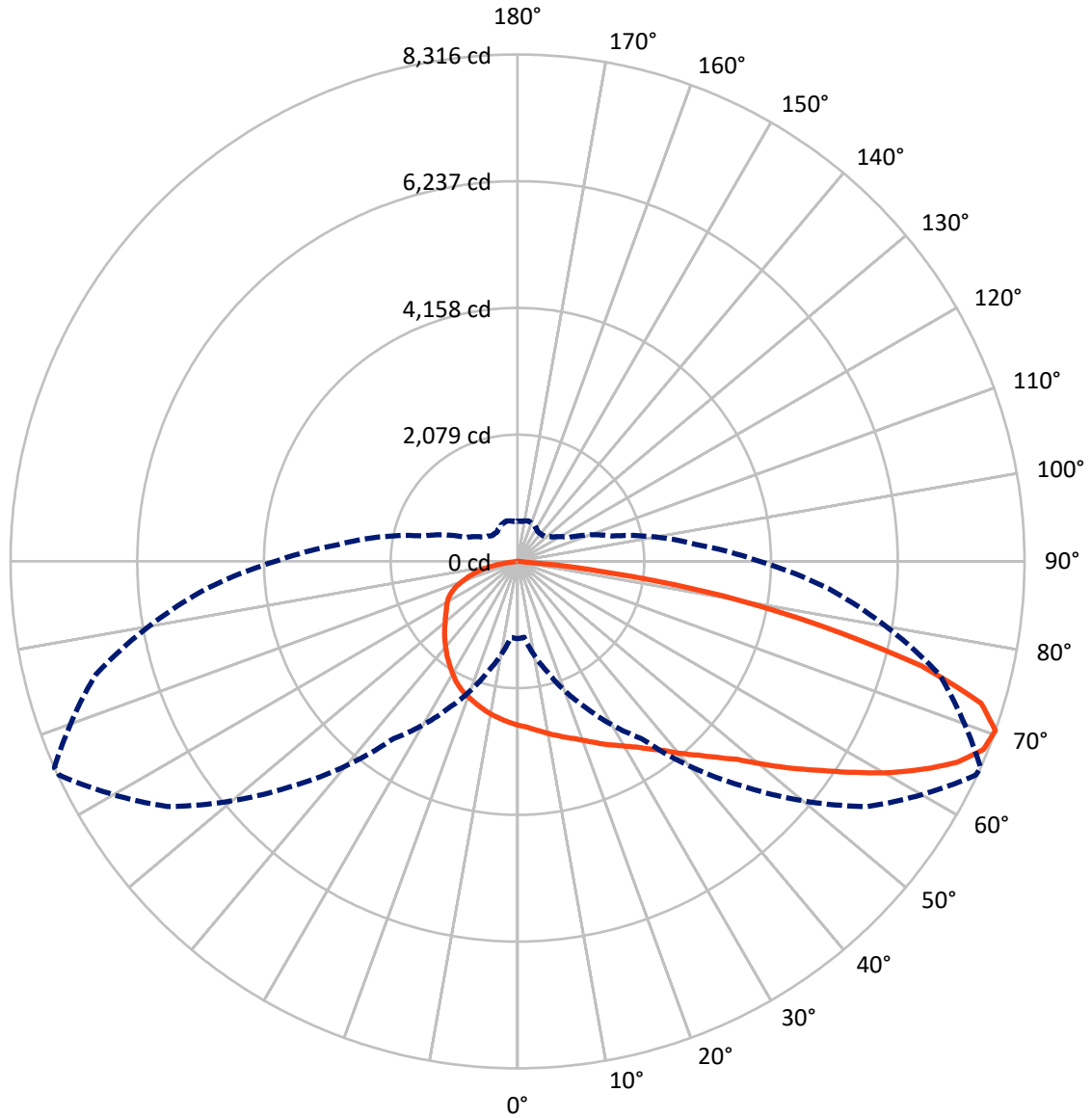
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 7.2 fc
 Type III - Medium - N/A

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CATALOG NUMBER: MEM2-HTN-SA-110-727-U-T3

Luminous Intensity Polar Plot



— Vertical Plane Through 66-Deg Lateral - - - Horizontal Cone Through 70-Deg Vertical

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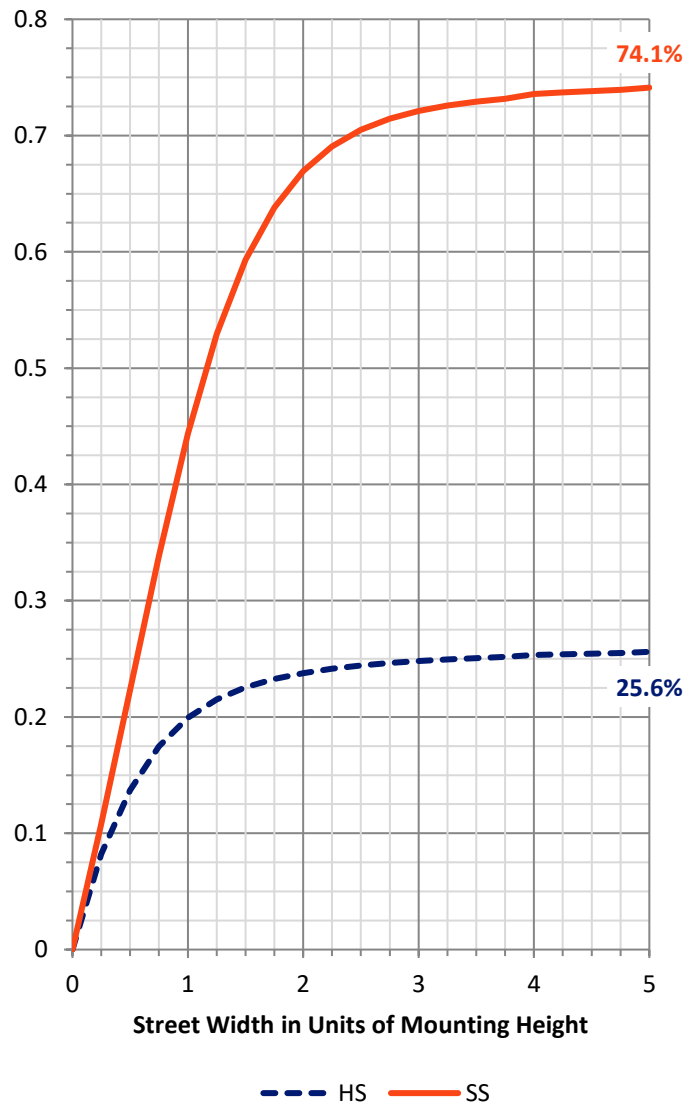
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 4029.2 | 0.0 | 4029.2 |
| | % Fixture | 25.8 | 0.0 | 25.8 |
| Street Side | Lumens | 11605.6 | 0.0 | 11605.6 |
| | % Fixture | 74.2 | 0.0 | 74.2 |
| Total | Lumens | 15634.8 | 0.0 | 15634.8 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 257.4 | 1.6 |
| 10°-20° | 766.8 | 4.9 |
| 20°-30° | 1288.0 | 8.2 |
| 30°-40° | 1940.4 | 12.4 |
| 40°-50° | 2634.3 | 16.8 |
| 50°-60° | 3130.4 | 20.0 |
| 60°-70° | 3194.8 | 20.4 |
| 70°-80° | 2136.8 | 13.7 |
| 80°-90° | 285.9 | 1.8 |
| 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° | 15634.8 | 100.0 |
| 0°-180° | 15634.8 | 100.0 |



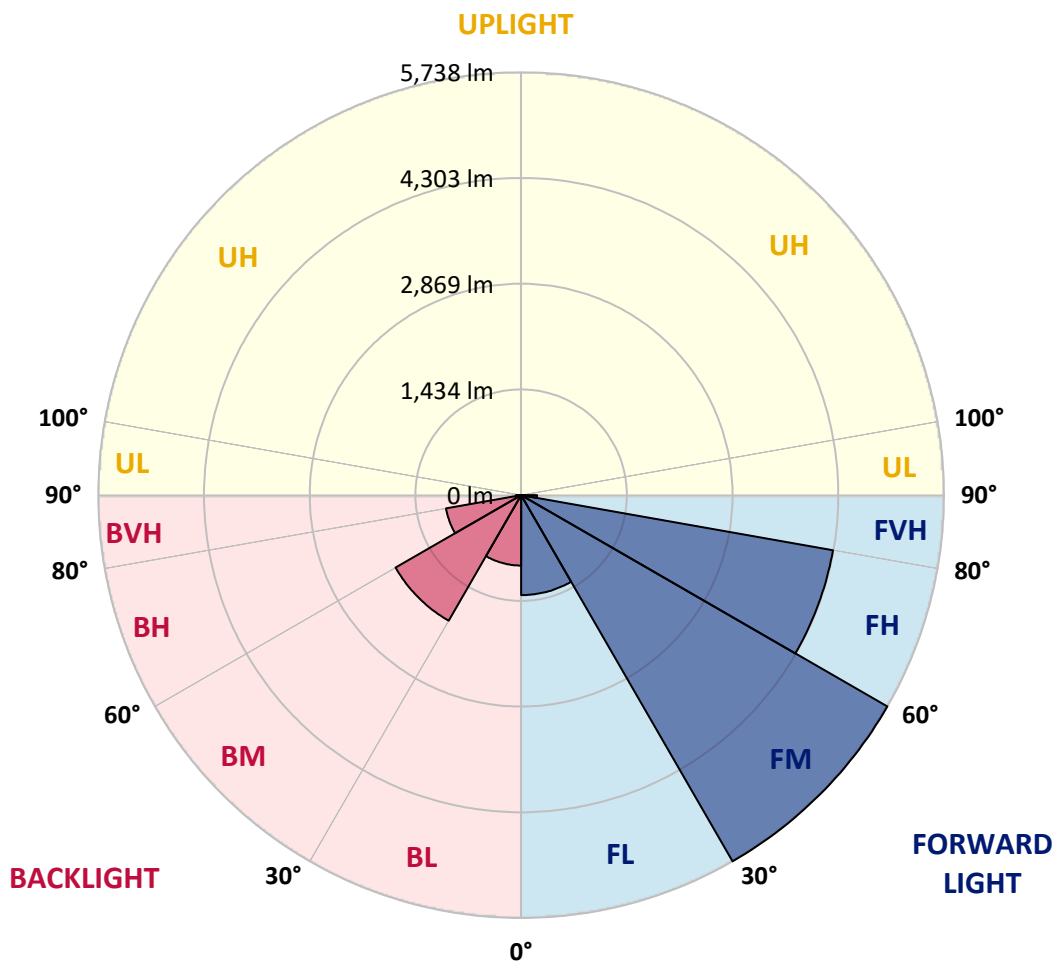
REPORT NUMBER: P867615
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1356.8 | 8.7 | | | |
| FM (30°-60°) | 5737.7 | 36.7 | | | |
| FH (60°-80°) | 4297.0 | 27.5 | | | G2/5000 |
| FVH (80°-90°) | 214.1 | 1.4 | | | G2/225 |
| BL (0°-30°) | 955.4 | 6.1 | B2/1000 | | |
| BM (30°-60°) | 1967.5 | 12.6 | B2/2500 | | |
| BH (60°-80°) | 1034.6 | 6.6 | B3/2500 | | G3/2500 |
| BVH (80°-90°) | 71.8 | 0.5 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B3-U0-G3

Type III Medium





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 66° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2690.0 | 2690.0 | 2690.0 | 2690.0 | 2690.0 | 2690.0 | 2690.0 | 2690.0 | 2690.0 | 2690.0 | 2690.0 |
| 2.5° | 2786.3 | 2773.9 | 2764.6 | 2770.8 | 2752.2 | 2758.4 | 2736.6 | 2721.1 | 2718.0 | 2711.8 | 2705.6 |
| 5° | 2873.3 | 2873.3 | 2857.8 | 2857.8 | 2836.0 | 2832.9 | 2801.9 | 2767.7 | 2767.7 | 2746.0 | 2721.1 |
| 7.5° | 2966.5 | 2960.3 | 2941.7 | 2938.5 | 2913.7 | 2907.5 | 2873.3 | 2820.5 | 2817.4 | 2777.0 | 2739.7 |
| 10° | 3031.7 | 3034.8 | 3022.4 | 3022.4 | 3003.8 | 2988.3 | 2938.5 | 2882.6 | 2876.4 | 2823.6 | 2764.6 |
| 12.5° | 3081.4 | 3087.7 | 3084.5 | 3084.5 | 3069.0 | 3069.0 | 3013.1 | 2938.5 | 2932.3 | 2864.0 | 2780.1 |
| 15° | 3134.2 | 3131.1 | 3140.5 | 3143.6 | 3137.4 | 3128.0 | 3087.7 | 3000.7 | 2997.6 | 2907.5 | 2801.9 |
| 17.5° | 3180.8 | 3177.7 | 3180.8 | 3196.4 | 3199.5 | 3199.5 | 3159.1 | 3069.0 | 3056.6 | 2960.3 | 2820.5 |
| 20° | 3208.8 | 3215.0 | 3227.4 | 3246.1 | 3255.4 | 3280.2 | 3246.1 | 3149.8 | 3137.4 | 3016.2 | 2860.9 |
| 22.5° | 3314.4 | 3295.8 | 3305.1 | 3317.5 | 3329.9 | 3364.1 | 3333.0 | 3233.6 | 3224.3 | 3100.1 | 2907.5 |
| 25° | 3494.6 | 3494.6 | 3472.8 | 3451.1 | 3435.6 | 3451.1 | 3426.2 | 3329.9 | 3323.7 | 3174.6 | 2960.3 |
| 27.5° | 3808.3 | 3808.3 | 3761.7 | 3681.0 | 3578.4 | 3550.5 | 3531.9 | 3432.4 | 3413.8 | 3255.4 | 2994.5 |
| 30° | 4205.9 | 4218.3 | 4134.5 | 3997.8 | 3808.3 | 3684.1 | 3637.5 | 3528.7 | 3519.4 | 3336.2 | 3047.3 |
| 32.5° | 4631.5 | 4656.3 | 4594.2 | 4395.4 | 4084.8 | 3842.5 | 3767.9 | 3656.1 | 3634.4 | 3432.4 | 3115.6 |
| 35° | 5013.6 | 5038.4 | 4954.5 | 4768.2 | 4370.5 | 4072.3 | 3923.2 | 3795.9 | 3783.5 | 3556.7 | 3218.1 |
| 37.5° | 5324.2 | 5330.4 | 5277.6 | 5050.8 | 4609.7 | 4264.9 | 4115.8 | 3963.6 | 3938.8 | 3705.8 | 3326.8 |
| 40° | 5653.4 | 5678.3 | 5625.5 | 5345.9 | 4827.2 | 4473.1 | 4308.4 | 4165.5 | 4143.8 | 3861.1 | 3429.3 |
| 42.5° | 5998.2 | 5995.1 | 5995.1 | 5600.6 | 5044.6 | 4647.0 | 4516.5 | 4358.1 | 4345.7 | 4019.5 | 3541.2 |
| 45° | 6209.5 | 6221.9 | 6187.7 | 5752.8 | 5364.6 | 4827.2 | 4718.5 | 4603.5 | 4581.8 | 4240.1 | 3687.2 |
| 47.5° | 6262.3 | 6234.3 | 6079.0 | 5870.9 | 5724.9 | 5013.6 | 4973.2 | 4904.8 | 4855.1 | 4482.4 | 3867.3 |
| 50° | 6190.8 | 6147.3 | 6057.3 | 5923.7 | 5858.5 | 5237.2 | 5231.0 | 5265.2 | 5231.0 | 4777.5 | 4075.5 |
| 52.5° | 5923.7 | 5917.5 | 5901.9 | 5933.0 | 5827.4 | 5414.3 | 5523.0 | 5641.0 | 5634.8 | 5078.8 | 4292.9 |
| 55° | 5361.5 | 5401.8 | 5588.2 | 5783.9 | 5709.4 | 5535.4 | 5849.1 | 6075.9 | 6051.1 | 5432.9 | 4516.5 |
| 57.5° | 4786.8 | 4827.2 | 5066.4 | 5532.3 | 5594.4 | 5665.9 | 6215.7 | 6569.8 | 6529.4 | 5818.1 | 4721.6 |
| 60° | 4286.7 | 4243.2 | 4482.4 | 5153.3 | 5432.9 | 5783.9 | 6579.1 | 7069.9 | 7035.7 | 6203.3 | 4932.8 |
| 62.5° | 3494.6 | 3538.1 | 3920.1 | 4600.4 | 5206.1 | 5858.5 | 6877.3 | 7523.4 | 7501.7 | 6557.4 | 5103.6 |
| 65° | 2764.6 | 2705.6 | 3280.2 | 4019.5 | 4814.7 | 5833.6 | 7135.1 | 7949.0 | 7933.5 | 6905.3 | 5234.1 |
| 67.5° | 1879.3 | 1838.9 | 2596.9 | 3441.8 | 4283.6 | 5634.8 | 7194.2 | 8234.8 | 8241.0 | 7110.3 | 5268.3 |
| 70° | 1267.4 | 1248.7 | 1866.9 | 2646.6 | 3547.4 | 5206.1 | 7010.9 | 8293.8 | 8315.5 | 7163.1 | 5116.1 |
| 72.5° | 935.0 | 931.9 | 1366.8 | 1888.6 | 2640.3 | 4395.4 | 6510.8 | 7908.6 | 7949.0 | 6790.3 | 4668.8 |
| 75° | 736.2 | 745.5 | 975.4 | 1341.9 | 1761.3 | 3252.3 | 5476.4 | 6781.0 | 6843.2 | 5864.7 | 3876.6 |
| 77.5° | 602.6 | 602.6 | 683.4 | 962.9 | 1177.3 | 2019.1 | 3938.8 | 4963.8 | 5088.1 | 4525.9 | 2985.1 |
| 80° | 487.7 | 497.0 | 506.3 | 671.0 | 779.7 | 1152.4 | 2292.4 | 3311.3 | 3401.4 | 3152.9 | 2155.8 |
| 82.5° | 267.1 | 285.8 | 276.5 | 347.9 | 391.4 | 534.3 | 910.1 | 1338.8 | 1475.5 | 1314.0 | 978.5 |
| 85° | 18.6 | 12.4 | 21.7 | 28.0 | 34.2 | 52.8 | 71.4 | 99.4 | 93.2 | 133.6 | 68.3 |
| 87.5° | 3.1 | 3.1 | 3.1 | 6.2 | 6.2 | 9.3 | 12.4 | 12.4 | 12.4 | 12.4 | 12.4 |
| 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: P867615

CATALOG NUMBER: MEM2-HTN-SA-110-727-U-T3

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2690.0 | 2690.0 | 2690.0 | 2690.0 | 2690.0 | 2690.0 | 2690.0 | 2690.0 | 2690.0 | 2690.0 | 2690.0 |
| 2.5° | 2702.5 | 2686.9 | 2662.1 | 2655.9 | 2646.6 | 2634.1 | 2621.7 | 2603.1 | 2596.9 | 2603.1 | 2609.3 |
| 5° | 2705.6 | 2683.8 | 2643.5 | 2618.6 | 2593.8 | 2572.0 | 2547.2 | 2522.3 | 2506.8 | 2509.9 | 2522.3 |
| 7.5° | 2714.9 | 2683.8 | 2621.7 | 2581.3 | 2540.9 | 2506.8 | 2466.4 | 2438.4 | 2419.8 | 2422.9 | 2432.2 |
| 10° | 2727.3 | 2683.8 | 2609.3 | 2540.9 | 2485.0 | 2435.3 | 2394.9 | 2360.8 | 2342.1 | 2339.0 | 2342.1 |
| 12.5° | 2730.4 | 2680.7 | 2581.3 | 2497.5 | 2429.1 | 2363.9 | 2320.4 | 2289.3 | 2270.7 | 2261.4 | 2267.6 |
| 15° | 2739.7 | 2671.4 | 2553.4 | 2450.9 | 2367.0 | 2298.7 | 2245.8 | 2208.6 | 2196.1 | 2189.9 | 2186.8 |
| 17.5° | 2752.2 | 2668.3 | 2528.5 | 2404.3 | 2304.9 | 2227.2 | 2180.6 | 2143.3 | 2127.8 | 2121.6 | 2127.8 |
| 20° | 2770.8 | 2671.4 | 2500.6 | 2357.7 | 2249.0 | 2171.3 | 2118.5 | 2081.2 | 2068.8 | 2065.7 | 2062.6 |
| 22.5° | 2795.7 | 2677.6 | 2478.8 | 2314.2 | 2186.8 | 2109.2 | 2056.4 | 2031.5 | 2022.2 | 2025.3 | 2025.3 |
| 25° | 2820.5 | 2683.8 | 2447.8 | 2255.2 | 2121.6 | 2040.8 | 2003.6 | 1984.9 | 1991.1 | 2003.6 | 2003.6 |
| 27.5° | 2842.3 | 2680.7 | 2404.3 | 2193.0 | 2043.9 | 1969.4 | 1941.4 | 1944.5 | 1960.1 | 1981.8 | 1984.9 |
| 30° | 2870.2 | 2680.7 | 2357.7 | 2115.4 | 1957.0 | 1885.5 | 1879.3 | 1904.2 | 1929.0 | 1950.7 | 1950.7 |
| 32.5° | 2913.7 | 2699.4 | 2320.4 | 2037.7 | 1866.9 | 1811.0 | 1838.9 | 1873.1 | 1901.0 | 1922.8 | 1929.0 |
| 35° | 2988.3 | 2739.7 | 2295.5 | 1960.1 | 1779.9 | 1739.5 | 1792.3 | 1848.2 | 1866.9 | 1882.4 | 1885.5 |
| 37.5° | 3059.7 | 2777.0 | 2264.5 | 1885.5 | 1689.8 | 1674.3 | 1745.7 | 1804.8 | 1807.9 | 1817.2 | 1817.2 |
| 40° | 3128.0 | 2805.0 | 2224.1 | 1804.8 | 1602.8 | 1602.8 | 1686.7 | 1736.4 | 1730.2 | 1720.9 | 1724.0 |
| 42.5° | 3202.6 | 2820.5 | 2177.5 | 1730.2 | 1531.4 | 1531.4 | 1599.7 | 1643.2 | 1640.1 | 1652.5 | 1661.9 |
| 45° | 3292.7 | 2851.6 | 2115.4 | 1661.9 | 1456.8 | 1444.4 | 1500.3 | 1537.6 | 1584.2 | 1640.1 | 1655.7 |
| 47.5° | 3416.9 | 2895.1 | 2065.7 | 1587.3 | 1394.7 | 1351.2 | 1373.0 | 1450.6 | 1503.4 | 1550.0 | 1556.3 |
| 50° | 3547.4 | 2957.2 | 2022.2 | 1509.7 | 1320.2 | 1242.5 | 1261.2 | 1348.1 | 1379.2 | 1397.8 | 1407.1 |
| 52.5° | 3687.2 | 3006.9 | 1984.9 | 1444.4 | 1242.5 | 1130.7 | 1155.5 | 1239.4 | 1261.2 | 1276.7 | 1279.8 |
| 55° | 3808.3 | 3047.3 | 1938.3 | 1382.3 | 1158.6 | 1025.1 | 1056.1 | 1136.9 | 1158.6 | 1177.3 | 1177.3 |
| 57.5° | 3935.7 | 3084.5 | 1907.3 | 1329.5 | 1068.6 | 938.1 | 959.8 | 1040.6 | 1071.7 | 1077.9 | 1087.2 |
| 60° | 4041.3 | 3118.7 | 1879.3 | 1279.8 | 984.7 | 860.4 | 876.0 | 947.4 | 984.7 | 987.8 | 994.0 |
| 62.5° | 4115.8 | 3140.5 | 1863.8 | 1217.7 | 900.8 | 782.8 | 795.2 | 866.7 | 910.1 | 919.5 | 922.6 |
| 65° | 4162.4 | 3152.9 | 1835.8 | 1136.9 | 829.4 | 717.6 | 717.6 | 789.0 | 832.5 | 854.2 | 860.4 |
| 67.5° | 4140.7 | 3131.1 | 1761.3 | 1043.7 | 764.1 | 652.3 | 649.2 | 720.7 | 757.9 | 770.4 | 773.5 |
| 70° | 3972.9 | 3003.8 | 1609.1 | 928.8 | 695.8 | 593.3 | 587.1 | 652.3 | 686.5 | 658.5 | 661.6 |
| 72.5° | 3631.3 | 2714.9 | 1400.9 | 813.8 | 624.4 | 537.4 | 531.2 | 587.1 | 590.2 | 590.2 | 587.1 |
| 75° | 3059.7 | 2217.9 | 1118.3 | 692.7 | 549.8 | 478.4 | 481.5 | 525.0 | 528.1 | 543.6 | 534.3 |
| 77.5° | 2345.2 | 1643.2 | 872.9 | 552.9 | 465.9 | 425.6 | 441.1 | 456.6 | 478.4 | 500.1 | 478.4 |
| 80° | 1705.4 | 1133.8 | 605.7 | 413.1 | 360.3 | 360.3 | 366.5 | 382.1 | 413.1 | 434.9 | 413.1 |
| 82.5° | 730.0 | 500.1 | 279.6 | 205.0 | 177.1 | 174.0 | 177.1 | 177.1 | 217.4 | 223.7 | 195.7 |
| 85° | 55.9 | 46.6 | 34.2 | 34.2 | 28.0 | 15.5 | 15.5 | 12.4 | 9.3 | 9.3 | 9.3 |
| 87.5° | 12.4 | 9.3 | 9.3 | 9.3 | 6.2 | 6.2 | 6.2 | 6.2 | 6.2 | 6.2 | 6.2 |
| 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: SP1-2407-157-3

Test Date: 08/07/2024

Luminaire Tested: MEM2-HTN-SA-30-727-U-5WQ-2

Data in this report applies to families of products including MEM2-HTN-SA-30-727-U-5WQ-2

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-157-3
 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-30-727-U-5WQ-2**
 Description: Epic Modern Light Square 30W 5WQ Optic and Flare Trim

Spectral Parameters

CCT (K): 2747
 CIE u': 0.2606
 CIE v': 0.5257
 Duv: -0.0005
 CIE x: 0.4552
 CIE y: 0.4082
 CIE z: 0.1366
 Peak Wavelength (nm): 597
 Dominant Wavelength (nm): 584
 Purity: 59.16856
 Rf: 75.5
 Rg: 93.6

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 71.7 | | |
| R1: | 68.1 | R9: | -35.3 |
| R2: | 83.9 | R10: | 64.2 |
| R3: | 94.7 | R11: | 61.7 |
| R4: | 66.3 | R12: | 53.9 |
| R5: | 67.4 | R13: | 71.2 |
| R6: | 78.7 | R14: | 97.6 |
| R7: | 75.0 | R15: | 59.3 |
| R8: | 39.4 | | |



Test Conditions

Stabilization Time: 22M
 Operation Time: 1H 22M
 Sphere Temperature (°C): 24.2

REPORT NUMBER: SP1-2407-157-3

| 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: SP1-2407-157-3

CIE 1931 Chromaticity Diagram



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



Point lies inside the ANSI 2700K 4-step quadrangle

REPORT NUMBER: SP1-2407-157-3

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 | 103 | NR | 620 | 846 | NR | 750 | 20 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 130 | NR | 625 | 784 | NR | 755 | 17 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 171 | NR | 630 | 720 | NR | 760 | 15 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 221 | NR | 635 | 652 | NR | 765 | 13 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 268 | NR | 640 | 587 | NR | 770 | 11 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 313 | NR | 645 | 521 | NR | 775 | 9 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 350 | NR | 650 | 461 | NR | 780 | 8 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 381 | NR | 655 | 406 | NR | 785 | 7 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 407 | NR | 660 | 353 | NR | 790 | 6 | NR | 920 | 0 | NR |
| 405 | 2 | NR | 535 | 435 | NR | 665 | 307 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 4 | NR | 540 | 462 | NR | 670 | 264 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 9 | NR | 545 | 496 | NR | 675 | 227 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 20 | NR | 550 | 534 | NR | 680 | 196 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 38 | NR | 555 | 582 | NR | 685 | 167 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 69 | NR | 560 | 638 | NR | 690 | 144 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 120 | NR | 565 | 700 | NR | 695 | 122 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 193 | NR | 570 | 767 | NR | 700 | 103 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 316 | NR | 575 | 836 | NR | 705 | 88 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 469 | NR | 580 | 898 | NR | 710 | 74 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 431 | NR | 585 | 947 | NR | 715 | 63 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 264 | NR | 590 | 982 | NR | 720 | 54 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 197 | NR | 595 | 997 | NR | 725 | 46 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 155 | NR | 600 | 997 | NR | 730 | 39 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 108 | NR | 605 | 978 | NR | 735 | 33 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 90 | NR | 610 | 947 | NR | 740 | 28 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 92 | NR | 615 | 900 | NR | 745 | 24 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2407-157-3

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.13

| 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 | 103 | NR | 620 | 846 | NR | 750 | 20 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 130 | NR | 625 | 784 | NR | 755 | 17 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 171 | NR | 630 | 720 | NR | 760 | 15 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 221 | NR | 635 | 652 | NR | 765 | 13 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 268 | NR | 640 | 587 | NR | 770 | 11 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 313 | NR | 645 | 521 | NR | 775 | 9 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 350 | NR | 650 | 461 | NR | 780 | 8 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 381 | NR | 655 | 406 | NR | 785 | 7 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 407 | NR | 660 | 353 | NR | 790 | 6 | NR | 920 | 0 | NR |
| 405 | 2 | NR | 535 | 435 | NR | 665 | 307 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 4 | NR | 540 | 462 | NR | 670 | 264 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 9 | NR | 545 | 496 | NR | 675 | 227 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 20 | NR | 550 | 534 | NR | 680 | 196 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 38 | NR | 555 | 582 | NR | 685 | 167 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 69 | NR | 560 | 638 | NR | 690 | 144 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 120 | NR | 565 | 700 | NR | 695 | 122 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 193 | NR | 570 | 767 | NR | 700 | 103 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 316 | NR | 575 | 836 | NR | 705 | 88 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 469 | NR | 580 | 898 | NR | 710 | 74 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 431 | NR | 585 | 947 | NR | 715 | 63 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 264 | NR | 590 | 982 | NR | 720 | 54 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 197 | NR | 595 | 997 | NR | 725 | 46 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 155 | NR | 600 | 997 | NR | 730 | 39 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 108 | NR | 605 | 978 | NR | 735 | 33 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 90 | NR | 610 | 947 | NR | 740 | 28 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 92 | NR | 615 | 900 | NR | 745 | 24 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2407-157-3

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR M/P: 2.04

| 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 | 103 | NR | 620 | 846 | NR | 750 | 20 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 130 | NR | 625 | 784 | NR | 755 | 17 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 171 | NR | 630 | 720 | NR | 760 | 15 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 221 | NR | 635 | 652 | NR | 765 | 13 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 268 | NR | 640 | 587 | NR | 770 | 11 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 313 | NR | 645 | 521 | NR | 775 | 9 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 350 | NR | 650 | 461 | NR | 780 | 8 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 381 | NR | 655 | 406 | NR | 785 | 7 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 407 | NR | 660 | 353 | NR | 790 | 6 | NR | 920 | 0 | NR |
| 405 | 2 | NR | 535 | 435 | NR | 665 | 307 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 4 | NR | 540 | 462 | NR | 670 | 264 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 9 | NR | 545 | 496 | NR | 675 | 227 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 20 | NR | 550 | 534 | NR | 680 | 196 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 38 | NR | 555 | 582 | NR | 685 | 167 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 69 | NR | 560 | 638 | NR | 690 | 144 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 120 | NR | 565 | 700 | NR | 695 | 122 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 193 | NR | 570 | 767 | NR | 700 | 103 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 316 | NR | 575 | 836 | NR | 705 | 88 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 469 | NR | 580 | 898 | NR | 710 | 74 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 431 | NR | 585 | 947 | NR | 715 | 63 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 264 | NR | 590 | 982 | NR | 720 | 54 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 197 | NR | 595 | 997 | NR | 725 | 46 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 155 | NR | 600 | 997 | NR | 730 | 39 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 108 | NR | 605 | 978 | NR | 735 | 33 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 90 | NR | 610 | 947 | NR | 740 | 28 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 92 | NR | 615 | 900 | NR | 745 | 24 | NR | 875 | 1 | NR | | | |

Summary

$R_f = 75.5$
 $R_g = 93.6$
 $CIE R_a = 71.7$
 $R_g = -35.3$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 68 | CES51 = 87 | CES76 = 63 |
| CES02 = 63 | CES27 = 90 | CES52 = 85 | CES77 = 79 |
| CES03 = 31 | CES28 = 87 | CES53 = 78 | CES78 = 66 |
| CES04 = 71 | CES29 = 71 | CES54 = 86 | CES79 = 87 |
| CES05 = 50 | CES30 = 85 | CES55 = 84 | CES80 = 85 |
| CES06 = 52 | CES31 = 74 | CES56 = 75 | CES81 = 67 |
| CES07 = 42 | CES32 = 66 | CES57 = 75 | CES82 = 93 |
| CES08 = 41 | CES33 = 80 | CES58 = 76 | CES83 = 91 |
| CES09 = 29 | CES34 = 79 | CES59 = 85 | CES84 = 89 |
| CES10 = 77 | CES35 = 89 | CES60 = 90 | CES85 = 72 |
| CES11 = 60 | CES36 = 93 | CES61 = 81 | CES86 = 59 |
| CES12 = 66 | CES37 = 88 | CES62 = 91 | CES87 = 77 |
| CES13 = 43 | CES38 = 93 | CES63 = 77 | CES88 = 79 |
| CES14 = 74 | CES39 = 97 | CES64 = 67 | CES89 = 65 |
| CES15 = 72 | CES40 = 93 | CES65 = 66 | CES90 = 80 |
| CES16 = 48 | CES41 = 93 | CES66 = 63 | CES91 = 80 |
| CES17 = 51 | CES42 = 89 | CES67 = 61 | CES92 = 55 |
| CES18 = 57 | CES43 = 78 | CES68 = 68 | CES93 = 72 |
| CES19 = 73 | CES44 = 99 | CES69 = 78 | CES94 = 48 |
| CES20 = 67 | CES45 = 85 | CES70 = 63 | CES95 = 66 |
| CES21 = 88 | CES46 = 81 | CES71 = 61 | CES96 = 76 |
| CES22 = 80 | CES47 = 86 | CES72 = 86 | CES97 = 81 |
| CES23 = 92 | CES48 = 74 | CES73 = 56 | CES98 = 76 |
| CES24 = 91 | CES49 = 79 | CES74 = 93 | CES99 = 64 |
| CES25 = 73 | CES50 = 86 | CES75 = 66 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)