

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: P868106

Luminaire Tested: **MEM2-HSN-SA-130-727-U-T4W**

Issue Date: 08/21/2024



Test Information

Test Method: LM-79-08
Report Number: P868106
Test Lab: INNOVATION CENTER(G3)
Issue Date: 08/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: STREETWORKS
Catalog Number: MEM2-HSN-SA-130-727-U-T4W
Description: EPIC MODERN SHORT HOUSING DISCRETE LED ARRAYS 130W 70CRI 2700K
FITXURE w/ TYPE IV WIDE DISTRIBUTION OPTIC
Light Source: (30) 2700K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

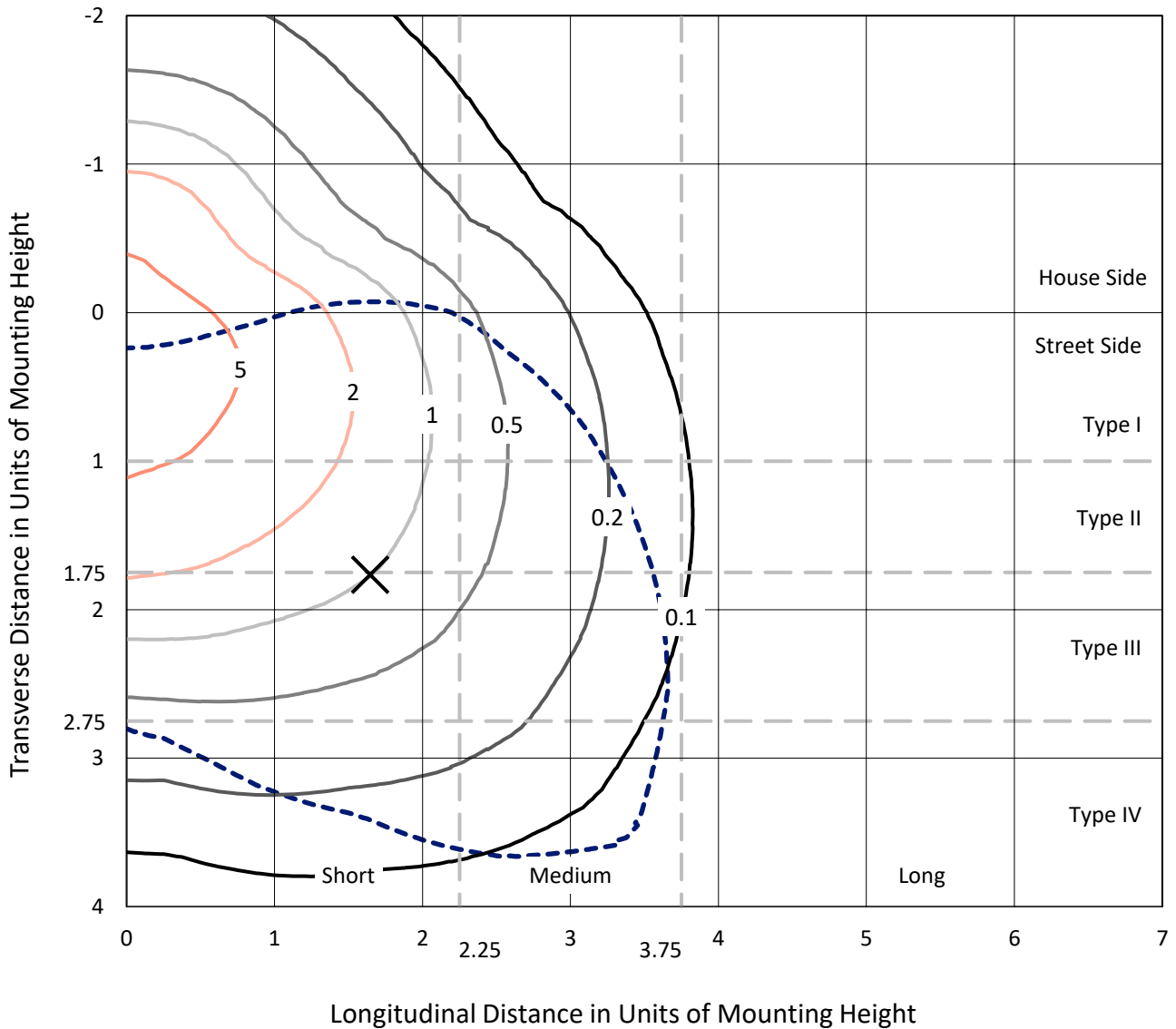
Lumens per Lamp: N/A
Luminaire Lumens: 17350.1 lumens
Efficiency: N/A
Efficacy: 129.5 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 0.33' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B3 - U0 - G3

Input Watts (W): 134
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.99
Total Harmonic Distortion (THDi): 6.70%
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

REPORT NUMBER: P868106
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Iso-Footcandle Lines of Horizontal Illumination

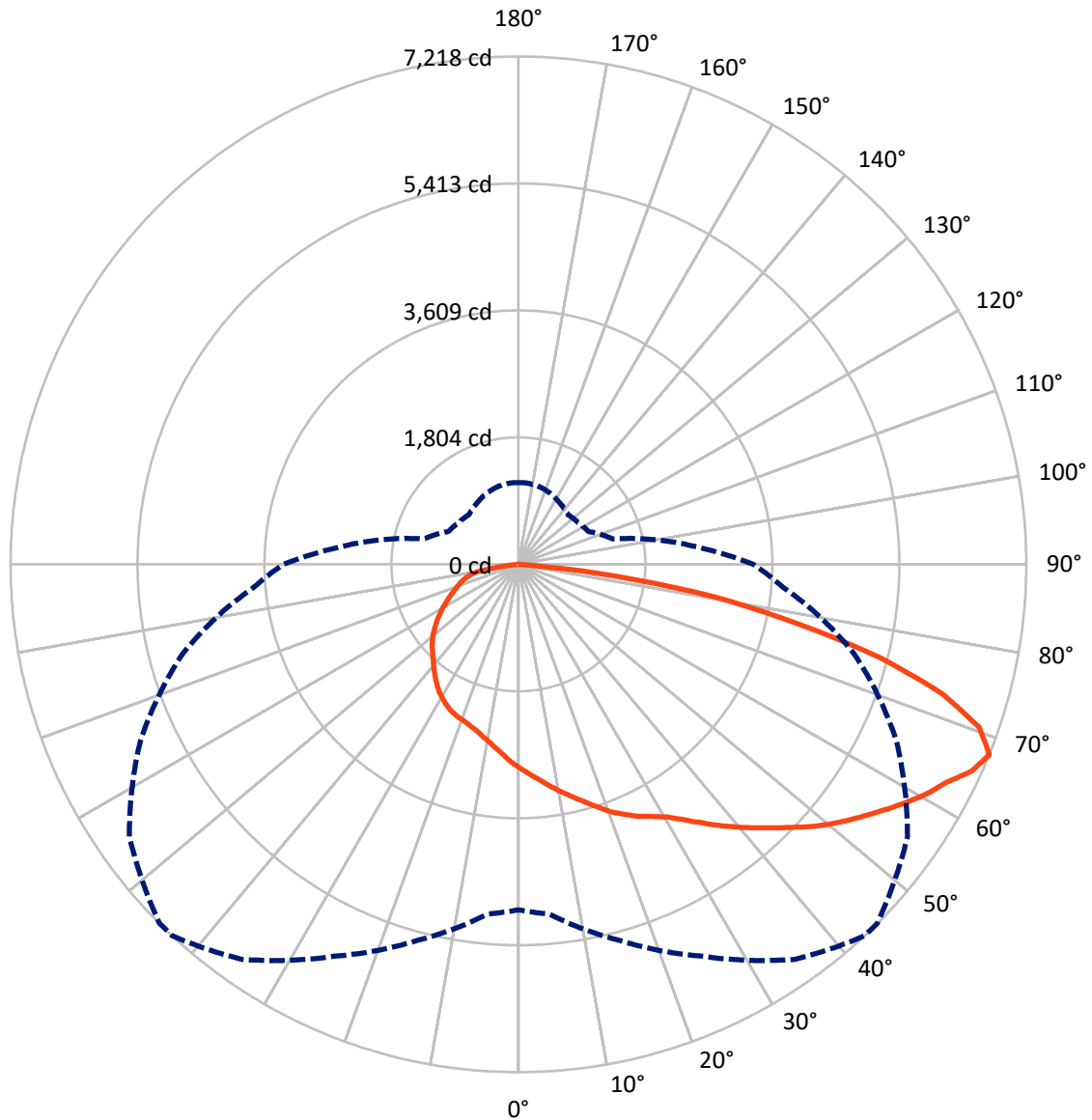
✕ Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 8.3 fc
 Type IV - Short - N/A

REPORT NUMBER: P868106
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Luminous Intensity Polar Plot



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

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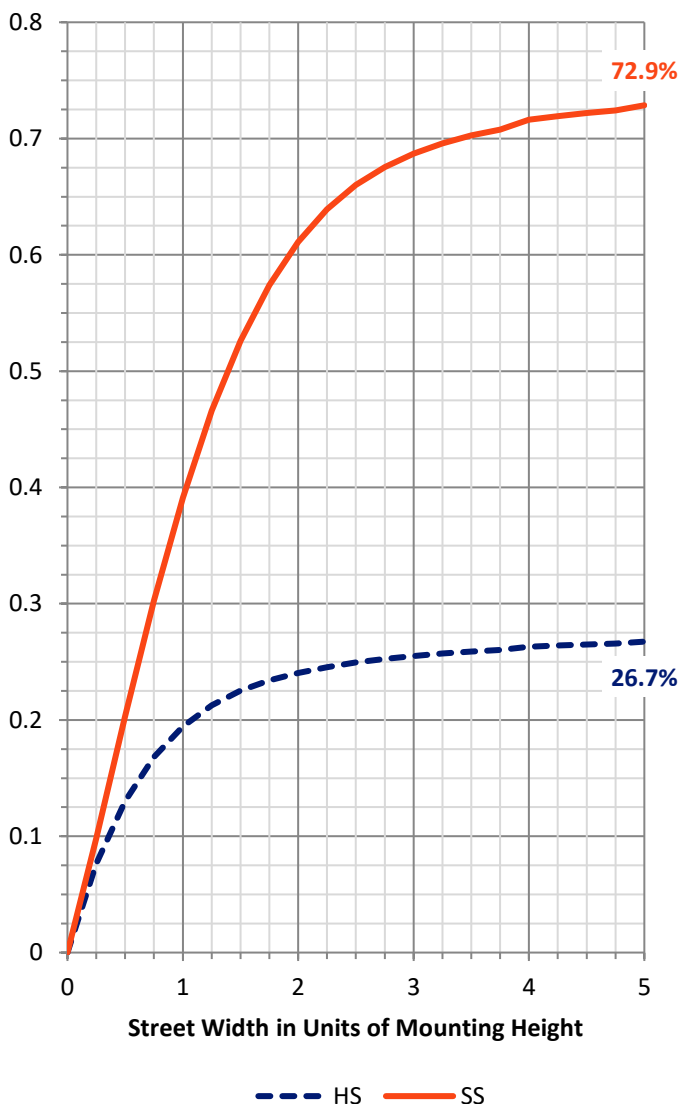
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 4667.2 | 0.0 | 4667.2 |
| | % Fixture | 26.9 | 0.0 | 26.9 |
| Street Side | Lumens | 12682.8 | 0.0 | 12682.8 |
| | % Fixture | 73.1 | 0.0 | 73.1 |
| Total | Lumens | 17350.1 | 0.0 | 17350.1 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 277.2 | 1.6 |
| 10°-20° | 846.4 | 4.9 |
| 20°-30° | 1444.2 | 8.3 |
| 30°-40° | 2106.3 | 12.1 |
| 40°-50° | 2829.6 | 16.3 |
| 50°-60° | 3463.9 | 20.0 |
| 60°-70° | 3645.5 | 21.0 |
| 70°-80° | 2380.0 | 13.7 |
| 80°-90° | 357.0 | 2.1 |
| 90°-100° | 0.0 | 0.0 |
| 100°-110° | 0.0 | 0.0 |
| 110°-120° | 0.0 | 0.0 |
| 120°-130° | 0.0 | 0.0 |
| 130°-140° | 0.0 | 0.0 |
| 140°-150° | 0.0 | 0.0 |
| 150°-160° | 0.0 | 0.0 |
| 160°-170° | 0.0 | 0.0 |
| 170°-180° | 0.0 | 0.0 |
| 0°-90° | 17350.1 | 100.0 |
| 0°-180° | 17350.1 | 100.0 |

Coefficient of Utilization



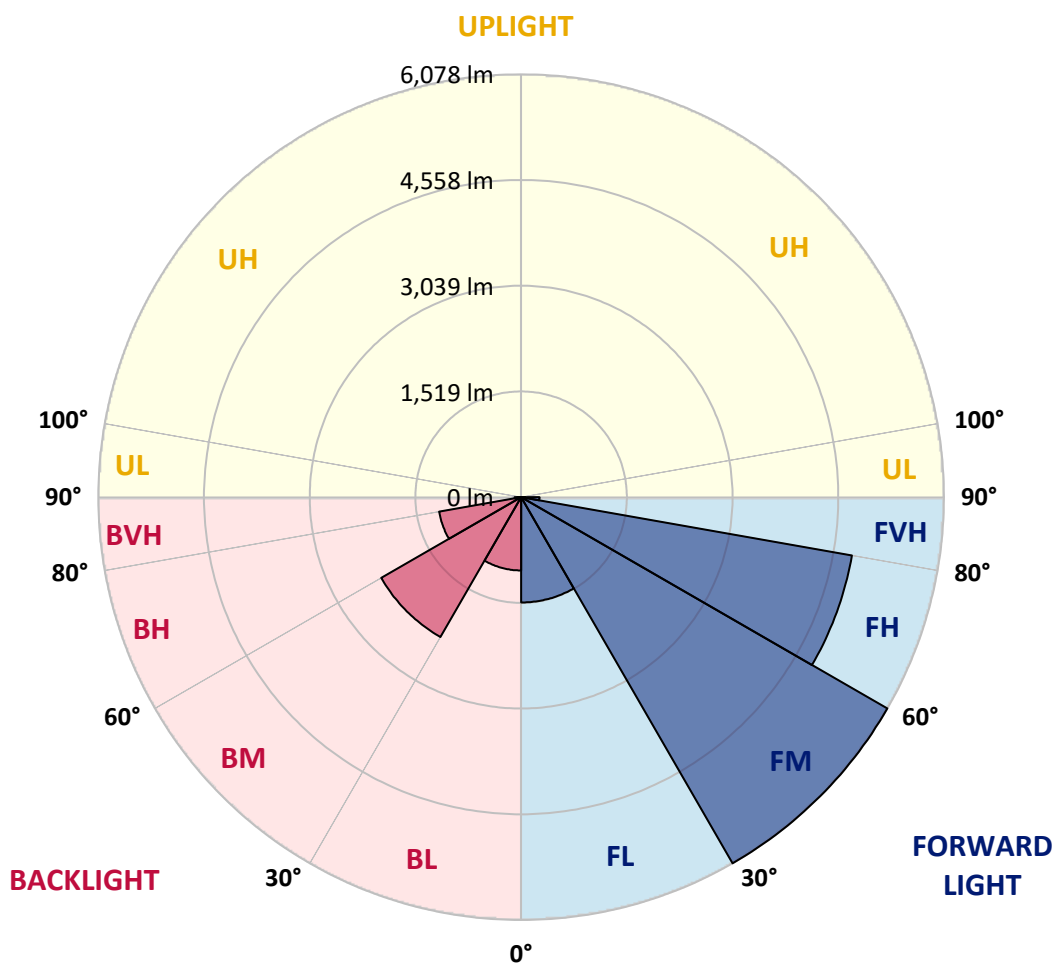
REPORT NUMBER: P868106
 CATALOG NUMBER: MEM2-HSN-SA-130-727-U-T4W

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1514.1 | 8.7 | | | |
| FM (30°-60°) | 6077.6 | 35.0 | | | |
| FH (60°-80°) | 4827.7 | 27.8 | | | G2/5000 |
| FVH (80°-90°) | 263.4 | 1.5 | | | G3/500 |
| BL (0°-30°) | 1053.7 | 6.1 | B3/2500 | | |
| BM (30°-60°) | 2322.2 | 13.4 | B2/2500 | | |
| BH (60°-80°) | 1197.8 | 6.9 | B3/2500 | | G3/2500 |
| BVH (80°-90°) | 93.6 | 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 IV Short





REPORT NUMBER: P868106

CATALOG NUMBER: MEM2-HSN-SA-130-727-U-T4W

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 43° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2896.2 | 2896.2 | 2896.2 | 2896.2 | 2896.2 | 2896.2 | 2896.2 | 2896.2 | 2896.2 | 2896.2 | 2896.2 |
| 2.5° | 3029.6 | 3026.1 | 3015.6 | 3008.6 | 2987.5 | 2984.0 | 2984.0 | 2962.9 | 2938.4 | 2924.3 | 2910.3 |
| 5° | 3166.6 | 3149.0 | 3142.0 | 3127.9 | 3092.8 | 3071.8 | 3078.8 | 3040.2 | 2991.0 | 2955.9 | 2917.3 |
| 7.5° | 3289.4 | 3282.4 | 3257.8 | 3240.3 | 3198.2 | 3177.1 | 3170.1 | 3110.4 | 3047.2 | 2994.5 | 2931.4 |
| 10° | 3436.9 | 3419.3 | 3405.3 | 3370.2 | 3314.0 | 3282.4 | 3271.9 | 3194.6 | 3113.9 | 3043.7 | 2959.4 |
| 12.5° | 3570.3 | 3549.2 | 3531.7 | 3496.6 | 3440.4 | 3387.7 | 3373.7 | 3285.9 | 3184.1 | 3089.3 | 2984.0 |
| 15° | 3672.1 | 3675.6 | 3658.0 | 3626.4 | 3563.3 | 3500.1 | 3489.5 | 3373.7 | 3250.8 | 3135.0 | 3008.6 |
| 17.5° | 3766.9 | 3780.9 | 3770.4 | 3749.3 | 3686.1 | 3622.9 | 3612.4 | 3482.5 | 3335.1 | 3187.6 | 3036.7 |
| 20° | 3858.1 | 3858.1 | 3854.6 | 3840.6 | 3795.0 | 3752.8 | 3731.8 | 3601.9 | 3415.8 | 3243.8 | 3075.3 |
| 22.5° | 3910.8 | 3924.8 | 3924.8 | 3924.8 | 3896.8 | 3861.7 | 3854.6 | 3728.3 | 3524.6 | 3314.0 | 3110.4 |
| 25° | 3991.6 | 4009.1 | 4009.1 | 4002.1 | 3977.5 | 3967.0 | 3956.4 | 3837.1 | 3630.0 | 3394.7 | 3149.0 |
| 27.5° | 4163.6 | 4160.1 | 4132.0 | 4096.9 | 4061.8 | 4058.3 | 4044.2 | 3960.0 | 3752.8 | 3482.5 | 3201.7 |
| 30° | 4402.3 | 4409.3 | 4374.2 | 4265.4 | 4184.6 | 4167.1 | 4170.6 | 4096.9 | 3896.8 | 3584.3 | 3261.3 |
| 32.5° | 4767.4 | 4767.4 | 4630.5 | 4490.1 | 4374.2 | 4328.6 | 4318.0 | 4254.8 | 4044.2 | 3696.7 | 3328.0 |
| 35° | 5041.2 | 5030.7 | 4953.5 | 4788.5 | 4644.5 | 4514.6 | 4497.1 | 4412.8 | 4209.2 | 3823.0 | 3401.8 |
| 37.5° | 5248.3 | 5269.4 | 5209.7 | 5083.3 | 4942.9 | 4718.2 | 4683.1 | 4563.8 | 4360.2 | 3945.9 | 3475.5 |
| 40° | 5648.6 | 5595.9 | 5452.0 | 5336.1 | 5167.6 | 4918.3 | 4886.8 | 4739.3 | 4514.6 | 4082.8 | 3566.8 |
| 42.5° | 5939.9 | 5866.2 | 5701.2 | 5546.7 | 5336.1 | 5118.5 | 5090.4 | 4928.9 | 4693.7 | 4237.3 | 3661.6 |
| 45° | 6357.7 | 6192.7 | 5964.5 | 5827.6 | 5529.2 | 5336.1 | 5301.0 | 5125.5 | 4879.7 | 4402.3 | 3780.9 |
| 47.5° | 6761.4 | 6473.5 | 6231.3 | 6168.1 | 5739.8 | 5571.3 | 5543.2 | 5339.6 | 5079.8 | 4581.3 | 3896.8 |
| 50° | 6708.8 | 6519.2 | 6438.4 | 6378.8 | 5922.4 | 5792.5 | 5764.4 | 5557.3 | 5283.5 | 4770.9 | 4012.6 |
| 52.5° | 6575.4 | 6592.9 | 6596.4 | 6452.5 | 6094.4 | 5999.6 | 5971.5 | 5792.5 | 5494.1 | 4935.9 | 4125.0 |
| 55° | 6715.8 | 6736.8 | 6733.3 | 6515.7 | 6294.5 | 6206.7 | 6189.2 | 6031.2 | 5697.7 | 5090.4 | 4205.7 |
| 57.5° | 6929.9 | 6859.7 | 6849.2 | 6673.6 | 6508.7 | 6427.9 | 6406.8 | 6269.9 | 5869.7 | 5202.7 | 4268.9 |
| 60° | 6968.5 | 6828.1 | 6873.8 | 6708.8 | 6670.1 | 6645.6 | 6638.5 | 6477.1 | 6031.2 | 5294.0 | 4293.5 |
| 62.5° | 6536.7 | 6512.2 | 6691.2 | 6624.5 | 6754.4 | 6824.6 | 6828.1 | 6624.5 | 6119.0 | 5329.1 | 4268.9 |
| 65° | 5799.5 | 5897.8 | 6284.0 | 6477.1 | 6880.8 | 7080.9 | 7073.9 | 6712.3 | 6108.4 | 5227.3 | 4117.9 |
| 67.5° | 4911.3 | 4988.6 | 5532.7 | 6143.5 | 6852.7 | 7217.8 | 7214.3 | 6750.9 | 5925.9 | 4946.4 | 3777.4 |
| 70° | 3724.7 | 3967.0 | 4739.3 | 5543.2 | 6473.5 | 6947.5 | 7007.2 | 6533.2 | 5508.1 | 4433.9 | 3261.3 |
| 72.5° | 2833.1 | 2871.7 | 3805.5 | 4648.0 | 5796.0 | 6305.0 | 6294.5 | 5838.1 | 4809.5 | 3735.3 | 2717.2 |
| 75° | 2011.6 | 2095.8 | 2864.6 | 3601.9 | 4749.8 | 5315.0 | 5290.5 | 4788.5 | 3837.1 | 2906.8 | 2078.3 |
| 77.5° | 1499.0 | 1530.6 | 2095.8 | 2671.6 | 3552.7 | 4061.8 | 4051.2 | 3538.7 | 2822.5 | 2134.4 | 1548.2 |
| 80° | 1095.3 | 1148.0 | 1509.6 | 1864.1 | 2408.3 | 2847.1 | 2833.1 | 2348.6 | 1811.5 | 1492.0 | 1130.4 |
| 82.5° | 614.4 | 653.0 | 877.6 | 1126.9 | 1270.8 | 1407.8 | 1348.1 | 1126.9 | 825.0 | 642.4 | 554.7 |
| 85° | 17.6 | 21.1 | 31.6 | 38.6 | 66.7 | 112.3 | 122.9 | 108.8 | 129.9 | 80.7 | 87.8 |
| 87.5° | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 10.5 | 10.5 | 10.5 | 10.5 | 10.5 | 10.5 |
| 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: P868106

CATALOG NUMBER: MEM2-HSN-SA-130-727-U-T4W

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2896.2 | 2896.2 | 2896.2 | 2896.2 | 2896.2 | 2896.2 | 2896.2 | 2896.2 | 2896.2 | 2896.2 | 2896.2 |
| 2.5° | 2903.3 | 2889.2 | 2861.1 | 2843.6 | 2833.1 | 2819.0 | 2797.9 | 2783.9 | 2773.4 | 2787.4 | 2783.9 |
| 5° | 2899.8 | 2871.7 | 2822.5 | 2787.4 | 2752.3 | 2724.2 | 2692.6 | 2668.1 | 2654.0 | 2661.0 | 2657.5 |
| 7.5° | 2899.8 | 2864.6 | 2787.4 | 2731.2 | 2678.6 | 2636.5 | 2601.4 | 2569.8 | 2555.7 | 2559.2 | 2555.7 |
| 10° | 2913.8 | 2864.6 | 2762.8 | 2682.1 | 2611.9 | 2562.7 | 2524.1 | 2496.0 | 2485.5 | 2496.0 | 2499.5 |
| 12.5° | 2927.8 | 2864.6 | 2741.8 | 2640.0 | 2548.7 | 2496.0 | 2460.9 | 2443.4 | 2450.4 | 2453.9 | 2457.4 |
| 15° | 2934.9 | 2861.1 | 2720.7 | 2590.8 | 2489.0 | 2432.8 | 2411.8 | 2408.3 | 2425.8 | 2443.4 | 2446.9 |
| 17.5° | 2952.4 | 2857.6 | 2689.1 | 2541.7 | 2436.4 | 2390.7 | 2380.2 | 2394.2 | 2429.3 | 2453.9 | 2460.9 |
| 20° | 2973.5 | 2864.6 | 2654.0 | 2482.0 | 2383.7 | 2348.6 | 2366.1 | 2397.7 | 2439.9 | 2475.0 | 2482.0 |
| 22.5° | 2994.5 | 2868.2 | 2622.4 | 2429.3 | 2327.5 | 2320.5 | 2359.1 | 2404.8 | 2453.9 | 2489.0 | 2496.0 |
| 25° | 3019.1 | 2868.2 | 2580.3 | 2362.6 | 2271.4 | 2281.9 | 2341.6 | 2401.2 | 2446.9 | 2492.5 | 2499.5 |
| 27.5° | 3043.7 | 2875.2 | 2534.7 | 2288.9 | 2201.1 | 2232.7 | 2306.5 | 2380.2 | 2429.3 | 2475.0 | 2485.5 |
| 30° | 3085.8 | 2889.2 | 2496.0 | 2225.7 | 2130.9 | 2173.1 | 2260.8 | 2345.1 | 2397.7 | 2446.9 | 2457.4 |
| 32.5° | 3127.9 | 2910.3 | 2464.4 | 2159.0 | 2060.7 | 2109.9 | 2208.2 | 2303.0 | 2359.1 | 2404.8 | 2411.8 |
| 35° | 3184.1 | 2938.4 | 2439.9 | 2092.3 | 1990.5 | 2029.1 | 2134.4 | 2239.8 | 2303.0 | 2338.1 | 2355.6 |
| 37.5° | 3243.8 | 2977.0 | 2418.8 | 2032.6 | 1913.3 | 1948.4 | 2060.7 | 2173.1 | 2239.8 | 2274.9 | 2281.9 |
| 40° | 3317.5 | 3029.6 | 2404.8 | 1976.5 | 1839.6 | 1867.6 | 1980.0 | 2102.8 | 2166.0 | 2190.6 | 2204.7 |
| 42.5° | 3398.3 | 3085.8 | 2394.2 | 1920.3 | 1758.8 | 1786.9 | 1906.3 | 2025.6 | 2088.8 | 2109.9 | 2120.4 |
| 45° | 3500.1 | 3159.5 | 2387.2 | 1860.6 | 1692.1 | 1716.7 | 1836.0 | 1955.4 | 2008.1 | 2036.1 | 2046.7 |
| 47.5° | 3594.9 | 3233.3 | 2366.1 | 1790.4 | 1618.4 | 1653.5 | 1762.3 | 1867.6 | 1927.3 | 1944.9 | 1955.4 |
| 50° | 3689.6 | 3296.5 | 2324.0 | 1713.2 | 1551.7 | 1583.3 | 1681.6 | 1758.8 | 1804.4 | 1825.5 | 1832.5 |
| 52.5° | 3780.9 | 3342.1 | 2257.3 | 1632.4 | 1481.5 | 1502.5 | 1583.3 | 1657.0 | 1688.6 | 1695.6 | 1716.7 |
| 55° | 3840.6 | 3366.7 | 2162.5 | 1537.6 | 1411.3 | 1418.3 | 1478.0 | 1544.7 | 1562.2 | 1565.7 | 1565.7 |
| 57.5° | 3882.7 | 3352.6 | 2050.2 | 1442.9 | 1341.0 | 1341.0 | 1376.2 | 1428.8 | 1435.8 | 1439.3 | 1446.4 |
| 60° | 3889.7 | 3303.5 | 1906.3 | 1355.1 | 1263.8 | 1253.3 | 1288.4 | 1320.0 | 1323.5 | 1330.5 | 1337.5 |
| 62.5° | 3837.1 | 3194.6 | 1751.8 | 1270.8 | 1190.1 | 1165.5 | 1197.1 | 1228.7 | 1246.3 | 1256.8 | 1263.8 |
| 65° | 3675.6 | 2973.5 | 1576.3 | 1186.6 | 1119.9 | 1077.8 | 1116.4 | 1169.0 | 1204.1 | 1207.6 | 1207.6 |
| 67.5° | 3338.6 | 2615.4 | 1390.2 | 1098.8 | 1035.6 | 997.0 | 1046.2 | 1102.3 | 1144.5 | 1162.0 | 1158.5 |
| 70° | 2829.5 | 2218.7 | 1218.2 | 1007.5 | 951.4 | 926.8 | 979.5 | 1042.6 | 1077.8 | 1091.8 | 1098.8 |
| 72.5° | 2278.4 | 1776.4 | 1067.2 | 916.3 | 877.6 | 863.6 | 916.3 | 979.5 | 1028.6 | 1049.7 | 1053.2 |
| 75° | 1772.9 | 1397.2 | 940.8 | 821.5 | 789.9 | 793.4 | 849.6 | 912.8 | 965.4 | 975.9 | 944.4 |
| 77.5° | 1376.2 | 1112.9 | 821.5 | 709.1 | 691.6 | 716.2 | 772.3 | 839.0 | 870.6 | 881.2 | 860.1 |
| 80° | 993.5 | 853.1 | 663.5 | 558.2 | 558.2 | 596.8 | 646.0 | 723.2 | 733.7 | 719.7 | 726.7 |
| 82.5° | 470.4 | 414.3 | 326.5 | 270.3 | 252.8 | 280.8 | 298.4 | 323.0 | 351.1 | 358.1 | 340.5 |
| 85° | 63.2 | 42.1 | 31.6 | 35.1 | 31.6 | 21.1 | 14.0 | 14.0 | 14.0 | 10.5 | 10.5 |
| 87.5° | 10.5 | 10.5 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 3.5 | 3.5 | 3.5 |
| 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

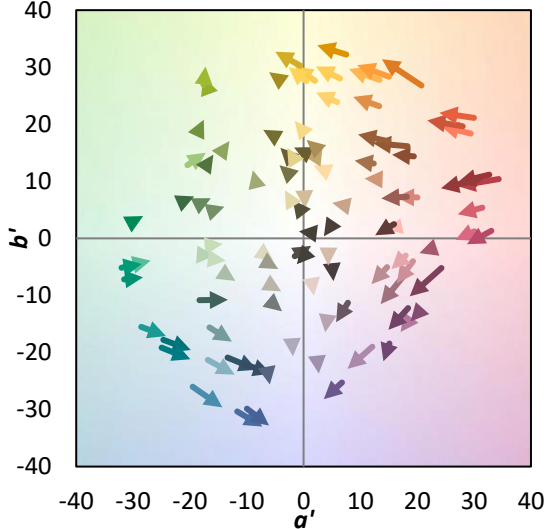
| λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 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

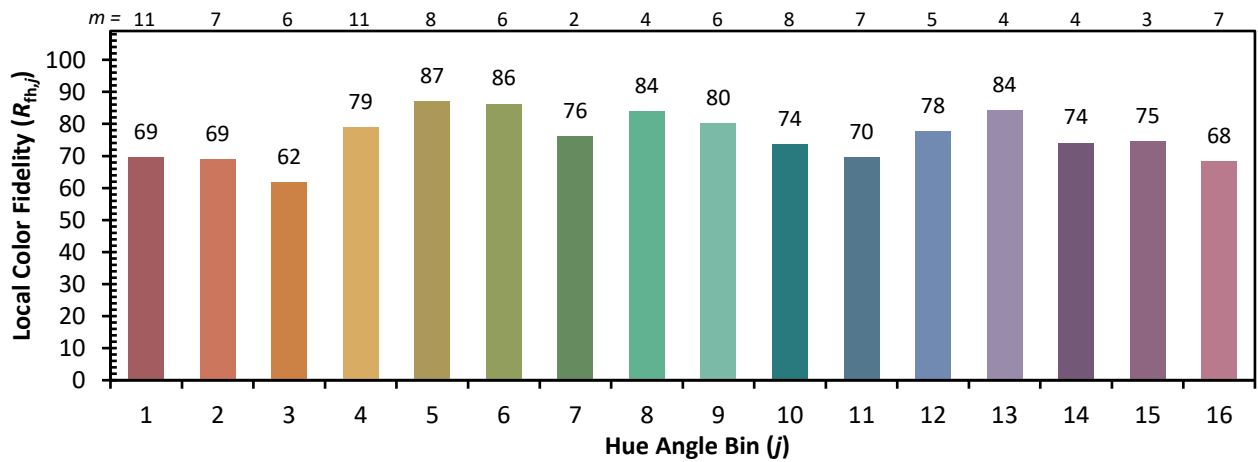
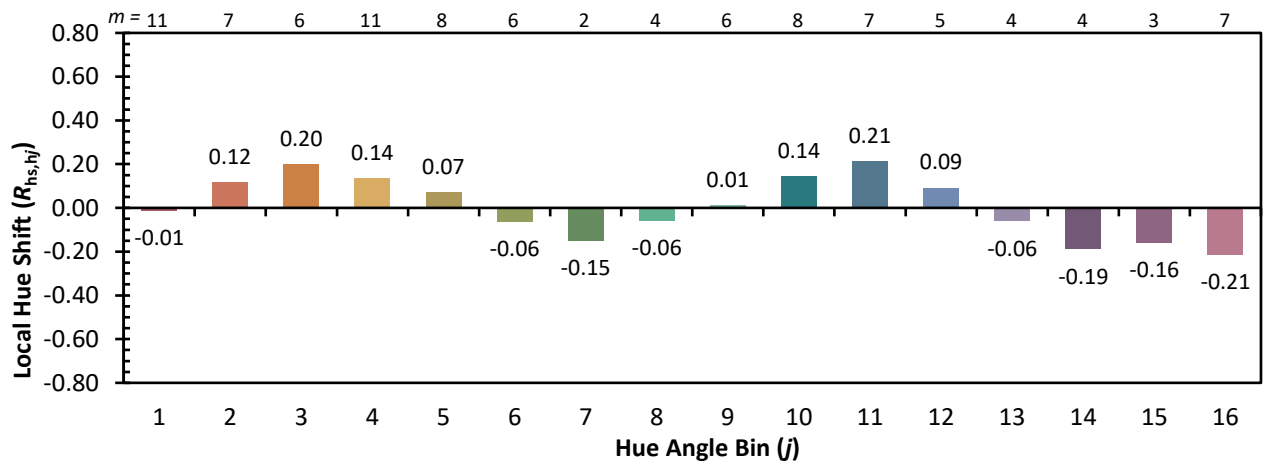
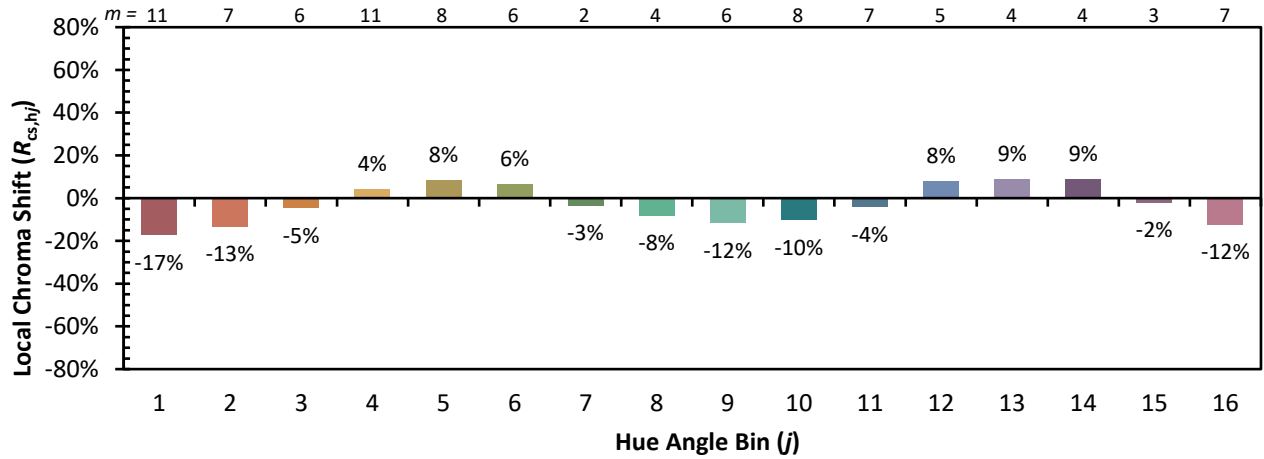


Individual Sample Fidelity Index ($R_{f,i}$)

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