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

Scaled data based on original data using

LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: McGRAW-EDISON

Report Number: P637316

Luminaire Tested: GWS-SA4C-750-U-SL2-W-HSS

Issue Date: 1/10/2023

Report Generated By 670246102 / DESKTOP-G35701P

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

Scaled Data Report

**Test Information**

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | P637316 |
| | TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-30) |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Issue Date: | 1/10/2023 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | GWS-SA4C-750-U-SL2-W-HSS |
| Description: | GALLEON WALL SLIM LUMINAIRE. (4) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II SPILL LIGHT ELIMINATOR OPTICS WITH HOUSE SIDE SHIELD |
| Light Source: | (64) 5000K CCT, 70 CRI LEDS |
| Ballast/Driver: | - |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 15740.5 lumens |
| Efficiency: | N/A |
| Efficacy: | 122.5 lumens/watt |
| Luminous Opening: | Rectangular (W 1' x L: 1' x H: 0') |
| IES Classification: | Type II - Short |
| BUG Rating: | B2 - U0 - G3 |

| | |
|---|---|
| Input Watts (W): | 128.5 |
| Input Voltage (V): | 120 |
| Input Current (Ain): | NR |
| Voltage Rise (V): | NR |
| Power Factor: | NR |
| Total Harmonic Distortion (THDi): | NR |
| Frequency (hertz): | 0 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 28.75 FT |

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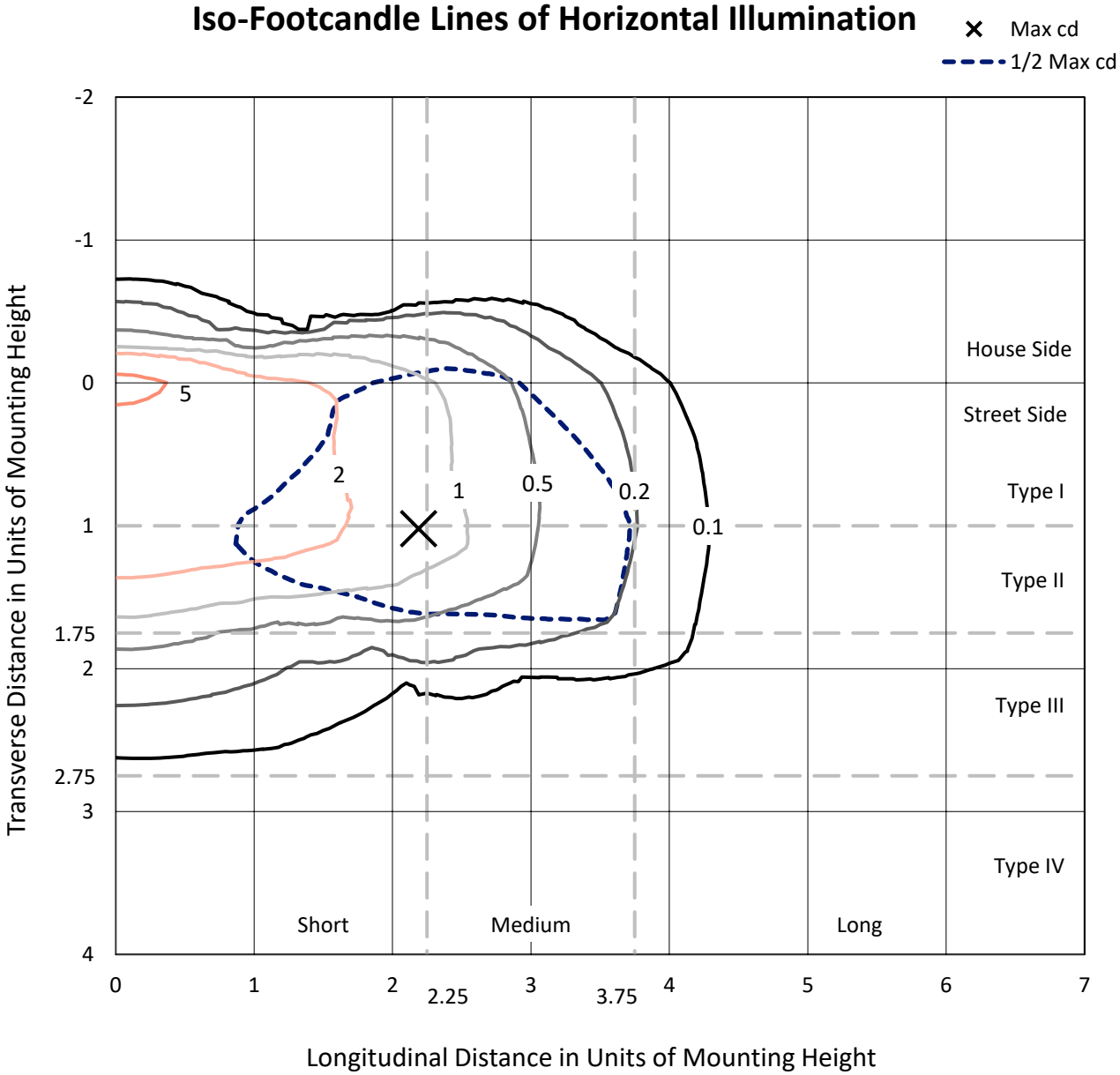
Scaled Data Report

REPORT NUMBER: P637316
CATALOG NUMBER: GWS-SA4C-750-U-SL2-W-HSS

## Iso-Footcandle Lines of Horizontal Illumination




Based on 25 foot mounting height. Maximum calculated value = 6.1 fc
Type II - Short - N/A

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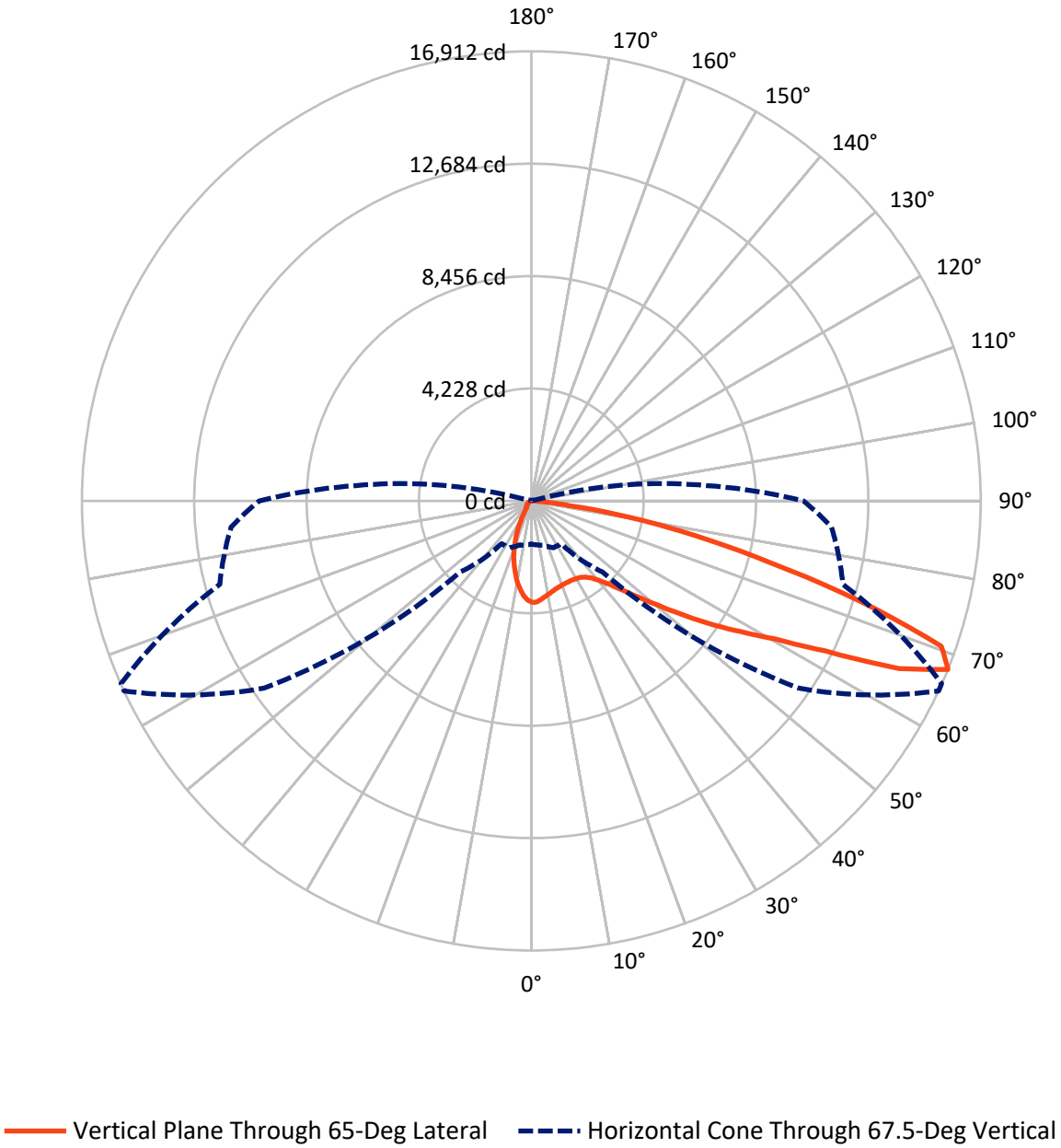
## Luminous Intensity Polar Plot



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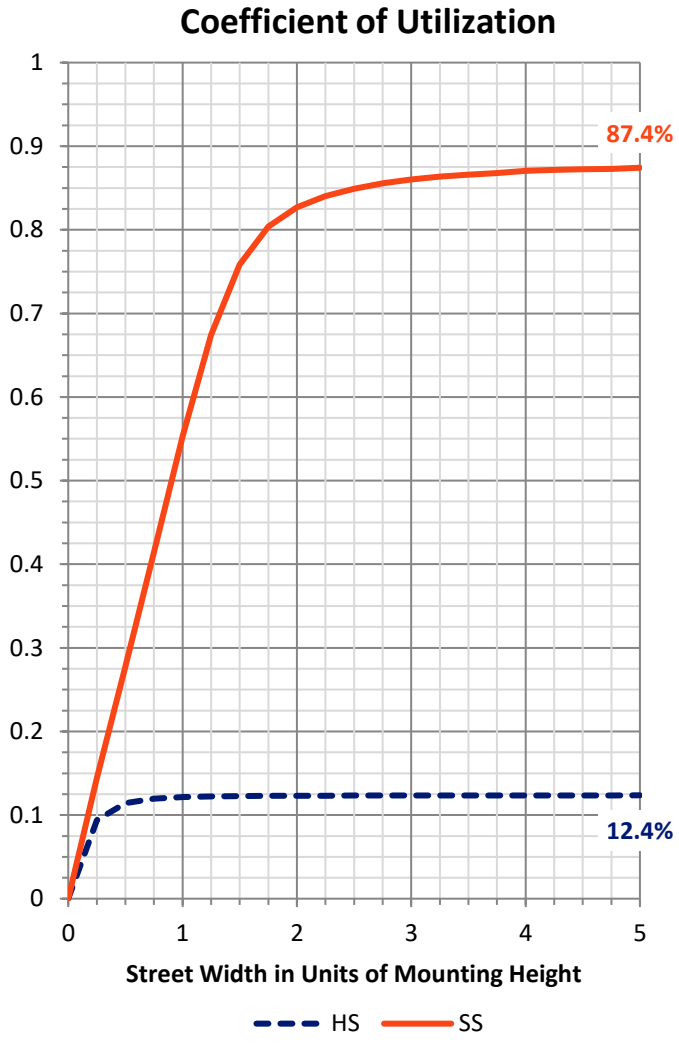
REPORT NUMBER: P637316
CATALOG NUMBER: GWS-SA4C-750-U-SL2-W-HSS

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 1965.5 | 0.0 | 1965.5 |
| | % Fixture | 12.5 | 0.0 | 12.5 |
| **Street Side** | Lumens | 13775.0 | 0.0 | 13775.0 |
| | % Fixture | 87.5 | 0.0 | 87.5 |
| **Total** | Lumens | 15740.5 | 0.0 | 15740.5 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 317.1 | 2.0 |
| 10°-20° | 712.8 | 4.5 |
| 20°-30° | 1018.5 | 6.5 |
| 30°-40° | 1481.8 | 9.4 |
| 40°-50° | 2320.7 | 14.7 |
| 50°-60° | 3620.3 | 23.0 |
| 60°-70° | 3976.8 | 25.3 |
| 70°-80° | 2116.4 | 13.4 |
| 80°-90° | 176.2 | 1.1 |
| 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° | 15740.5 | 100.0 |
| 0°-180° | 15740.5 | 100.0 |



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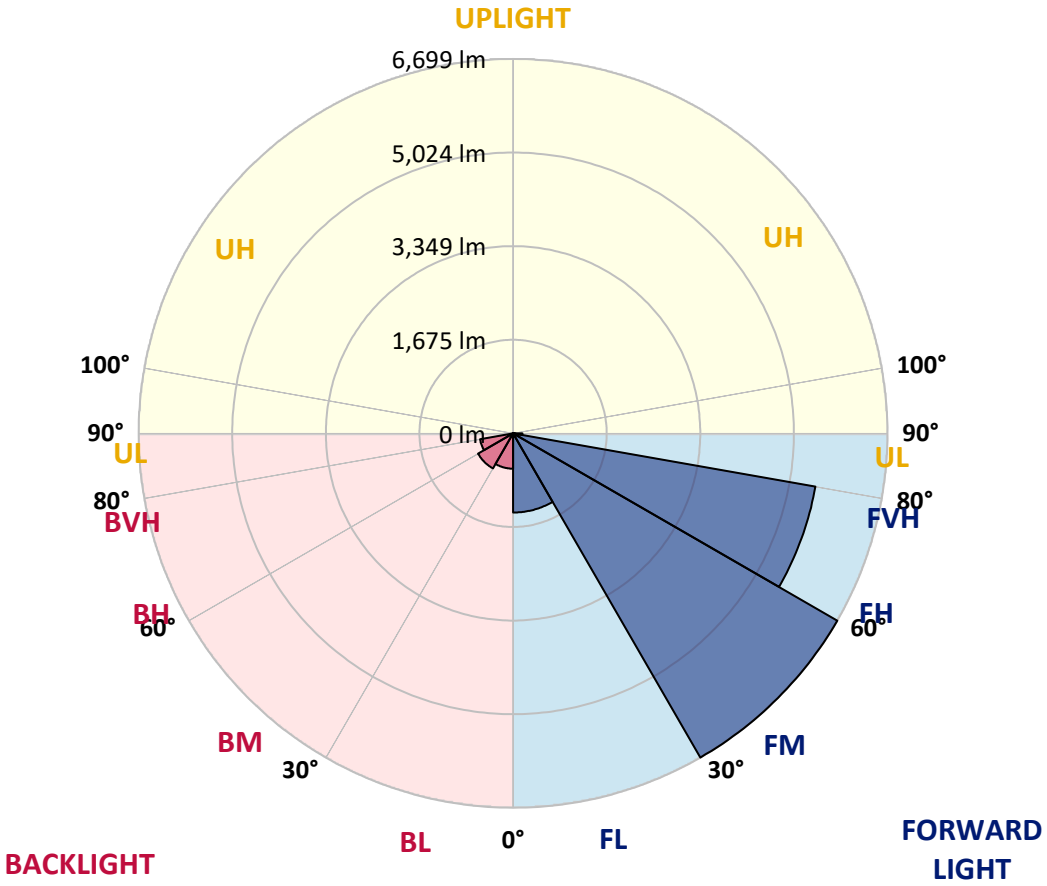
REPORT NUMBER: P637316
CATALOG NUMBER: GWS-SA4C-750-U-SL2-W-HSS

## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 1416.6 | 9.0 | | | |
| FM | (30°-60°) | 6698.8 | 42.6 | | | |
| FH | (60°-80°) | 5492.8 | 34.9 | | | G3/7500 |
| FVH | (80°-90°) | 166.8 | 1.1 | | | G2/225 |
| BL | (0°-30°) | 631.8 | 4.0 | B2/1000 | | |
| BM | (30°-60°) | 724.0 | 4.6 | B1/1000 | | |
| BH | (60°-80°) | 600.4 | 3.8 | B2/1000 | | G2/1000 |
| BVH | (80°-90°) | 9.4 | 0.1 | | | G0/10 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

**BUG Rating: B2-U0-G3**
Type II Short



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Scaled Data Report

REPORT NUMBER: P637316
CATALOG NUMBER: GWS-SA4C-750-U-SL2-W-HSS

**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 66° | 75° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 3817.6 | 3817.6 | 3817.6 | 3817.6 | 3817.6 | 3817.6 | 3817.6 | 3817.6 | 3817.6 | 3817.6 | 3817.6 |
| 2.5° | 3685.2 | 3696.6 | 3680.9 | 3719.4 | 3726.5 | 3769.2 | 3793.4 | 3810.5 | 3809.0 | 3830.4 | 3830.4 |
| 5° | 3468.8 | 3480.2 | 3471.7 | 3513.0 | 3545.7 | 3612.6 | 3668.1 | 3732.2 | 3735.0 | 3800.5 | 3824.7 |
| 7.5° | 3285.2 | 3286.6 | 3286.6 | 3337.9 | 3380.6 | 3463.1 | 3545.7 | 3643.9 | 3655.3 | 3756.4 | 3820.4 |
| 10° | 3134.3 | 3138.6 | 3140.0 | 3198.4 | 3245.4 | 3345.0 | 3450.3 | 3568.5 | 3581.3 | 3717.9 | 3817.6 |
| 12.5° | 3030.4 | 3031.8 | 3037.5 | 3098.7 | 3150.0 | 3253.9 | 3360.7 | 3495.9 | 3513.0 | 3673.8 | 3804.8 |
| 15° | 2980.6 | 2977.8 | 2980.6 | 3031.8 | 3083.1 | 3182.7 | 3292.3 | 3437.5 | 3456.0 | 3636.8 | 3806.2 |
| 17.5° | 2977.8 | 2973.5 | 2970.6 | 3009.1 | 3041.8 | 3130.1 | 3241.1 | 3399.1 | 3419.0 | 3619.7 | 3821.8 |
| 20° | 3019.0 | 3016.2 | 3002.0 | 3019.0 | 3026.2 | 3098.7 | 3208.4 | 3369.2 | 3389.1 | 3616.9 | 3856.0 |
| 22.5° | 3127.2 | 3120.1 | 3098.7 | 3083.1 | 3044.7 | 3087.4 | 3185.6 | 3347.8 | 3370.6 | 3624.0 | 3900.1 |
| 25° | 3288.1 | 3285.2 | 3258.2 | 3219.7 | 3121.5 | 3104.4 | 3187.0 | 3347.8 | 3369.2 | 3632.5 | 3947.1 |
| 27.5° | 3530.0 | 3513.0 | 3478.8 | 3411.9 | 3271.0 | 3171.3 | 3215.5 | 3356.4 | 3377.7 | 3643.9 | 3985.5 |
| 30° | 3776.3 | 3774.9 | 3763.5 | 3695.2 | 3485.9 | 3299.4 | 3275.3 | 3379.2 | 3399.1 | 3653.9 | 4021.1 |
| 32.5° | 4031.1 | 4035.3 | 4063.8 | 4011.1 | 3782.0 | 3490.2 | 3383.4 | 3426.1 | 3440.4 | 3673.8 | 4052.4 |
| 35° | 4273.1 | 4281.6 | 4357.0 | 4375.5 | 4142.1 | 3779.1 | 3559.9 | 3520.1 | 3521.5 | 3717.9 | 4093.7 |
| 37.5° | 4505.1 | 4533.5 | 4654.5 | 4744.2 | 4590.5 | 4129.3 | 3814.7 | 3679.5 | 3668.1 | 3806.2 | 4156.3 |
| 40° | 4768.4 | 4822.5 | 4974.8 | 5127.1 | 5078.7 | 4591.9 | 4162.0 | 3924.3 | 3900.1 | 3968.4 | 4268.8 |
| 42.5° | 5060.2 | 5118.6 | 5320.7 | 5534.2 | 5557.0 | 5151.3 | 4596.2 | 4281.6 | 4240.3 | 4241.7 | 4479.4 |
| 45° | 5373.3 | 5451.6 | 5686.5 | 5994.0 | 6132.0 | 5774.7 | 5131.4 | 4764.1 | 4722.9 | 4661.6 | 4818.2 |
| 47.5° | 5784.7 | 5853.0 | 6079.4 | 6433.8 | 6698.5 | 6443.7 | 5833.1 | 5384.7 | 5309.3 | 5219.6 | 5344.9 |
| 50° | 6139.1 | 6198.9 | 6393.9 | 6838.0 | 7388.9 | 7306.3 | 6628.8 | 6160.5 | 6087.9 | 5935.6 | 6039.5 |
| 52.5° | 6217.4 | 6264.4 | 6443.7 | 6943.4 | 7917.0 | 8395.2 | 7603.8 | 7098.5 | 7047.3 | 6765.4 | 6805.3 |
| 55° | 5865.8 | 5937.0 | 6097.9 | 6653.0 | 8055.0 | 9459.9 | 8869.2 | 8156.1 | 8049.3 | 7599.5 | 7670.7 |
| 57.5° | 4977.6 | 5104.3 | 5255.2 | 5976.9 | 7680.7 | 10026.5 | 10637.1 | 9276.3 | 9179.5 | 8402.3 | 8403.8 |
| 60° | 3648.2 | 3750.7 | 3851.7 | 4512.2 | 6792.5 | 9988.0 | 12241.3 | 10534.6 | 10358.1 | 9058.5 | 9034.3 |
| 62.5° | 2653.2 | 2705.9 | 2704.5 | 2939.3 | 4664.5 | 9330.4 | 13083.9 | 12430.6 | 12019.2 | 9760.3 | 9622.2 |
| 65° | 2086.7 | 2085.3 | 2146.5 | 2223.4 | 2604.8 | 7202.4 | 13187.8 | 15199.1 | 14755.0 | 10701.1 | 10413.6 |
| 67.5° | 1624.1 | 1655.4 | 1716.6 | 1942.9 | 1957.2 | 3769.2 | 12274.0 | 16911.5 | 16902.9 | 12137.4 | 11340.3 |
| 70° | 1252.6 | 1295.3 | 1382.1 | 1712.4 | 1807.7 | 2109.5 | 9183.8 | 16369.1 | 16507.2 | 12779.3 | 10684.1 |
| 72.5° | 804.2 | 801.4 | 929.5 | 1383.5 | 1736.6 | 1757.9 | 5078.7 | 13002.8 | 13159.4 | 11575.1 | 8638.6 |
| 75° | 449.8 | 452.6 | 525.2 | 846.9 | 1618.4 | 1654.0 | 2515.2 | 9272.0 | 9395.9 | 9024.4 | 6637.3 |
| 77.5° | 176.5 | 182.2 | 246.2 | 445.5 | 1067.6 | 1477.5 | 1494.6 | 6322.8 | 6341.3 | 5592.6 | 4070.9 |
| 80° | 71.2 | 75.4 | 125.3 | 276.1 | 650.5 | 995.0 | 1067.6 | 3725.0 | 3649.6 | 2165.0 | 1184.3 |
| 82.5° | 21.4 | 22.8 | 49.8 | 156.6 | 340.2 | 707.4 | 720.2 | 1429.1 | 1349.4 | 465.5 | 301.8 |
| 85° | 1.4 | 1.4 | 11.4 | 48.4 | 121.0 | 177.9 | 479.7 | 465.5 | 412.8 | 116.7 | 133.8 |
| 87.5° | 0.0 | 0.0 | 1.4 | 1.4 | 2.8 | 5.7 | 51.2 | 85.4 | 86.8 | 21.4 | 59.8 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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Scaled Data Report

REPORT NUMBER: P637316
CATALOG NUMBER: GWS-SA4C-750-U-SL2-W-HSS

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 3817.6 | 3817.6 | 3817.6 | 3817.6 | 3817.6 | 3817.6 | 3817.6 | 3817.6 | 3817.6 | 3817.6 | 3817.6 |
| 2.5° | 3830.4 | 3779.1 | 3774.9 | 3735.0 | 3695.2 | 3645.3 | 3587.0 | 3544.3 | 3514.4 | 3461.7 | 3451.8 |
| 5° | 3824.7 | 3756.4 | 3692.3 | 3578.4 | 3451.8 | 3315.1 | 3195.5 | 3084.5 | 3014.8 | 2967.8 | 2947.9 |
| 7.5° | 3813.3 | 3726.5 | 3578.4 | 3363.5 | 3151.4 | 2912.3 | 2725.8 | 2555.0 | 2438.3 | 2370.0 | 2340.1 |
| 10° | 3804.8 | 3688.0 | 3447.5 | 3121.5 | 2792.7 | 2462.5 | 2179.2 | 1925.9 | 1784.9 | 1673.9 | 1655.4 |
| 12.5° | 3787.7 | 3632.5 | 3279.5 | 2838.3 | 2414.1 | 1975.7 | 1614.1 | 1303.8 | 1088.9 | 992.1 | 958.0 |
| 15° | 3770.6 | 3574.2 | 3111.6 | 2539.4 | 2001.3 | 1460.4 | 1022.0 | 723.1 | 575.1 | 529.5 | 526.7 |
| 17.5° | 3767.7 | 3521.5 | 2929.4 | 2256.1 | 1568.6 | 956.5 | 582.2 | 468.3 | 437.0 | 425.6 | 425.6 |
| 20° | 3776.3 | 3477.4 | 2750.0 | 1930.1 | 1143.0 | 582.2 | 434.1 | 405.7 | 387.2 | 377.2 | 377.2 |
| 22.5° | 3784.8 | 3431.8 | 2577.8 | 1601.3 | 758.7 | 425.6 | 382.9 | 358.7 | 337.3 | 326.0 | 320.3 |
| 25° | 3790.5 | 3382.0 | 2387.0 | 1271.1 | 495.3 | 370.1 | 335.9 | 304.6 | 279.0 | 264.8 | 264.8 |
| 27.5° | 3789.1 | 3322.2 | 2194.9 | 948.0 | 384.3 | 328.8 | 287.5 | 254.8 | 229.2 | 213.5 | 214.9 |
| 30° | 3777.7 | 3256.7 | 1995.6 | 661.9 | 335.9 | 287.5 | 246.2 | 212.1 | 186.5 | 173.7 | 172.2 |
| 32.5° | 3769.2 | 3187.0 | 1765.0 | 465.5 | 301.8 | 251.9 | 209.2 | 176.5 | 155.2 | 145.2 | 143.8 |
| 35° | 3759.2 | 3118.7 | 1545.8 | 354.4 | 271.9 | 217.8 | 176.5 | 149.5 | 132.4 | 123.8 | 123.8 |
| 37.5° | 3762.1 | 3047.5 | 1308.1 | 304.6 | 242.0 | 189.3 | 150.9 | 128.1 | 113.9 | 105.3 | 103.9 |
| 40° | 3806.2 | 3004.8 | 1074.7 | 276.1 | 214.9 | 163.7 | 131.0 | 111.0 | 96.8 | 88.3 | 86.8 |
| 42.5° | 3915.8 | 3006.2 | 851.2 | 254.8 | 190.7 | 139.5 | 113.9 | 95.4 | 82.6 | 72.6 | 71.2 |
| 45° | 4135.0 | 3066.0 | 653.3 | 232.0 | 165.1 | 121.0 | 98.2 | 81.1 | 68.3 | 59.8 | 58.4 |
| 47.5° | 4493.7 | 3243.9 | 495.3 | 212.1 | 143.8 | 105.3 | 84.0 | 68.3 | 56.9 | 49.8 | 48.4 |
| 50° | 5064.5 | 3565.6 | 390.0 | 187.9 | 121.0 | 91.1 | 71.2 | 56.9 | 47.0 | 39.9 | 38.4 |
| 52.5° | 5750.5 | 4048.2 | 334.5 | 166.5 | 103.9 | 79.7 | 61.2 | 47.0 | 38.4 | 32.7 | 31.3 |
| 55° | 6539.1 | 4624.6 | 308.9 | 145.2 | 88.3 | 68.3 | 49.8 | 38.4 | 31.3 | 27.0 | 24.2 |
| 57.5° | 7262.2 | 5144.2 | 307.5 | 123.8 | 75.4 | 58.4 | 41.3 | 32.7 | 27.0 | 21.4 | 19.9 |
| 60° | 7966.8 | 5578.3 | 289.0 | 102.5 | 65.5 | 48.4 | 35.6 | 27.0 | 22.8 | 18.5 | 17.1 |
| 62.5° | 8605.9 | 5931.3 | 242.0 | 82.6 | 55.5 | 39.9 | 29.9 | 24.2 | 19.9 | 15.7 | 15.7 |
| 65° | 9408.7 | 6381.1 | 185.0 | 66.9 | 45.5 | 32.7 | 25.6 | 21.4 | 18.5 | 14.2 | 14.2 |
| 67.5° | *10238.5* | *6618.8* | *132.4* | *55.5* | *37.0* | *28.5* | *22.8* | *19.9* | *15.7* | *12.8* | *12.8* |
| 70° | 9273.5 | 5592.6 | 95.4 | 45.5 | 31.3 | 24.2 | 19.9 | 18.5 | 15.7 | 12.8 | 11.4 |
| 72.5° | 7242.3 | 4032.5 | 71.2 | 35.6 | 27.0 | 22.8 | 18.5 | 17.1 | 14.2 | 11.4 | 11.4 |
| 75° | 5370.5 | 2351.5 | 54.1 | 28.5 | 21.4 | 18.5 | 18.5 | 17.1 | 14.2 | 11.4 | 10.0 |
| 77.5° | 2919.4 | 819.9 | 41.3 | 22.8 | 17.1 | 14.2 | 15.7 | 15.7 | 12.8 | 10.0 | 8.5 |
| 80° | 772.9 | 224.9 | 28.5 | 17.1 | 14.2 | 11.4 | 11.4 | 14.2 | 11.4 | 8.5 | 8.5 |
| 82.5° | 224.9 | 65.5 | 19.9 | 14.2 | 11.4 | 10.0 | 10.0 | 10.0 | 8.5 | 7.1 | 5.7 |
| 85° | 109.6 | 24.2 | 14.2 | 11.4 | 10.0 | 8.5 | 7.1 | 7.1 | 5.7 | 4.3 | 4.3 |
| 87.5° | 48.4 | 10.0 | 11.4 | 10.0 | 10.0 | 7.1 | 5.7 | 4.3 | 4.3 | 2.8 | 1.4 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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# LM-79-2008: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGRAW-EDISON

Report Number: SP1-1908-441-4-R4

Test Date: 10/02/2019

Luminaire Tested: SA1C-750-U-5WQ

Data in this report applies to families of products SA1C-760-U-5WQ .

Report Generated By FNC07603 / LDUCLS01DT446
Version: v6.13

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Peachtree City, GA 30269

## Test Information

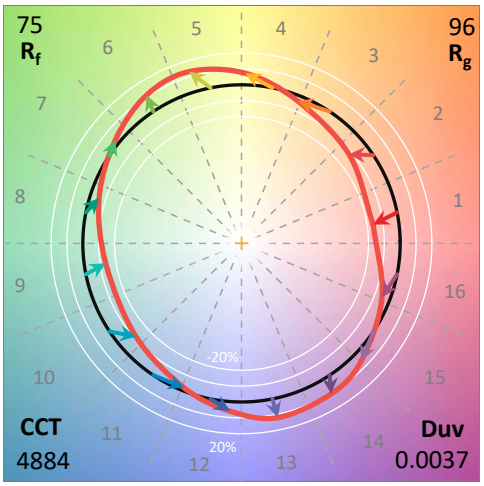
| | |
|---|---|
| Test Method: | LM-79-2008 |
| Report Number: | SP1-1908-441-4-R4 |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Photometer: | SP1 - 76IN SPHERE |
| Measurement Geometry: | 4π |
| Issue Date: | 10/28/2024 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | **SA1C-750-U-5WQ** |
| Description: | McGRAW EDISON ROADWAY AND AREA LUMINAIRE |

***THIS IS A REVISION OF SP1-1908-441-4-R3. TO UPDATE THE CATALOG INFORMATION.***TESTED IN SITU. ROADWAY AND AREA LUMINAIRE. (1) 70 CRI, 5000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

## Spectral Parameters

| | | | | | |
|---|---|---|---|---|---|
| CCT (K): | 4884 | CRI (Ra): | 73.5 | | |
| CIE u': | 0.2101 | R1: | 70.5 | R9: | -28.4 |
| CIE v': | 0.4904 | R2: | 77.7 | R10: | 48.6 |
| Duv: | 0.0037 | R3: | 84.6 | R11: | 73.2 |
| CIE x: | 0.3493 | R4: | 74.7 | R12: | 50.7 |
| CIE y: | 0.3624 | R5: | 71.9 | R13: | 71.2 |
| CIE z: | 0.2884 | R6: | 70.7 | R14: | 91.4 |
| Peak Wavelength (nm): | 444 | R7: | 81.2 | | |
| Dominant Wavelength (nm): | 571 | R8: | 56.9 | | |
| Purity: | 13.7 | | | | |

| | |
|---|---|
| Rf: | 74.9 |
| Rg: | 96.3 |




## Test Conditions

| | |
|---|---|
| Stabilization Time: | 240M |
| Operation Time: | 12H |
| Room Temperature (°C) / RH%: | 25.0./44% |
| Sphere Temperature (°C): | 25.7 |

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

REPORT NUMBER: SP1-1908-441-4-R4

| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/28/2019 | 12/28/2019 |
| Power Meter | IN0071 | 12/5/2018 | 12/5/2019 |
| AC Power Source | IN0063 | 12/5/2018 | 12/5/2019 |
| DC Power Source | IN0208 | 12/5/2018 | 12/5/2019 |
| Sphere Thermometer | IN0085 | 12/5/2018 | 12/5/2019 |
| Room Thermometer | IN0046 | 12/5/2018 | 12/5/2019 |

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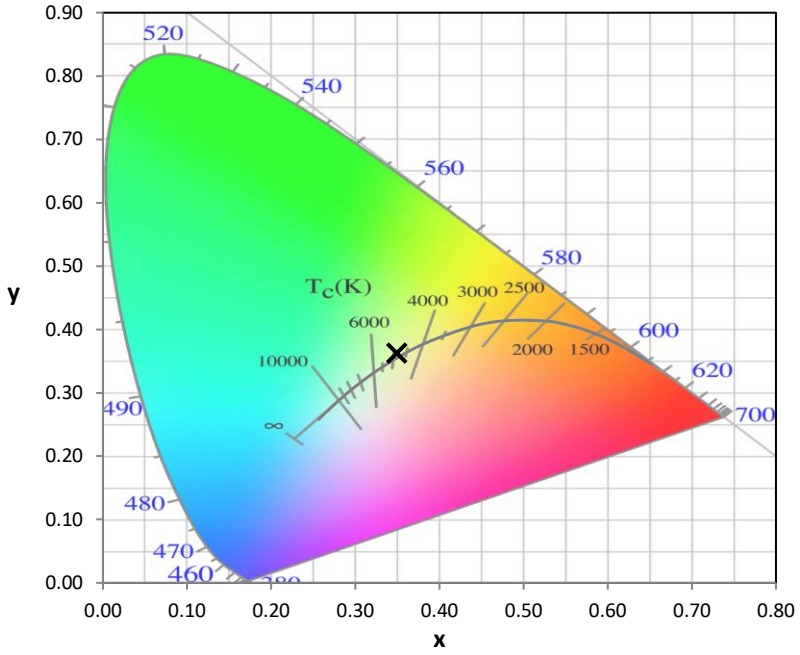
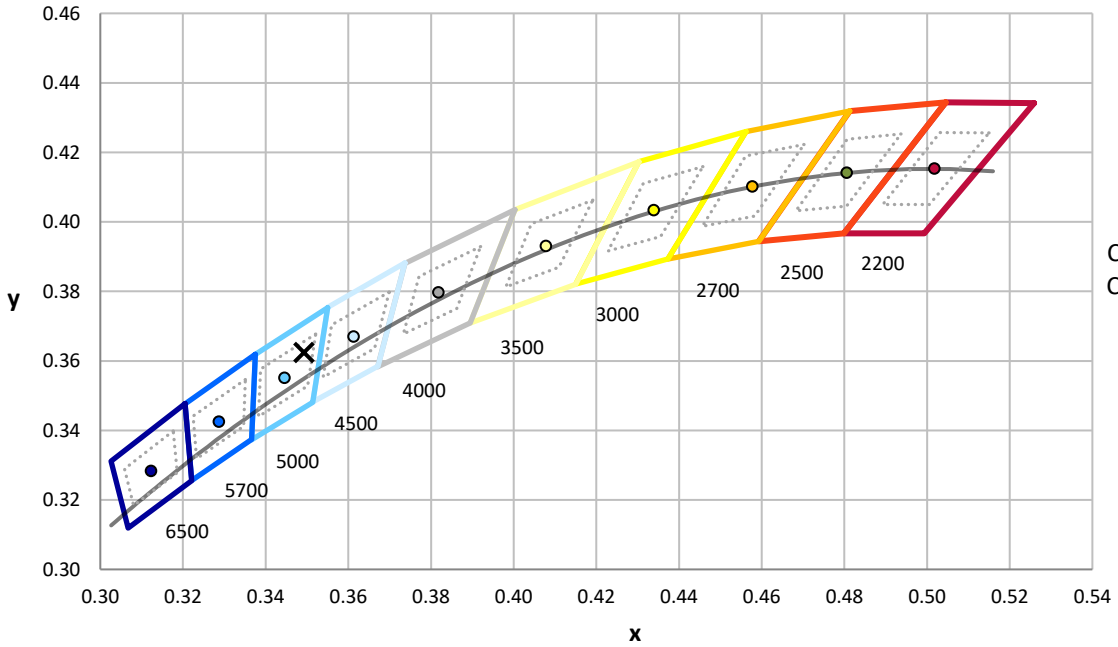
## CIE 1931 Chromaticity Diagram




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




CCT = 4884K
CIE x = 0.3493
CIE y = 0.3624
Duv = 0.0037

Point lies inside the ANSI 5000K 4-step quadrangle

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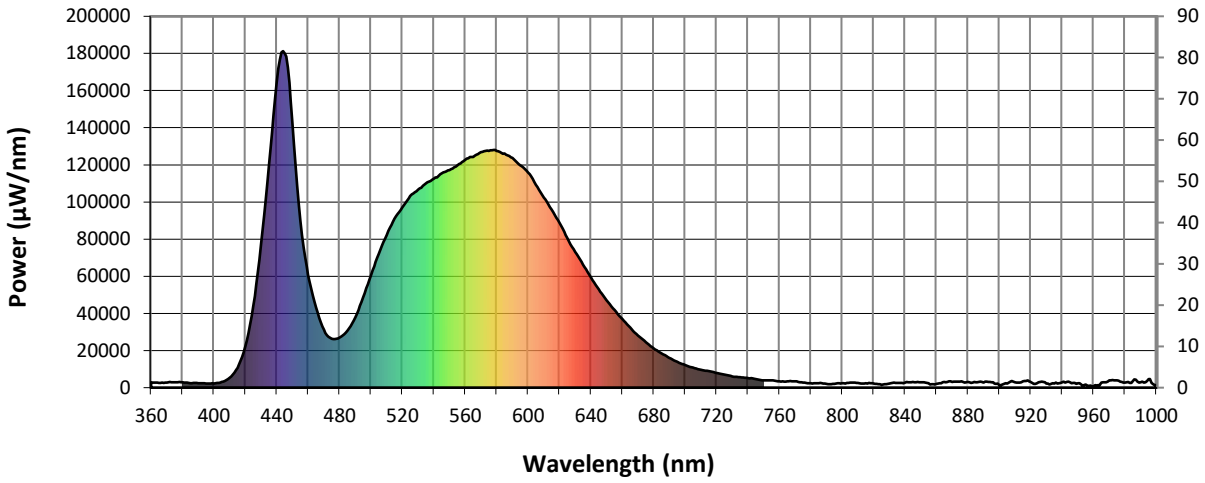
## Photopic Flux vs. Wavelength




######

| λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 2945 | NR | 490 | 37941 | NR | 620 | 88803 | NR | 750 | 3908 | NR | 880 | 2997 | NR |
| 365 | 2596 | NR | 495 | 48525 | NR | 625 | 80578 | NR | 755 | 3988 | NR | 885 | 2927 | NR |
| 370 | 2732 | NR | 500 | 60609 | NR | 630 | 73127 | NR | 760 | 3335 | NR | 890 | 2649 | NR |
| 375 | 2894 | NR | 505 | 72036 | NR | 635 | 66244 | NR | 765 | 3438 | NR | 895 | 2828 | NR |
| 380 | 2822 | NR | 510 | 82168 | NR | 640 | 59440 | NR | 770 | 3427 | NR | 900 | 1407 | NR |
| 385 | 2394 | NR | 515 | 90898 | NR | 645 | 52864 | NR | 775 | 2759 | NR | 905 | 2224 | NR |
| 390 | 2370 | NR | 520 | 97142 | NR | 650 | 47085 | NR | 780 | 2340 | NR | 910 | 2905 | NR |
| 395 | 2267 | NR | 525 | 103255 | NR | 655 | 41789 | NR | 785 | 2412 | NR | 915 | 3350 | NR |
| 400 | 2262 | NR | 530 | 106697 | NR | 660 | 37064 | NR | 790 | 1999 | NR | 920 | 3114 | NR |
| 405 | 3000 | NR | 535 | 110081 | NR | 665 | 32299 | NR | 795 | 2054 | NR | 925 | 2834 | NR |
| 410 | 5324 | NR | 540 | 112494 | NR | 670 | 28142 | NR | 800 | 2331 | NR | 930 | 2271 | NR |
| 415 | 10725 | NR | 545 | 115513 | NR | 675 | 24505 | NR | 805 | 2648 | NR | 935 | 2228 | NR |
| 420 | 22128 | NR | 550 | 117203 | NR | 680 | 21162 | NR | 810 | 2485 | NR | 940 | 2833 | NR |
| 425 | 44095 | NR | 555 | 119753 | NR | 685 | 18400 | NR | 815 | 2409 | NR | 945 | 2941 | NR |
| 430 | 77002 | NR | 560 | 122602 | NR | 690 | 16065 | NR | 820 | 2221 | NR | 950 | 2323 | NR |
| 435 | 119881 | NR | 565 | 124314 | NR | 695 | 13860 | NR | 825 | 1562 | NR | 955 | 1667 | NR |
| 440 | 164454 | NR | 570 | 126775 | NR | 700 | 12177 | NR | 830 | 2249 | NR | 960 | 749 | NR |
| 445 | 179997 | NR | 575 | 127511 | NR | 705 | 10757 | NR | 835 | 2573 | NR | 965 | 2669 | NR |
| 450 | 142822 | NR | 580 | 127577 | NR | 710 | 9601 | NR | 840 | 2764 | NR | 970 | 3968 | NR |
| 455 | 90008 | NR | 585 | 126153 | NR | 715 | 8944 | NR | 845 | 3109 | NR | 975 | 3886 | NR |
| 460 | 60557 | NR | 590 | 123678 | NR | 720 | 7947 | NR | 850 | 2963 | NR | 980 | 2788 | NR |
| 465 | 43305 | NR | 595 | 119774 | NR | 725 | 7062 | NR | 855 | 2336 | NR | 985 | 3496 | NR |
| 470 | 31089 | NR | 600 | 115733 | NR | 730 | 6004 | NR | 860 | 2118 | NR | 990 | 2913 | NR |
| 475 | 26278 | NR | 605 | 109231 | NR | 735 | 5594 | NR | 865 | 3144 | NR | 995 | 4659 | NR |
| 480 | 27060 | NR | 610 | 102408 | NR | 740 | 5165 | NR | 870 | 3069 | NR | 1000 | 1308 | NR |
| 485 | 30698 | NR | 615 | 96015 | NR | 745 | 4687 | NR | 875 | 3311 | NR | | | |

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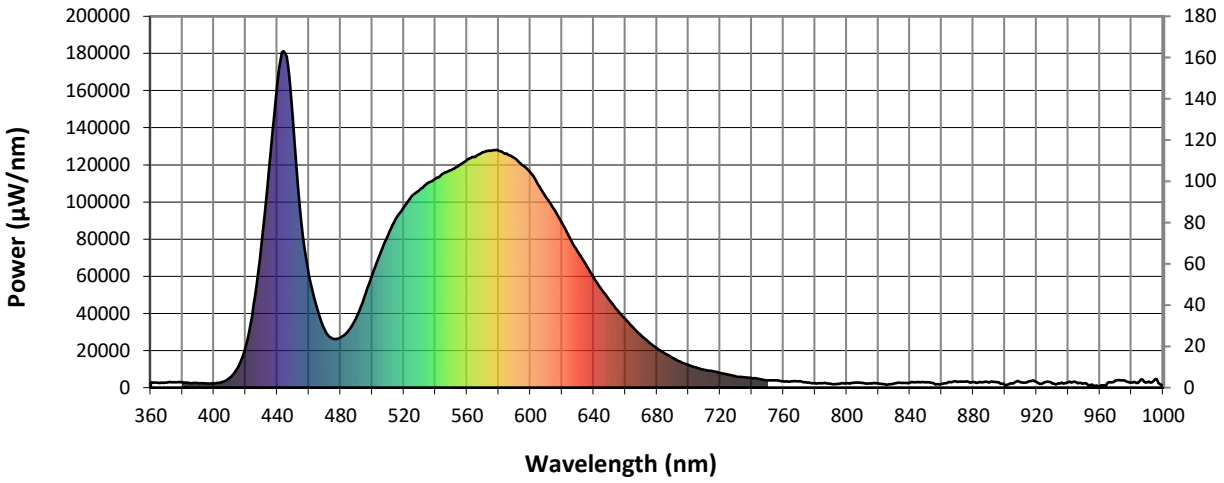
## Scotopic Flux vs. Wavelength




**Scotopic Lumens: 13493.5** **S/P: 1.77**

| λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 2945 | NR | 490 | 37941 | NR | 620 | 88803 | NR | 750 | 3908 | NR | 880 | 2997 | NR |
| 365 | 2596 | NR | 495 | 48525 | NR | 625 | 80578 | NR | 755 | 3988 | NR | 885 | 2927 | NR |
| 370 | 2732 | NR | 500 | 60609 | NR | 630 | 73127 | NR | 760 | 3335 | NR | 890 | 2649 | NR |
| 375 | 2894 | NR | 505 | 72036 | NR | 635 | 66244 | NR | 765 | 3438 | NR | 895 | 2828 | NR |
| 380 | 2822 | NR | 510 | 82168 | NR | 640 | 59440 | NR | 770 | 3427 | NR | 900 | 1407 | NR |
| 385 | 2394 | NR | 515 | 90898 | NR | 645 | 52864 | NR | 775 | 2759 | NR | 905 | 2224 | NR |
| 390 | 2370 | NR | 520 | 97142 | NR | 650 | 47085 | NR | 780 | 2340 | NR | 910 | 2905 | NR |
| 395 | 2267 | NR | 525 | 103255 | NR | 655 | 41789 | NR | 785 | 2412 | NR | 915 | 3350 | NR |
| 400 | 2262 | NR | 530 | 106697 | NR | 660 | 37064 | NR | 790 | 1999 | NR | 920 | 3114 | NR |
| 405 | 3000 | NR | 535 | 110081 | NR | 665 | 32299 | NR | 795 | 2054 | NR | 925 | 2834 | NR |
| 410 | 5324 | NR | 540 | 112494 | NR | 670 | 28142 | NR | 800 | 2331 | NR | 930 | 2271 | NR |
| 415 | 10725 | NR | 545 | 115513 | NR | 675 | 24505 | NR | 805 | 2648 | NR | 935 | 2228 | NR |
| 420 | 22128 | NR | 550 | 117203 | NR | 680 | 21162 | NR | 810 | 2485 | NR | 940 | 2833 | NR |
| 425 | 44095 | NR | 555 | 119753 | NR | 685 | 18400 | NR | 815 | 2409 | NR | 945 | 2941 | NR |
| 430 | 77002 | NR | 560 | 122602 | NR | 690 | 16065 | NR | 820 | 2221 | NR | 950 | 2323 | NR |
| 435 | 119881 | NR | 565 | 124314 | NR | 695 | 13860 | NR | 825 | 1562 | NR | 955 | 1667 | NR |
| 440 | 164454 | NR | 570 | 126775 | NR | 700 | 12177 | NR | 830 | 2249 | NR | 960 | 749 | NR |
| 445 | 179997 | NR | 575 | 127511 | NR | 705 | 10757 | NR | 835 | 2573 | NR | 965 | 2669 | NR |
| 450 | 142822 | NR | 580 | 127577 | NR | 710 | 9601 | NR | 840 | 2764 | NR | 970 | 3968 | NR |
| 455 | 90008 | NR | 585 | 126153 | NR | 715 | 8944 | NR | 845 | 3109 | NR | 975 | 3886 | NR |
| 460 | 60557 | NR | 590 | 123678 | NR | 720 | 7947 | NR | 850 | 2963 | NR | 980 | 2788 | NR |
| 465 | 43305 | NR | 595 | 119774 | NR | 725 | 7062 | NR | 855 | 2336 | NR | 985 | 3496 | NR |
| 470 | 31089 | NR | 600 | 115733 | NR | 730 | 6004 | NR | 860 | 2118 | NR | 990 | 2913 | NR |
| 475 | 26278 | NR | 605 | 109231 | NR | 735 | 5594 | NR | 865 | 3144 | NR | 995 | 4659 | NR |
| 480 | 27060 | NR | 610 | 102408 | NR | 740 | 5165 | NR | 870 | 3069 | NR | 1000 | 1308 | NR |
| 485 | 30698 | NR | 615 | 96015 | NR | 745 | 4687 | NR | 875 | 3311 | NR | | | |

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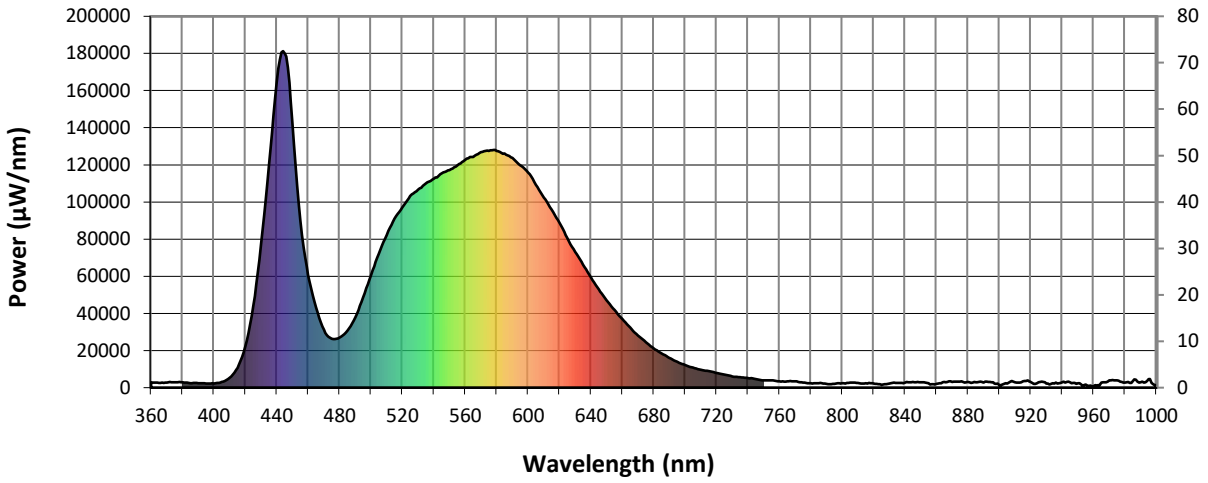
## Melanopic Flux vs. Wavelength




**Melanopic Lumens: 5378.9** **M/P: 0.71**

| λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 2945 | NR | 490 | 37941 | NR | 620 | 88803 | NR | 750 | 3908 | NR | 880 | 2997 | NR |
| 365 | 2596 | NR | 495 | 48525 | NR | 625 | 80578 | NR | 755 | 3988 | NR | 885 | 2927 | NR |
| 370 | 2732 | NR | 500 | 60609 | NR | 630 | 73127 | NR | 760 | 3335 | NR | 890 | 2649 | NR |
| 375 | 2894 | NR | 505 | 72036 | NR | 635 | 66244 | NR | 765 | 3438 | NR | 895 | 2828 | NR |
| 380 | 2822 | NR | 510 | 82168 | NR | 640 | 59440 | NR | 770 | 3427 | NR | 900 | 1407 | NR |
| 385 | 2394 | NR | 515 | 90898 | NR | 645 | 52864 | NR | 775 | 2759 | NR | 905 | 2224 | NR |
| 390 | 2370 | NR | 520 | 97142 | NR | 650 | 47085 | NR | 780 | 2340 | NR | 910 | 2905 | NR |
| 395 | 2267 | NR | 525 | 103255 | NR | 655 | 41789 | NR | 785 | 2412 | NR | 915 | 3350 | NR |
| 400 | 2262 | NR | 530 | 106697 | NR | 660 | 37064 | NR | 790 | 1999 | NR | 920 | 3114 | NR |
| 405 | 3000 | NR | 535 | 110081 | NR | 665 | 32299 | NR | 795 | 2054 | NR | 925 | 2834 | NR |
| 410 | 5324 | NR | 540 | 112494 | NR | 670 | 28142 | NR | 800 | 2331 | NR | 930 | 2271 | NR |
| 415 | 10725 | NR | 545 | 115513 | NR | 675 | 24505 | NR | 805 | 2648 | NR | 935 | 2228 | NR |
| 420 | 22128 | NR | 550 | 117203 | NR | 680 | 21162 | NR | 810 | 2485 | NR | 940 | 2833 | NR |
| 425 | 44095 | NR | 555 | 119753 | NR | 685 | 18400 | NR | 815 | 2409 | NR | 945 | 2941 | NR |
| 430 | 77002 | NR | 560 | 122602 | NR | 690 | 16065 | NR | 820 | 2221 | NR | 950 | 2323 | NR |
| 435 | 119881 | NR | 565 | 124314 | NR | 695 | 13860 | NR | 825 | 1562 | NR | 955 | 1667 | NR |
| 440 | 164454 | NR | 570 | 126775 | NR | 700 | 12177 | NR | 830 | 2249 | NR | 960 | 749 | NR |
| 445 | 179997 | NR | 575 | 127511 | NR | 705 | 10757 | NR | 835 | 2573 | NR | 965 | 2669 | NR |
| 450 | 142822 | NR | 580 | 127577 | NR | 710 | 9601 | NR | 840 | 2764 | NR | 970 | 3968 | NR |
| 455 | 90008 | NR | 585 | 126153 | NR | 715 | 8944 | NR | 845 | 3109 | NR | 975 | 3886 | NR |
| 460 | 60557 | NR | 590 | 123678 | NR | 720 | 7947 | NR | 850 | 2963 | NR | 980 | 2788 | NR |
| 465 | 43305 | NR | 595 | 119774 | NR | 725 | 7062 | NR | 855 | 2336 | NR | 985 | 3496 | NR |
| 470 | 31089 | NR | 600 | 115733 | NR | 730 | 6004 | NR | 860 | 2118 | NR | 990 | 2913 | NR |
| 475 | 26278 | NR | 605 | 109231 | NR | 735 | 5594 | NR | 865 | 3144 | NR | 995 | 4659 | NR |
| 480 | 27060 | NR | 610 | 102408 | NR | 740 | 5165 | NR | 870 | 3069 | NR | 1000 | 1308 | NR |
| 485 | 30698 | NR | 615 | 96015 | NR | 745 | 4687 | NR | 875 | 3311 | NR | | | |

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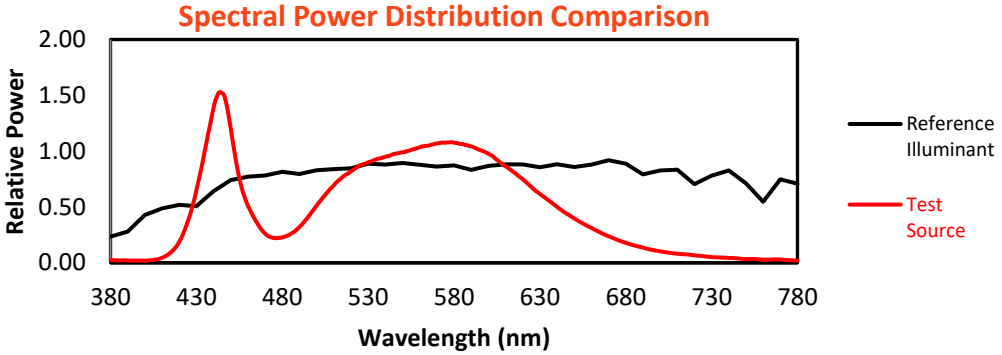
# TM-30-18

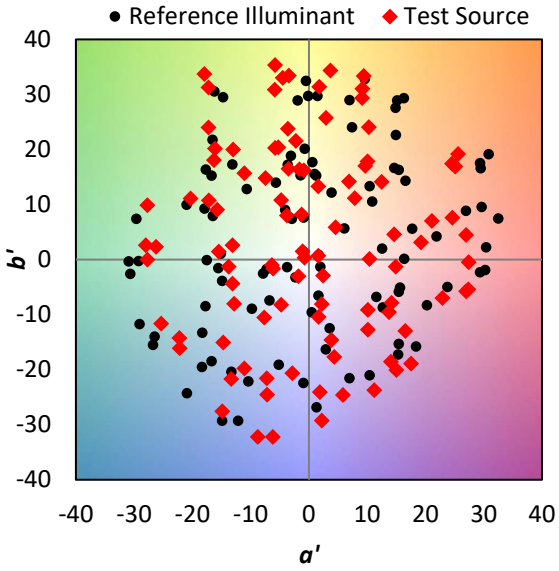
## Summary

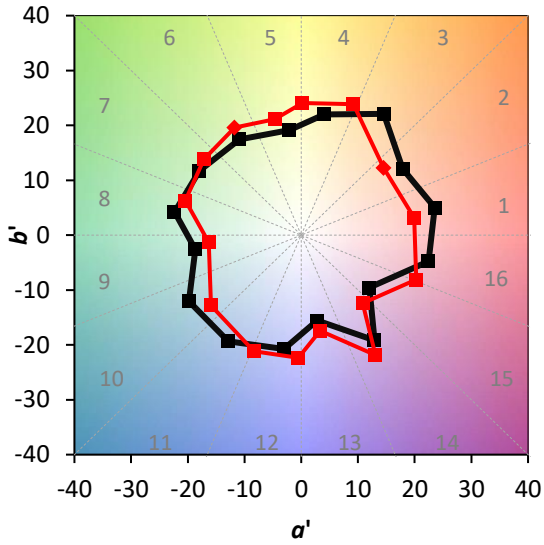
$R_f$ = 74.9
$R_g$ = 96.3
CIE $R_a$ = 73.5
$R_9$ = -28.4

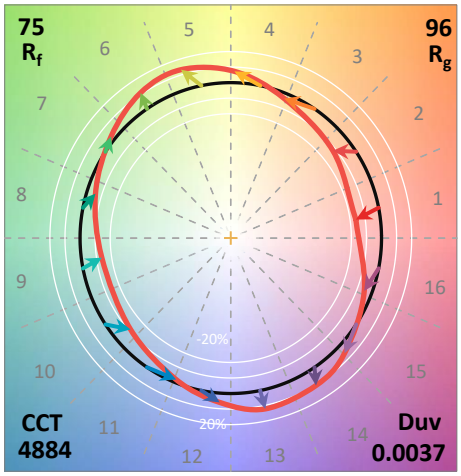
## Spectral Power Distribution Comparison

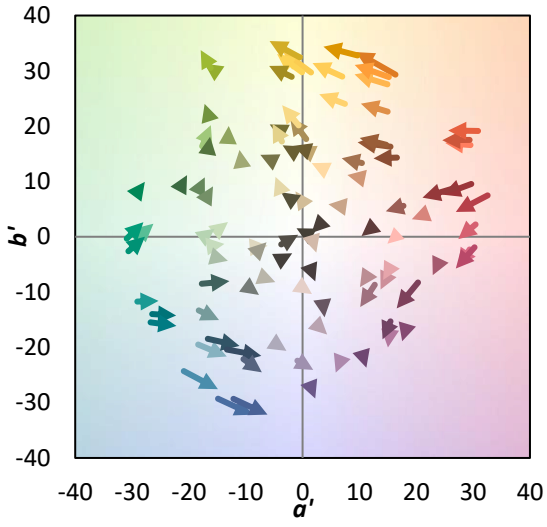



## Color Vector Graphics



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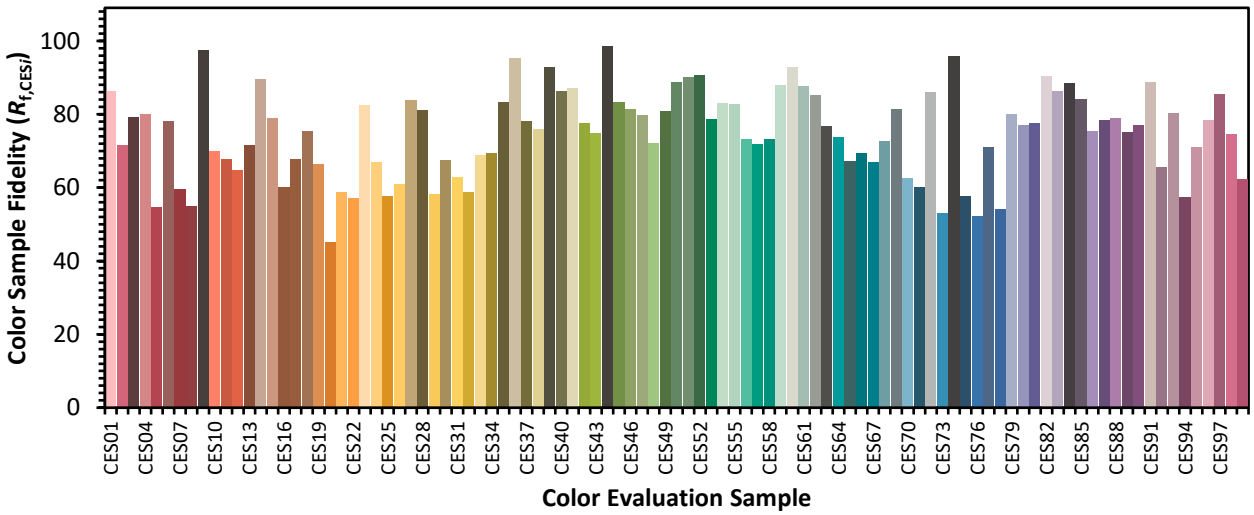
## Individual Sample Fidelity Index ($R_{f,i}$)

| | | | |
|---|---|---|---|
| CES01 = 85 | CES26 = 61 | CES51 = 90 | CES76 = 52 |
| CES02 = 60 | CES27 = 84 | CES52 = 91 | CES77 = 71 |
| CES03 = 30 | CES28 = 81 | CES53 = 79 | CES78 = 54 |
| CES04 = 69 | CES29 = 58 | CES54 = 83 | CES79 = 80 |
| CES05 = 46 | CES30 = 67 | CES55 = 83 | CES80 = 77 |
| CES06 = 50 | CES31 = 63 | CES56 = 73 | CES81 = 77 |
| CES07 = 39 | CES32 = 59 | CES57 = 72 | CES82 = 90 |
| CES08 = 38 | CES33 = 69 | CES58 = 73 | CES83 = 86 |
| CES09 = 29 | CES34 = 69 | CES59 = 88 | CES84 = 88 |
| CES10 = 73 | CES35 = 83 | CES60 = 93 | CES85 = 84 |
| CES11 = 56 | CES36 = 95 | CES61 = 88 | CES86 = 75 |
| CES12 = 61 | CES37 = 78 | CES62 = 85 | CES87 = 78 |
| CES13 = 41 | CES38 = 76 | CES63 = 77 | CES88 = 79 |
| CES14 = 74 | CES39 = 93 | CES64 = 74 | CES89 = 75 |
| CES15 = 70 | CES40 = 86 | CES65 = 67 | CES90 = 77 |
| CES16 = 46 | CES41 = 87 | CES66 = 69 | CES91 = 89 |
| CES17 = 49 | CES42 = 78 | CES67 = 67 | CES92 = 66 |
| CES18 = 55 | CES43 = 75 | CES68 = 73 | CES93 = 80 |
| CES19 = 71 | CES44 = 99 | CES69 = 81 | CES94 = 57 |
| CES20 = 64 | CES45 = 83 | CES70 = 63 | CES95 = 71 |
| CES21 = 85 | CES46 = 81 | CES71 = 60 | CES96 = 78 |
| CES22 = 77 | CES47 = 80 | CES72 = 86 | CES97 = 85 |
| CES23 = 91 | CES48 = 72 | CES73 = 53 | CES98 = 75 |
| CES24 = 90 | CES49 = 81 | CES74 = 96 | CES99 = 62 |
| CES25 = 71 | CES50 = 89 | CES75 = 58 | |



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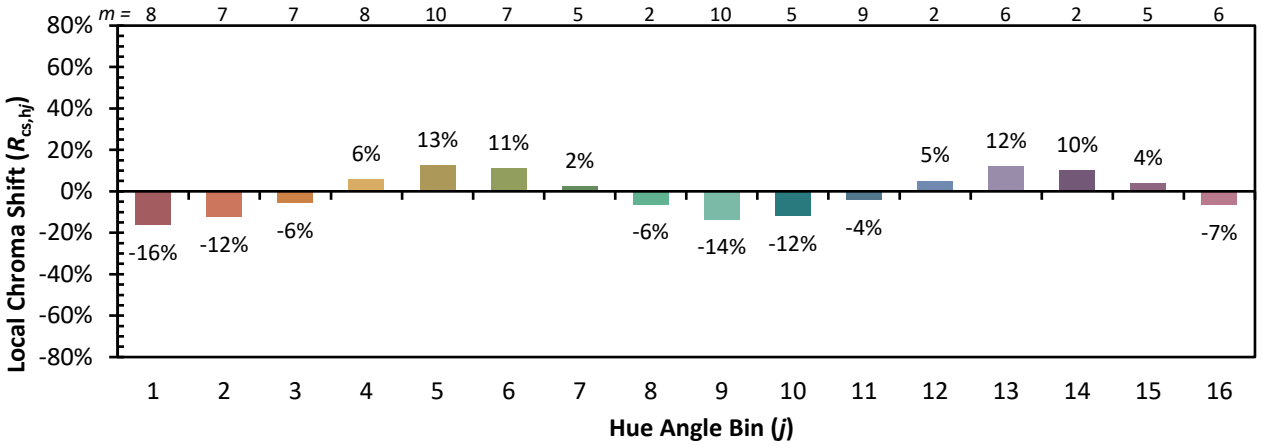
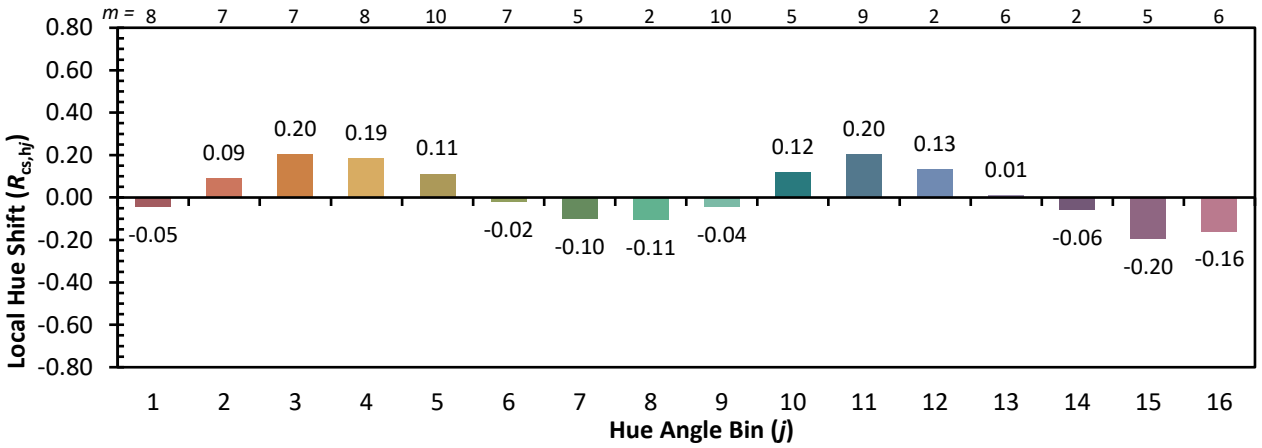
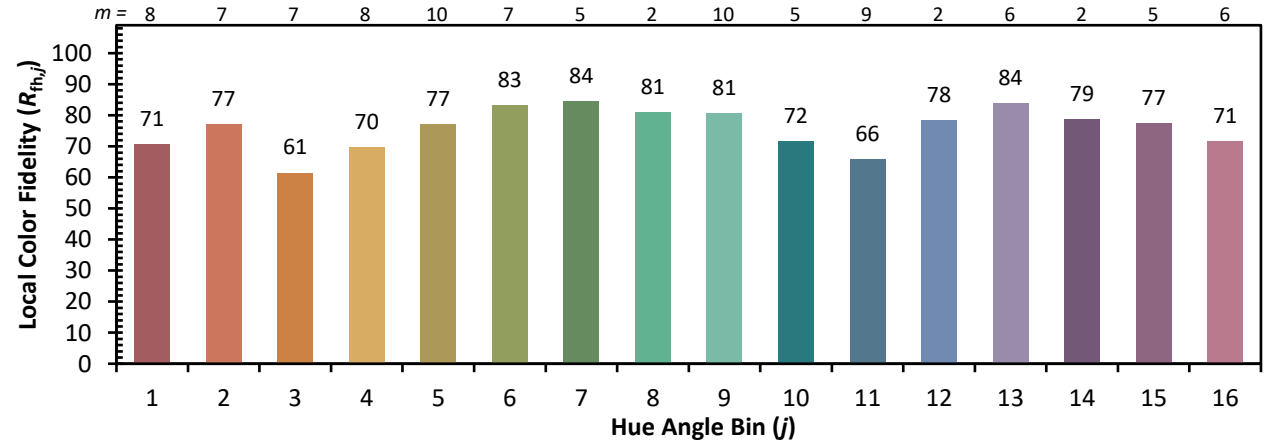
## Color Rendition by Hue-Angle Bin



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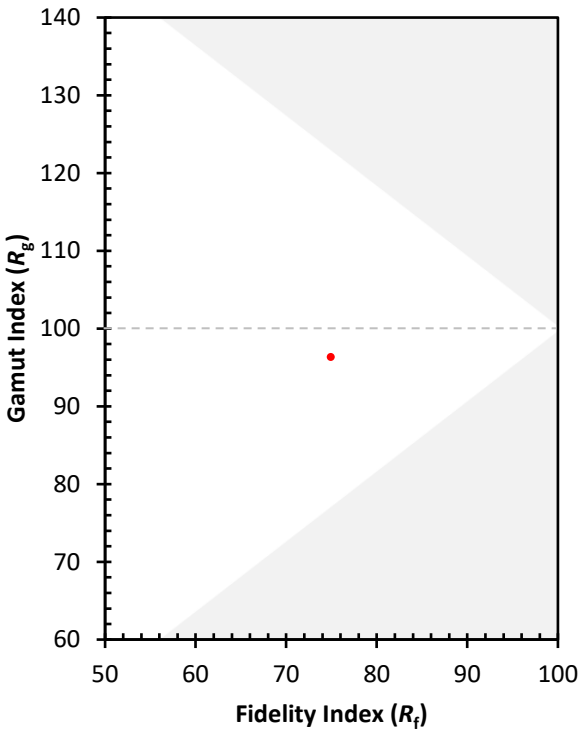
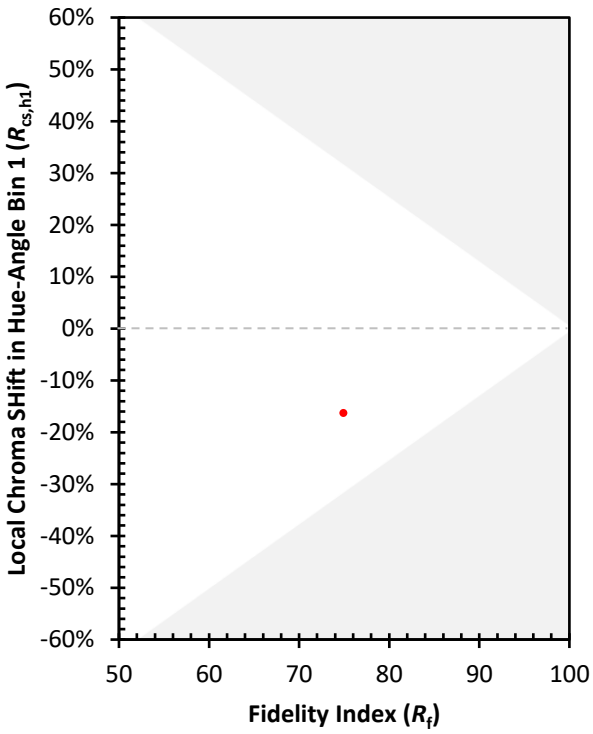
## TM-30-18

### Measure Comparisons




(END OF REPORT)