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

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Peachtree City, GA 30269

Scaled data based on original data using

LM-79-2024 Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: STREETWORKS

Report Number: P1458559

Luminaire Tested: GLAN-SB9A-930-U-T3LG-HSS

Issue Date: 05/20/2026

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

Scaled Data Report

**Test Information**

| | |
|---|---|
| Test Method: | LM-79-2024 |
| Report Number: | P1458559 |
| Test Lab: | INNOVATION CENTER(G1) |
| Issue Date: | 5/22/2026 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | STREETWORKS |
| Catalog Number: | GLAN-SB9A-930-U-T3LG-HSS |
| Description: | GALLEON II AREA AND ROADWAY HIGH DENSITY LUMINAIRE 350mA 9xLight Square PACKAGE 90CRI 3000K FIXTURE w/ TYPE III LOW GLARE WITH HOUSE SIDE SHIELD |
| Light Source: | (234) 3000K CCT, 90 CRI LEDS |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 21739.5 lumens |
| Efficiency: | N/A |
| Efficacy: | 85.1 lumens/watt |
| Luminous Opening: | Rectangular (W 1.5' x L: 1.5' x H: 0') |
| IES Classification: | Type III - Short |
| BUG Rating: | B2 - U0 - G3 |

| | |
|---|---|
| Input Watts (W): | 255.5 |
| Input Voltage (V): | 120 |
| Input Current (Ain): | NR |
| Voltage Rise (V): | NR |
| Power Factor: | 0.97 |
| Total Harmonic Distortion (THDi): | NR |
| Frequency (hertz): | 60 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 28.75 FT |

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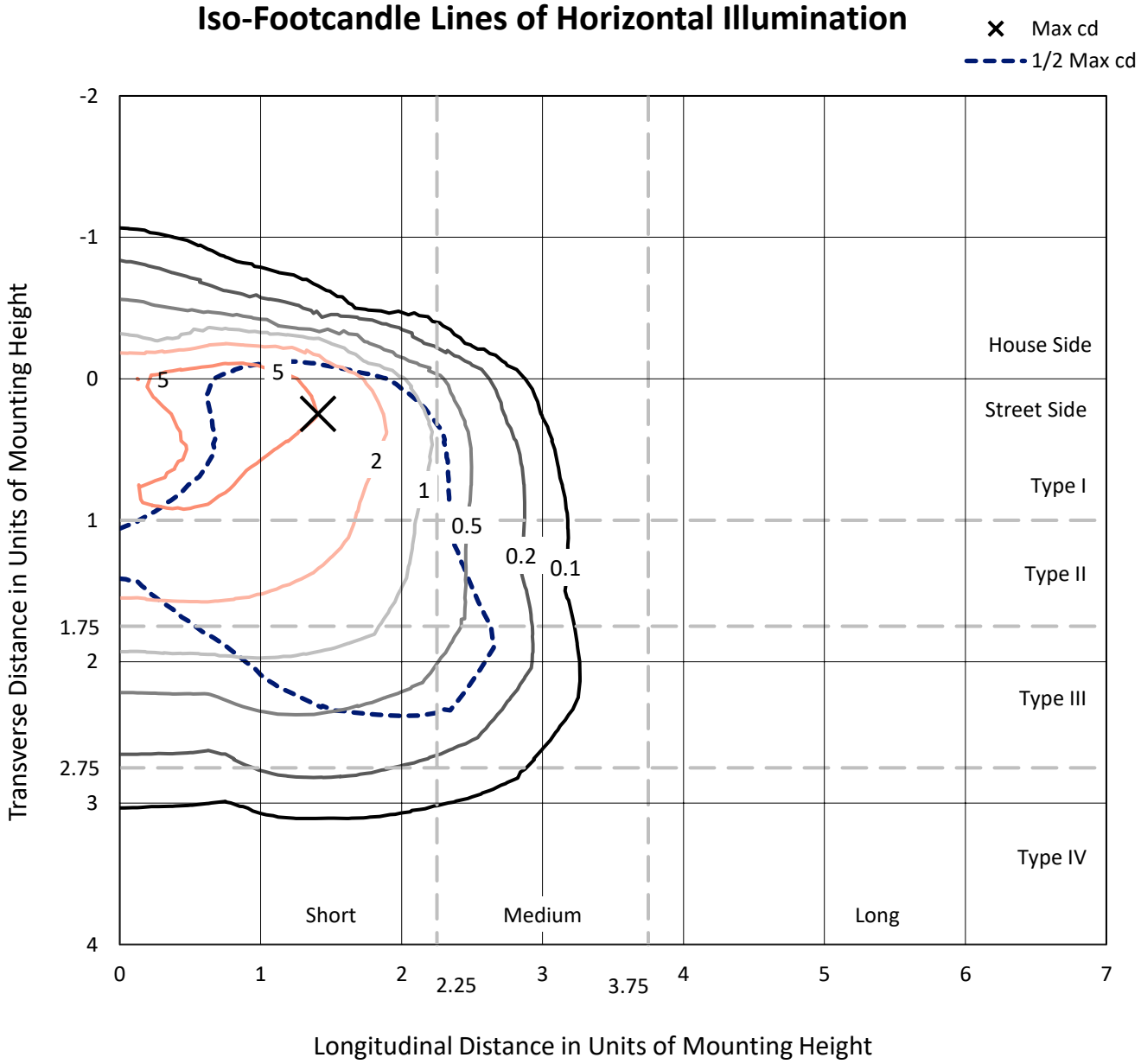
Scaled Data Report

REPORT NUMBER: P1458559
CATALOG NUMBER: GLAN-SB9A-930-U-T3LG-HSS

## Iso-Footcandle Lines of Horizontal Illumination




Based on 25 foot mounting height. Maximum calculated value = 8.6 fc
Type III - Short - N/A

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REPORT NUMBER: P1458559
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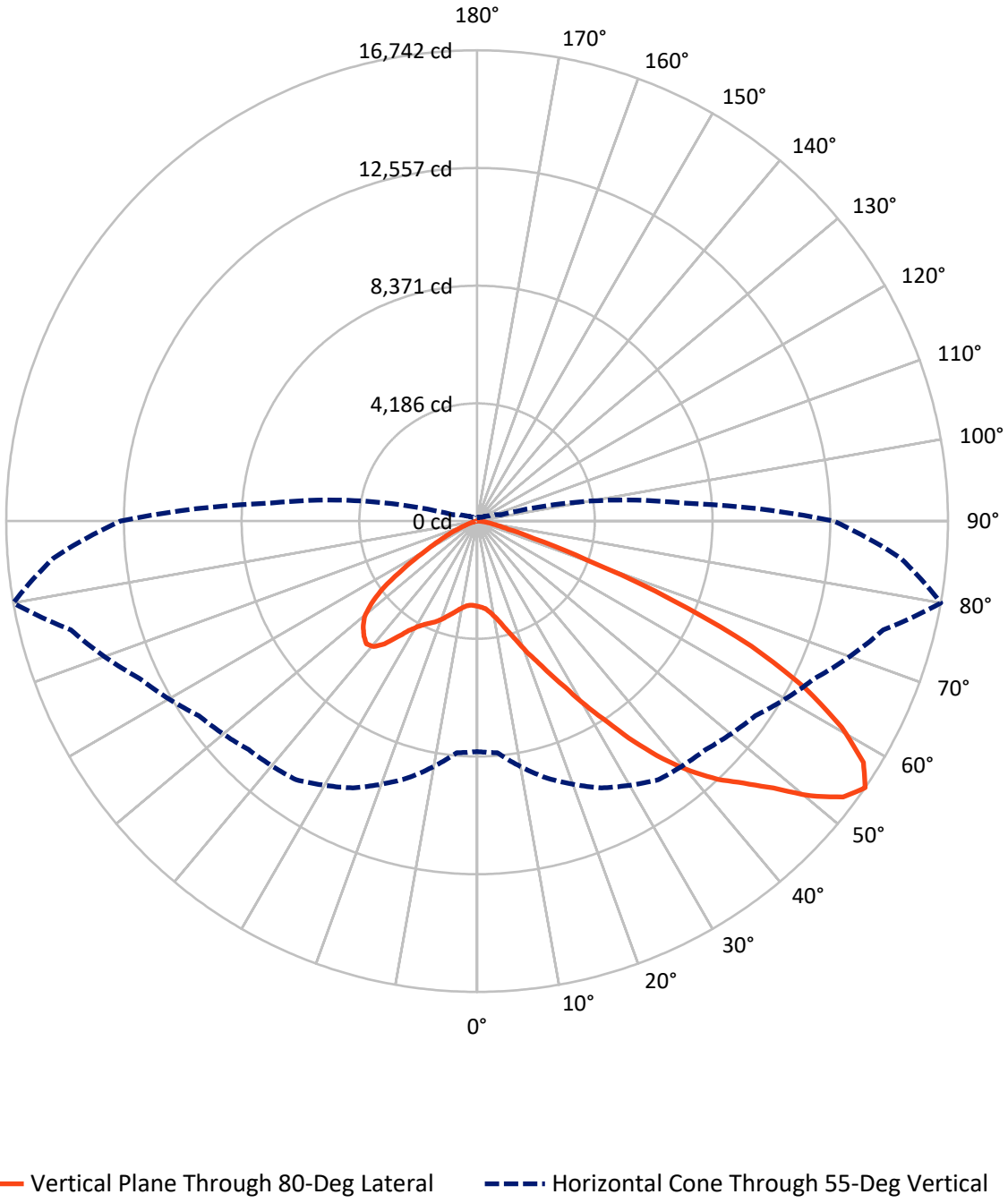
## Luminous Intensity Polar Plot



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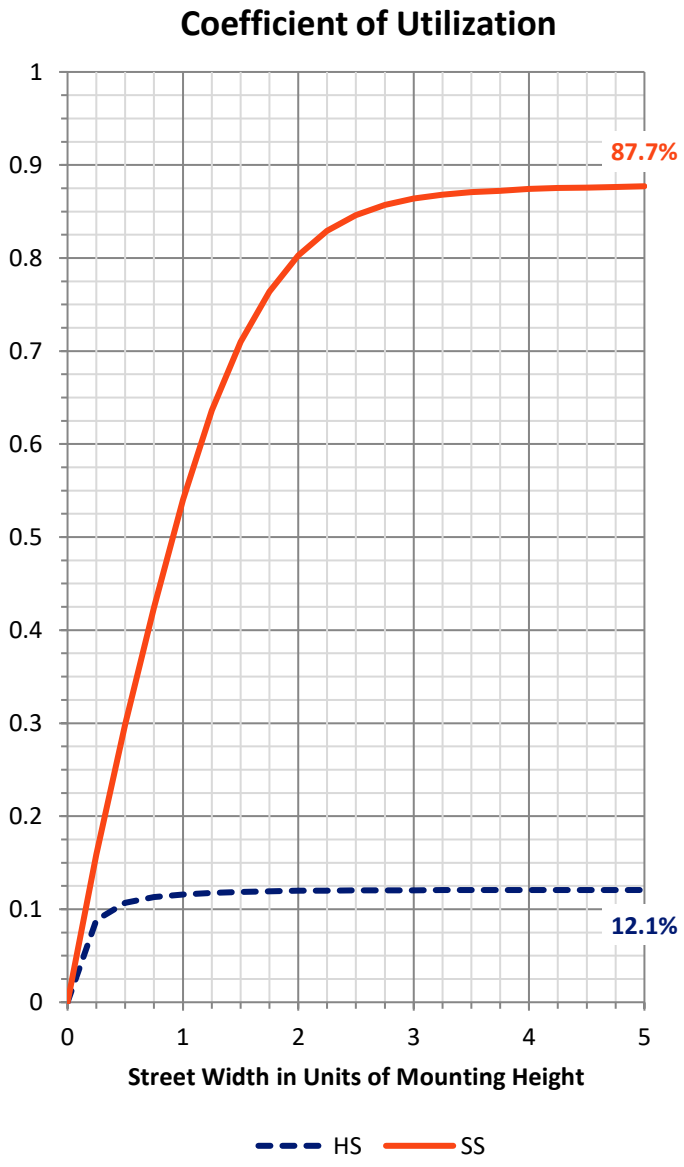
**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 2642.7 | 0.0 | 2642.7 |
| | % Fixture | 12.2 | 0.0 | 12.2 |
| **Street Side** | Lumens | 19096.8 | 0.0 | 19096.8 |
| | % Fixture | 87.8 | 0.0 | 87.8 |
| **Total** | Lumens | 21739.5 | 0.0 | 21739.5 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 254.1 | 1.2 |
| 10°-20° | 670.0 | 3.1 |
| 20°-30° | 1311.6 | 6.0 |
| 30°-40° | 2668.5 | 12.3 |
| 40°-50° | 4498.6 | 20.7 |
| 50°-60° | 5747.9 | 26.4 |
| 60°-70° | 4907.3 | 22.6 |
| 70°-80° | 1568.2 | 7.2 |
| 80°-90° | 113.2 | 0.5 |
| 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° | 21739.5 | 100.0 |
| 0°-180° | 21739.5 | 100.0 |



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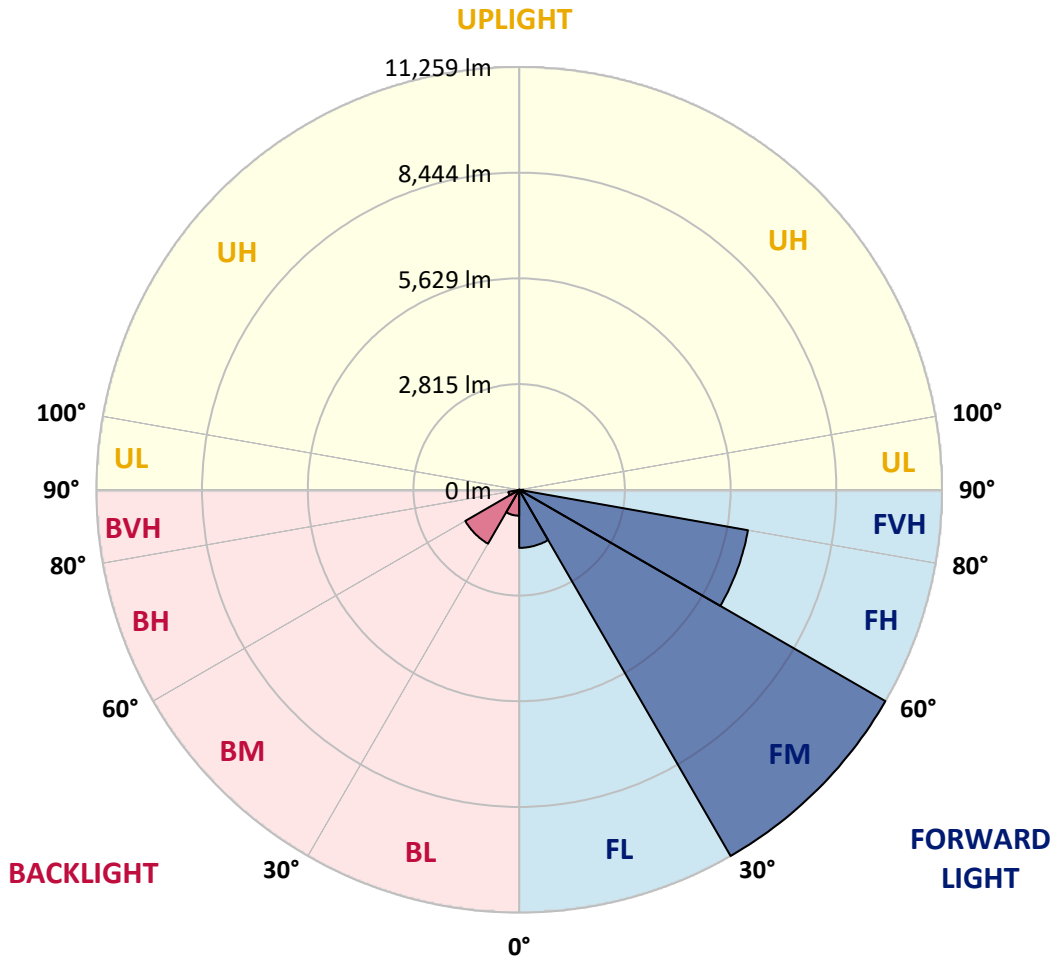
## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 1545.7 | 7.1 | | | |
| FM | (30°-60°) | 11258.7 | 51.8 | | | |
| FH | (60°-80°) | 6185.1 | 28.5 | | | G3/7500 |
| FVH | (80°-90°) | 107.3 | 0.5 | | | G2/225 |
| BL | (0°-30°) | 690.1 | 3.2 | B2/1000 | | |
| BM | (30°-60°) | 1656.2 | 7.6 | B2/2500 | | |
| BH | (60°-80°) | 290.5 | 1.3 | B1/500 | | G1/500 |
| BVH | (80°-90°) | 5.9 | 0.0 | | | 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 III Short



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**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 80° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 3028.3 | 3028.3 | 3028.3 | 3028.3 | 3028.3 | 3028.3 | 3028.3 | 3028.3 | 3028.3 | *3028.3* | 3028.3 |
| 2.5° | 3046.8 | 3053.0 | 3046.8 | 3053.0 | 3065.4 | 3059.2 | 3083.9 | 3077.7 | 3077.7 | *3071.5* | 3046.8 |
| 5° | 2873.8 | 2880.0 | 2892.3 | 2923.2 | 2966.5 | 3009.7 | 3065.4 | 3102.4 | 3139.5 | *3133.3* | 3108.6 |
| 7.5° | 2533.9 | 2546.2 | 2595.7 | 2657.5 | 2799.6 | 2929.4 | 3071.5 | 3164.2 | 3244.6 | *3269.3* | 3250.8 |
| 10° | 2342.3 | 2354.6 | 2385.5 | 2447.3 | 2577.1 | 2793.4 | 3071.5 | 3263.1 | 3405.3 | *3454.7* | 3460.9 |
| 12.5° | 2323.7 | 2329.9 | 2354.6 | 2422.6 | 2533.9 | 2719.3 | 3065.4 | 3392.9 | 3633.9 | *3708.1* | 3732.8 |
| 15° | 2336.1 | 2348.5 | 2373.2 | 2428.8 | 2558.6 | 2768.7 | 3114.8 | 3596.9 | 3936.8 | *4041.8* | 4048.0 |
| 17.5° | 2385.5 | 2397.9 | 2428.8 | 2490.6 | 2632.7 | 2898.5 | 3269.3 | 3807.0 | 4301.4 | *4418.8* | 4486.8 |
| 20° | 2484.4 | 2490.6 | 2527.7 | 2608.0 | 2768.7 | 3059.2 | 3498.0 | 4091.3 | 4740.2 | *4913.2* | 4962.7 |
| 22.5° | 2614.2 | 2632.7 | 2682.2 | 2781.1 | 2985.0 | 3281.7 | 3813.2 | 4437.4 | 5222.2 | *5401.5* | 5488.0 |
| 25° | 2756.3 | 2781.1 | 2855.2 | 3015.9 | 3275.5 | 3621.6 | 4202.5 | 4894.7 | 5790.8 | *6007.1* | 6124.5 |
| 27.5° | 3046.8 | 3053.0 | 3102.4 | 3306.4 | 3640.1 | 4066.5 | 4696.9 | 5481.8 | 6458.3 | *6711.6* | 6841.4 |
| 30° | 3683.4 | 3689.6 | 3646.3 | 3701.9 | 4041.8 | 4591.9 | 5277.9 | 6167.8 | 7237.0 | *7589.2* | 7694.3 |
| 32.5° | 4462.1 | 4493.0 | 4486.8 | 4449.7 | 4604.2 | 5117.2 | 5970.0 | 6989.8 | 8151.6 | *8522.4* | 8621.3 |
| 35° | 5345.8 | 5420.0 | 5401.5 | 5389.1 | 5407.6 | 5790.8 | 6761.1 | 7898.2 | 9189.9 | *9641.0* | 9721.4 |
| 37.5° | 6211.1 | 6229.6 | 6316.1 | 6421.2 | 6433.5 | 6699.3 | 7675.8 | 8862.3 | 10154.0 | *10728.7* | 10852.4 |
| 40° | 6878.5 | 6940.3 | 7156.6 | 7366.7 | 7583.1 | 7793.2 | 8429.7 | 9641.0 | 10920.3 | *11692.9* | 11748.5 |
| 42.5° | 7397.6 | 7546.0 | 7861.2 | 8188.7 | 8627.5 | 8862.3 | 9146.6 | 10191.1 | 11544.5 | *12551.9* | 12527.2 |
| 45° | 8028.0 | 8089.8 | 8534.8 | 8967.4 | 9412.4 | 9770.8 | 9764.6 | 10654.6 | 12032.8 | *13287.3* | 13132.8 |
| 47.5° | 8454.5 | 8528.6 | 9134.3 | 9641.0 | 10098.4 | 10277.6 | 10314.7 | 11155.2 | 12706.4 | *14177.3* | 13812.6 |
| 50° | 8683.1 | 8812.9 | 9474.2 | 10116.9 | 10611.3 | 10666.9 | 10833.8 | 11810.3 | 13590.2 | *15357.7* | 14671.7 |
| 52.5° | 8707.8 | 8831.4 | 9591.6 | 10419.7 | 10957.4 | 11068.7 | 11352.9 | 12551.9 | 14449.2 | *16303.2* | 15166.1 |
| 55° | *8194.9* | *8269.0* | *9449.5* | *10469.2* | *11229.3* | *11488.9* | *12069.8* | *13237.9* | *14949.8* | *16742.0* | *15122.8* |
| 57.5° | 7712.8 | 7787.0 | 8812.9 | 10382.7 | 11507.4 | 12038.9 | 12836.2 | 13707.6 | 14560.4 | *16198.2* | 14158.7 |
| 60° | 7298.8 | 7335.8 | 8269.0 | 9981.0 | 11612.5 | 12576.6 | 13497.5 | 13244.1 | 13553.1 | *14894.2* | 12508.6 |
| 62.5° | 6520.1 | 6544.8 | 7651.0 | 9257.9 | 11402.4 | 12990.7 | 13726.1 | 12261.4 | 12446.8 | *13095.7* | 10568.1 |
| 65° | 4925.6 | 5018.3 | 6031.8 | 8714.0 | 11056.3 | 13182.3 | 13194.6 | 11062.5 | 10870.9 | *10716.4* | 8312.3 |
| 67.5° | 3343.5 | 3448.5 | 4060.4 | 7836.4 | 10493.9 | 13262.6 | 12162.5 | 9511.3 | 8281.4 | *7484.2* | 5444.7 |
| 70° | 2669.8 | 2669.8 | 2880.0 | 6297.6 | 9159.0 | 12236.7 | 10883.3 | 7181.3 | 5259.3 | *4134.5* | 2917.0 |
| 72.5° | 1755.2 | 1761.3 | 1959.1 | 3998.6 | 6495.3 | 9332.0 | 8874.7 | 4153.1 | 2731.6 | *2107.4* | 1440.0 |
| 75° | 636.6 | 636.6 | 859.0 | 1600.7 | 3436.2 | 5556.0 | 5407.6 | 1983.8 | 1483.2 | *1149.5* | 871.4 |
| 77.5° | 339.9 | 352.3 | 414.1 | 661.3 | 1316.4 | 2261.9 | 2113.6 | 1013.5 | 840.5 | *716.9* | 543.9 |
| 80° | 228.7 | 234.8 | 278.1 | 407.9 | 636.6 | 871.4 | 679.8 | 568.6 | 568.6 | *482.1* | 364.6 |
| 82.5° | 123.6 | 129.8 | 185.4 | 265.7 | 339.9 | 407.9 | 327.5 | 333.7 | 401.7 | *327.5* | 210.1 |
| 85° | 86.5 | 86.5 | 142.1 | 191.6 | 191.6 | 197.8 | 142.1 | 210.1 | 234.8 | *203.9* | 142.1 |
| 87.5° | 49.4 | 49.4 | 80.3 | 92.7 | 92.7 | 86.5 | 43.3 | 74.2 | 92.7 | *105.1* | 61.8 |
| 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: P1458559
CATALOG NUMBER: GLAN-SB9A-930-U-T3LG-HSS

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 3028.3 | 3028.3 | 3028.3 | 3028.3 | 3028.3 | 3028.3 | 3028.3 | 3028.3 | 3028.3 | 3028.3 | 3028.3 |
| 2.5° | 3040.6 | 3022.1 | 2985.0 | 2910.9 | 2873.8 | 2824.3 | 2781.1 | 2725.4 | 2713.1 | 2706.9 | 2682.2 |
| 5° | 3090.1 | 3053.0 | 2941.8 | 2781.1 | 2645.1 | 2515.3 | 2385.5 | 2311.4 | 2249.6 | 2218.7 | 2212.5 |
| 7.5° | 3213.7 | 3139.5 | 2935.6 | 2651.3 | 2397.9 | 2175.4 | 1983.8 | 1817.0 | 1730.4 | 1656.3 | 1662.5 |
| 10° | 3399.1 | 3281.7 | 2947.9 | 2527.7 | 2150.7 | 1792.2 | 1514.1 | 1273.1 | 1100.1 | 1019.7 | 1013.5 |
| 12.5° | 3646.3 | 3479.4 | 2991.2 | 2404.1 | 1847.9 | 1347.3 | 995.0 | 852.9 | 815.8 | 809.6 | 803.4 |
| 15° | 3949.1 | 3714.3 | 3034.5 | 2243.4 | 1440.0 | 933.2 | 809.6 | 778.7 | 772.5 | 766.3 | 766.3 |
| 17.5° | 4313.7 | 3986.2 | 3059.2 | 1971.5 | 1050.6 | 803.4 | 760.2 | 741.6 | 735.4 | 729.3 | 729.3 |
| 20° | 4771.1 | 4289.0 | 3090.1 | 1625.4 | 889.9 | 772.5 | 723.1 | 698.4 | 692.2 | 692.2 | 686.0 |
| 22.5° | 5222.2 | 4628.9 | 3065.4 | 1322.6 | 859.0 | 735.4 | 679.8 | 655.1 | 642.7 | 642.7 | 636.6 |
| 25° | 5741.4 | 4975.0 | 2991.2 | 1192.8 | 852.9 | 704.5 | 636.6 | 599.5 | 580.9 | 574.8 | 574.8 |
| 27.5° | 6334.7 | 5370.6 | 2873.8 | 1199.0 | 852.9 | 679.8 | 580.9 | 531.5 | 519.1 | 506.8 | 506.8 |
| 30° | 7014.5 | 5852.6 | 2787.2 | 1279.3 | 865.2 | 655.1 | 531.5 | 469.7 | 451.2 | 438.8 | 445.0 |
| 32.5° | 7793.2 | 6390.3 | 2781.1 | 1409.1 | 883.8 | 618.0 | 475.9 | 407.9 | 389.3 | 383.2 | 389.3 |
| 35° | 8676.9 | 7057.7 | 2923.2 | 1508.0 | 834.3 | 537.7 | 407.9 | 352.3 | 333.7 | 333.7 | 339.9 |
| 37.5° | 9659.6 | 7824.1 | 3114.8 | 1483.2 | 673.6 | 426.4 | 352.3 | 309.0 | 290.5 | 296.6 | 302.8 |
| 40° | 10555.7 | 8423.6 | 3145.7 | 1266.9 | 506.8 | 364.6 | 302.8 | 271.9 | 259.6 | 265.7 | 271.9 |
| 42.5° | 11235.5 | 8905.6 | 2849.1 | 982.6 | 426.4 | 309.0 | 259.6 | 234.8 | 228.7 | 241.0 | 241.0 |
| 45° | 11785.6 | 9097.2 | 2379.4 | 729.3 | 377.0 | 265.7 | 228.7 | 216.3 | 203.9 | 210.1 | 210.1 |
| 47.5° | 12360.3 | 9128.1 | 1940.6 | 587.1 | 333.7 | 241.0 | 210.1 | 197.8 | 185.4 | 185.4 | 185.4 |
| 50° | 12916.5 | 9053.9 | 1483.2 | 519.1 | 309.0 | 216.3 | 191.6 | 179.2 | 166.9 | 160.7 | 160.7 |
| 52.5° | 13052.5 | 8460.6 | 1087.7 | 482.1 | 284.3 | 203.9 | 179.2 | 166.9 | 154.5 | 148.3 | 148.3 |
| 55° | *12675.5* | *7335.8* | *852.9* | *432.6* | *259.6* | *185.4* | *166.9* | *154.5* | *136.0* | *129.8* | *129.8* |
| 57.5° | 11433.3 | 5593.0 | 679.8 | 370.8 | 234.8 | 179.2 | 154.5 | 142.1 | 123.6 | 117.4 | 117.4 |
| 60° | 9820.3 | 3967.7 | 550.0 | 302.8 | 216.3 | 160.7 | 142.1 | 123.6 | 111.2 | 98.9 | 98.9 |
| 62.5° | 8034.2 | 2849.1 | 445.0 | 253.4 | 203.9 | 142.1 | 129.8 | 111.2 | 86.5 | 68.0 | 68.0 |
| 65° | 6161.6 | 2045.6 | 346.1 | 203.9 | 185.4 | 123.6 | 111.2 | 92.7 | 68.0 | 49.4 | 49.4 |
| 67.5° | 3986.2 | 1322.6 | 259.6 | 179.2 | 142.1 | 105.1 | 86.5 | 74.2 | 61.8 | 43.3 | 37.1 |
| 70° | 2101.3 | 772.5 | 191.6 | 154.5 | 105.1 | 80.3 | 74.2 | 61.8 | 49.4 | 30.9 | 30.9 |
| 72.5° | 1087.7 | 506.8 | 142.1 | 136.0 | 80.3 | 55.6 | 61.8 | 49.4 | 37.1 | 18.5 | 18.5 |
| 75° | 698.4 | 339.9 | 105.1 | 111.2 | 49.4 | 43.3 | 43.3 | 30.9 | 18.5 | 12.4 | 6.2 |
| 77.5° | 451.2 | 228.7 | 74.2 | 92.7 | 30.9 | 24.7 | 24.7 | 12.4 | 6.2 | 0.0 | 0.0 |
| 80° | 265.7 | 142.1 | 49.4 | 61.8 | 12.4 | 12.4 | 6.2 | 0.0 | 0.0 | 0.0 | 0.0 |
| 82.5° | 136.0 | 74.2 | 24.7 | 24.7 | 6.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 86.5 | 37.1 | 6.2 | 6.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 43.3 | 12.4 | 6.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 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-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-14

Test Date: 10/11/2024

Luminaire Tested: GSS-SB1A-930-U-5WQ

Data in this report applies to families of products including GSS-SB1A-930-U-5WQ

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

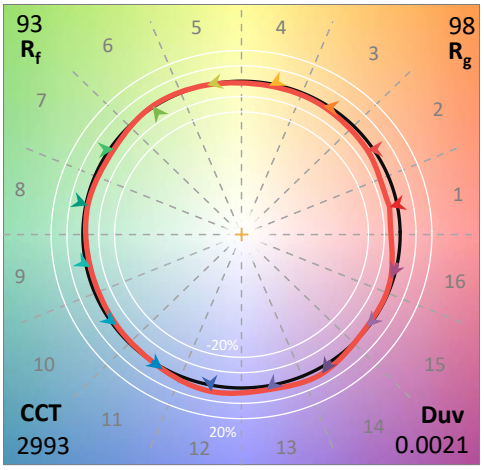
## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP1-2407-184-14 |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Photometer: | SP1 - 76IN SPHERE |
| Measurement Geometry: | 4π |
| Issue Date: | 10/15/2024 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | McGraw-Edison |
| Catalog Number: | **GSS-SB1A-930-U-5WQ** |
| Description: | GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 90 CRI 3000K CCT 26 LEDS |

## Spectral Parameters

| | |
|---|---|
| CCT (K): | 2993 |
| CIE u': | 0.2501 |
| CIE v': | 0.5245 |
| Duv: | 0.0021 |
| CIE x: | 0.4406 |
| CIE y: | 0.4107 |
| CIE z: | 0.1487 |
| Peak Wavelength (nm): | 621 |
| Dominant Wavelength (nm): | 582 |
| Purity: | 55.53327 |
| Rf: | 92.6 |
| Rg: | 98.5 |

| | |
|---|---|
| CRI (Ra): | 92.4 |
| R1: | 92.2 |
| R2: | 95.2 |
| R3: | 97.0 |
| R4: | 93.1 |
| R5: | 91.7 |
| R6: | 94.2 |
| R7: | 93.3 |
| R8: | 82.3 |
| R9: | 58.2 |
| R10: | 87.7 |
| R11: | 93.5 |
| R12: | 81.7 |
| R13: | 92.9 |
| R14: | 97.6 |
| R15: | 88.1 |




## Test Conditions

| | |
|---|---|
| Stabilization Time: | 20M |
| Operation Time: | 1H 20M |
| Sphere Temperature (°C): | 25.2 |

REPORT NUMBER: SP1-2407-184-14

| 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 |

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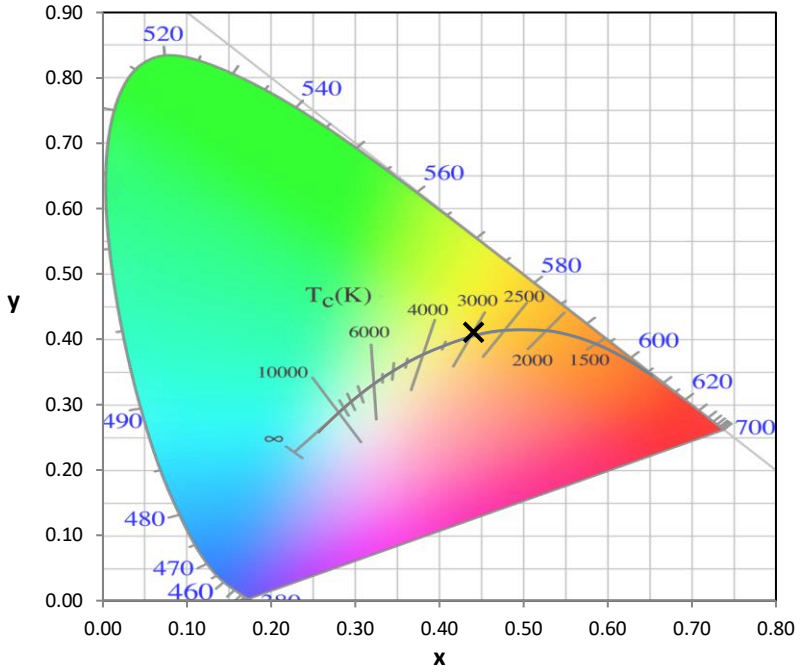
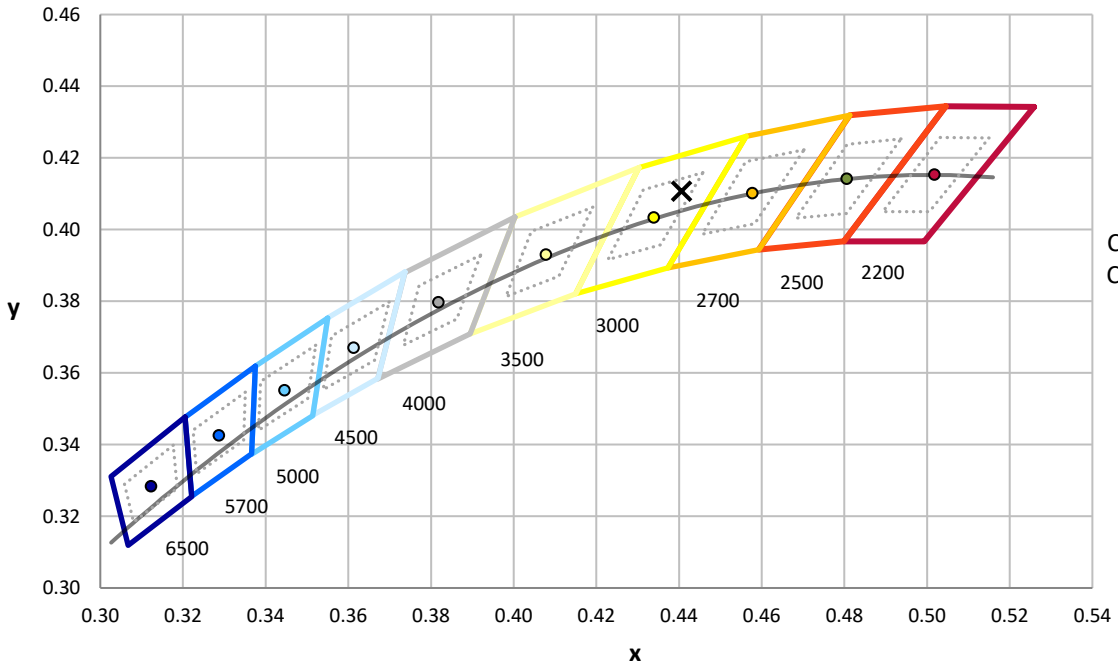
## CIE 1931 Chromaticity Diagram




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




CCT = 2993K
CIE x = 0.4406
CIE y = 0.4107
Duv = 0.0021

Point lies inside the ANSI 3000K 4-step quadrangle

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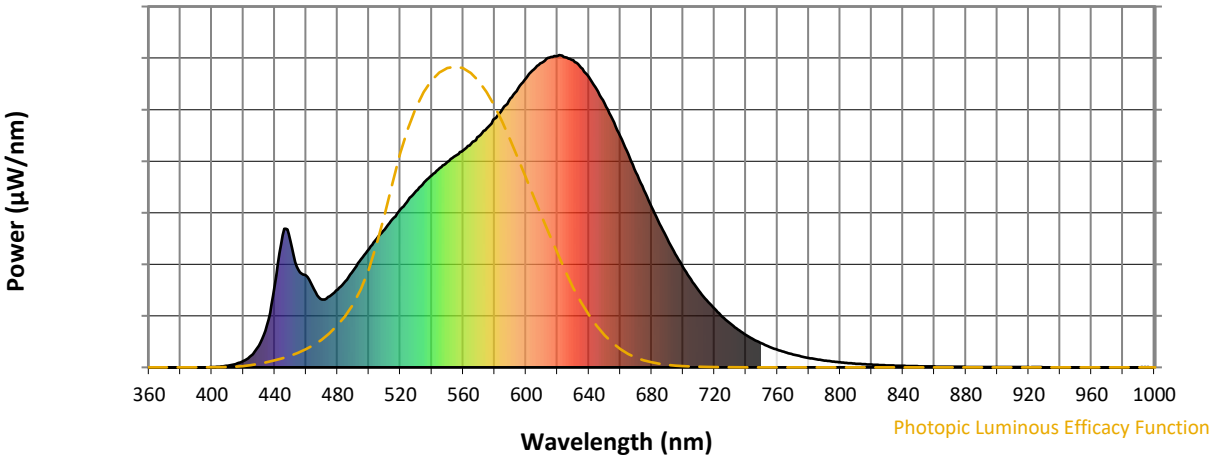
## Photopic Flux vs. Wavelength




## Photopic Lumens: NR

| λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 0 | NR | 490 | 310 | NR | 620 | 998 | NR | 750 | 77 | NR | 880 | 2 | NR |
| 365 | 0 | NR | 495 | 347 | NR | 625 | 993 | NR | 755 | 66 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 379 | NR | 630 | 983 | NR | 760 | 56 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 412 | NR | 635 | 960 | NR | 765 | 48 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 442 | NR | 640 | 930 | NR | 770 | 41 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 475 | NR | 645 | 889 | NR | 775 | 35 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 506 | NR | 650 | 846 | NR | 780 | 30 | NR | 910 | 1 | NR |
| 395 | 0 | NR | 525 | 535 | NR | 655 | 794 | NR | 785 | 26 | NR | 915 | 1 | NR |
| 400 | 1 | NR | 530 | 565 | NR | 660 | 740 | NR | 790 | 22 | NR | 920 | 1 | NR |
| 405 | 2 | NR | 535 | 592 | NR | 665 | 684 | NR | 795 | 19 | NR | 925 | 1 | NR |
| 410 | 6 | NR | 540 | 615 | NR | 670 | 624 | NR | 800 | 16 | NR | 930 | 0 | NR |
| 415 | 10 | NR | 545 | 638 | NR | 675 | 567 | NR | 805 | 14 | NR | 935 | 0 | NR |
| 420 | 20 | NR | 550 | 658 | NR | 680 | 513 | NR | 810 | 12 | NR | 940 | 0 | NR |
| 425 | 38 | NR | 555 | 678 | NR | 685 | 459 | NR | 815 | 10 | NR | 945 | 0 | NR |
| 430 | 70 | NR | 560 | 695 | NR | 690 | 412 | NR | 820 | 9 | NR | 950 | 0 | NR |
| 435 | 136 | NR | 565 | 716 | NR | 695 | 363 | NR | 825 | 8 | NR | 955 | 0 | NR |
| 440 | 262 | NR | 570 | 740 | NR | 700 | 320 | NR | 830 | 7 | NR | 960 | 0 | NR |
| 445 | 424 | NR | 575 | 765 | NR | 705 | 281 | NR | 835 | 6 | NR | 965 | 0 | NR |
| 450 | 406 | NR | 580 | 796 | NR | 710 | 245 | NR | 840 | 5 | NR | 970 | 0 | NR |
| 455 | 313 | NR | 585 | 827 | NR | 715 | 215 | NR | 845 | 4 | NR | 975 | 0 | NR |
| 460 | 294 | NR | 590 | 861 | NR | 720 | 188 | NR | 850 | 4 | NR | 980 | 0 | NR |
| 465 | 250 | NR | 595 | 894 | NR | 725 | 162 | NR | 855 | 3 | NR | 985 | 0 | NR |
| 470 | 217 | NR | 600 | 927 | NR | 730 | 140 | NR | 860 | 3 | NR | 990 | 0 | NR |
| 475 | 228 | NR | 605 | 954 | NR | 735 | 121 | NR | 865 | 2 | NR | 995 | 0 | NR |
| 480 | 249 | NR | 610 | 976 | NR | 740 | 104 | NR | 870 | 2 | NR | 1000 | 0 | NR |
| 485 | 276 | NR | 615 | 992 | NR | 745 | 89 | NR | 875 | 2 | NR | | | |

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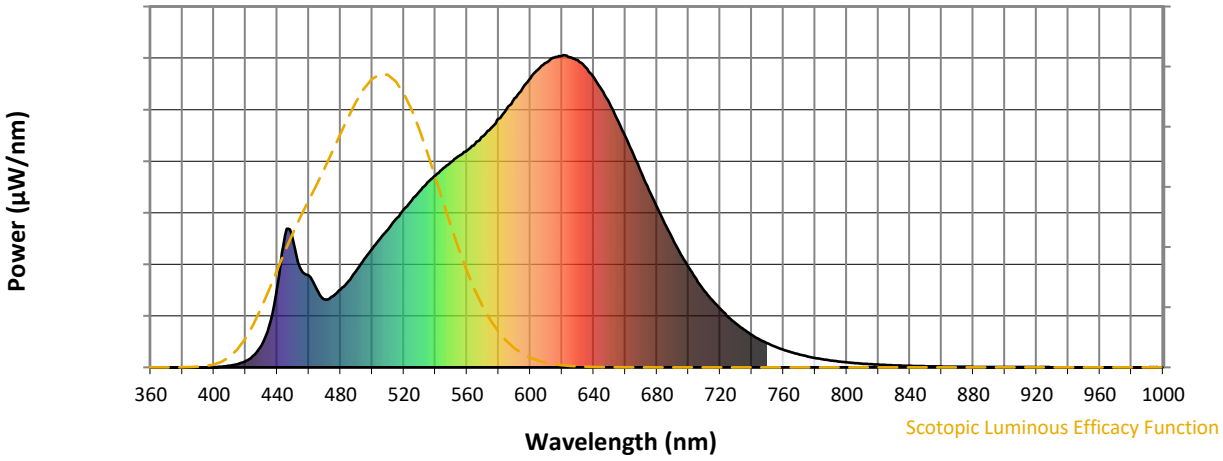
## Scotopic Flux vs. Wavelength




**Scotopic Lumens: NR** **S/P: 1.39**

| 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 | 310 | NR | 620 | 998 | NR | 750 | 77 | NR | 880 | 2 | NR |
| 365 | 0 | NR | 495 | 347 | NR | 625 | 993 | NR | 755 | 66 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 379 | NR | 630 | 983 | NR | 760 | 56 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 412 | NR | 635 | 960 | NR | 765 | 48 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 442 | NR | 640 | 930 | NR | 770 | 41 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 475 | NR | 645 | 889 | NR | 775 | 35 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 506 | NR | 650 | 846 | NR | 780 | 30 | NR | 910 | 1 | NR |
| 395 | 0 | NR | 525 | 535 | NR | 655 | 794 | NR | 785 | 26 | NR | 915 | 1 | NR |
| 400 | 1 | NR | 530 | 565 | NR | 660 | 740 | NR | 790 | 22 | NR | 920 | 1 | NR |
| 405 | 2 | NR | 535 | 592 | NR | 665 | 684 | NR | 795 | 19 | NR | 925 | 1 | NR |
| 410 | 6 | NR | 540 | 615 | NR | 670 | 624 | NR | 800 | 16 | NR | 930 | 0 | NR |
| 415 | 10 | NR | 545 | 638 | NR | 675 | 567 | NR | 805 | 14 | NR | 935 | 0 | NR |
| 420 | 20 | NR | 550 | 658 | NR | 680 | 513 | NR | 810 | 12 | NR | 940 | 0 | NR |
| 425 | 38 | NR | 555 | 678 | NR | 685 | 459 | NR | 815 | 10 | NR | 945 | 0 | NR |
| 430 | 70 | NR | 560 | 695 | NR | 690 | 412 | NR | 820 | 9 | NR | 950 | 0 | NR |
| 435 | 136 | NR | 565 | 716 | NR | 695 | 363 | NR | 825 | 8 | NR | 955 | 0 | NR |
| 440 | 262 | NR | 570 | 740 | NR | 700 | 320 | NR | 830 | 7 | NR | 960 | 0 | NR |
| 445 | 424 | NR | 575 | 765 | NR | 705 | 281 | NR | 835 | 6 | NR | 965 | 0 | NR |
| 450 | 406 | NR | 580 | 796 | NR | 710 | 245 | NR | 840 | 5 | NR | 970 | 0 | NR |
| 455 | 313 | NR | 585 | 827 | NR | 715 | 215 | NR | 845 | 4 | NR | 975 | 0 | NR |
| 460 | 294 | NR | 590 | 861 | NR | 720 | 188 | NR | 850 | 4 | NR | 980 | 0 | NR |
| 465 | 250 | NR | 595 | 894 | NR | 725 | 162 | NR | 855 | 3 | NR | 985 | 0 | NR |
| 470 | 217 | NR | 600 | 927 | NR | 730 | 140 | NR | 860 | 3 | NR | 990 | 0 | NR |
| 475 | 228 | NR | 605 | 954 | NR | 735 | 121 | NR | 865 | 2 | NR | 995 | 0 | NR |
| 480 | 249 | NR | 610 | 976 | NR | 740 | 104 | NR | 870 | 2 | NR | 1000 | 0 | NR |
| 485 | 276 | NR | 615 | 992 | NR | 745 | 89 | NR | 875 | 2 | NR | | | |

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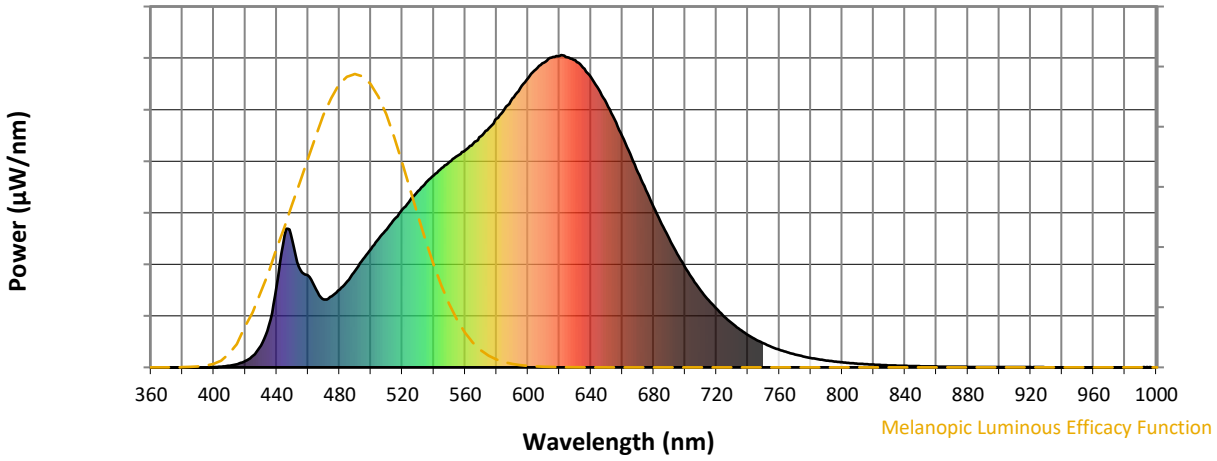
## Melanopic Flux vs. Wavelength




**Melanopic Lumens: NR** **M/P: 2.69**

| 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 | 310 | NR | 620 | 998 | NR | 750 | 77 | NR | 880 | 2 | NR |
| 365 | 0 | NR | 495 | 347 | NR | 625 | 993 | NR | 755 | 66 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 379 | NR | 630 | 983 | NR | 760 | 56 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 412 | NR | 635 | 960 | NR | 765 | 48 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 442 | NR | 640 | 930 | NR | 770 | 41 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 475 | NR | 645 | 889 | NR | 775 | 35 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 506 | NR | 650 | 846 | NR | 780 | 30 | NR | 910 | 1 | NR |
| 395 | 0 | NR | 525 | 535 | NR | 655 | 794 | NR | 785 | 26 | NR | 915 | 1 | NR |
| 400 | 1 | NR | 530 | 565 | NR | 660 | 740 | NR | 790 | 22 | NR | 920 | 1 | NR |
| 405 | 2 | NR | 535 | 592 | NR | 665 | 684 | NR | 795 | 19 | NR | 925 | 1 | NR |
| 410 | 6 | NR | 540 | 615 | NR | 670 | 624 | NR | 800 | 16 | NR | 930 | 0 | NR |
| 415 | 10 | NR | 545 | 638 | NR | 675 | 567 | NR | 805 | 14 | NR | 935 | 0 | NR |
| 420 | 20 | NR | 550 | 658 | NR | 680 | 513 | NR | 810 | 12 | NR | 940 | 0 | NR |
| 425 | 38 | NR | 555 | 678 | NR | 685 | 459 | NR | 815 | 10 | NR | 945 | 0 | NR |
| 430 | 70 | NR | 560 | 695 | NR | 690 | 412 | NR | 820 | 9 | NR | 950 | 0 | NR |
| 435 | 136 | NR | 565 | 716 | NR | 695 | 363 | NR | 825 | 8 | NR | 955 | 0 | NR |
| 440 | 262 | NR | 570 | 740 | NR | 700 | 320 | NR | 830 | 7 | NR | 960 | 0 | NR |
| 445 | 424 | NR | 575 | 765 | NR | 705 | 281 | NR | 835 | 6 | NR | 965 | 0 | NR |
| 450 | 406 | NR | 580 | 796 | NR | 710 | 245 | NR | 840 | 5 | NR | 970 | 0 | NR |
| 455 | 313 | NR | 585 | 827 | NR | 715 | 215 | NR | 845 | 4 | NR | 975 | 0 | NR |
| 460 | 294 | NR | 590 | 861 | NR | 720 | 188 | NR | 850 | 4 | NR | 980 | 0 | NR |
| 465 | 250 | NR | 595 | 894 | NR | 725 | 162 | NR | 855 | 3 | NR | 985 | 0 | NR |
| 470 | 217 | NR | 600 | 927 | NR | 730 | 140 | NR | 860 | 3 | NR | 990 | 0 | NR |
| 475 | 228 | NR | 605 | 954 | NR | 735 | 121 | NR | 865 | 2 | NR | 995 | 0 | NR |
| 480 | 249 | NR | 610 | 976 | NR | 740 | 104 | NR | 870 | 2 | NR | 1000 | 0 | NR |
| 485 | 276 | NR | 615 | 992 | NR | 745 | 89 | NR | 875 | 2 | NR | | | |

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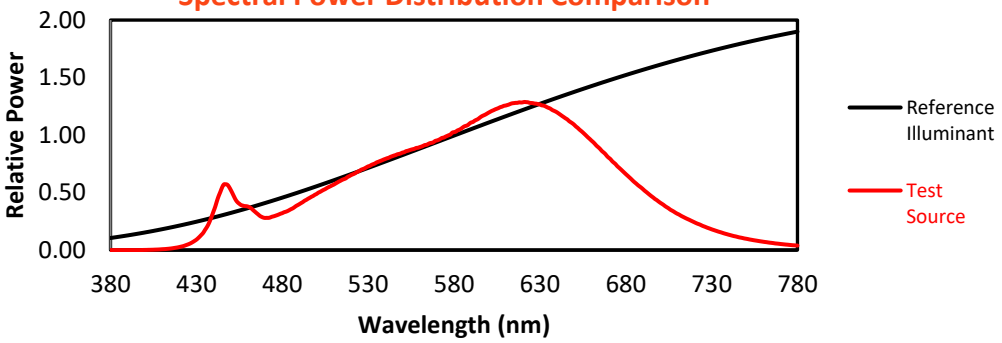
# TM-30-18

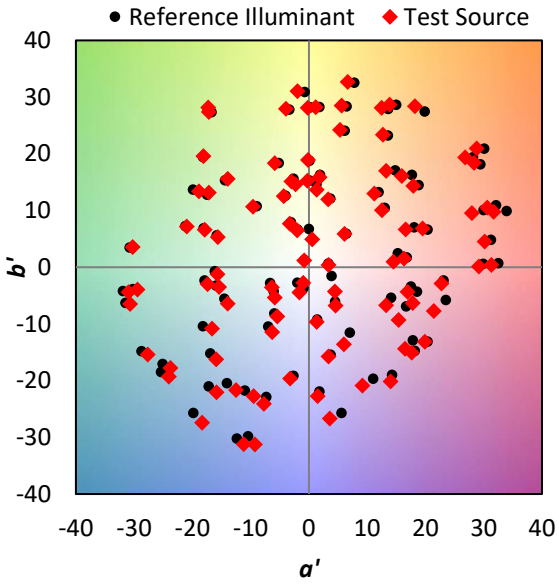
## Summary

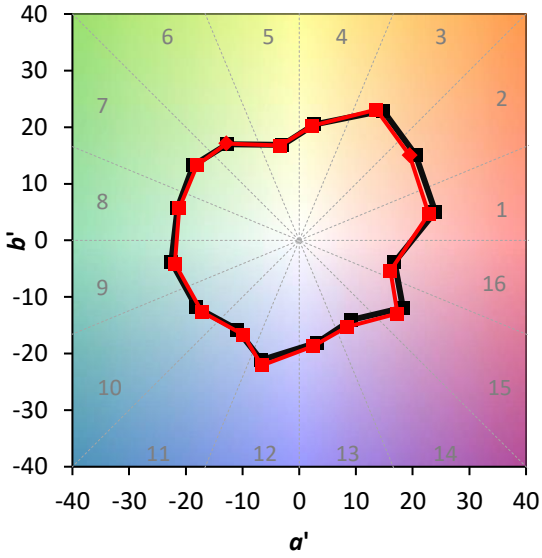
$R_f$ = 92.6
$R_g$ = 98.5
CIE $R_a$ = 92.4
$R_9$ = 58.2

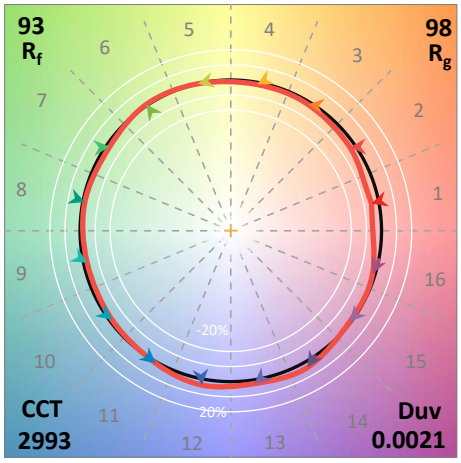
## Spectral Power Distribution Comparison

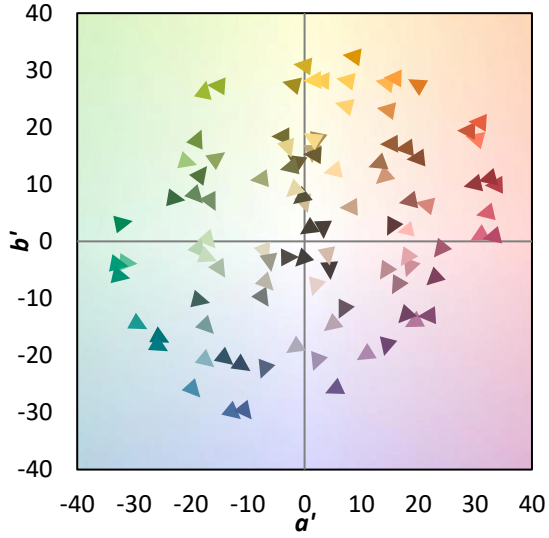



## Color Vector Graphics



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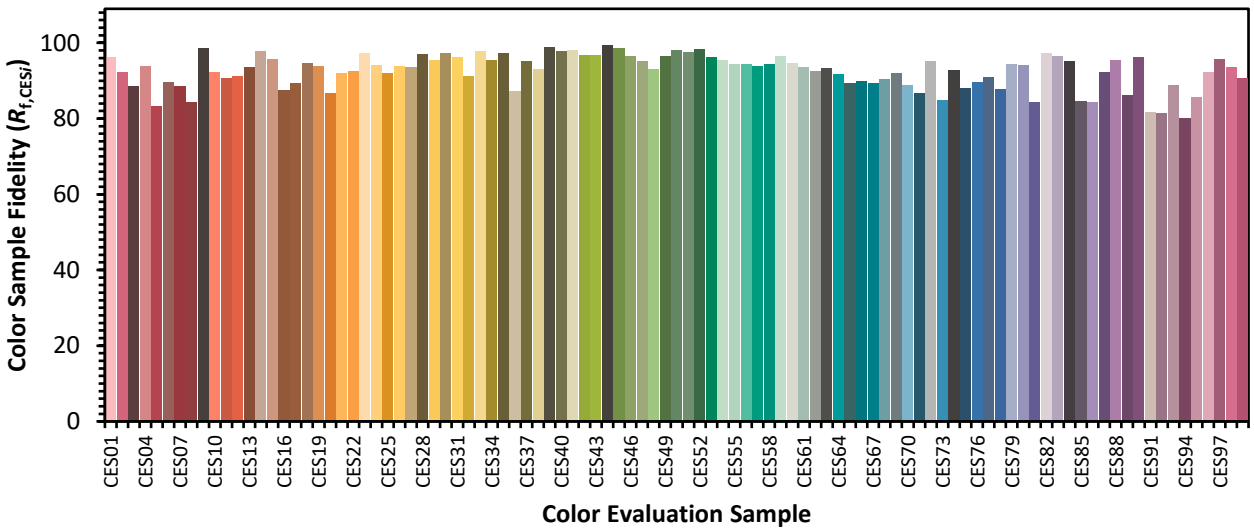
# TM-30-18

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

| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 94 | CES51 = 98 | CES76 = 90 |
| CES02 = 63 | CES27 = 94 | CES52 = 98 | CES77 = 91 |
| CES03 = 32 | CES28 = 97 | CES53 = 96 | CES78 = 88 |
| CES04 = 70 | CES29 = 95 | CES54 = 95 | CES79 = 94 |
| CES05 = 51 | CES30 = 97 | CES55 = 94 | CES80 = 94 |
| CES06 = 51 | CES31 = 96 | CES56 = 94 | CES81 = 84 |
| CES07 = 43 | CES32 = 91 | CES57 = 94 | CES82 = 97 |
| CES08 = 42 | CES33 = 98 | CES58 = 94 | CES83 = 97 |
| CES09 = 29 | CES34 = 96 | CES59 = 97 | CES84 = 95 |
| CES10 = 76 | CES35 = 97 | CES60 = 95 | CES85 = 85 |
| CES11 = 59 | CES36 = 87 | CES61 = 94 | CES86 = 84 |
| CES12 = 65 | CES37 = 95 | CES62 = 92 | CES87 = 92 |
| CES13 = 44 | CES38 = 93 | CES63 = 93 | CES88 = 95 |
| CES14 = 74 | CES39 = 99 | CES64 = 92 | CES89 = 86 |
| CES15 = 72 | CES40 = 98 | CES65 = 89 | CES90 = 96 |
| CES16 = 48 | CES41 = 98 | CES66 = 90 | CES91 = 82 |
| CES17 = 50 | CES42 = 97 | CES67 = 89 | CES92 = 81 |
| CES18 = 57 | CES43 = 97 | CES68 = 90 | CES93 = 89 |
| CES19 = 72 | CES44 = 99 | CES69 = 92 | CES94 = 80 |
| CES20 = 67 | CES45 = 99 | CES70 = 89 | CES95 = 86 |
| CES21 = 86 | CES46 = 96 | CES71 = 87 | CES96 = 92 |
| CES22 = 79 | CES47 = 95 | CES72 = 95 | CES97 = 96 |
| CES23 = 92 | CES48 = 93 | CES73 = 85 | CES98 = 94 |
| CES24 = 91 | CES49 = 97 | CES74 = 93 | CES99 = 91 |
| CES25 = 72 | CES50 = 98 | CES75 = 88 | |



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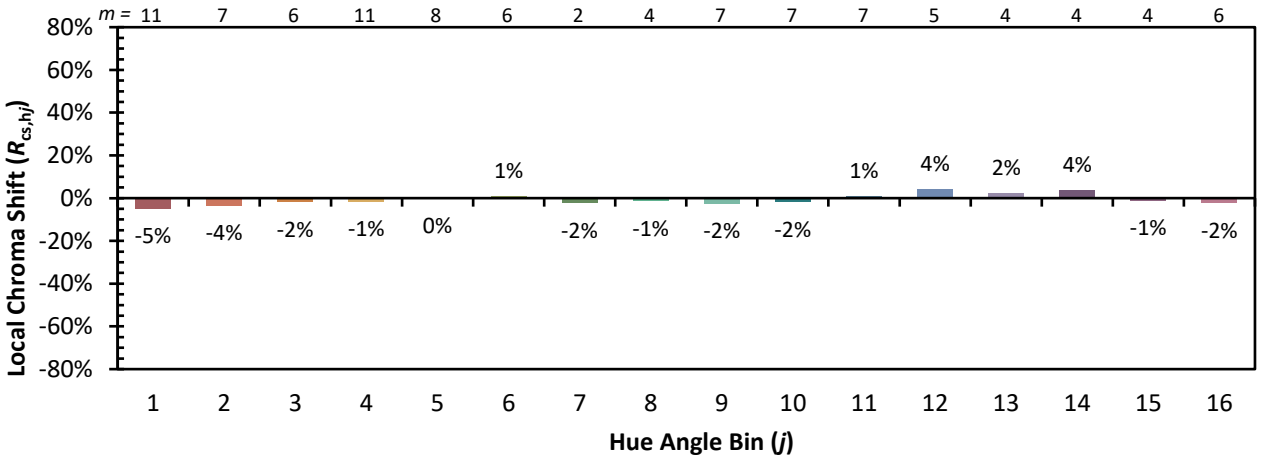
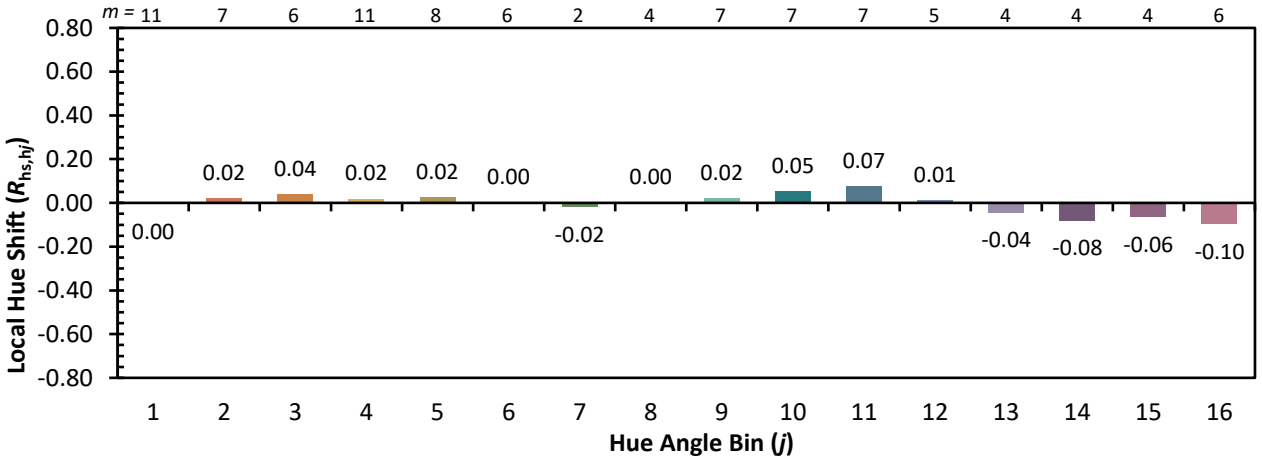
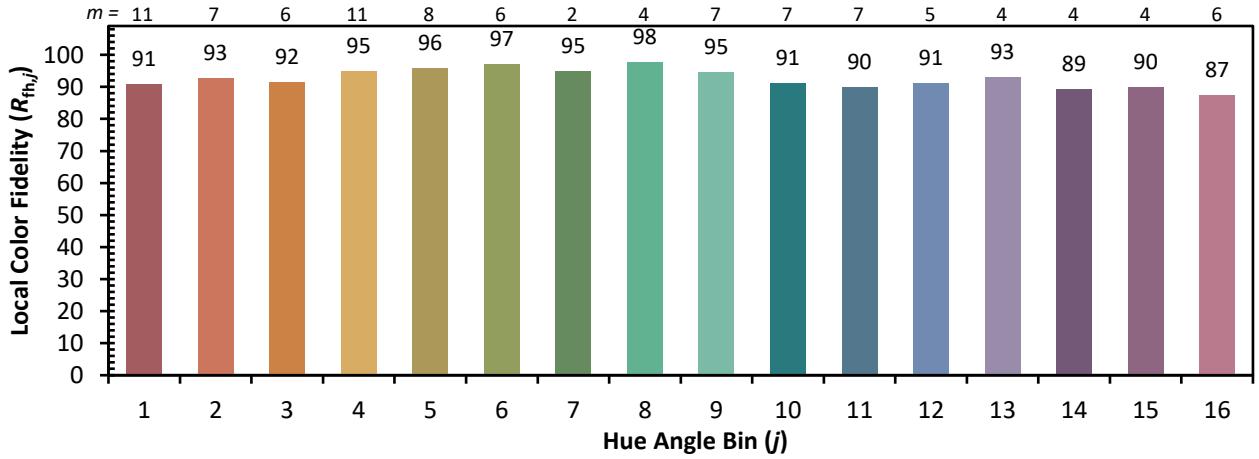
## Color Rendition by Hue-Angle Bin



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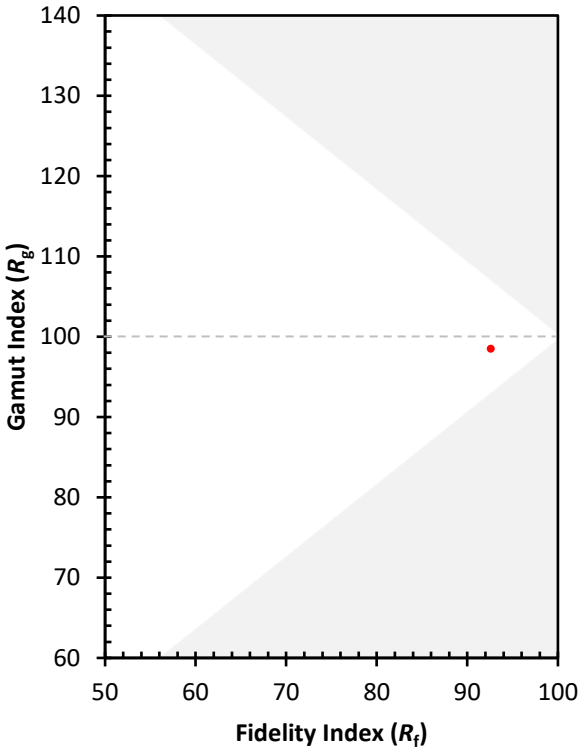
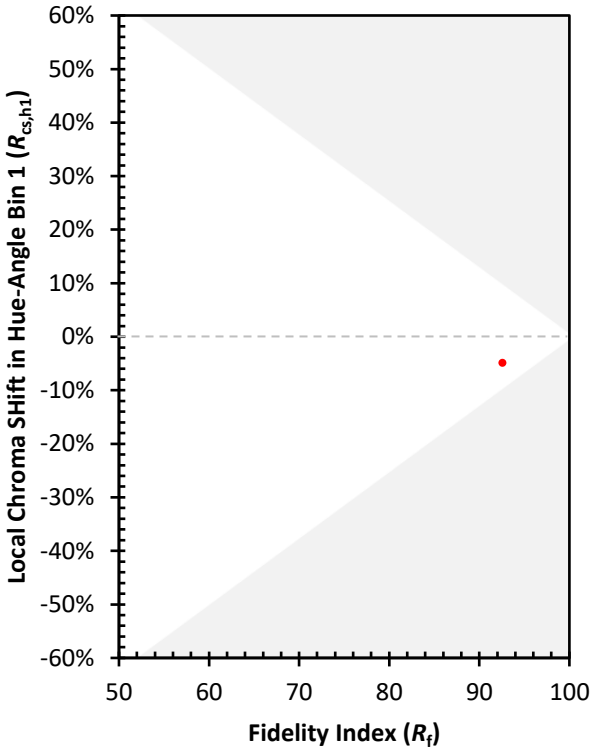
## Measure Comparisons

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