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: P1456257

Luminaire Tested: GLAN-SB9C-930-U-T2LG

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: | P1456257 |
| Test Lab: | INNOVATION CENTER(G1) |
| Issue Date: | 5/22/2026 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | STREETWORKS |
| Catalog Number: | GLAN-SB9C-930-U-T2LG |
| Description: | GALLEON II AREA AND ROADWAY HIGH DENSITY LUMINAIRE 615mA 9xLight Square PACKAGE 90CRI 3000K FIXTURE w/ TYPE II LOW GLARE |
| Light Source: | (234) 3000K CCT, 90 CRI LEDS |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 45939.2 lumens |
| Efficiency: | N/A |
| Efficacy: | 102.1 lumens/watt |
| Luminous Opening: | Rectangular (W 1.5' x L: 1.5' x H: 0') |
| IES Classification: | Type II - Short |
| BUG Rating: | B4 - U0 - G4 |

| | |
|---|---|
| Input Watts (W): | 449.8 |
| 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: P1456257
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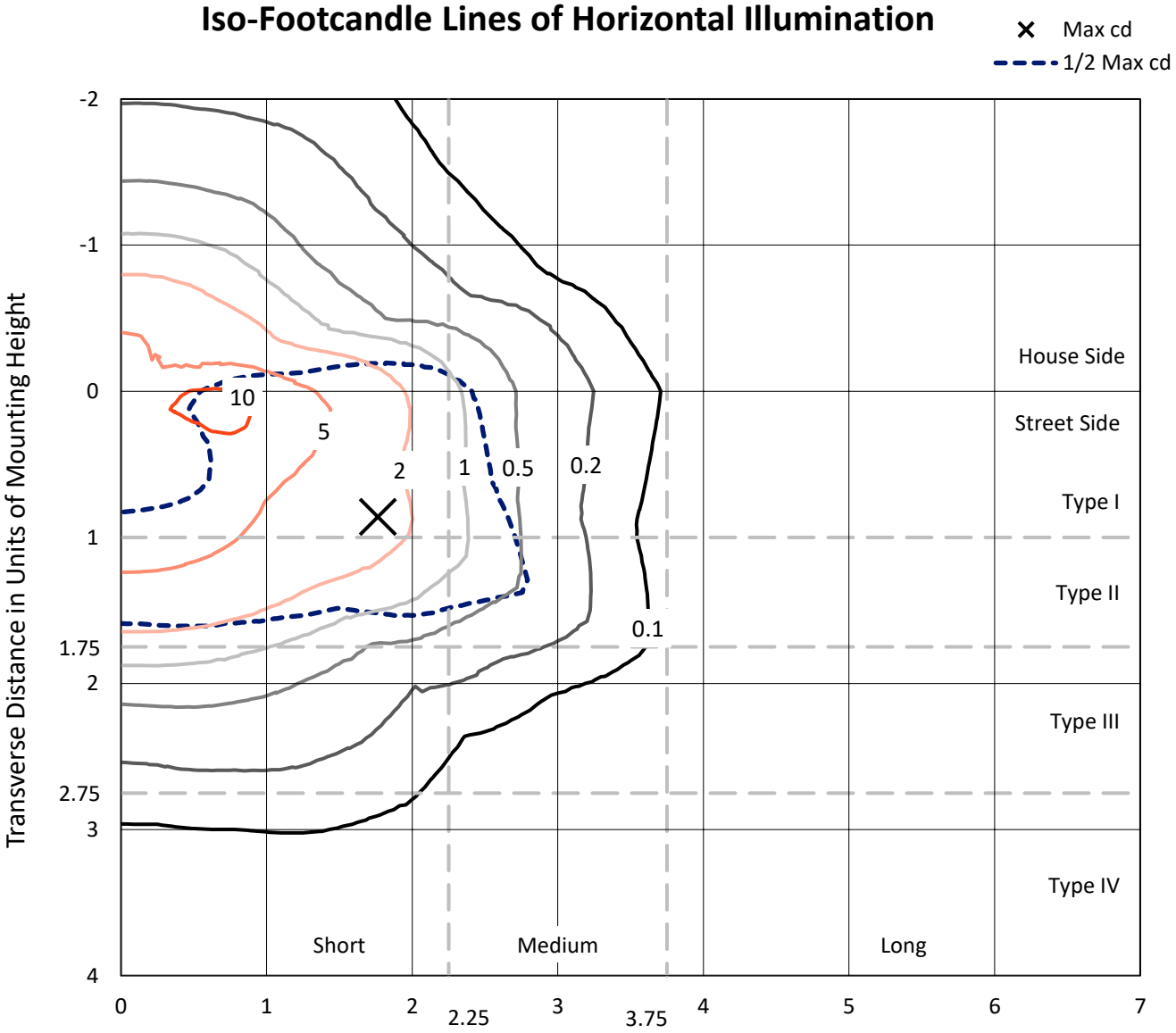
## Iso-Footcandle Lines of Horizontal Illumination




Based on 30 foot mounting height. Maximum calculated value = 12 fc
Type II - Short - N/A

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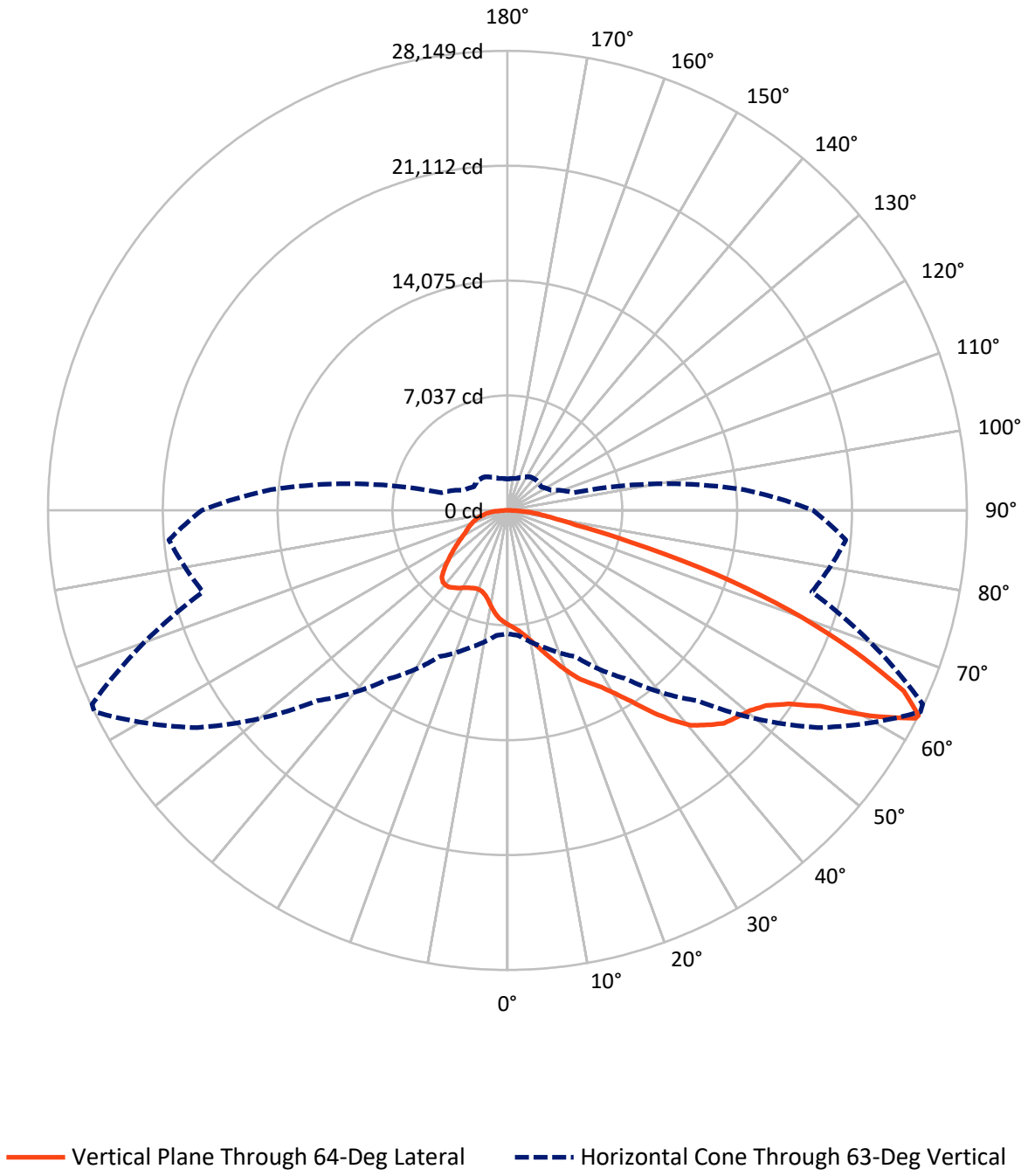
## Luminous Intensity Polar Plot



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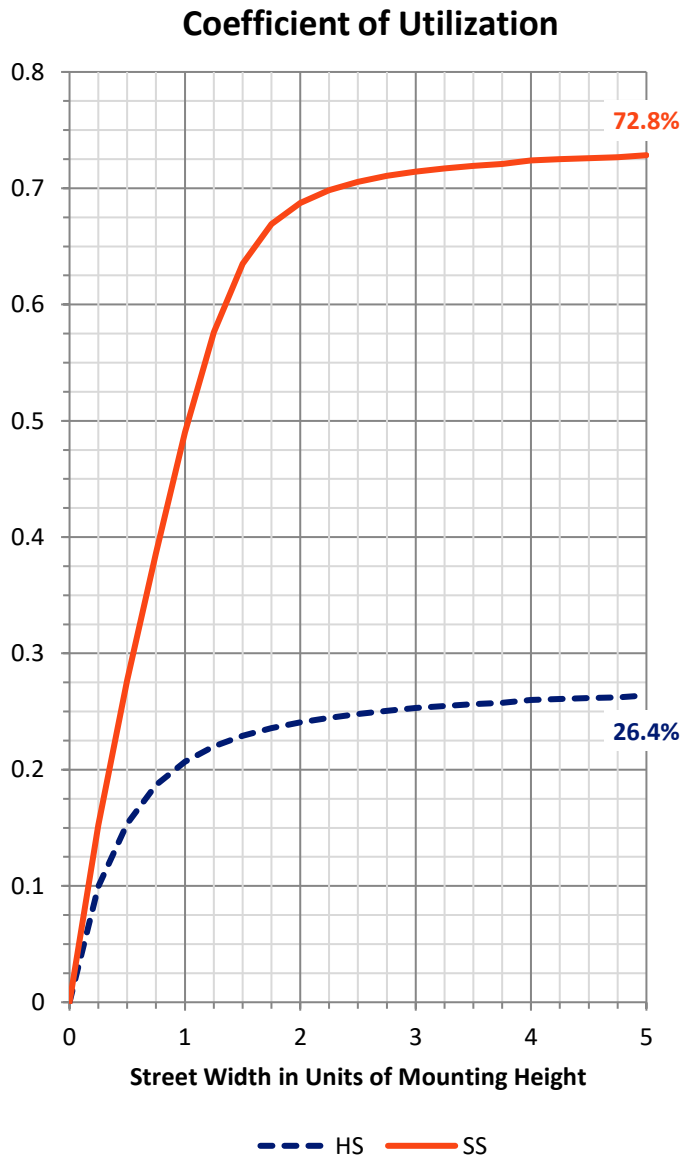
**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 12342.6 | 0.0 | 12342.6 |
| | % Fixture | 26.9 | 0.0 | 26.9 |
| **Street Side** | Lumens | 33596.6 | 0.0 | 33596.6 |
| | % Fixture | 73.1 | 0.0 | 73.1 |
| **Total** | Lumens | 45939.2 | 0.0 | 45939.2 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 642.3 | 1.4 |
| 10°-20° | 1977.5 | 4.3 |
| 20°-30° | 3616.0 | 7.9 |
| 30°-40° | 6220.2 | 13.5 |
| 40°-50° | 9173.1 | 20.0 |
| 50°-60° | 10994.6 | 23.9 |
| 60°-70° | 8824.2 | 19.2 |
| 70°-80° | 3545.8 | 7.7 |
| 80°-90° | 945.5 | 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° | 45939.2 | 100.0 |
| 0°-180° | 45939.2 | 100.0 |



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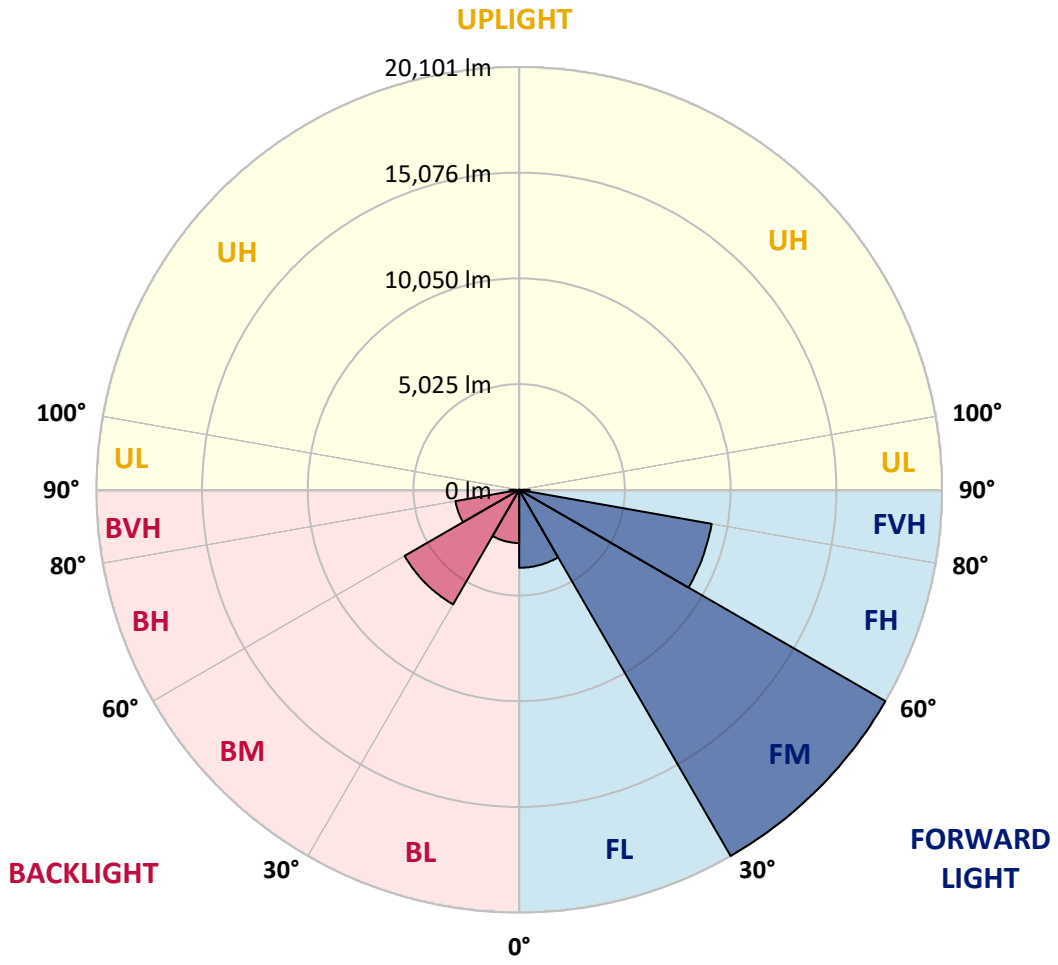
## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 3706.4 | 8.1 | | | |
| FM | (30°-60°) | 20100.8 | 43.8 | | | |
| FH | (60°-80°) | 9292.6 | 20.2 | | | G4/12000 |
| FVH | (80°-90°) | 496.8 | 1.1 | | | G3/500 |
| BL | (0°-30°) | 2529.4 | 5.5 | B4/5000 | | |
| BM | (30°-60°) | 6287.0 | 13.7 | B4/8500 | | |
| BH | (60°-80°) | 3077.4 | 6.7 | B4/5000 | | G4/5000 |
| BVH | (80°-90°) | 448.7 | 1.0 | | | G3/500 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

**BUG Rating: B4-U0-G4**
Type II Short



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REPORT NUMBER: P1456257
CATALOG NUMBER: GLAN-SB9C-930-U-T2LG

**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 64° | 65° | 75° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 6996.0 | 6996.0 | 6996.0 | 6996.0 | 6996.0 | 6996.0 | 6996.0 | *6996.0* | 6996.0 | 6996.0 | 6996.0 |
| 2.5° | 7284.9 | 7295.3 | 7264.3 | 7254.0 | 7274.6 | 7233.3 | 7223.0 | *7181.8* | 7161.1 | 7119.8 | 7068.2 |
| 5° | 7491.3 | 7501.6 | 7481.0 | 7481.0 | 7501.6 | 7470.7 | 7460.4 | *7419.1* | 7398.4 | 7357.2 | 7254.0 |
| 7.5° | 7481.0 | 7491.3 | 7511.9 | 7594.5 | 7697.7 | 7739.0 | 7769.9 | *7739.0* | 7728.6 | 7666.7 | 7563.5 |
| 10° | 7315.9 | 7326.2 | 7377.8 | 7501.6 | 7759.6 | 7945.3 | 8141.4 | *8141.4* | 8162.0 | 8110.4 | 7924.7 |
| 12.5° | 7088.9 | 7099.2 | 7223.0 | 7419.1 | 7759.6 | 8079.5 | 8481.9 | *8647.0* | 8636.7 | 8605.7 | 8389.0 |
| 15° | 6542.0 | 6542.0 | 6727.7 | 7099.2 | 7646.1 | 8172.3 | 8770.8 | *9214.5* | 9224.8 | 9255.8 | 8997.8 |
| 17.5° | 6077.7 | 6088.0 | 6242.8 | 6573.0 | 7284.9 | 8120.7 | 9080.4 | *9844.0* | 9874.9 | 10050.3 | 9678.9 |
| 20° | 6118.9 | 6118.9 | 6170.5 | 6315.0 | 6892.8 | 7914.4 | 9255.8 | *10514.7* | 10617.9 | 11030.6 | 10566.3 |
| 22.5° | 6438.8 | 6438.8 | 6480.1 | 6469.8 | 6820.6 | 7780.2 | 9369.3 | *11185.4* | 11371.1 | 12227.6 | 11629.1 |
| 25° | 7027.0 | 7016.7 | 6975.4 | 6913.5 | 7119.8 | 7924.7 | 9627.3 | *11701.3* | 12062.5 | 13548.3 | 12857.0 |
| 27.5° | 7749.3 | 7728.6 | 7666.7 | 7563.5 | 7708.0 | 8358.1 | 10071.0 | *12248.2* | 12640.3 | 14992.9 | 14157.1 |
| 30° | 8647.0 | 8585.1 | 8523.2 | 8389.0 | 8543.8 | 9070.1 | 10731.4 | *13022.1* | 13393.6 | 16633.6 | 15725.6 |
| 32.5° | 9709.8 | 9782.0 | 9575.7 | 9389.9 | 9555.0 | 10040.0 | 11711.6 | *13940.4* | 14342.9 | 18346.5 | 17355.9 |
| 35° | 11298.9 | 11515.6 | 11453.7 | 10514.7 | 10669.4 | 11206.0 | 12857.0 | *15127.1* | 15488.2 | 19904.6 | 19027.5 |
| 37.5° | 12867.3 | 12815.7 | 12867.3 | 12083.1 | 11835.4 | 12485.5 | 14084.9 | *16262.1* | 16613.0 | 21173.8 | 20503.1 |
| 40° | 14126.2 | 14281.0 | 14281.0 | 13641.2 | 13321.3 | 13754.7 | 15199.3 | *17304.3* | 17644.8 | 21875.5 | 21565.9 |
| 42.5° | 15498.6 | 15519.2 | 15477.9 | 14920.7 | 14796.9 | 14910.4 | 16179.6 | *17964.7* | 18243.3 | 22236.6 | 22288.2 |
| 45° | 17046.3 | 17036.0 | 16860.6 | 16396.3 | 16210.5 | 16107.4 | 16788.4 | *18604.5* | 18883.1 | 22401.7 | 22680.3 |
| 47.5° | 18325.9 | 18377.4 | 18387.8 | 17892.5 | 17582.9 | 17139.2 | 17314.6 | *18924.3* | 19244.2 | 22216.0 | 22762.9 |
| 50° | 18398.1 | 18480.6 | 18872.7 | 19017.2 | 18955.3 | 18243.3 | 17799.6 | *19264.8* | 19584.7 | 22257.2 | 23062.1 |
| 52.5° | 17944.1 | 18026.6 | 18532.2 | 19130.7 | 19853.0 | 19512.5 | 18563.2 | *19853.0* | 20183.2 | 22659.7 | 23743.1 |
| 55° | 16726.5 | 16860.6 | 17613.9 | 18449.7 | 19739.5 | 20224.5 | 19914.9 | *20915.8* | 21225.4 | 22979.5 | 24537.7 |
| 57.5° | 14559.6 | 14724.7 | 15766.8 | 17097.9 | 18862.4 | 20059.4 | 21875.5 | *22618.4* | 22876.4 | 23206.6 | 24548.0 |
| 60° | 10886.1 | 11020.3 | 12650.6 | 14446.1 | 17097.9 | 19027.5 | 23041.5 | *25538.6* | 25683.0 | 21978.6 | 23155.0 |
| 62.5° | 8017.6 | 8151.7 | 9245.5 | 10535.3 | 13434.8 | 17128.9 | 23268.5 | *28066.6* | 28087.3 | 19760.1 | 21235.7 |
| 63° | *7553.2* | *7687.4* | *8678.0* | *9885.2* | *12568.1* | *16489.1* | *23196.2* | *28149.2* | *28076.9* | *19306.1* | *20812.6* |
| 65° | 5881.6 | 6118.9 | 7150.8 | 8069.2 | 9420.9 | 13125.3 | 22267.6 | *26683.9* | 26787.1 | 17964.7 | 18687.0 |
| 67.5° | 4003.6 | 4179.0 | 5489.5 | 6552.3 | 7119.8 | 8358.1 | 18263.9 | *22835.1* | 23000.2 | 16571.7 | 14910.4 |
| 70° | 3095.6 | 3178.1 | 3941.7 | 5190.3 | 5757.8 | 5314.1 | 11907.7 | *18387.8* | 18387.8 | 12939.5 | 10566.3 |
| 72.5° | 2424.9 | 2455.8 | 2971.8 | 4055.2 | 4633.1 | 4086.2 | 6634.9 | *13372.9* | 12877.6 | 7677.0 | 7047.6 |
| 75° | 1733.5 | 1774.8 | 2239.1 | 3023.4 | 3694.1 | 3219.4 | 4240.9 | *7790.6* | 7491.3 | 4416.4 | 4705.3 |
| 77.5° | 1372.4 | 1393.0 | 1671.6 | 2228.8 | 2992.4 | 2455.8 | 3229.7 | *4251.3* | 4210.0 | 3105.9 | 3023.4 |
| 80° | 1083.5 | 1124.7 | 1310.5 | 1599.4 | 2311.4 | 1919.3 | 2404.2 | *2806.7* | 2724.1 | 2136.0 | 1939.9 |
| 82.5° | 773.9 | 846.1 | 1011.2 | 1217.6 | 1712.9 | 1372.4 | 1578.7 | *1981.2* | 1981.2 | 1609.7 | 1279.5 |
| 85° | 474.7 | 536.6 | 598.5 | 753.3 | 1217.6 | 887.4 | 835.8 | *1279.5* | 1310.5 | 1207.3 | 825.5 |
| 87.5° | 227.0 | 247.6 | 288.9 | 319.9 | 443.7 | 402.4 | 330.2 | *485.0* | 495.3 | 536.6 | 340.5 |
| 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: P1456257
CATALOG NUMBER: GLAN-SB9C-930-U-T2LG

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 6996.0 | 6996.0 | 6996.0 | 6996.0 | 6996.0 | 6996.0 | 6996.0 | 6996.0 | 6996.0 | 6996.0 | 6996.0 |
| 2.5° | 7057.9 | 7037.3 | 6934.1 | 6830.9 | 6717.4 | 6614.2 | 6511.0 | 6428.5 | 6335.6 | 6356.3 | 6366.6 |
| 5° | 7192.1 | 7140.5 | 6913.5 | 6645.2 | 6294.4 | 5964.2 | 5644.3 | 5417.3 | 5272.8 | 5231.5 | 5149.0 |
| 7.5° | 7481.0 | 7357.2 | 6944.4 | 6376.9 | 5726.8 | 5210.9 | 4911.7 | 4777.5 | 4736.2 | 4746.6 | 4725.9 |
| 10° | 7811.2 | 7625.5 | 6985.7 | 6057.0 | 5231.5 | 4880.7 | 4839.4 | 4922.0 | 4963.3 | 5004.5 | 5014.8 |
| 12.5° | 8244.6 | 7945.3 | 6965.1 | 5706.2 | 4994.2 | 4932.3 | 5087.1 | 5241.9 | 5334.7 | 5396.6 | 5386.3 |
| 15° | 8750.2 | 8347.8 | 6903.2 | 5417.3 | 4963.3 | 5128.3 | 5324.4 | 5499.8 | 5613.3 | 5675.2 | 5644.3 |
| 17.5° | 9359.0 | 8822.4 | 6830.9 | 5231.5 | 5056.1 | 5252.2 | 5458.5 | 5634.0 | 5757.8 | 5799.1 | 5768.1 |
| 20° | 10112.2 | 9359.0 | 6707.1 | 5149.0 | 5128.3 | 5303.8 | 5489.5 | 5654.6 | 5757.8 | 5799.1 | 5757.8 |
| 22.5° | 10999.6 | 9998.7 | 6603.9 | 5149.0 | 5159.3 | 5303.8 | 5437.9 | 5561.7 | 5654.6 | 5685.6 | 5634.0 |
| 25° | 12134.7 | 10741.7 | 6562.6 | 5231.5 | 5169.6 | 5252.2 | 5324.4 | 5396.6 | 5448.2 | 5468.9 | 5448.2 |
| 27.5° | 13290.4 | 11598.1 | 6583.3 | 5334.7 | 5159.3 | 5179.9 | 5179.9 | 5190.3 | 5200.6 | 5210.9 | 5200.6 |
| 30° | 14621.5 | 12464.9 | 6665.8 | 5468.9 | 5179.9 | 5076.8 | 5045.8 | 4983.9 | 4932.3 | 4891.0 | 4849.7 |
| 32.5° | 15911.3 | 13290.4 | 6810.3 | 5664.9 | 5159.3 | 4963.3 | 4901.3 | 4746.6 | 4602.1 | 4478.3 | 4478.3 |
| 35° | 17304.3 | 14146.8 | 7068.2 | 5809.4 | 5138.7 | 4860.1 | 4684.6 | 4509.2 | 4354.5 | 4179.0 | 4179.0 |
| 37.5° | 18501.3 | 14879.4 | 7274.6 | 5974.5 | 5118.0 | 4736.2 | 4457.6 | 4261.6 | 4096.5 | 3921.1 | 3900.4 |
| 40° | 19337.1 | 15302.5 | 7398.4 | 6036.4 | 5045.8 | 4571.1 | 4240.9 | 3993.3 | 3756.0 | 3518.6 | 3508.3 |
| 42.5° | 19739.5 | 15281.9 | 7326.2 | 6015.8 | 4911.7 | 4364.8 | 4055.2 | 3725.0 | 3405.1 | 3188.5 | 3167.8 |
| 45° | 19956.2 | 15147.7 | 7047.6 | 5840.3 | 4695.0 | 4148.1 | 3817.9 | 3467.1 | 3147.2 | 2951.1 | 2909.8 |
| 47.5° | 19914.9 | 14817.5 | 6665.8 | 5407.0 | 4406.0 | 3910.8 | 3580.6 | 3219.4 | 2961.4 | 2847.9 | 2847.9 |
| 50° | 20028.4 | 14559.6 | 6232.4 | 4911.7 | 4013.9 | 3632.2 | 3363.9 | 3033.7 | 2878.9 | 2734.4 | 2682.8 |
| 52.5° | 20534.0 | 14776.3 | 5861.0 | 4447.3 | 3642.5 | 3363.9 | 3178.1 | 2899.5 | 2703.5 | 2610.6 | 2579.7 |
| 55° | 21204.7 | 15240.6 | 5510.1 | 4034.6 | 3281.3 | 3126.5 | 3033.7 | 2775.7 | 2548.7 | 2455.8 | 2404.2 |
| 57.5° | 21328.6 | 15560.5 | 5169.6 | 3632.2 | 2982.1 | 2940.8 | 2909.8 | 2559.0 | 2373.3 | 2301.1 | 2259.8 |
| 60° | 20472.1 | 15323.1 | 4725.9 | 3271.0 | 2744.8 | 2765.4 | 2682.8 | 2424.9 | 2208.2 | 2136.0 | 2094.7 |
| 62.5° | 19017.2 | 14704.0 | 4282.2 | 2961.4 | 2559.0 | 2600.3 | 2517.7 | 2259.8 | 2043.1 | 1970.9 | 1950.2 |
| 63° | *18728.3* | *14538.9* | *4179.0* | *2930.5* | *2517.7* | *2569.3* | *2497.1* | *2239.1* | *2022.4* | *1950.2* | *1919.3* |
| 65° | 17005.1 | 13548.3 | 3817.9 | 2765.4 | 2383.6 | 2383.6 | 2393.9 | 2136.0 | 1950.2 | 1919.3 | 1898.6 |
| 67.5° | 13868.2 | 11309.2 | 3425.8 | 2569.3 | 2239.1 | 2270.1 | 2321.7 | 2177.2 | 2105.0 | 2084.4 | 2063.7 |
| 70° | 10483.7 | 8512.9 | 3085.3 | 2383.6 | 2084.4 | 2187.5 | 2538.4 | 2476.5 | 2208.2 | 2022.4 | 1981.2 |
| 72.5° | 7429.4 | 5799.1 | 2786.0 | 2197.9 | 1898.6 | 2156.6 | 2631.2 | 2363.0 | 1991.5 | 1774.8 | 1733.5 |
| 75° | 4973.6 | 3735.3 | 2486.8 | 2001.8 | 1692.3 | 1991.5 | 2486.8 | 2156.6 | 1733.5 | 1681.9 | 1620.0 |
| 77.5° | 3126.5 | 2662.2 | 2187.5 | 1774.8 | 1465.2 | 1774.8 | 2259.8 | 1919.3 | 1496.2 | 1516.8 | 1424.0 |
| 80° | 1908.9 | 1898.6 | 1836.7 | 1506.5 | 1176.3 | 1413.6 | 1898.6 | 1620.0 | 1197.0 | 1197.0 | 1062.8 |
| 82.5° | 1135.0 | 1372.4 | 1558.1 | 1248.6 | 856.4 | 1011.2 | 1372.4 | 1217.6 | 1000.9 | 969.9 | 908.0 |
| 85° | 763.6 | 928.7 | 1238.2 | 959.6 | 546.9 | 619.1 | 949.3 | 1021.5 | 918.4 | 804.9 | 753.3 |
| 87.5° | 278.6 | 371.5 | 567.5 | 392.1 | 237.3 | 371.5 | 712.0 | 742.9 | 557.2 | 433.4 | 392.1 |
| 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

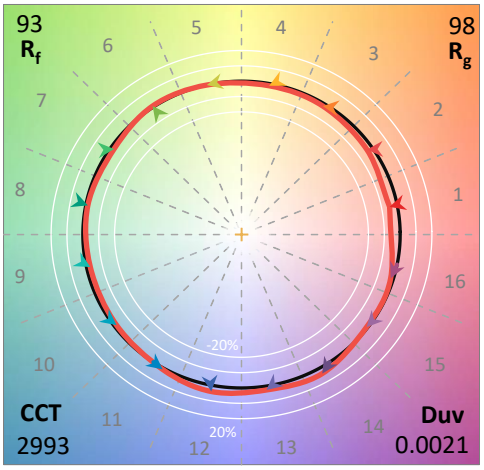
## Test Information

| | |
|---|---|
| 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 |

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| 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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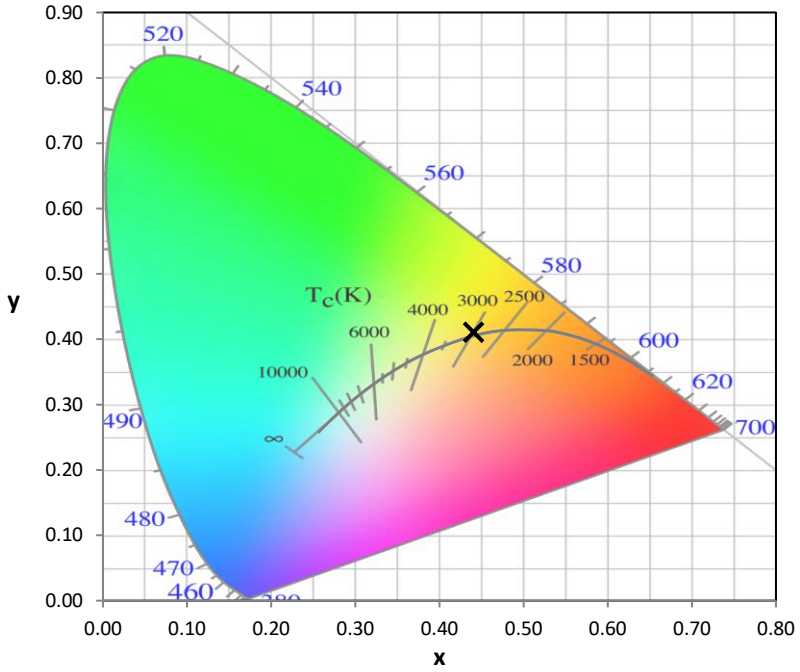
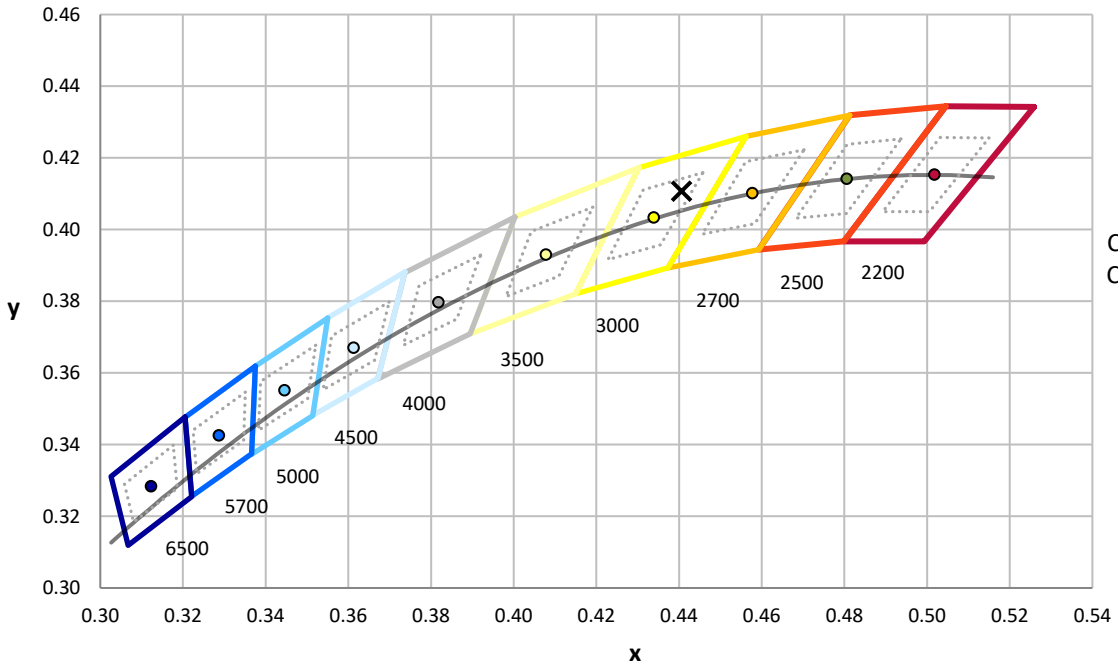
## CIE 1931 Chromaticity Diagram




## 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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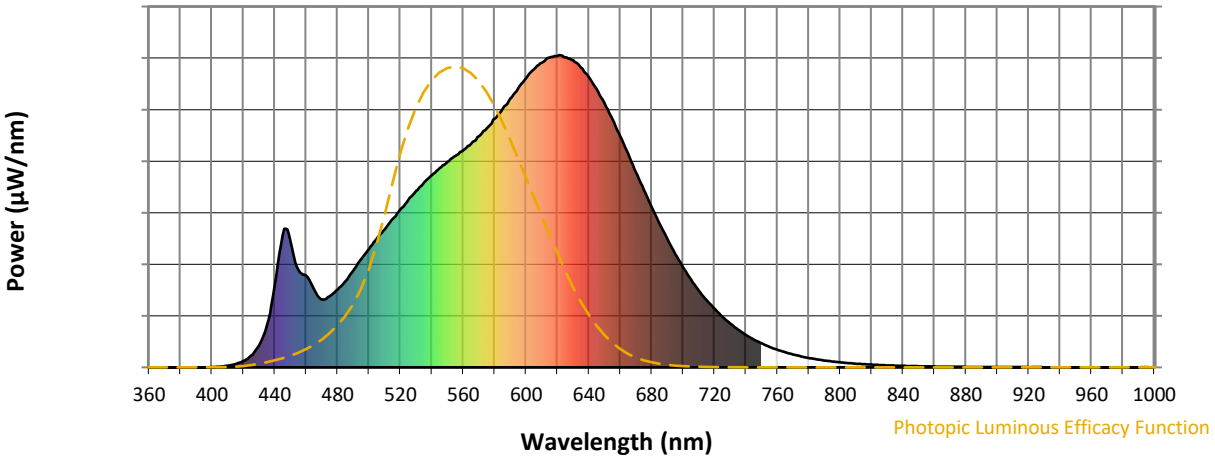
## Photopic Flux vs. Wavelength




## 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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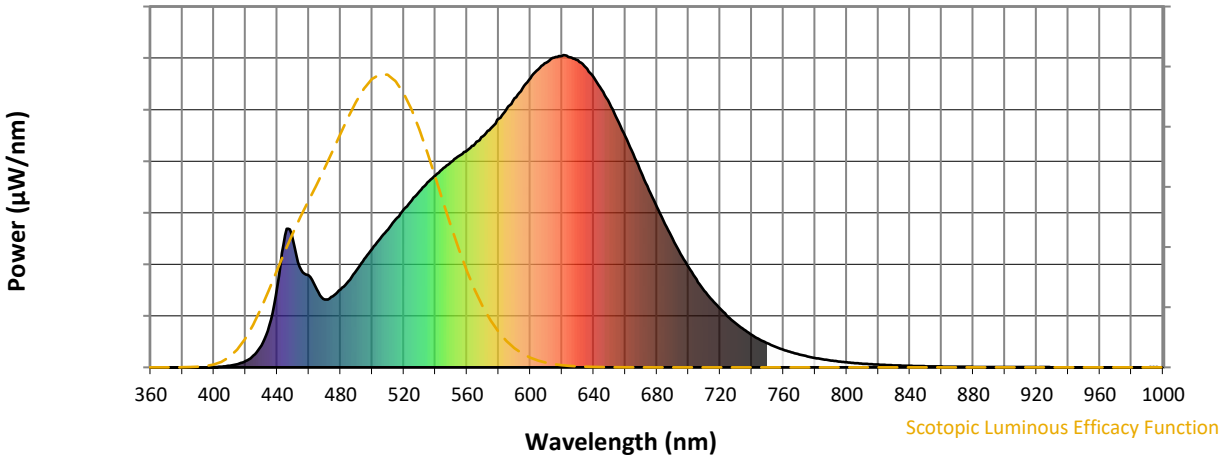
## Scotopic Flux vs. Wavelength




**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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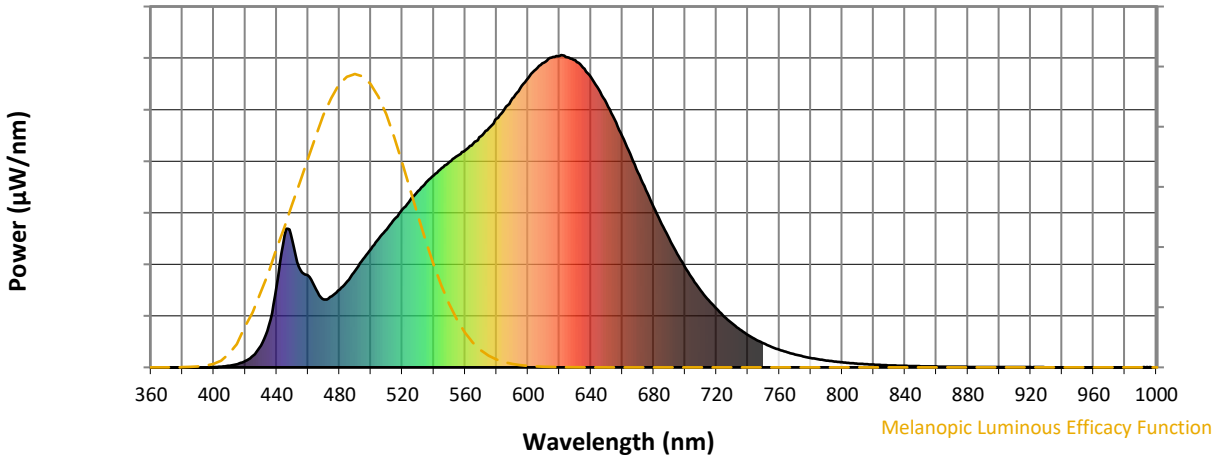
## Melanopic Flux vs. Wavelength




**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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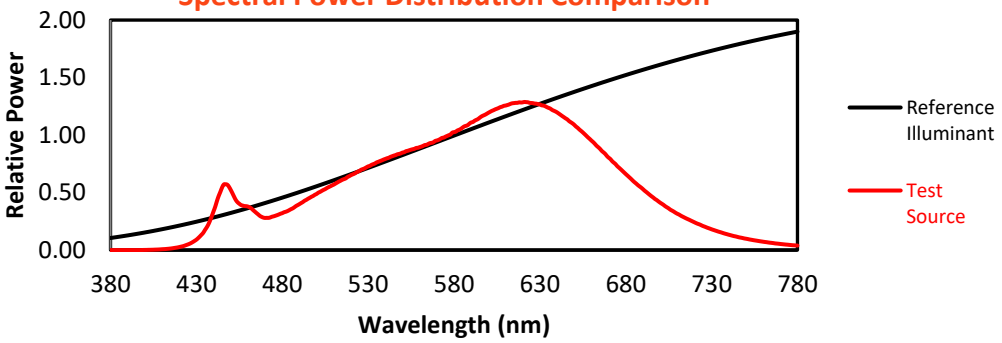
# TM-30-18

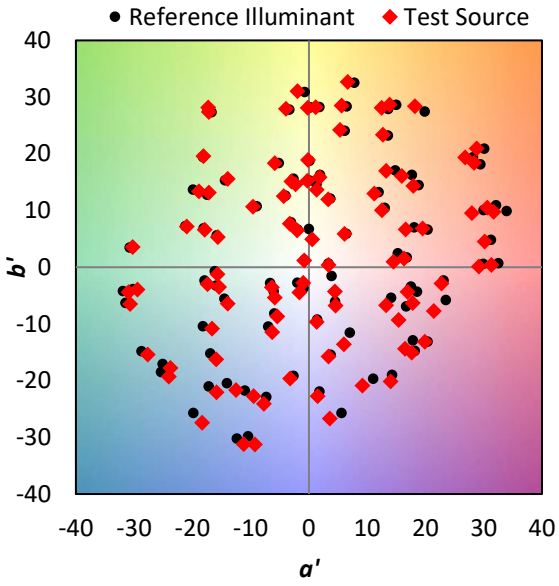
## Summary

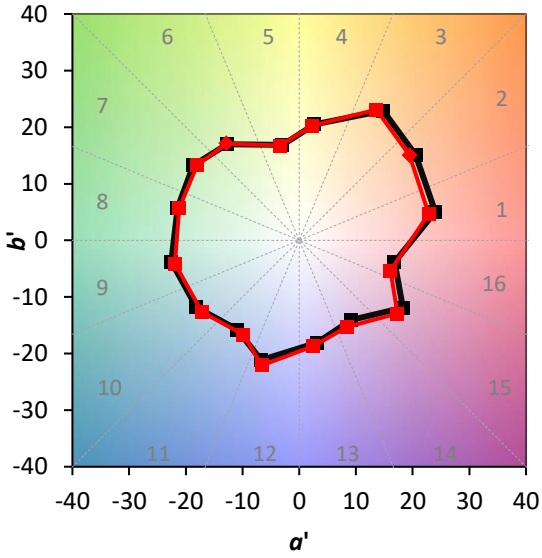
$R_f$ = 92.6
$R_g$ = 98.5
CIE $R_a$ = 92.4
$R_9$ = 58.2

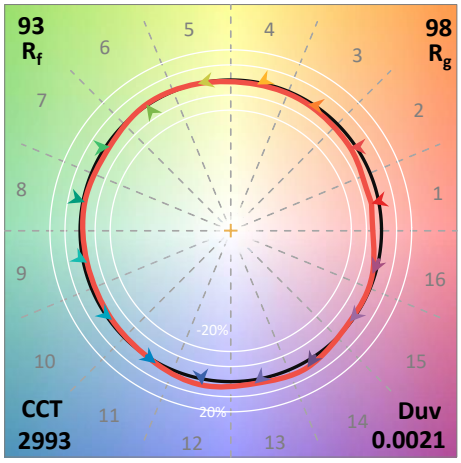
## Spectral Power Distribution Comparison

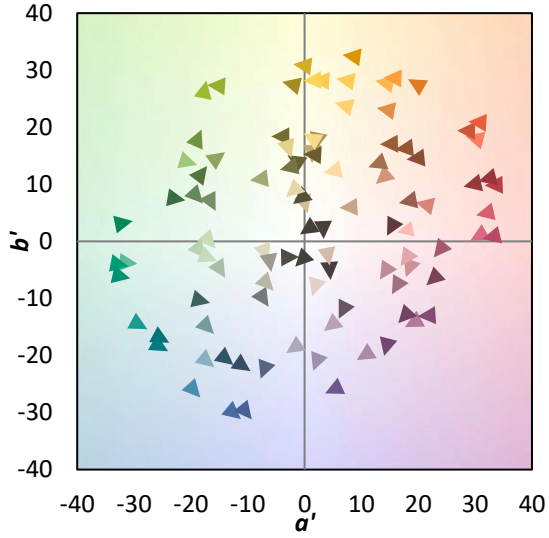



## Color Vector Graphics



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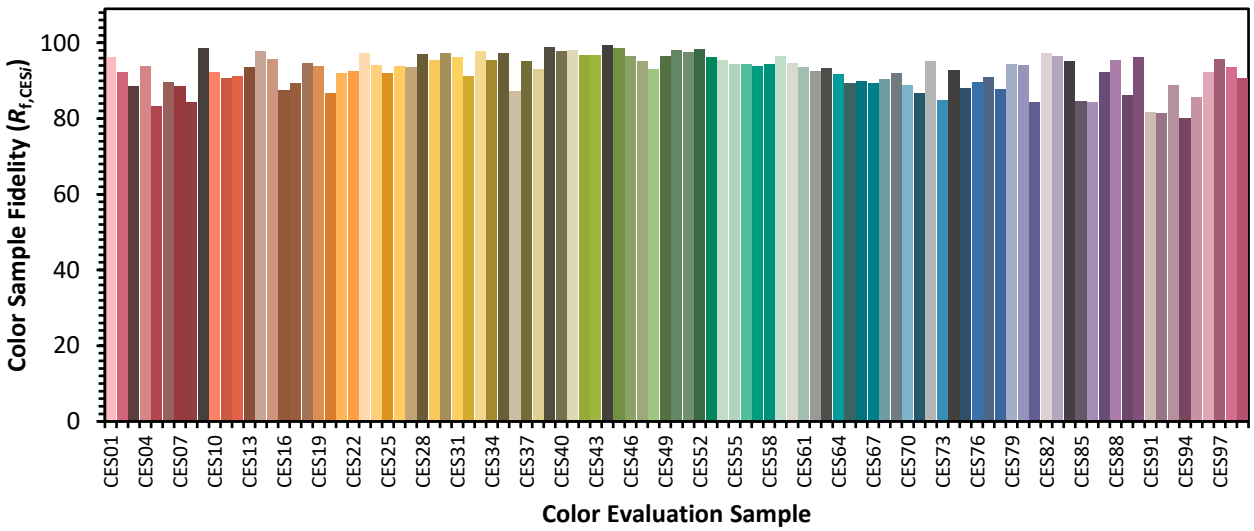
**Individual Sample Fidelity Index ($R_{f,i}$)**

| | | | |
|---|---|---|---|
| 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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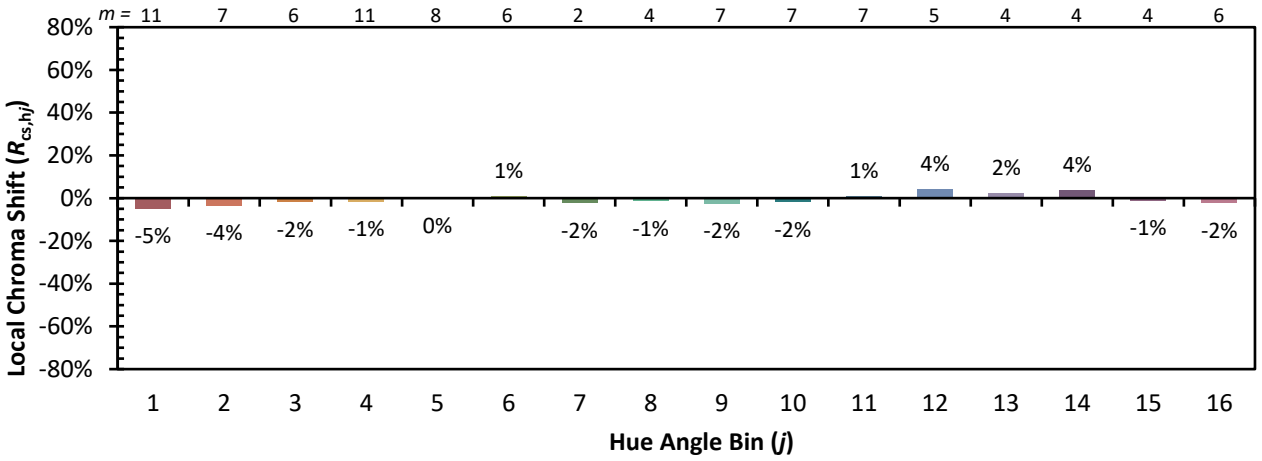
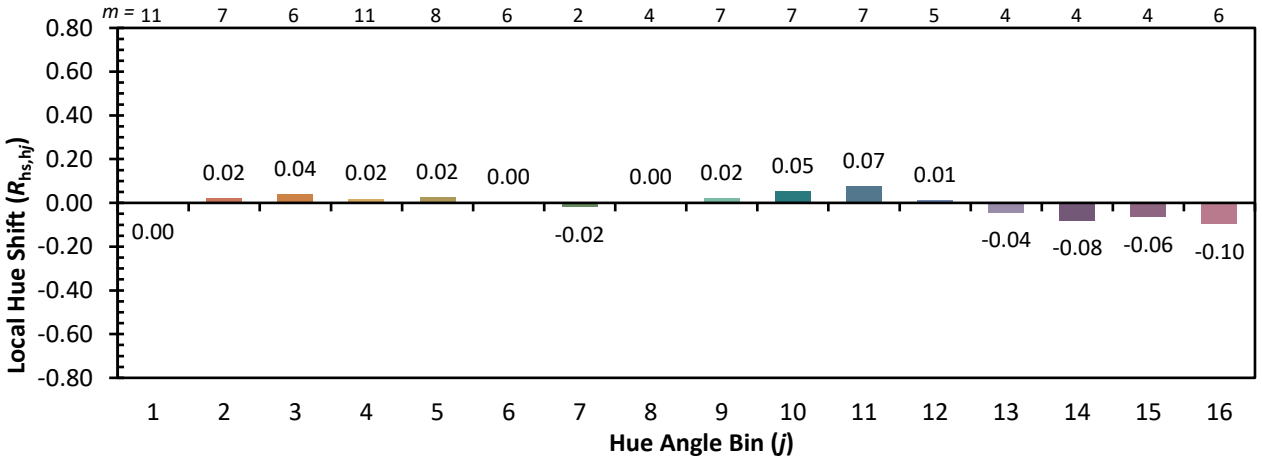
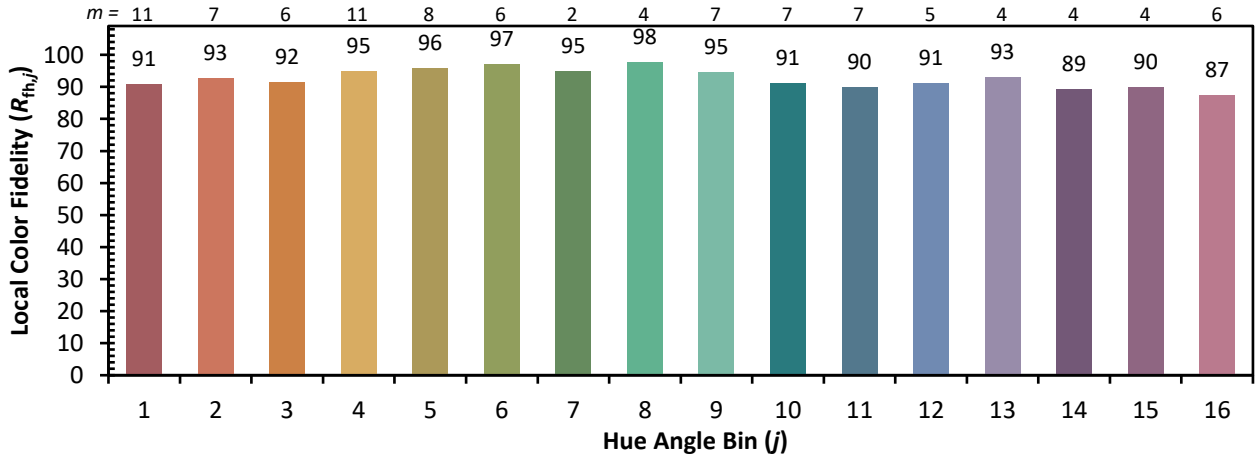
## Color Rendition by Hue-Angle Bin



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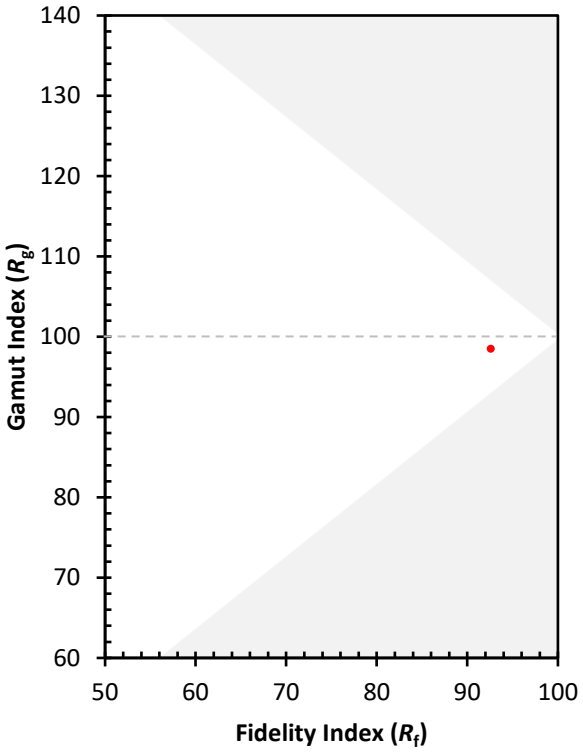
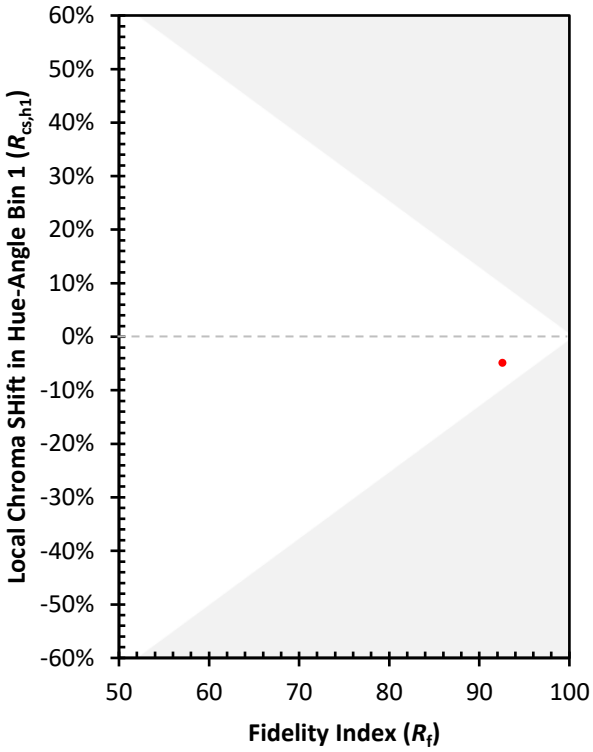
## Measure Comparisons




(END OF REPORT)