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: P867930

Luminaire Tested: **MEM2-HSN-SA-110-727-U-T2R-HSS**

Issue Date: 08/21/2024

Report Generated By 670245763

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

**Test Information**

| | |
|---|---|
| Test Method: | LM-79-08 |
| Report Number: | P867930 |
| Test Lab: | INNOVATION CENTER(G3) |
| Issue Date: | 08/21/2024 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS (FORMERLY EATON) |
| Product Line: | STREETWORKS |
| Catalog Number: | MEM2-HSN-SA-110-727-U-T2R-HSS |
| Description: | EPIC MODERN SHORT HOUSING DISCRETE LED ARRAYS 110W 70CRI 2700K FIXTURE w/ TYPE II ROADWAY DISTRIBUTION OPTIC AND HOUSE SIDE SHIELD |
| Light Source: | (30) 2700K CCT, 70 CRI LEDS |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 11131.2 lumens |
| Efficiency: | N/A |
| Efficacy: | 98.5 lumens/watt |
| Luminous Opening: | Rectangular (W 1' x L: 0.33' x H: 0') |
| IES Classification: | Type II - Short |
| BUG Rating: | B1 - U0 - G2 |

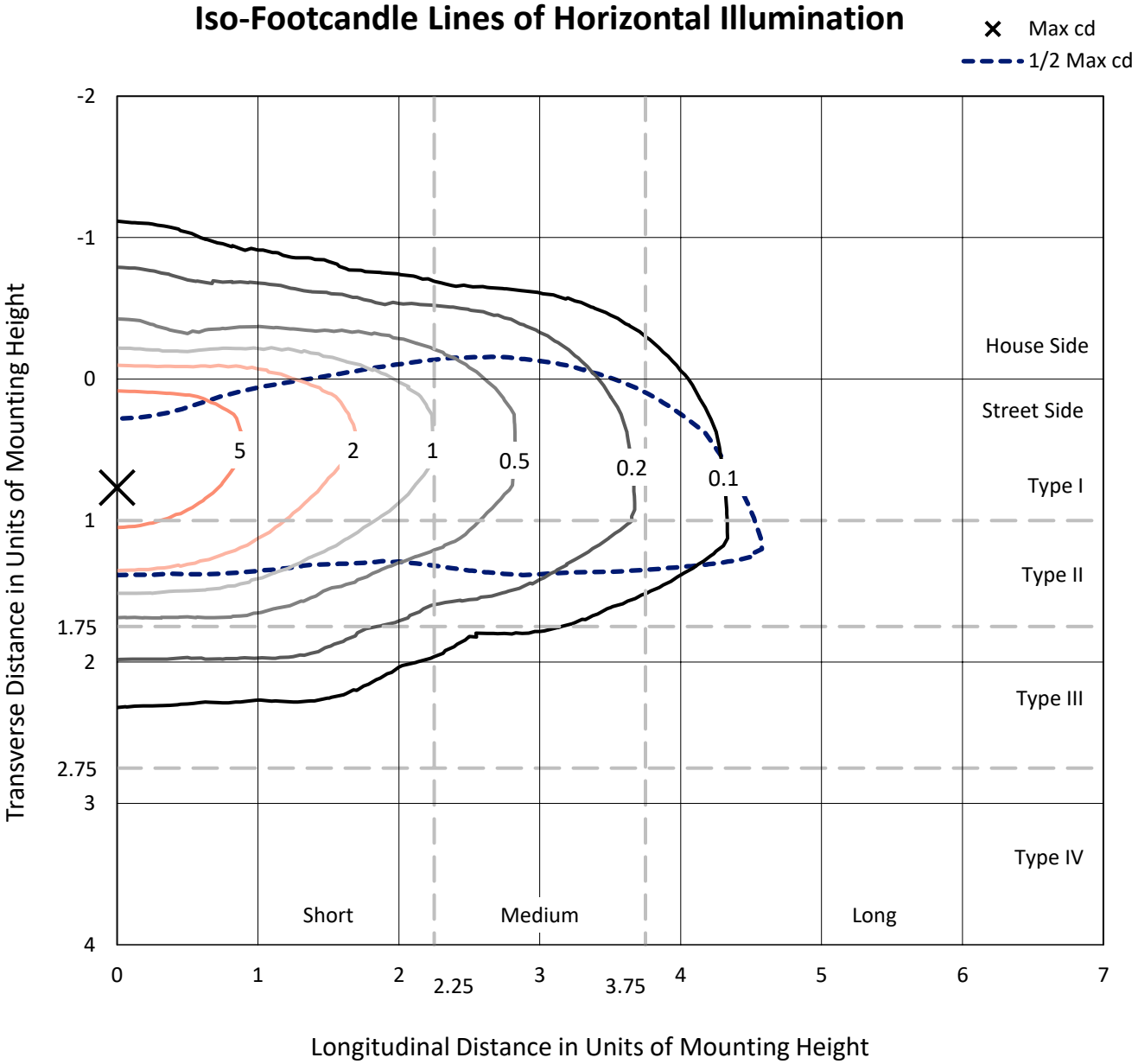
| | |
|---|---|
| Input Watts (W): | 113 |
| Input Voltage (V): | 120 |
| Input Current (Ain): | NR |
| Voltage Rise (V): | NR |
| Power Factor: | 0.99 |
| Total Harmonic Distortion (THDi): | 7.77% |
| Frequency (hertz): | 60 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 24 FT |

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

REPORT NUMBER: P867930
CATALOG NUMBER: MEM2-HSN-SA-110-727-U-T2R-HSS

## Iso-Footcandle Lines of Horizontal Illumination



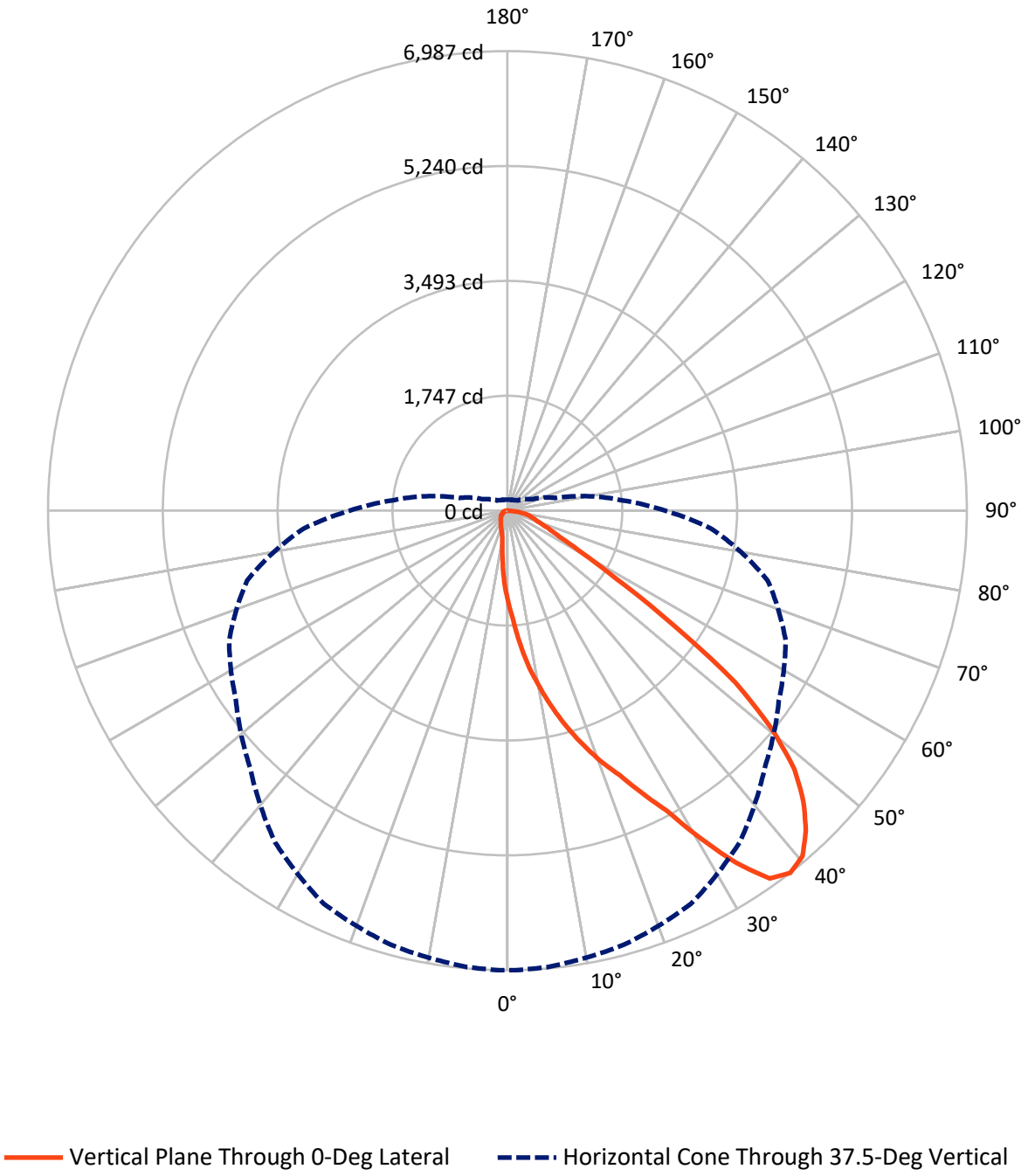

Based on 20 foot mounting height. Maximum calculated value = 9.5 fc
Type II - Short - N/A

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

REPORT NUMBER: P867930
CATALOG NUMBER: MEM2-HSN-SA-110-727-U-T2R-HSS

## Luminous Intensity Polar Plot



Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

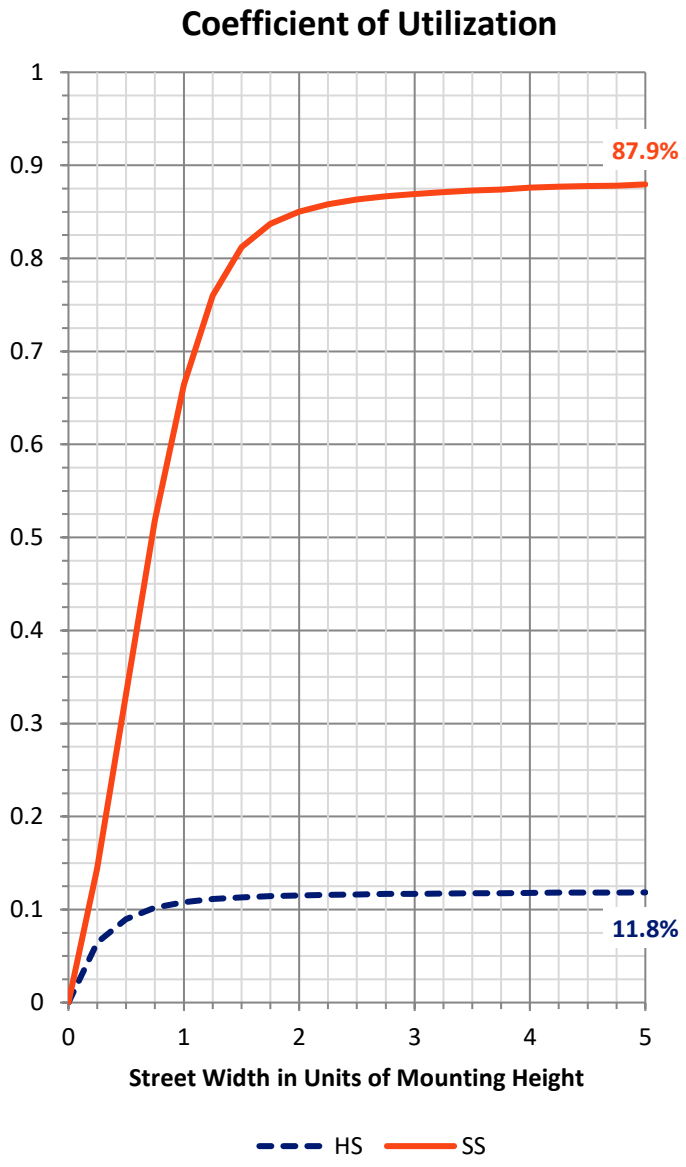
REPORT NUMBER: P867930
CATALOG NUMBER: MEM2-HSN-SA-110-727-U-T2R-HSS

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 1327.6 | 0.0 | 1327.6 |
| | % Fixture | 11.9 | 0.0 | 11.9 |
| **Street Side** | Lumens | 9803.6 | 0.0 | 9803.6 |
| | % Fixture | 88.1 | 0.0 | 88.1 |
| **Total** | Lumens | 11131.2 | 0.0 | 11131.2 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 138.4 | 1.2 |
| 10°-20° | 483.7 | 4.3 |
| 20°-30° | 998.0 | 9.0 |
| 30°-40° | 1756.0 | 15.8 |
| 40°-50° | 2384.3 | 21.4 |
| 50°-60° | 2362.3 | 21.2 |
| 60°-70° | 1818.6 | 16.3 |
| 70°-80° | 1055.5 | 9.5 |
| 80°-90° | 134.2 | 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° | 11131.2 | 100.0 |
| 0°-180° | 11131.2 | 100.0 |



Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

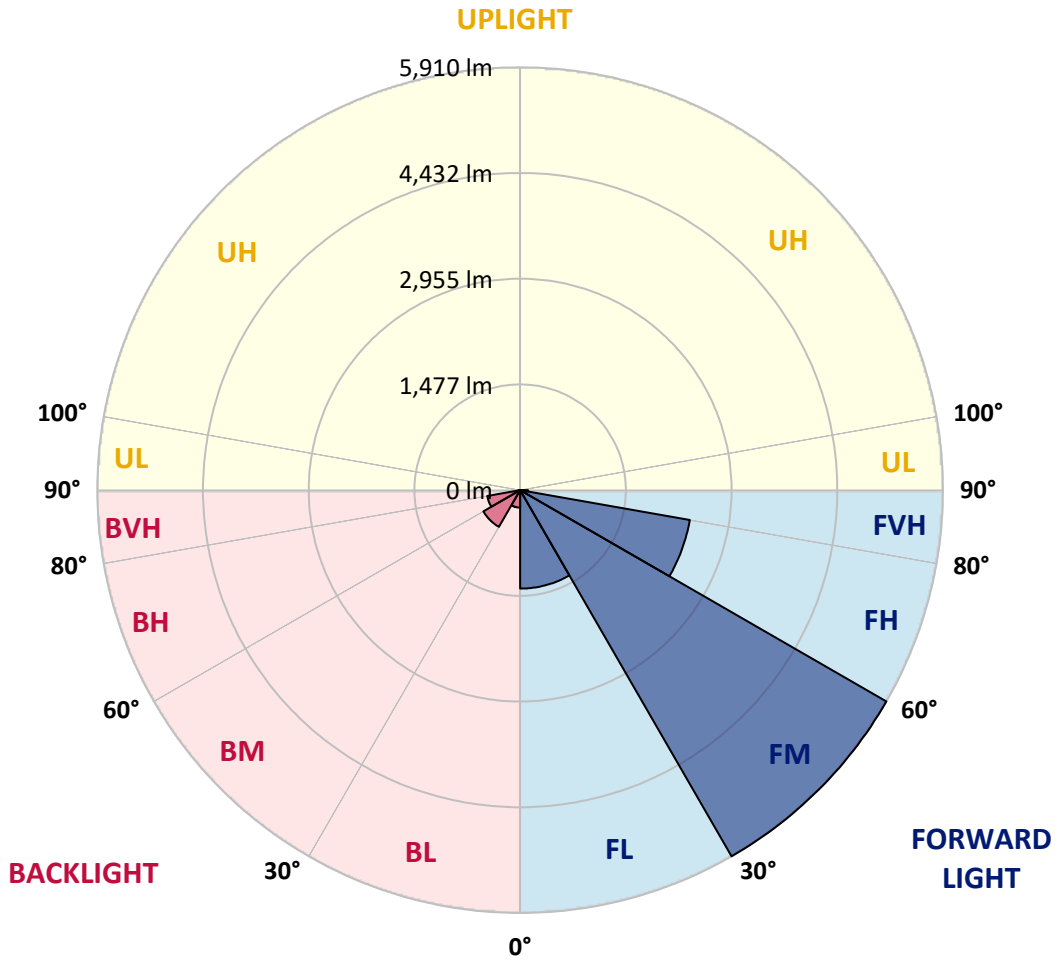
Scaled Data Report

REPORT NUMBER: P867930
CATALOG NUMBER: MEM2-HSN-SA-110-727-U-T2R-HSS

## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 1376.0 | 12.4 | | | |
| FM | (30°-60°) | 5909.7 | 53.1 | | | |
| FH | (60°-80°) | 2408.4 | 21.6 | | | G2/5000 |
| FVH | (80°-90°) | 109.5 | 1.0 | | | G2/225 |
| BL | (0°-30°) | 244.1 | 2.2 | B1/500 | | |
| BM | (30°-60°) | 593.0 | 5.3 | B1/1000 | | |
| BH | (60°-80°) | 465.8 | 4.2 | B1/500 | | G1/500 |
| BVH | (80°-90°) | 24.8 | 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-G2**
Type II Short



Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

REPORT NUMBER: P867930
CATALOG NUMBER: MEM2-HSN-SA-110-727-U-T2R-HSS

**CANDELA DISTRIBUTION (FULL):**

| | 0° | 1° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 1379.3 | 1379.3 | 1379.3 | 1379.3 | 1379.3 | 1379.3 | 1379.3 | 1379.3 | 1379.3 | 1379.3 | 1379.3 |
| 2.5° | 1662.0 | 1686.9 | 1668.2 | 1652.7 | 1630.9 | 1609.2 | 1578.1 | 1544.0 | 1500.5 | 1447.7 | 1401.1 |
| 5° | 2037.9 | 2050.3 | 2044.1 | 2034.8 | 1966.4 | 1901.2 | 1836.0 | 1755.2 | 1643.4 | 1544.0 | 1438.3 |
| 7.5° | 2413.8 | 2407.6 | 2392.0 | 2364.1 | 2302.0 | 2227.4 | 2109.4 | 1975.8 | 1817.3 | 1643.4 | 1478.7 |
| 10° | 2743.1 | 2752.4 | 2740.0 | 2696.5 | 2618.8 | 2516.3 | 2373.4 | 2221.2 | 2006.8 | 1764.5 | 1534.6 |
| 12.5° | 3087.9 | 3094.1 | 3094.1 | 3000.9 | 2948.1 | 2789.7 | 2637.5 | 2432.4 | 2193.2 | 1913.6 | 1599.9 |
| 15° | 3426.5 | 3414.1 | 3414.1 | 3352.0 | 3258.8 | 3081.7 | 2910.8 | 2662.3 | 2392.0 | 2053.4 | 1674.4 |
| 17.5° | 3749.6 | 3755.8 | 3727.9 | 3659.5 | 3569.4 | 3398.6 | 3187.3 | 2913.9 | 2587.8 | 2221.2 | 1752.1 |
| 20° | 4069.6 | 4050.9 | 4038.5 | 3970.2 | 3873.9 | 3671.9 | 3470.0 | 3159.4 | 2817.6 | 2410.7 | 1860.8 |
| 22.5° | 4367.8 | 4377.1 | 4346.1 | 4237.3 | 4147.2 | 3964.0 | 3734.1 | 3448.3 | 3060.0 | 2600.2 | 1978.9 |
| 25° | 4753.0 | 4722.0 | 4749.9 | 4619.4 | 4479.7 | 4262.2 | 4001.2 | 3718.5 | 3324.0 | 2833.2 | 2124.9 |
| 27.5° | 5163.1 | 5181.7 | 5166.2 | 5023.3 | 4833.8 | 4541.8 | 4268.4 | 3967.1 | 3591.2 | 3053.7 | 2289.5 |
| 30° | 5775.1 | 5765.8 | 5768.9 | 5554.5 | 5240.8 | 4892.8 | 4557.3 | 4228.0 | 3858.3 | 3324.0 | 2482.1 |
| 32.5° | 6380.9 | 6415.0 | 6331.2 | 6141.7 | 5781.3 | 5256.3 | 4846.2 | 4479.7 | 4116.2 | 3557.0 | 2677.8 |
| 35° | 6868.6 | 6859.3 | 6825.1 | 6613.9 | 6256.6 | 5747.1 | 5175.5 | 4759.2 | 4389.6 | 3842.8 | 2895.3 |
| 37.5° | 6986.6 | 6986.6 | 6964.9 | 6834.4 | 6598.3 | 6157.2 | 5532.8 | 5038.8 | 4669.2 | 4097.5 | 3106.6 |
| 40° | 6909.0 | 6893.4 | 6881.0 | 6794.0 | 6666.7 | 6405.7 | 5908.7 | 5327.7 | 4967.4 | 4426.8 | 3339.5 |
| 42.5° | 6654.2 | 6657.3 | 6641.8 | 6592.1 | 6523.8 | 6424.4 | 6141.7 | 5635.3 | 5259.4 | 4737.5 | 3569.4 |
| 45° | 6312.5 | 6318.7 | 6300.1 | 6293.9 | 6259.7 | 6259.7 | 6194.5 | 5877.6 | 5535.9 | 5054.4 | 3821.1 |
| 47.5° | 5874.5 | 5871.4 | 5862.1 | 5846.5 | 5914.9 | 5989.4 | 6048.5 | 6014.3 | 5781.3 | 5396.1 | 4047.8 |
| 50° | 5206.6 | 5200.4 | 5228.3 | 5306.0 | 5473.7 | 5638.4 | 5812.4 | 5973.9 | 5958.4 | 5713.0 | 4321.2 |
| 52.5° | 4339.9 | 4299.5 | 4330.5 | 4569.7 | 4914.6 | 5281.1 | 5526.6 | 5781.3 | 6048.5 | 6048.5 | 4591.5 |
| 55° | 3035.1 | 3069.3 | 3087.9 | 3439.0 | 4119.3 | 4749.9 | 5181.7 | 5511.0 | 6014.3 | 6315.6 | 4889.7 |
| 57.5° | 1932.3 | 1944.7 | 2000.6 | 2379.6 | 3178.0 | 3967.1 | 4731.3 | 5271.8 | 5886.9 | 6539.3 | 5187.9 |
| 60° | 1301.6 | 1258.2 | 1301.6 | 1519.1 | 2286.4 | 3112.8 | 4069.6 | 4970.5 | 5703.6 | 6700.8 | 5517.2 |
| 62.5° | 919.5 | 916.4 | 928.9 | 1056.2 | 1630.9 | 2339.2 | 3240.1 | 4563.5 | 5557.6 | 6710.2 | 5762.7 |
| 65° | 742.5 | 720.7 | 730.0 | 801.5 | 1093.5 | 1714.8 | 2376.5 | 3827.3 | 5427.1 | 6545.5 | 5883.8 |
| 67.5° | 596.5 | 587.1 | 593.4 | 640.0 | 820.1 | 1289.2 | 1674.4 | 2910.8 | 5150.7 | 6265.9 | 5815.5 |
| 70° | 487.7 | 490.8 | 493.9 | 540.5 | 652.4 | 975.5 | 1196.0 | 1997.5 | 4560.4 | 5949.1 | 5507.9 |
| 72.5° | 422.5 | 422.5 | 425.6 | 456.7 | 546.8 | 773.5 | 904.0 | 1298.5 | 3690.6 | 5607.3 | 4942.5 |
| 75° | 372.8 | 372.8 | 372.8 | 400.7 | 466.0 | 621.3 | 702.1 | 888.5 | 2649.9 | 4973.6 | 4088.2 |
| 77.5° | 323.1 | 326.2 | 326.2 | 351.0 | 400.7 | 484.6 | 540.5 | 615.1 | 1690.0 | 3842.8 | 3094.1 |
| 80° | 248.5 | 248.5 | 251.6 | 279.6 | 341.7 | 379.0 | 397.6 | 434.9 | 888.5 | 2413.8 | 1963.3 |
| 82.5° | 174.0 | 177.1 | 177.1 | 180.2 | 229.9 | 233.0 | 214.4 | 217.5 | 323.1 | 801.5 | 745.6 |
| 85° | 18.6 | 21.7 | 24.9 | 24.9 | 40.4 | 49.7 | 52.8 | 49.7 | 52.8 | 93.2 | 93.2 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 6.2 | 6.2 | 9.3 | 9.3 | 9.3 | 9.3 |
| 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

Scaled Data Report

REPORT NUMBER: P867930
CATALOG NUMBER: MEM2-HSN-SA-110-727-U-T2R-HSS

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 1379.3 | 1379.3 | 1379.3 | 1379.3 | 1379.3 | 1379.3 | 1379.3 | 1379.3 | 1379.3 | 1379.3 | 1379.3 |
| 2.5° | 1376.2 | 1354.5 | 1307.9 | 1267.5 | 1230.2 | 1199.1 | 1177.4 | 1149.4 | 1127.7 | 1127.7 | 1140.1 |
| 5° | 1385.5 | 1335.8 | 1239.5 | 1149.4 | 1078.0 | 1009.6 | 947.5 | 907.1 | 876.0 | 857.4 | 857.4 |
| 7.5° | 1397.9 | 1323.4 | 1177.4 | 1040.7 | 928.9 | 820.1 | 723.8 | 677.2 | 630.6 | 615.1 | 618.2 |
| 10° | 1422.8 | 1317.2 | 1121.5 | 944.4 | 776.6 | 640.0 | 546.8 | 497.0 | 472.2 | 459.8 | 459.8 |
| 12.5° | 1450.8 | 1317.2 | 1062.4 | 835.7 | 640.0 | 500.2 | 444.2 | 407.0 | 394.5 | 388.3 | 382.1 |
| 15° | 1488.0 | 1323.4 | 1012.7 | 720.7 | 521.9 | 422.5 | 382.1 | 360.4 | 347.9 | 341.7 | 341.7 |
| 17.5° | 1531.5 | 1329.6 | 959.9 | 627.5 | 444.2 | 372.8 | 341.7 | 326.2 | 313.8 | 307.5 | 307.5 |
| 20° | 1587.4 | 1345.1 | 907.1 | 543.6 | 388.3 | 341.7 | 313.8 | 298.2 | 285.8 | 282.7 | 279.6 |
| 22.5° | 1655.8 | 1370.0 | 854.3 | 475.3 | 351.0 | 310.7 | 285.8 | 273.4 | 264.1 | 257.8 | 257.8 |
| 25° | 1736.6 | 1401.1 | 813.9 | 425.6 | 323.1 | 288.9 | 267.2 | 251.6 | 242.3 | 239.2 | 239.2 |
| 27.5° | 1848.4 | 1453.9 | 773.5 | 388.3 | 301.3 | 267.2 | 245.4 | 233.0 | 223.7 | 220.6 | 217.5 |
| 30° | 1954.0 | 1519.1 | 754.9 | 379.0 | 285.8 | 248.5 | 233.0 | 217.5 | 208.1 | 205.0 | 201.9 |
| 32.5° | 2090.7 | 1593.7 | 742.5 | 379.0 | 279.6 | 236.1 | 217.5 | 205.0 | 195.7 | 192.6 | 189.5 |
| 35° | 2236.7 | 1680.6 | 742.5 | 391.4 | 282.7 | 226.8 | 205.0 | 192.6 | 183.3 | 177.1 | 177.1 |
| 37.5° | *2395.2* | *1767.6* | *748.7* | *410.1* | *292.0* | *220.6* | *192.6* | *180.2* | *170.9* | *167.8* | *167.8* |
| 40° | 2562.9 | 1885.7 | 761.1 | 425.6 | 301.3 | 217.5 | 180.2 | 170.9 | 161.5 | 155.3 | 155.3 |
| 42.5° | 2718.2 | 1978.9 | 782.9 | 444.2 | 307.5 | 214.4 | 170.9 | 161.5 | 152.2 | 149.1 | 149.1 |
| 45° | 2898.4 | 2081.4 | 801.5 | 456.7 | 307.5 | 205.0 | 161.5 | 152.2 | 146.0 | 142.9 | 139.8 |
| 47.5° | 3041.3 | 2165.3 | 810.8 | 462.9 | 301.3 | 195.7 | 152.2 | 146.0 | 139.8 | 133.6 | 136.7 |
| 50° | 3215.3 | 2255.4 | 826.3 | 466.0 | 288.9 | 183.3 | 146.0 | 136.7 | 130.5 | 127.4 | 127.4 |
| 52.5° | 3383.0 | 2345.4 | 838.8 | 459.8 | 273.4 | 167.8 | 136.7 | 130.5 | 124.3 | 118.0 | 118.0 |
| 55° | 3581.9 | 2444.9 | 857.4 | 450.5 | 248.5 | 152.2 | 127.4 | 121.2 | 111.8 | 108.7 | 105.6 |
| 57.5° | 3808.6 | 2575.3 | 872.9 | 431.8 | 217.5 | 136.7 | 121.2 | 111.8 | 99.4 | 93.2 | 93.2 |
| 60° | 4016.8 | 2724.4 | 885.4 | 385.2 | 189.5 | 127.4 | 111.8 | 102.5 | 90.1 | 87.0 | 87.0 |
| 62.5° | 4240.4 | 2879.8 | 885.4 | 304.4 | 161.5 | 114.9 | 105.6 | 96.3 | 83.9 | 80.8 | 80.8 |
| 65° | 4395.8 | 3019.6 | 857.4 | 226.8 | 136.7 | 108.7 | 102.5 | 90.1 | 77.7 | 74.6 | 74.6 |
| 67.5° | 4439.3 | 3106.6 | 779.7 | 161.5 | 118.0 | 102.5 | 96.3 | 83.9 | 74.6 | 68.3 | 68.3 |
| 70° | 4299.5 | 3038.2 | 636.8 | 124.3 | 102.5 | 93.2 | 87.0 | 77.7 | 68.3 | 65.2 | 65.2 |
| 72.5° | 3898.7 | 2777.3 | 475.3 | 105.6 | 90.1 | 87.0 | 80.8 | 71.5 | 65.2 | 62.1 | 62.1 |
| 75° | 3265.0 | 2308.2 | 335.5 | 93.2 | 83.9 | 77.7 | 71.5 | 65.2 | 59.0 | 59.0 | 59.0 |
| 77.5° | 2472.8 | 1668.2 | 208.1 | 83.9 | 71.5 | 71.5 | 65.2 | 59.0 | 55.9 | 52.8 | 52.8 |
| 80° | 1596.8 | 1053.1 | 118.0 | 59.0 | 49.7 | 52.8 | 46.6 | 40.4 | 40.4 | 37.3 | 37.3 |
| 82.5° | 677.2 | 416.3 | 62.1 | 34.2 | 24.9 | 21.7 | 15.5 | 15.5 | 12.4 | 12.4 | 12.4 |
| 85° | 68.3 | 24.9 | 12.4 | 9.3 | 9.3 | 6.2 | 6.2 | 6.2 | 6.2 | 3.1 | 3.1 |
| 87.5° | 9.3 | 9.3 | 9.3 | 6.2 | 6.2 | 6.2 | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 |
| 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: SP1-2407-157-3

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

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

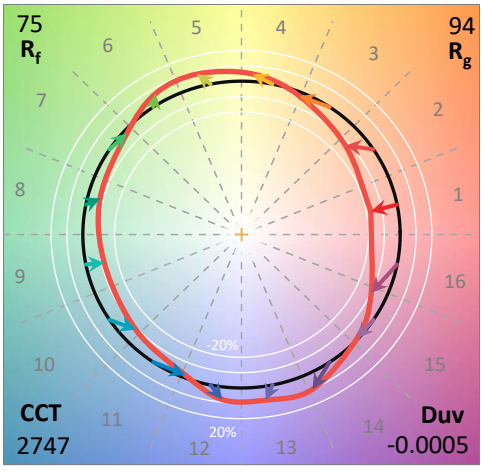
## Test Information

| | |
|---|---|
| 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 | CRI (Ra): | 71.7 | | |
| CIE u': | 0.2606 | R1: | 68.1 | R9: | -35.3 |
| CIE v': | 0.5257 | R2: | 83.9 | R10: | 64.2 |
| Duv: | -0.0005 | R3: | 94.7 | R11: | 61.7 |
| CIE x: | 0.4552 | R4: | 66.3 | R12: | 53.9 |
| CIE y: | 0.4082 | R5: | 67.4 | R13: | 71.2 |
| CIE z: | 0.1366 | R6: | 78.7 | R14: | 97.6 |
| Peak Wavelength (nm): | 597 | R7: | 75.0 | R15: | 59.3 |
| Dominant Wavelength (nm): | 584 | R8: | 39.4 | | |
| Purity: | 59.16856 | | | | |

| | |
|---|---|
| Rf: | 75.5 |
| Rg: | 93.6 |




## Test Conditions

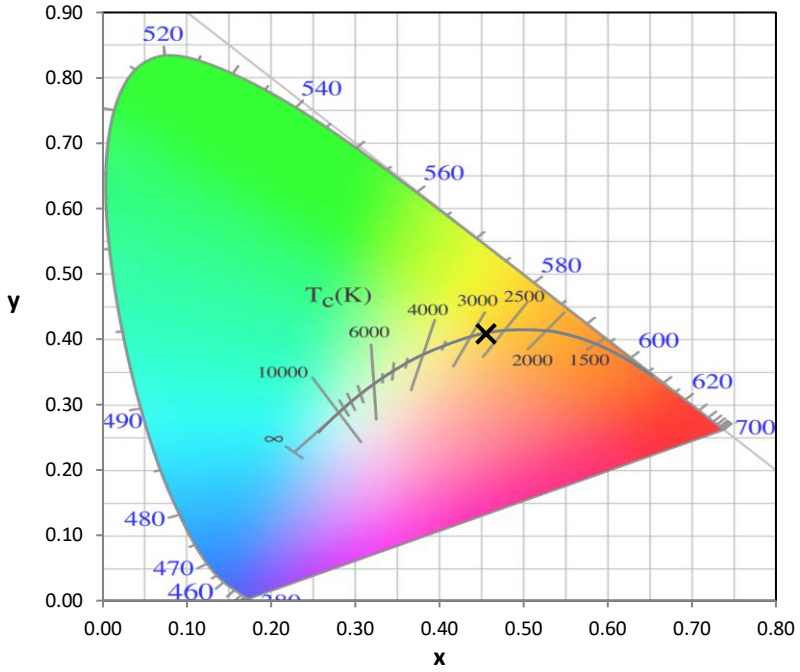
| | |
|---|---|
| Stabilization Time: | 22M |
| Operation Time: | 1H 22M |
| Sphere Temperature (°C): | 24.2 |

REPORT NUMBER: SP1-2407-157-3

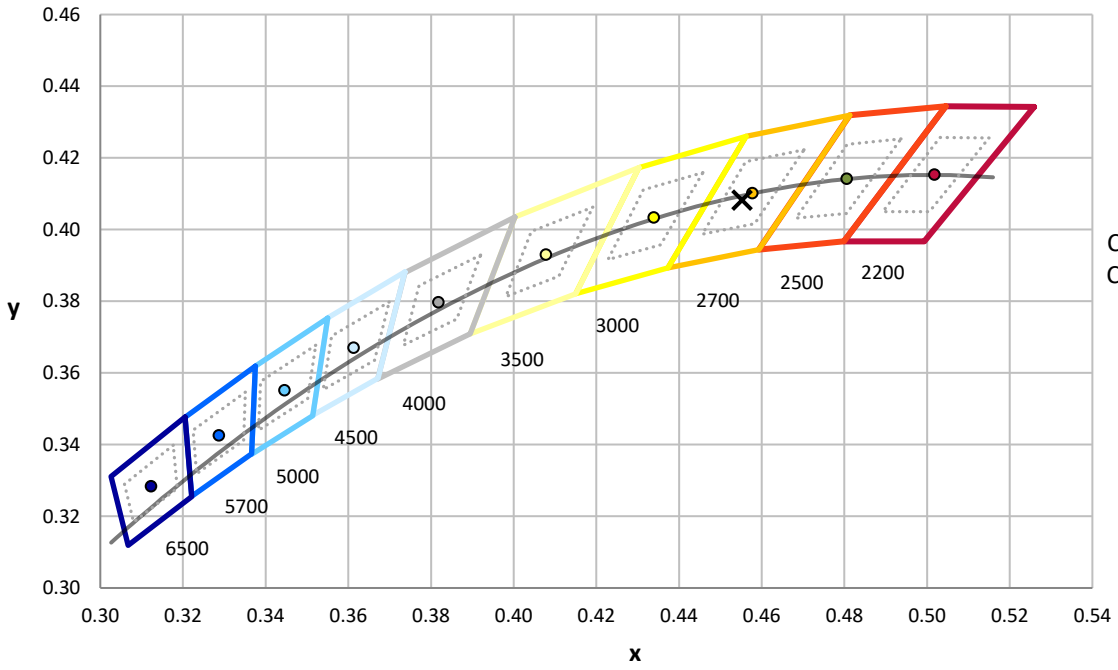
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 2/8/2024 | 2/8/2025 |
| AC Power Source | IN0063 | 10/24/2023 | 10/24/2024 |
| DC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

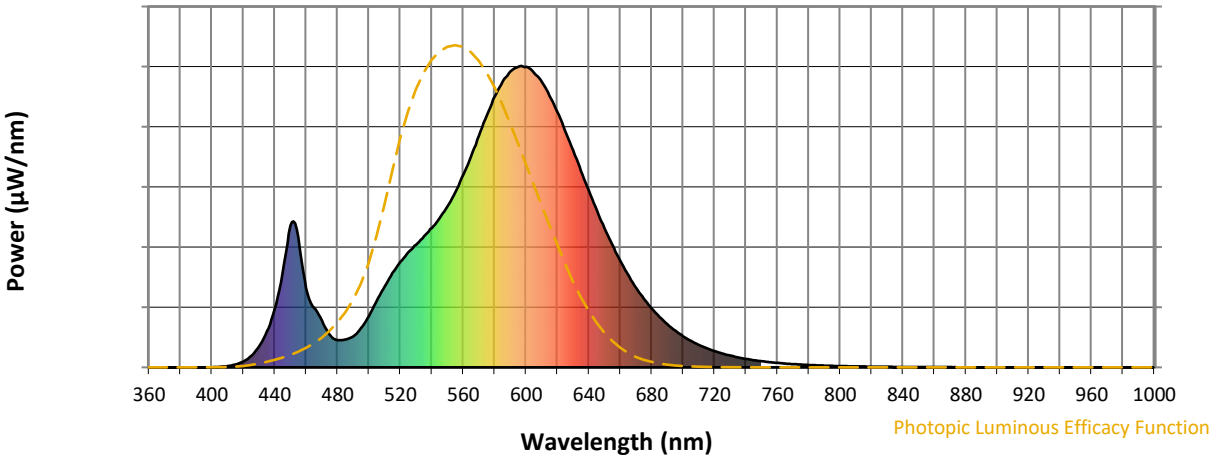



CCT = 2747K
CIE x = 0.4552
CIE y = 0.4082
Duv = -0.0005

Point lies inside the ANSI 2700K 4-step quadrangle

REPORT NUMBER: SP1-2407-157-3

## Photopic Flux vs. Wavelength

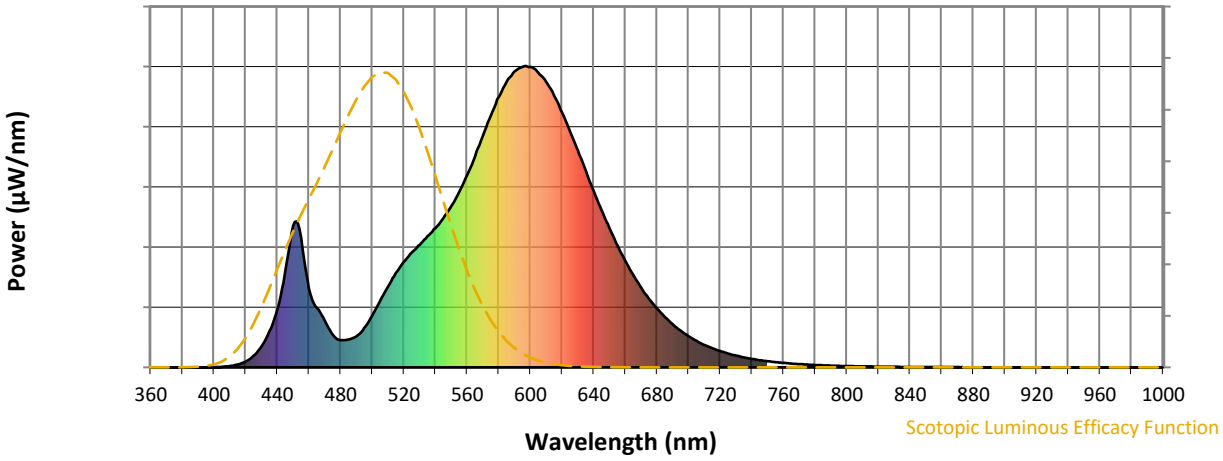



## Photopic Lumens: NR

| 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

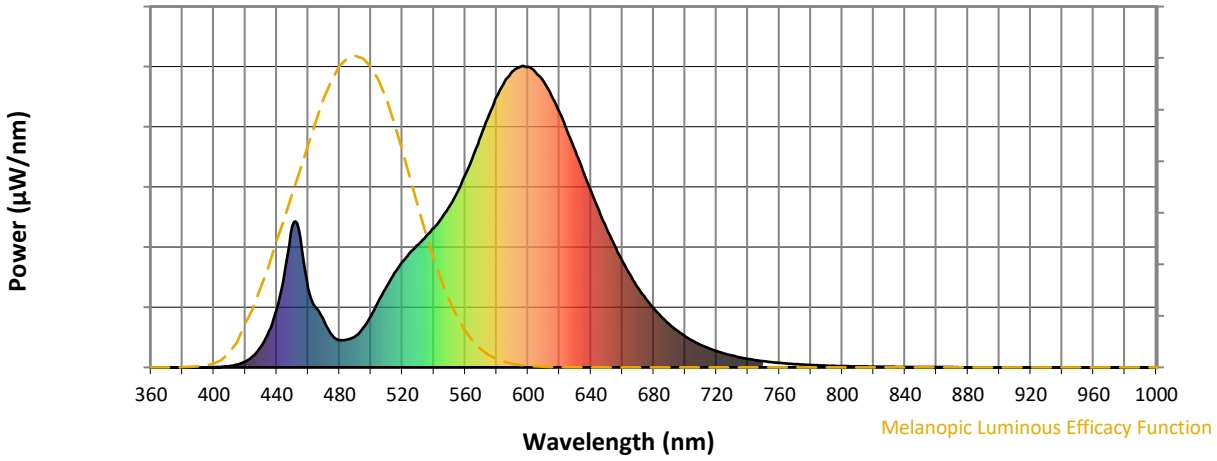



**Scotopic Lumens: NR** **S/P: 1.13**

| 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 | | | |

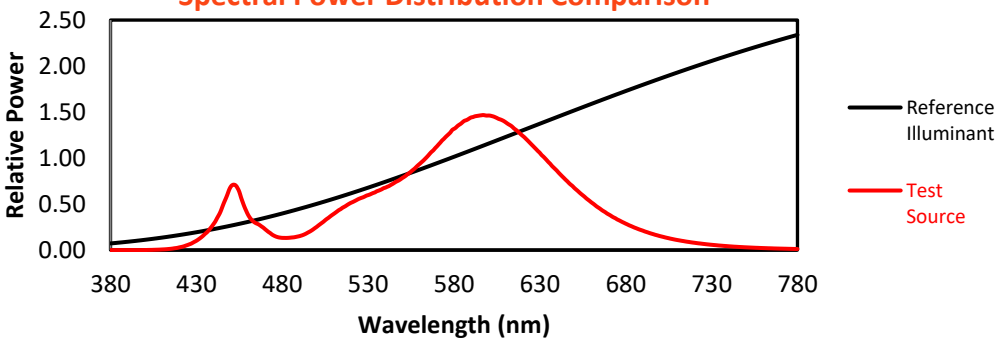
REPORT NUMBER: SP1-2407-157-3

# TM-30-18

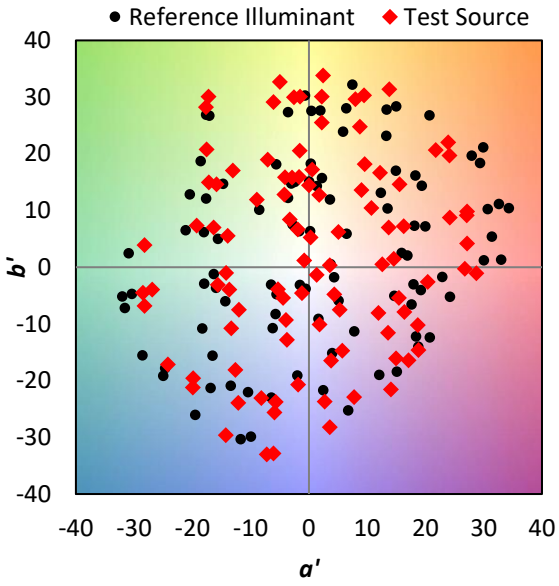
## Summary

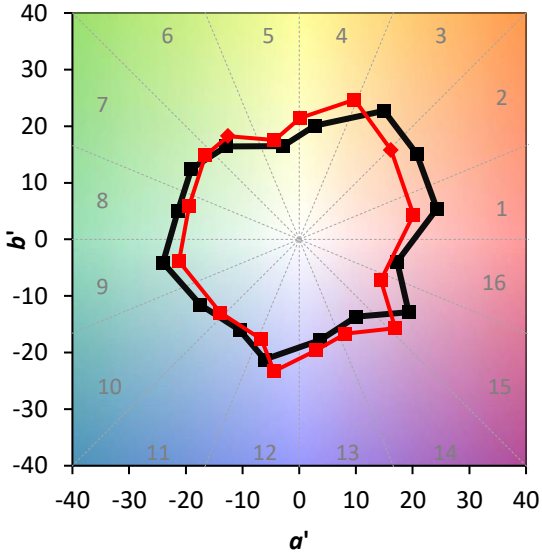
$R_f$ = 75.5
$R_g$ = 93.6
CIE $R_a$ = 71.7
$R_9$ = -35.3

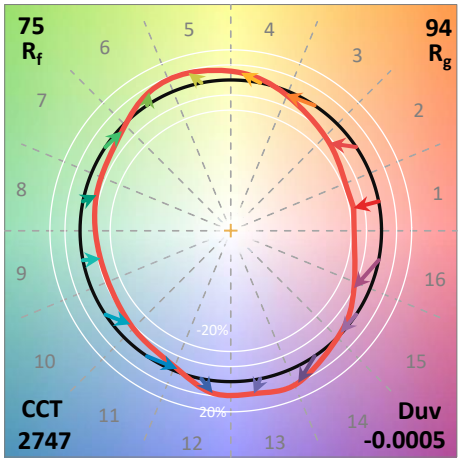
## Spectral Power Distribution Comparison

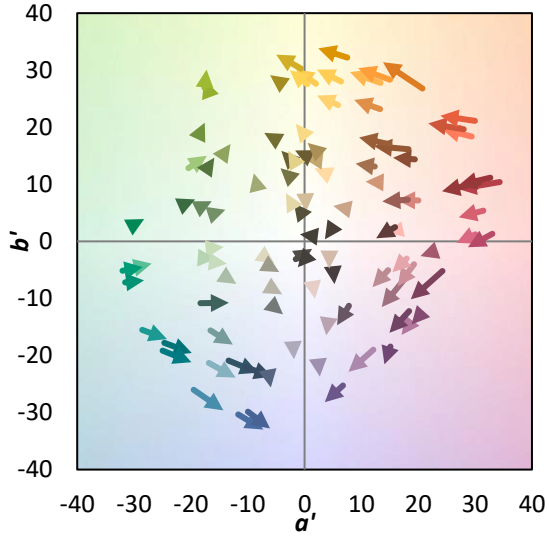



## Color Vector Graphics



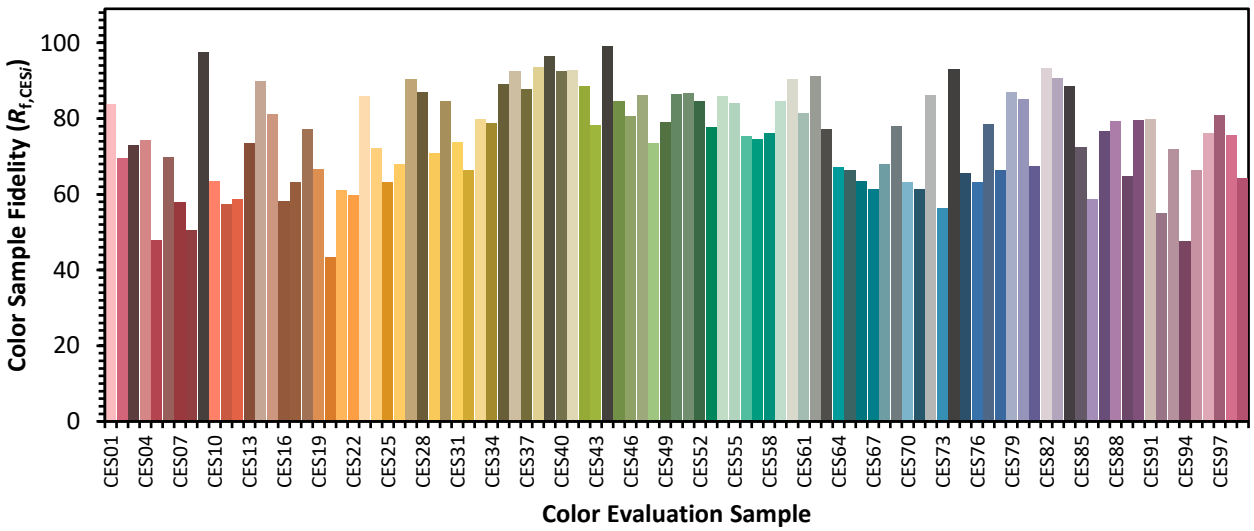



REPORT NUMBER: SP1-2407-157-3

# TM-30-18

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

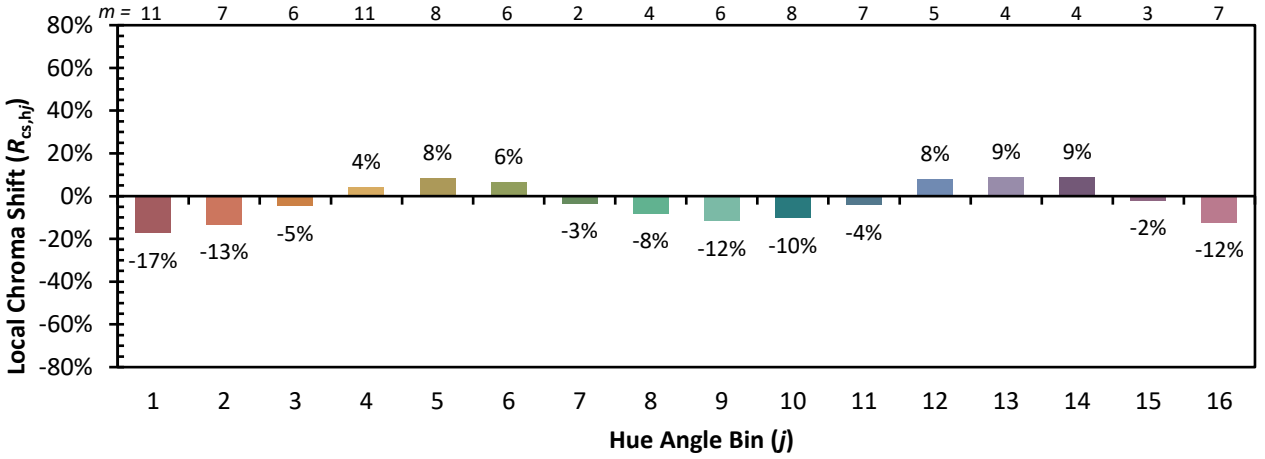
| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 68 | CES51 = 87 | CES76 = 63 |
| CES02 = 63 | CES27 = 90 | CES52 = 85 | CES77 = 79 |
| CES03 = 31 | CES28 = 87 | CES53 = 78 | CES78 = 66 |
| CES04 = 71 | CES29 = 71 | CES54 = 86 | CES79 = 87 |
| CES05 = 50 | CES30 = 85 | CES55 = 84 | CES80 = 85 |
| CES06 = 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 | |

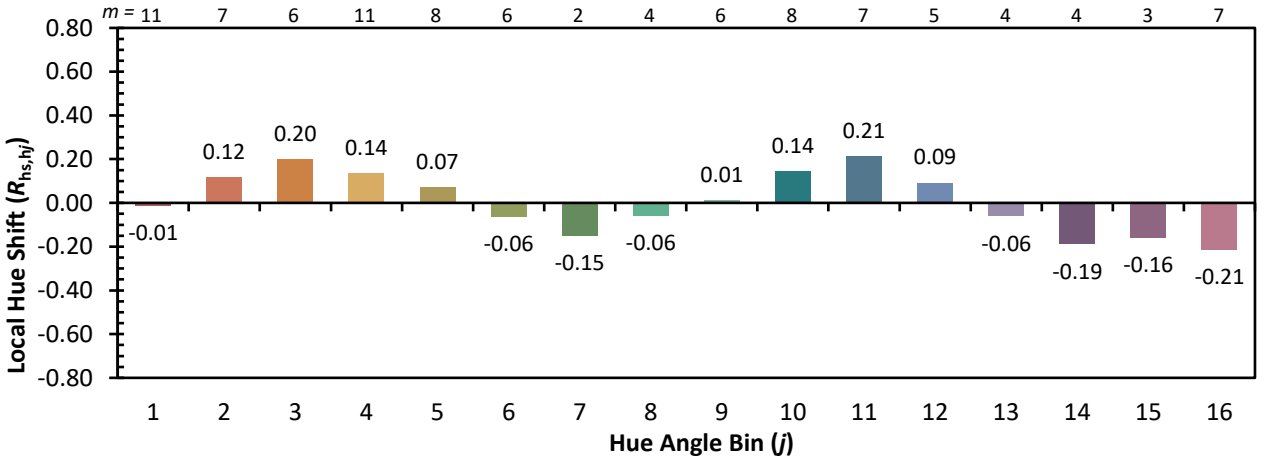


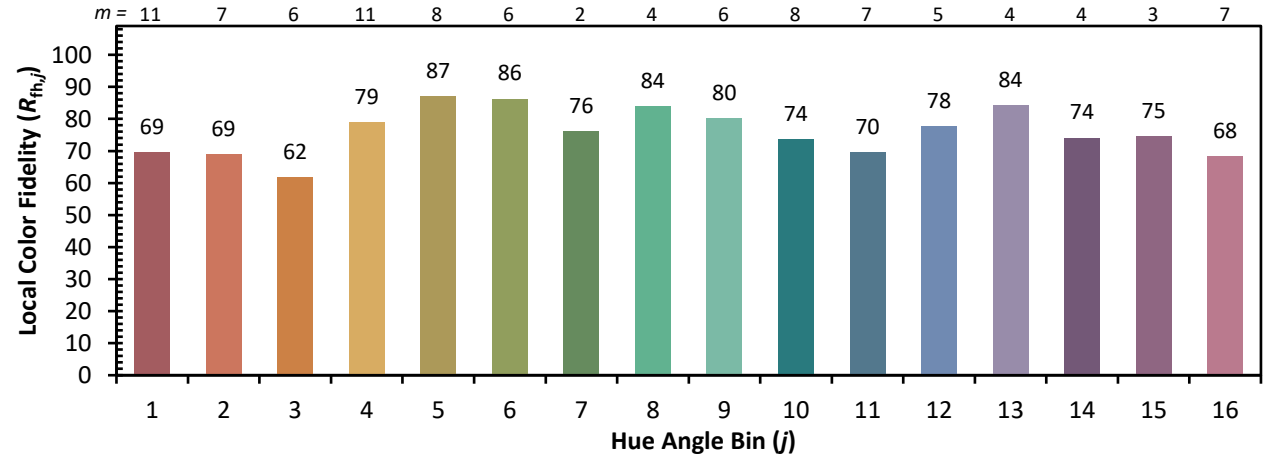
REPORT NUMBER: SP1-2407-157-3

**TM-30-18**

## Color Rendition by Hue-Angle Bin



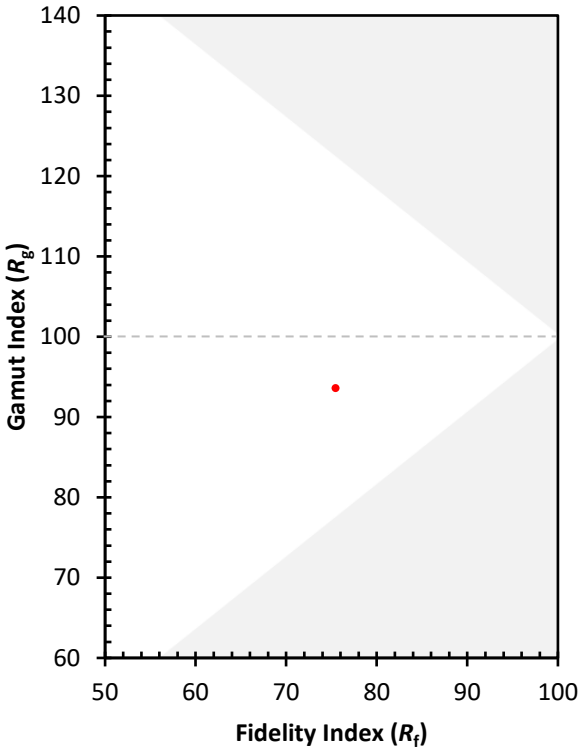



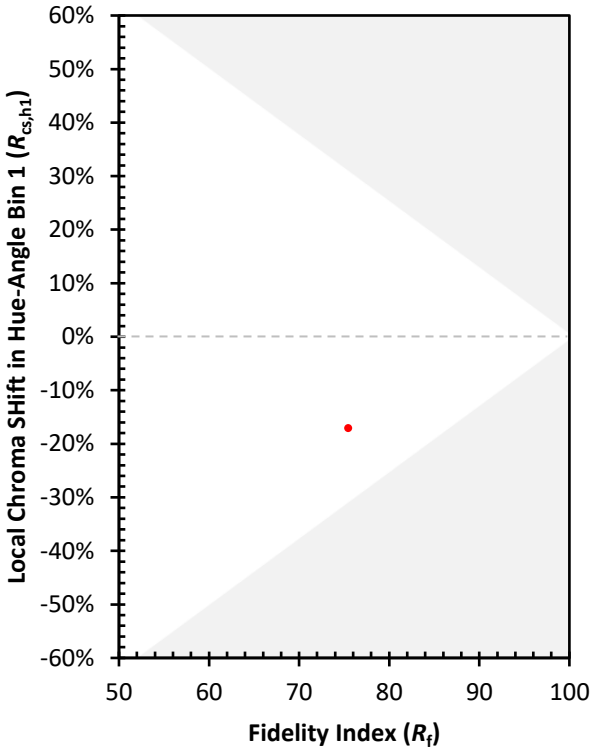



REPORT NUMBER: SP1-2407-157-3

# TM-30-18

## Measure Comparisons




(END OF REPORT)