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: P1457228

Luminaire Tested: GLAN-SB9B-830-U-T4LG

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: | P1457228 |
| Test Lab: | INNOVATION CENTER(G1) |
| Issue Date: | 5/22/2026 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | STREETWORKS |
| Catalog Number: | GLAN-SB9B-830-U-T4LG |
| Description: | GALLEON II AREA AND ROADWAY HIGH DENSITY LUMINAIRE 450mA 9xLight Square PACKAGE 80CRI 3000K FIXTURE w/ TYPE IV LOW GLARE |
| Light Source: | (234) 3000K CCT, 80 CRI LEDS |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 45086 lumens |
| Efficiency: | N/A |
| Efficacy: | 136.8 lumens/watt |
| Luminous Opening: | Rectangular (W 1.5' x L: 1.5' x H: 0') |
| IES Classification: | Type IV - Short |
| BUG Rating: | B4 - U0 - G4 |

| | |
|---|---|
| Input Watts (W): | 329.5 |
| 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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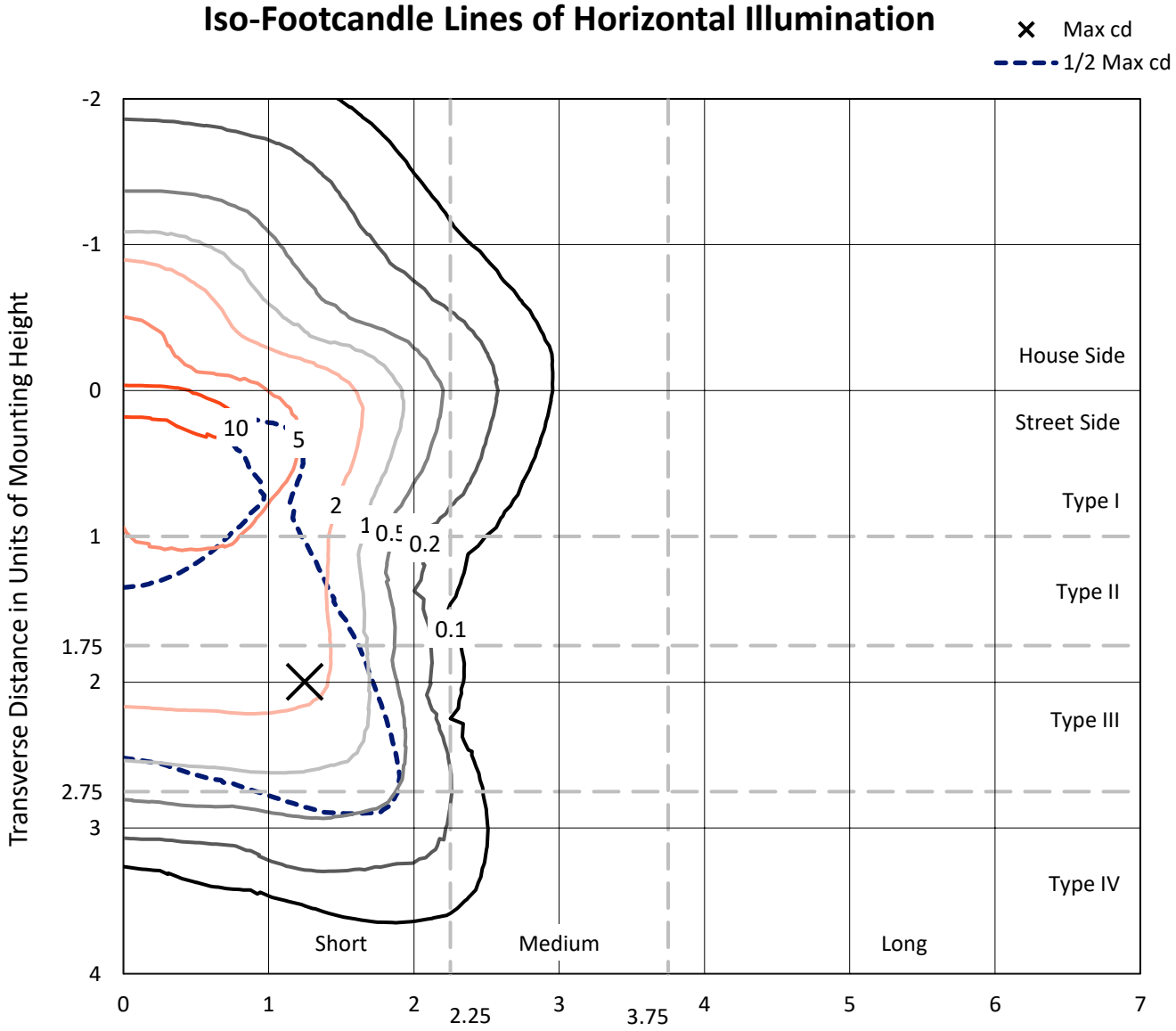
Scaled Data Report

REPORT NUMBER: P1457228
CATALOG NUMBER: GLAN-SB9B-830-U-T4LG

## Iso-Footcandle Lines of Horizontal Illumination




Based on 30 foot mounting height. Maximum calculated value = 12.4 fc
Type IV - Short - N/A

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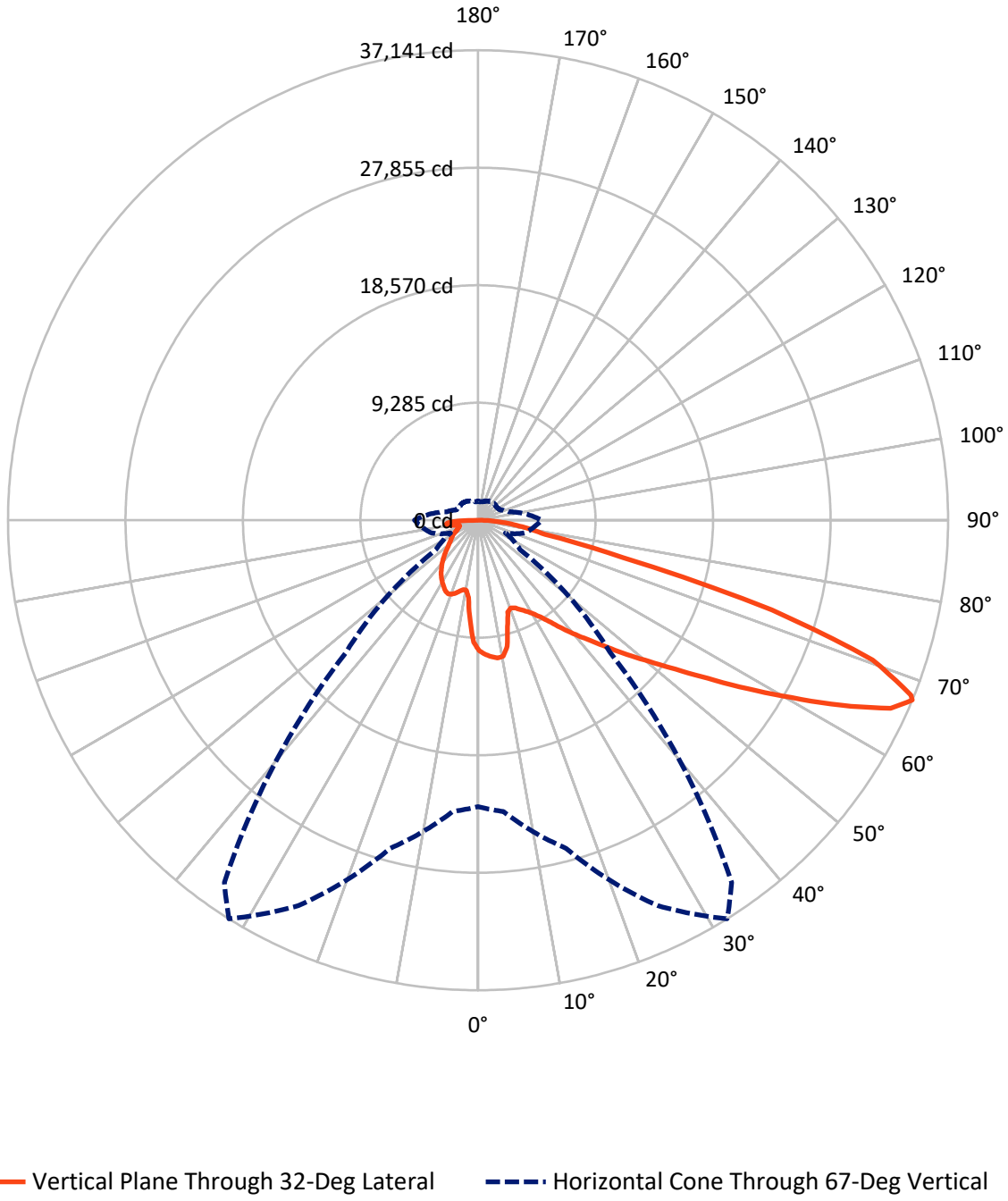
## Luminous Intensity Polar Plot



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REPORT NUMBER: P1457228
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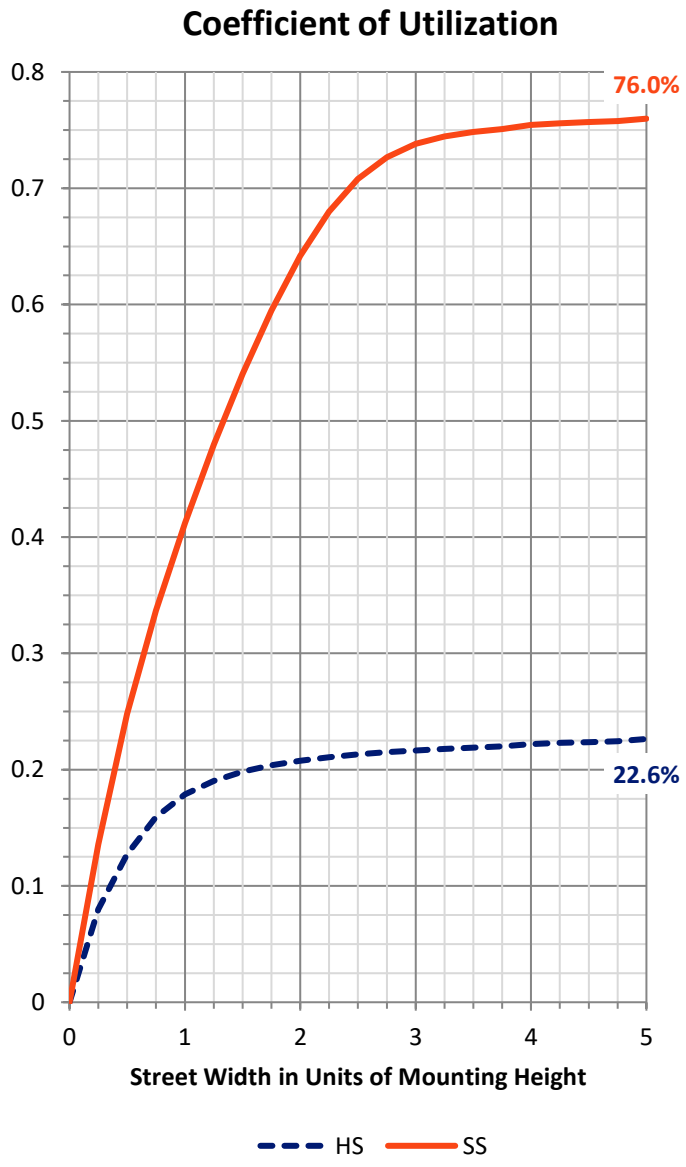
**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 10673.9 | 0.0 | 10673.9 |
| | % Fixture | 23.7 | 0.0 | 23.7 |
| **Street Side** | Lumens | 34412.0 | 0.0 | 34412.0 |
| | % Fixture | 76.3 | 0.0 | 76.3 |
| **Total** | Lumens | 45086.0 | 0.0 | 45086.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 900.1 | 2.0 |
| 10°-20° | 2389.8 | 5.3 |
| 20°-30° | 3902.6 | 8.7 |
| 30°-40° | 5752.1 | 12.8 |
| 40°-50° | 7932.5 | 17.6 |
| 50°-60° | 10021.1 | 22.2 |
| 60°-70° | 9698.6 | 21.5 |
| 70°-80° | 3461.4 | 7.7 |
| 80°-90° | 1027.9 | 2.3 |
| 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° | 45086.0 | 100.0 |
| 0°-180° | 45086.0 | 100.0 |



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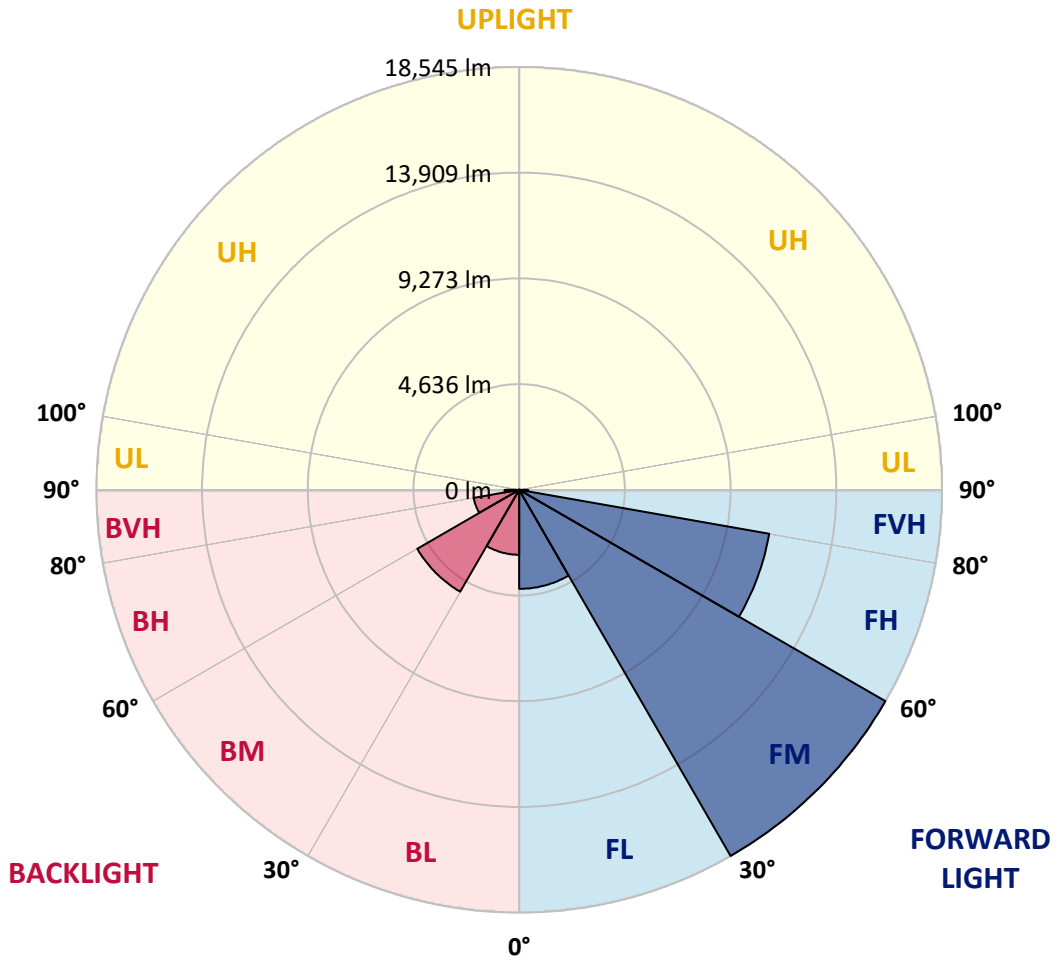
## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 4344.1 | 9.6 | | | |
| FM | (30°-60°) | 18545.3 | 41.1 | | | |
| FH | (60°-80°) | 11135.3 | 24.7 | | | G4/12000 |
| FVH | (80°-90°) | 387.3 | 0.9 | | | G3/500 |
| BL | (0°-30°) | 2848.4 | 6.3 | B4/5000 | | |
| BM | (30°-60°) | 5160.4 | 11.4 | B4/8500 | | |
| BH | (60°-80°) | 2024.7 | 4.5 | B3/2500 | | G3/2500 |
| BVH | (80°-90°) | 640.6 | 1.4 | | | G4/750 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

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



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REPORT NUMBER: P1457228
CATALOG NUMBER: GLAN-SB9B-830-U-T4LG

**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 32° | 35° | 45° | 55° | 65° | 75° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 10301.3 | 10301.3 | 10301.3 | 10301.3 | 10301.3 | 10301.3 | 10301.3 | 10301.3 | 10301.3 | 10301.3 | 10301.3 |
| 2.5° | 10691.7 | 10661.6 | 10631.6 | 10651.6 | 10611.6 | 10601.6 | 10551.5 | 10531.5 | 10471.4 | 10461.4 | 10351.3 |
| 5° | 10911.9 | 10851.9 | 10841.8 | 10861.9 | 10821.8 | 10821.8 | 10781.8 | 10751.7 | 10661.6 | 10611.6 | 10451.4 |
| 7.5° | 10911.9 | 10901.9 | 10921.9 | 10992.0 | 11002.0 | 11002.0 | 11002.0 | 11012.0 | 10921.9 | 10851.9 | 10601.6 |
| 10° | 10291.2 | 10191.1 | 10411.4 | 10761.8 | 10931.9 | 11032.1 | 11212.2 | 11322.4 | 11252.3 | 11202.2 | 10861.9 |
| 12.5° | 8439.2 | 8449.2 | 8799.6 | 9550.4 | 10231.2 | 10521.5 | 11272.3 | 11672.8 | 11702.8 | 11622.7 | 11192.2 |
| 15° | 7157.8 | 7207.9 | 7388.1 | 7928.7 | 8709.5 | 9140.0 | 10921.9 | 11983.1 | 12223.4 | 12143.3 | 11592.7 |
| 17.5° | 6767.4 | 6797.4 | 6877.5 | 7187.9 | 7628.3 | 7978.7 | 9970.9 | 12183.3 | 12854.0 | 12753.9 | 12043.2 |
| 20° | 6707.3 | 6727.3 | 6827.5 | 7087.7 | 7388.1 | 7588.3 | 8999.8 | 12023.1 | 13444.7 | 13404.6 | 12453.6 |
| 22.5° | 6717.3 | 6737.4 | 6867.5 | 7227.9 | 7538.2 | 7708.4 | 8689.5 | 11652.7 | 14065.4 | 14105.4 | 12874.1 |
| 25° | 6737.4 | 6747.4 | 6947.6 | 7428.1 | 7818.5 | 8028.8 | 8889.7 | 11322.4 | 14585.9 | 14926.3 | 13334.6 |
| 27.5° | 6847.5 | 6877.5 | 7147.8 | 7688.4 | 8148.9 | 8389.2 | 9360.2 | 11432.5 | 15156.6 | 15857.3 | 13885.2 |
| 30° | 7147.8 | 7167.8 | 7498.2 | 8058.8 | 8559.3 | 8809.6 | 9920.8 | 11873.0 | 15857.3 | 16818.4 | 14425.8 |
| 32.5° | 7618.3 | 7638.3 | 8018.8 | 8599.4 | 9140.0 | 9440.3 | 10651.6 | 12713.9 | 16638.2 | 17829.5 | 14966.3 |
| 35° | 8269.0 | 8279.0 | 8709.5 | 9330.2 | 9900.8 | 10241.2 | 11502.6 | 13664.9 | 17449.1 | 18690.4 | 15366.8 |
| 37.5° | 9039.9 | 9110.0 | 9550.4 | 10201.1 | 10871.9 | 11182.2 | 12503.7 | 14776.1 | 18169.8 | 19421.2 | 15597.0 |
| 40° | 10101.0 | 10121.1 | 10551.5 | 11182.2 | 11893.0 | 12193.3 | 13504.8 | 15827.3 | 18960.7 | 19851.7 | 15807.3 |
| 42.5° | 11192.2 | 11362.4 | 11722.8 | 12423.6 | 12954.2 | 13194.4 | 14646.0 | 16788.3 | 19591.4 | 19871.7 | 15717.2 |
| 45° | 12653.8 | 12784.0 | 13144.4 | 13765.0 | 14295.6 | 14575.9 | 15877.3 | 17669.3 | 19911.8 | 19701.5 | 15516.9 |
| 47.5° | 14325.6 | 14405.7 | 14696.1 | 15256.7 | 15847.3 | 16047.5 | 17158.7 | 18169.8 | 20031.9 | 19581.4 | 15426.9 |
| 50° | 16297.8 | 16297.8 | 16508.0 | 16988.6 | 17529.1 | 17809.5 | 18340.0 | 18470.2 | 20382.3 | 19371.2 | 15657.1 |
| 52.5° | 17959.6 | 18039.7 | 18320.0 | 19000.8 | 19541.3 | 19861.7 | 19261.0 | 18930.7 | 19671.5 | 18199.9 | 15727.2 |
| 55° | 19551.4 | 19641.5 | 20272.1 | 21123.1 | 22044.1 | 22394.5 | 20412.3 | 18700.4 | 17278.9 | 16488.0 | 15246.7 |
| 57.5° | 21073.0 | 21263.2 | 22054.1 | 23715.9 | 25107.4 | 25077.4 | 21873.9 | 16638.2 | 14105.4 | 14595.9 | 14195.5 |
| 60° | 23195.3 | 23395.6 | 24656.9 | 26749.2 | 28451.1 | 27740.3 | 21893.9 | 13845.1 | 10992.0 | 11652.7 | 12223.4 |
| 62.5° | 24967.3 | 25307.6 | 27159.7 | 30643.5 | 32205.2 | 31094.0 | 20081.9 | 10601.6 | 7298.0 | 8128.9 | 9450.3 |
| 65° | 24807.1 | 25257.6 | 28130.7 | 33506.6 | 35839.1 | 34808.0 | 17429.0 | 6707.3 | 3764.1 | 5556.1 | 6617.2 |
| 67° | 22624.7 | 23115.3 | 26839.3 | 33606.7 | 37140.6 | 34938.2 | 14716.1 | 4054.4 | 2392.6 | 3854.2 | 4595.0 |
| 67.5° | 21373.3 | 22094.1 | 26198.6 | 33416.5 | 36900.3 | 34387.6 | 13494.7 | 3393.7 | 2252.5 | 3583.9 | 4184.6 |
| 70° | 13144.4 | 14305.6 | 19661.5 | 29542.3 | 33076.1 | 28781.4 | 7498.2 | 1922.1 | 1832.0 | 2402.6 | 2893.2 |
| 72.5° | 3954.3 | 4304.7 | 7588.3 | 18950.7 | 24276.5 | 21333.3 | 3373.7 | 1481.6 | 1641.8 | 1932.1 | 2232.4 |
| 75° | 1922.1 | 2052.2 | 3133.4 | 7748.5 | 11822.9 | 11762.8 | 1882.1 | 1271.4 | 1521.7 | 1621.8 | 1761.9 |
| 77.5° | 1231.3 | 1311.4 | 1952.1 | 4334.7 | 5415.9 | 4825.3 | 1361.5 | 1111.2 | 1351.5 | 1331.5 | 1311.4 |
| 80° | 770.8 | 810.9 | 1251.4 | 2512.7 | 3994.4 | 3333.6 | 1001.1 | 911.0 | 1161.3 | 1031.1 | 931.0 |
| 82.5° | 500.5 | 550.6 | 800.9 | 1531.7 | 2853.1 | 2482.7 | 660.7 | 650.7 | 961.0 | 820.9 | 720.8 |
| 85° | 330.4 | 370.4 | 510.6 | 901.0 | 1691.8 | 1771.9 | 430.5 | 450.5 | 740.8 | 620.7 | 550.6 |
| 87.5° | 120.1 | 150.2 | 260.3 | 400.4 | 790.9 | 981.1 | 180.2 | 170.2 | 360.4 | 290.3 | 230.3 |
| 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: P1457228
CATALOG NUMBER: GLAN-SB9B-830-U-T4LG

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 10301.3 | 10301.3 | 10301.3 | 10301.3 | 10301.3 | 10301.3 | 10301.3 | 10301.3 | 10301.3 | 10301.3 | 10301.3 |
| 2.5° | 10331.3 | 10301.3 | 10161.1 | 10041.0 | 9950.9 | 9830.7 | 9700.6 | 9550.4 | 9450.3 | 9470.3 | 9440.3 |
| 5° | 10381.3 | 10301.3 | 10031.0 | 9620.5 | 9220.1 | 8719.5 | 8078.8 | 7698.4 | 7408.1 | 7257.9 | 7298.0 |
| 7.5° | 10491.5 | 10351.3 | 9780.7 | 8949.8 | 7908.6 | 6887.5 | 6256.8 | 5896.4 | 5726.3 | 5656.2 | 5646.2 |
| 10° | 10681.7 | 10441.4 | 9460.3 | 7908.6 | 6547.2 | 5856.4 | 5626.1 | 5526.0 | 5506.0 | 5506.0 | 5496.0 |
| 12.5° | 10911.9 | 10531.5 | 8919.7 | 6897.5 | 5896.4 | 5646.2 | 5606.1 | 5616.1 | 5646.2 | 5676.2 | 5626.1 |
| 15° | 11192.2 | 10571.5 | 8249.0 | 6286.9 | 5766.3 | 5706.2 | 5766.3 | 5836.4 | 5886.4 | 5926.5 | 5876.4 |
| 17.5° | 11472.5 | 10531.5 | 7618.3 | 5996.6 | 5786.3 | 5866.4 | 5986.5 | 6096.7 | 6126.7 | 6186.8 | 6146.7 |
| 20° | 11672.8 | 10391.4 | 7077.7 | 5886.4 | 5836.4 | 6016.6 | 6166.7 | 6286.9 | 6346.9 | 6387.0 | 6346.9 |
| 22.5° | 11822.9 | 10211.2 | 6687.3 | 5776.3 | 5836.4 | 6056.6 | 6236.8 | 6377.0 | 6447.0 | 6487.1 | 6437.0 |
| 25° | 11953.1 | 9960.9 | 6387.0 | 5616.1 | 5716.2 | 5926.5 | 6126.7 | 6266.8 | 6367.0 | 6427.0 | 6397.0 |
| 27.5° | 12113.2 | 9760.7 | 6106.7 | 5375.9 | 5466.0 | 5666.2 | 5876.4 | 6046.6 | 6236.8 | 6336.9 | 6316.9 |
| 30° | 12293.4 | 9660.6 | 5836.4 | 5115.6 | 5175.7 | 5375.9 | 5626.1 | 5856.4 | 6116.7 | 6246.8 | 6246.8 |
| 32.5° | 12503.7 | 9590.5 | 5586.1 | 4865.3 | 4915.4 | 5135.6 | 5375.9 | 5586.1 | 5866.4 | 6076.6 | 6066.6 |
| 35° | 12593.8 | 9510.4 | 5385.9 | 4635.1 | 4735.2 | 4915.4 | 5105.6 | 5245.7 | 5536.0 | 5786.3 | 5806.3 |
| 37.5° | 12683.9 | 9480.4 | 5285.8 | 4454.9 | 4535.0 | 4675.1 | 4775.2 | 4845.3 | 5115.6 | 5375.9 | 5385.9 |
| 40° | 12794.0 | 9620.5 | 5355.9 | 4334.7 | 4264.7 | 4404.8 | 4454.9 | 4494.9 | 4635.1 | 4805.2 | 4805.2 |
| 42.5° | 12723.9 | 9720.6 | 5516.0 | 4224.6 | 3934.3 | 4094.5 | 4114.5 | 4104.5 | 4114.5 | 4124.5 | 4114.5 |
| 45° | 12543.7 | 9620.5 | 5516.0 | 4054.4 | 3583.9 | 3754.1 | 3744.1 | 3694.0 | 3613.9 | 3403.7 | 3373.7 |
| 47.5° | 12503.7 | 9560.4 | 5305.8 | 3774.1 | 3233.5 | 3373.7 | 3393.7 | 3293.6 | 3063.3 | 2843.1 | 2773.0 |
| 50° | 12673.8 | 9670.6 | 4975.4 | 3433.8 | 2933.2 | 3053.3 | 3103.4 | 2933.2 | 2672.9 | 2442.7 | 2402.6 |
| 52.5° | 12924.1 | 9810.7 | 4494.9 | 3063.3 | 2682.9 | 2803.1 | 2863.1 | 2672.9 | 2402.6 | 2222.4 | 2202.4 |
| 55° | 12894.1 | 9810.7 | 3954.3 | 2723.0 | 2492.7 | 2582.8 | 2682.9 | 2482.7 | 2272.5 | 2172.4 | 2162.4 |
| 57.5° | 12243.4 | 9440.3 | 3553.9 | 2482.7 | 2312.5 | 2392.6 | 2522.8 | 2332.5 | 2132.3 | 2152.4 | 2182.4 |
| 60° | 10972.0 | 8479.3 | 3253.6 | 2322.5 | 2152.4 | 2232.4 | 2372.6 | 2152.4 | 1892.1 | 1822.0 | 1822.0 |
| 62.5° | 9039.9 | 6987.6 | 3013.3 | 2162.4 | 2002.2 | 2102.3 | 2172.4 | 1882.1 | 1711.9 | 1631.8 | 1631.8 |
| 65° | 6777.4 | 5405.9 | 2763.0 | 2032.2 | 1872.0 | 1982.2 | 1902.1 | 1761.9 | 1591.7 | 1531.7 | 1541.7 |
| 67° | *5025.5* | *4194.6* | *2552.8* | *1922.1* | *1792.0* | *1842.0* | *1781.9* | *1681.8* | *1511.7* | *1461.6* | *1511.7* |
| 67.5° | 4514.9 | 3984.4 | 2502.7 | 1892.1 | 1771.9 | 1812.0 | 1751.9 | 1671.8 | 1491.6 | 1441.6 | 1491.6 |
| 70° | 3103.4 | 3063.3 | 2232.4 | 1751.9 | 1661.8 | 1621.8 | 1651.8 | 1551.7 | 1401.5 | 1381.5 | 1431.6 |
| 72.5° | 2362.6 | 2442.7 | 2002.2 | 1631.8 | 1541.7 | 1491.6 | 1561.7 | 1461.6 | 1311.4 | 1341.5 | 1391.5 |
| 75° | 1852.0 | 1972.2 | 1792.0 | 1461.6 | 1401.5 | 1411.5 | 1551.7 | 1511.7 | 1391.5 | 1421.6 | 1431.6 |
| 77.5° | 1371.5 | 1591.7 | 1531.7 | 1271.4 | 1221.3 | 1361.5 | 1751.9 | 1872.0 | 1661.8 | 1611.8 | 1541.7 |
| 80° | 1001.1 | 1141.2 | 1291.4 | 1051.1 | 1021.1 | 1311.4 | 2162.4 | 2392.6 | 2052.2 | 1852.0 | 1802.0 |
| 82.5° | 740.8 | 800.9 | 1061.2 | 840.9 | 740.8 | 1171.3 | 2402.6 | 2813.1 | 2442.7 | 2062.3 | 2002.2 |
| 85° | 530.6 | 620.7 | 840.9 | 620.7 | 490.5 | 961.0 | 2352.6 | 2753.0 | 2422.6 | 1952.1 | 1902.1 |
| 87.5° | 190.2 | 270.3 | 360.4 | 280.3 | 250.3 | 660.7 | 1942.1 | 1982.2 | 1511.7 | 690.8 | 700.8 |
| 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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# LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-9

Test Date: 10/10/2024

Luminaire Tested: GSS-SB1A-830-U-5WQ

Data in this report applies to families of products including GSS-SB1A-830-U-5WQ

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

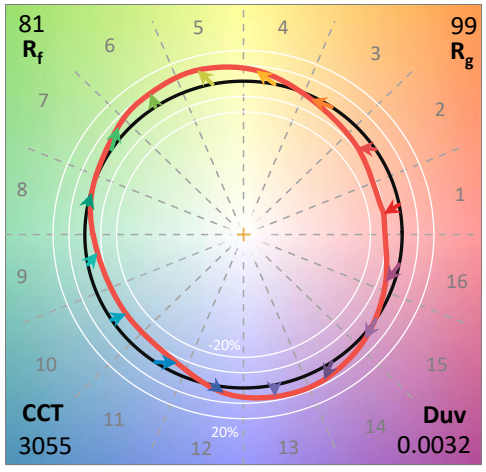
## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP1-2407-184-9 |
| 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-830-U-5WQ** |
| Description: | GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 80 CRI 3000K CCT 26 LEDS |

## Spectral Parameters

| | |
|---|---|
| CCT (K): | 3055 |
| CIE u': | 0.2475 |
| CIE v': | 0.5247 |
| Duv: | 0.0032 |
| CIE x: | 0.4377 |
| CIE y: | 0.4124 |
| CIE z: | 0.1499 |
| Peak Wavelength (nm): | 604 |
| Dominant Wavelength (nm): | 581 |
| Purity: | 55.16339 |
| Rf: | 81.5 |
| Rg: | 99.2 |

| | |
|---|---|
| CRI (Ra): | 80.9 |
| R1: | 79.5 |
| R2: | 85.6 |
| R3: | 92.1 |
| R4: | 82.4 |
| R5: | 78.9 |
| R6: | 81.7 |
| R7: | 85.1 |
| R8: | 61.9 |
| R9: | 6.8 |
| R10: | 67.1 |
| R11: | 82.5 |
| R12: | 63.4 |
| R13: | 80.2 |
| R14: | 95.1 |
| R15: | 71.7 |




## 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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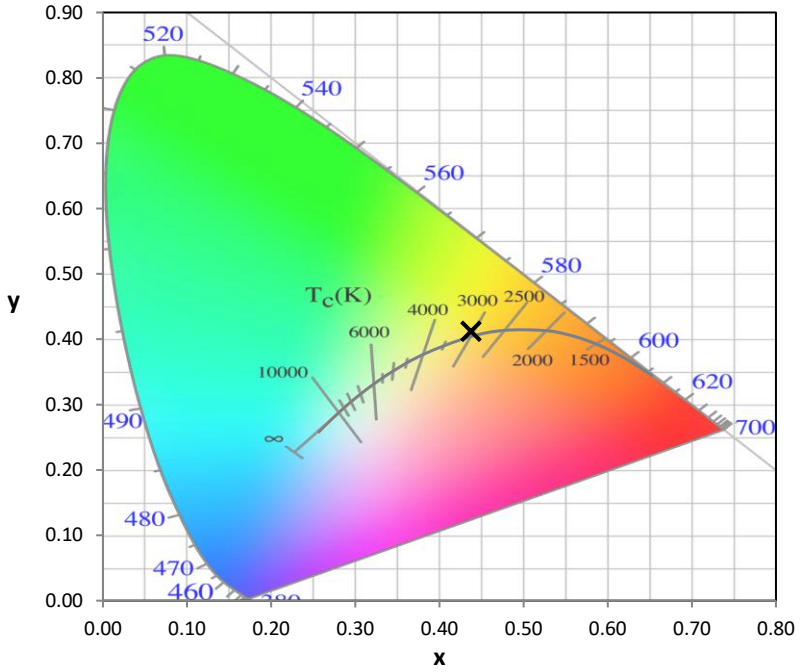
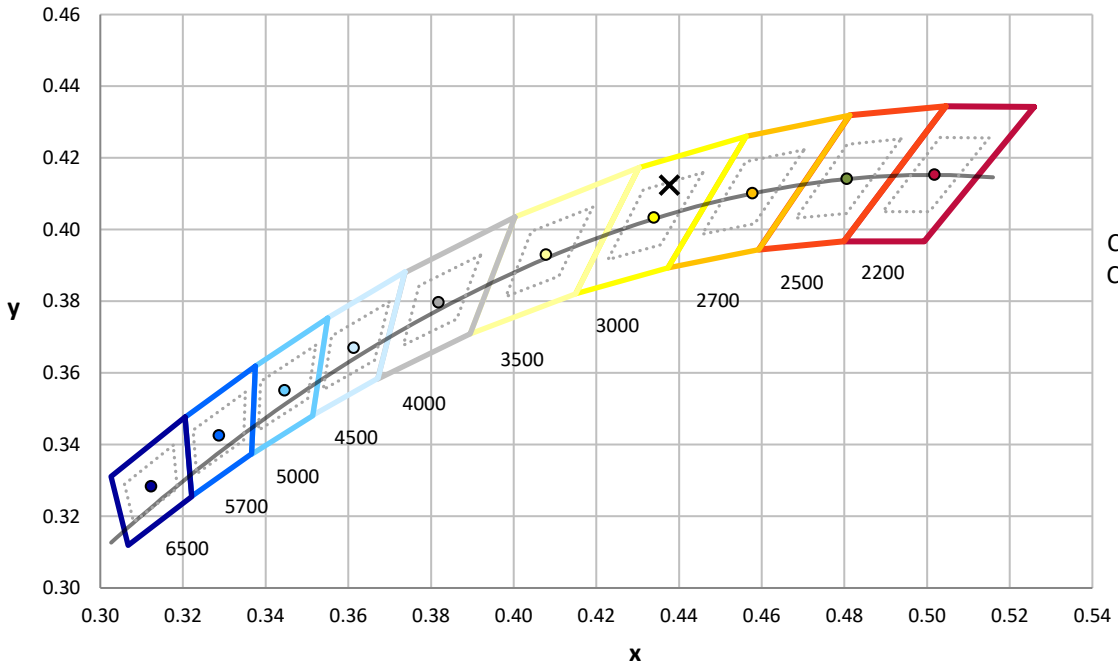
## CIE 1931 Chromaticity Diagram




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




CCT = 3055K
CIE x = 0.4377
CIE y = 0.4124
Duv = 0.0032

Point lies inside the ANSI 3000K 4-step quadrangle

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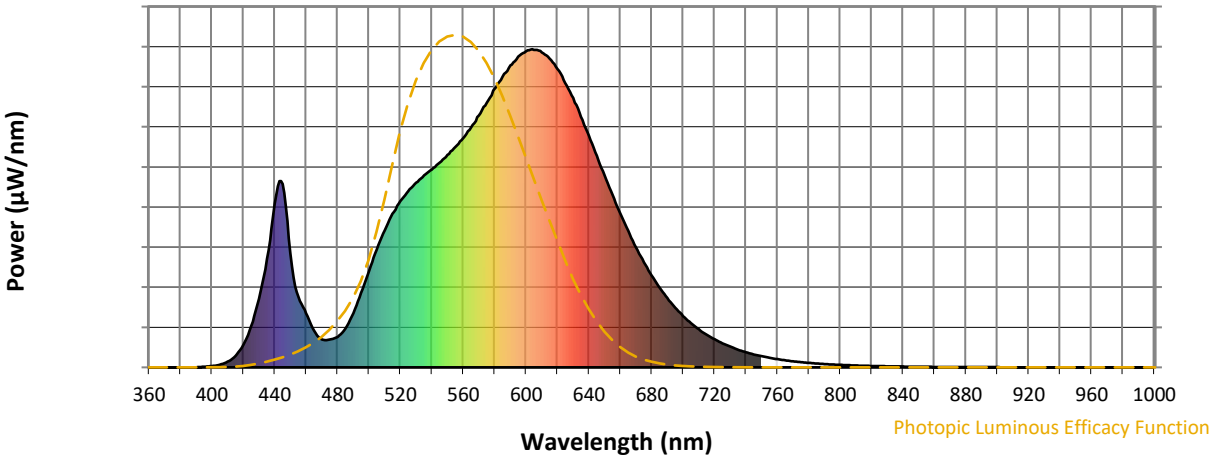
## Photopic Flux vs. Wavelength




## 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 | 170 | NR | 620 | 938 | NR | 750 | 35 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 234 | NR | 625 | 894 | NR | 755 | 30 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 302 | NR | 630 | 847 | NR | 760 | 26 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 371 | NR | 635 | 788 | NR | 765 | 22 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 431 | NR | 640 | 728 | NR | 770 | 19 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 482 | NR | 645 | 665 | NR | 775 | 16 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 523 | NR | 650 | 603 | NR | 780 | 14 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 553 | NR | 655 | 542 | NR | 785 | 12 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 580 | NR | 660 | 484 | NR | 790 | 11 | NR | 920 | 0 | NR |
| 405 | 8 | NR | 535 | 603 | NR | 665 | 430 | NR | 795 | 9 | NR | 925 | 0 | NR |
| 410 | 18 | NR | 540 | 622 | NR | 670 | 377 | NR | 800 | 8 | NR | 930 | 0 | NR |
| 415 | 36 | NR | 545 | 644 | NR | 675 | 330 | NR | 805 | 7 | NR | 935 | 0 | NR |
| 420 | 71 | NR | 550 | 668 | NR | 680 | 289 | NR | 810 | 6 | NR | 940 | 0 | NR |
| 425 | 131 | NR | 555 | 693 | NR | 685 | 250 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 215 | NR | 560 | 720 | NR | 690 | 218 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 341 | NR | 565 | 754 | NR | 695 | 188 | NR | 825 | 4 | NR | 955 | 0 | NR |
| 440 | 514 | NR | 570 | 792 | NR | 700 | 161 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 576 | NR | 575 | 832 | NR | 705 | 139 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 358 | NR | 580 | 875 | NR | 710 | 119 | NR | 840 | 3 | NR | 970 | 0 | NR |
| 455 | 222 | NR | 585 | 913 | NR | 715 | 102 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 170 | NR | 590 | 950 | NR | 720 | 88 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 115 | NR | 595 | 977 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 88 | NR | 600 | 994 | NR | 730 | 65 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 87 | NR | 605 | 997 | NR | 735 | 56 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 96 | NR | 610 | 990 | NR | 740 | 47 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 122 | NR | 615 | 971 | NR | 745 | 41 | NR | 875 | 1 | NR | | | |

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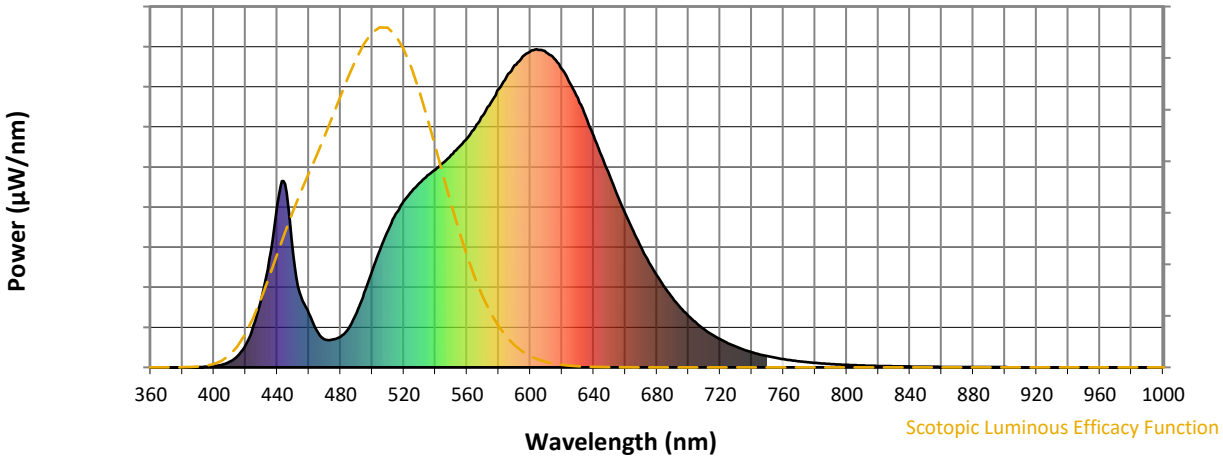
## Scotopic Flux vs. Wavelength




**Scotopic Lumens: NR** **S/P: 1.28**

| 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 | 170 | NR | 620 | 938 | NR | 750 | 35 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 234 | NR | 625 | 894 | NR | 755 | 30 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 302 | NR | 630 | 847 | NR | 760 | 26 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 371 | NR | 635 | 788 | NR | 765 | 22 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 431 | NR | 640 | 728 | NR | 770 | 19 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 482 | NR | 645 | 665 | NR | 775 | 16 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 523 | NR | 650 | 603 | NR | 780 | 14 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 553 | NR | 655 | 542 | NR | 785 | 12 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 580 | NR | 660 | 484 | NR | 790 | 11 | NR | 920 | 0 | NR |
| 405 | 8 | NR | 535 | 603 | NR | 665 | 430 | NR | 795 | 9 | NR | 925 | 0 | NR |
| 410 | 18 | NR | 540 | 622 | NR | 670 | 377 | NR | 800 | 8 | NR | 930 | 0 | NR |
| 415 | 36 | NR | 545 | 644 | NR | 675 | 330 | NR | 805 | 7 | NR | 935 | 0 | NR |
| 420 | 71 | NR | 550 | 668 | NR | 680 | 289 | NR | 810 | 6 | NR | 940 | 0 | NR |
| 425 | 131 | NR | 555 | 693 | NR | 685 | 250 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 215 | NR | 560 | 720 | NR | 690 | 218 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 341 | NR | 565 | 754 | NR | 695 | 188 | NR | 825 | 4 | NR | 955 | 0 | NR |
| 440 | 514 | NR | 570 | 792 | NR | 700 | 161 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 576 | NR | 575 | 832 | NR | 705 | 139 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 358 | NR | 580 | 875 | NR | 710 | 119 | NR | 840 | 3 | NR | 970 | 0 | NR |
| 455 | 222 | NR | 585 | 913 | NR | 715 | 102 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 170 | NR | 590 | 950 | NR | 720 | 88 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 115 | NR | 595 | 977 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 88 | NR | 600 | 994 | NR | 730 | 65 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 87 | NR | 605 | 997 | NR | 735 | 56 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 96 | NR | 610 | 990 | NR | 740 | 47 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 122 | NR | 615 | 971 | NR | 745 | 41 | NR | 875 | 1 | NR | | | |

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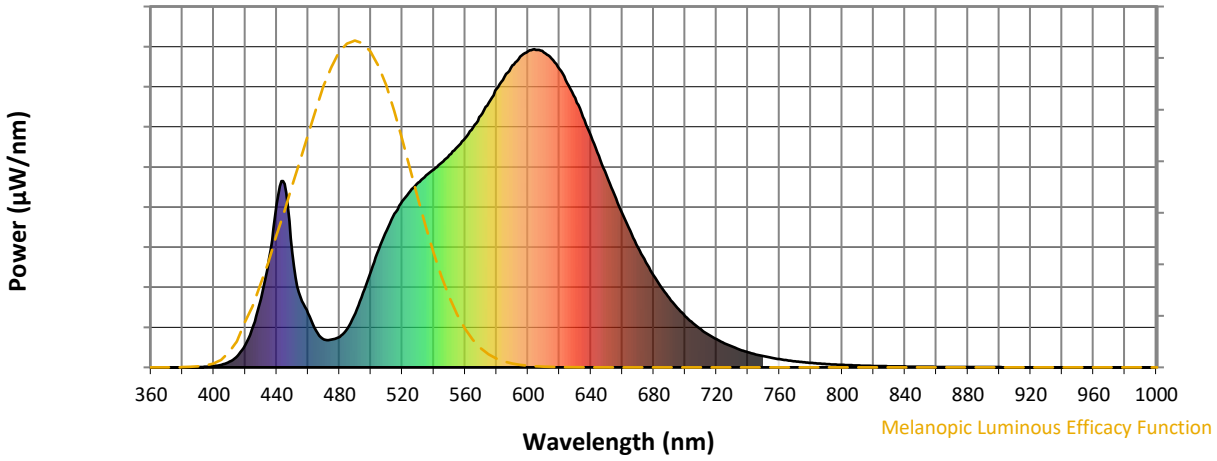
## Melanopic Flux vs. Wavelength




**Melanopic Lumens: NR** **M/P: 2.33**

| 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 | 170 | NR | 620 | 938 | NR | 750 | 35 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 234 | NR | 625 | 894 | NR | 755 | 30 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 302 | NR | 630 | 847 | NR | 760 | 26 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 371 | NR | 635 | 788 | NR | 765 | 22 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 431 | NR | 640 | 728 | NR | 770 | 19 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 482 | NR | 645 | 665 | NR | 775 | 16 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 523 | NR | 650 | 603 | NR | 780 | 14 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 553 | NR | 655 | 542 | NR | 785 | 12 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 580 | NR | 660 | 484 | NR | 790 | 11 | NR | 920 | 0 | NR |
| 405 | 8 | NR | 535 | 603 | NR | 665 | 430 | NR | 795 | 9 | NR | 925 | 0 | NR |
| 410 | 18 | NR | 540 | 622 | NR | 670 | 377 | NR | 800 | 8 | NR | 930 | 0 | NR |
| 415 | 36 | NR | 545 | 644 | NR | 675 | 330 | NR | 805 | 7 | NR | 935 | 0 | NR |
| 420 | 71 | NR | 550 | 668 | NR | 680 | 289 | NR | 810 | 6 | NR | 940 | 0 | NR |
| 425 | 131 | NR | 555 | 693 | NR | 685 | 250 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 215 | NR | 560 | 720 | NR | 690 | 218 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 341 | NR | 565 | 754 | NR | 695 | 188 | NR | 825 | 4 | NR | 955 | 0 | NR |
| 440 | 514 | NR | 570 | 792 | NR | 700 | 161 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 576 | NR | 575 | 832 | NR | 705 | 139 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 358 | NR | 580 | 875 | NR | 710 | 119 | NR | 840 | 3 | NR | 970 | 0 | NR |
| 455 | 222 | NR | 585 | 913 | NR | 715 | 102 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 170 | NR | 590 | 950 | NR | 720 | 88 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 115 | NR | 595 | 977 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 88 | NR | 600 | 994 | NR | 730 | 65 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 87 | NR | 605 | 997 | NR | 735 | 56 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 96 | NR | 610 | 990 | NR | 740 | 47 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 122 | NR | 615 | 971 | NR | 745 | 41 | NR | 875 | 1 | NR | | | |

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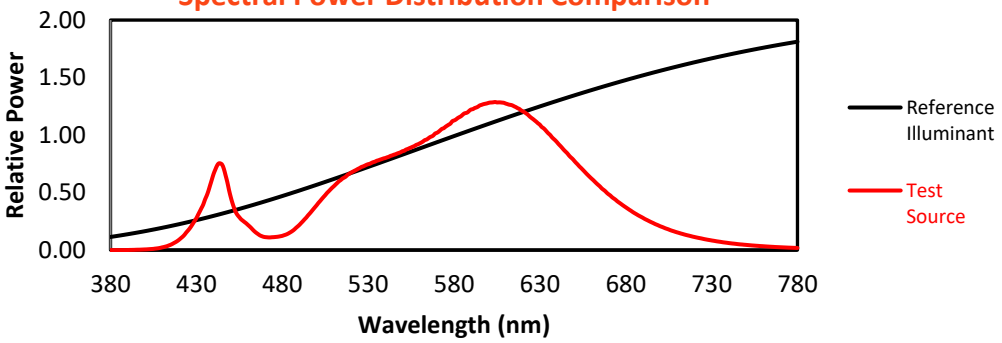
# TM-30-18

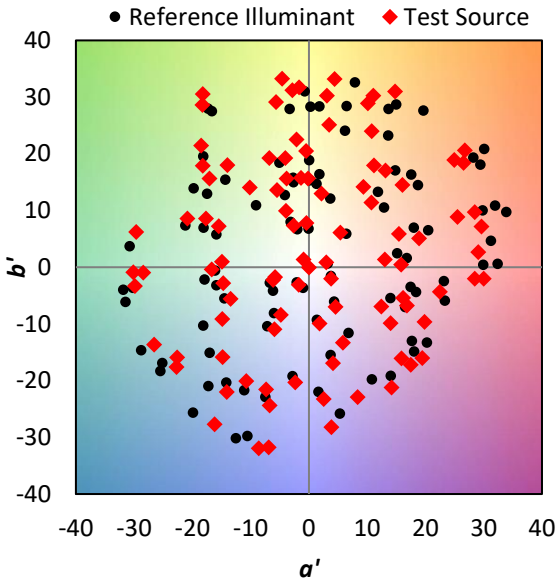
## Summary

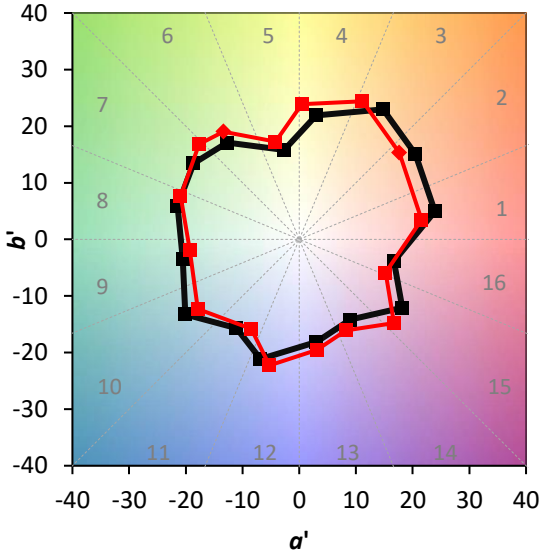
$R_f$ = 81.5
$R_g$ = 99.2
CIE $R_a$ = 80.9
$R_9$ = 6.8

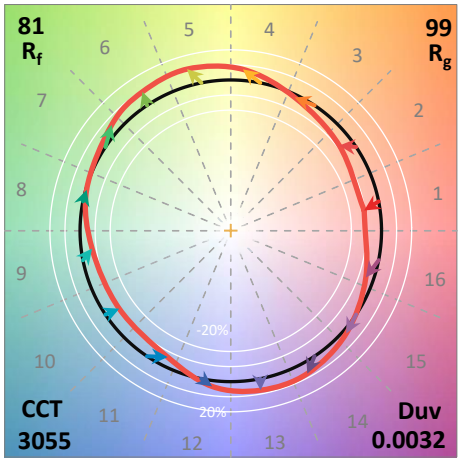
## Spectral Power Distribution Comparison

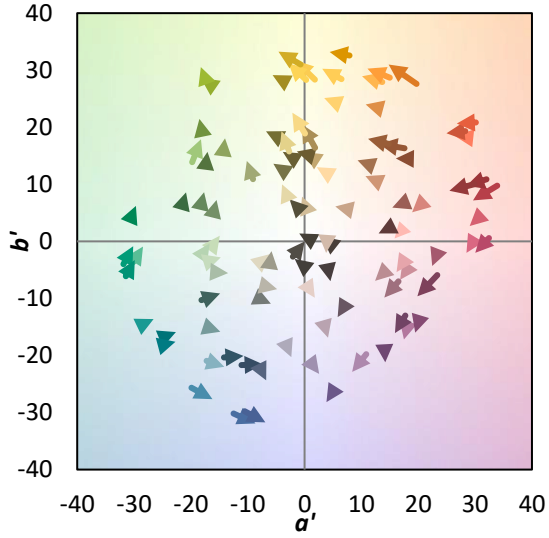



## Color Vector Graphics



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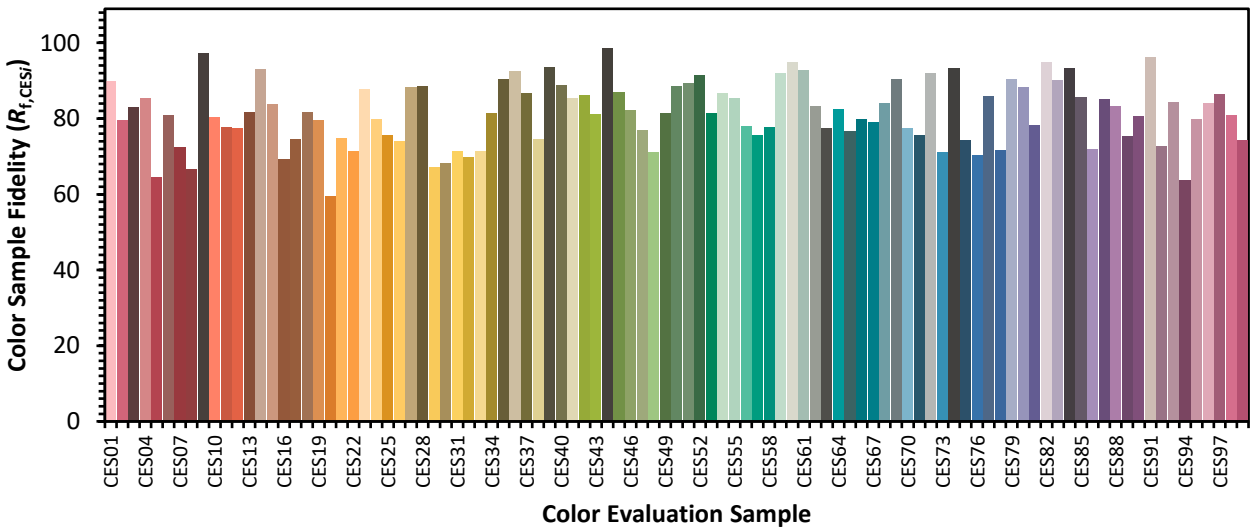
## Individual Sample Fidelity Index ($R_{f,i}$)

| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 74 | CES51 = 89 | CES76 = 70 |
| CES02 = 63 | CES27 = 88 | CES52 = 91 | CES77 = 86 |
| CES03 = 31 | CES28 = 89 | CES53 = 81 | CES78 = 72 |
| CES04 = 70 | CES29 = 67 | CES54 = 87 | CES79 = 90 |
| CES05 = 50 | CES30 = 68 | CES55 = 85 | CES80 = 88 |
| CES06 = 51 | CES31 = 71 | CES56 = 78 | CES81 = 78 |
| CES07 = 42 | CES32 = 70 | CES57 = 76 | CES82 = 95 |
| CES08 = 41 | CES33 = 71 | CES58 = 78 | CES83 = 90 |
| CES09 = 29 | CES34 = 82 | CES59 = 92 | CES84 = 93 |
| CES10 = 76 | CES35 = 90 | CES60 = 95 | CES85 = 86 |
| CES11 = 59 | CES36 = 93 | CES61 = 93 | CES86 = 72 |
| CES12 = 65 | CES37 = 87 | CES62 = 83 | CES87 = 85 |
| CES13 = 43 | CES38 = 75 | CES63 = 77 | CES88 = 83 |
| CES14 = 74 | CES39 = 94 | CES64 = 83 | CES89 = 75 |
| CES15 = 71 | CES40 = 89 | CES65 = 77 | CES90 = 81 |
| CES16 = 47 | CES41 = 85 | CES66 = 80 | CES91 = 96 |
| CES17 = 50 | CES42 = 86 | CES67 = 79 | CES92 = 73 |
| CES18 = 56 | CES43 = 81 | CES68 = 84 | CES93 = 84 |
| CES19 = 72 | CES44 = 99 | CES69 = 90 | CES94 = 64 |
| CES20 = 66 | CES45 = 87 | CES70 = 77 | CES95 = 80 |
| CES21 = 87 | CES46 = 82 | CES71 = 76 | CES96 = 84 |
| CES22 = 79 | CES47 = 77 | CES72 = 92 | CES97 = 87 |
| CES23 = 92 | CES48 = 71 | CES73 = 71 | CES98 = 81 |
| CES24 = 91 | CES49 = 81 | CES74 = 93 | CES99 = 74 |
| CES25 = 72 | CES50 = 89 | CES75 = 74 | |



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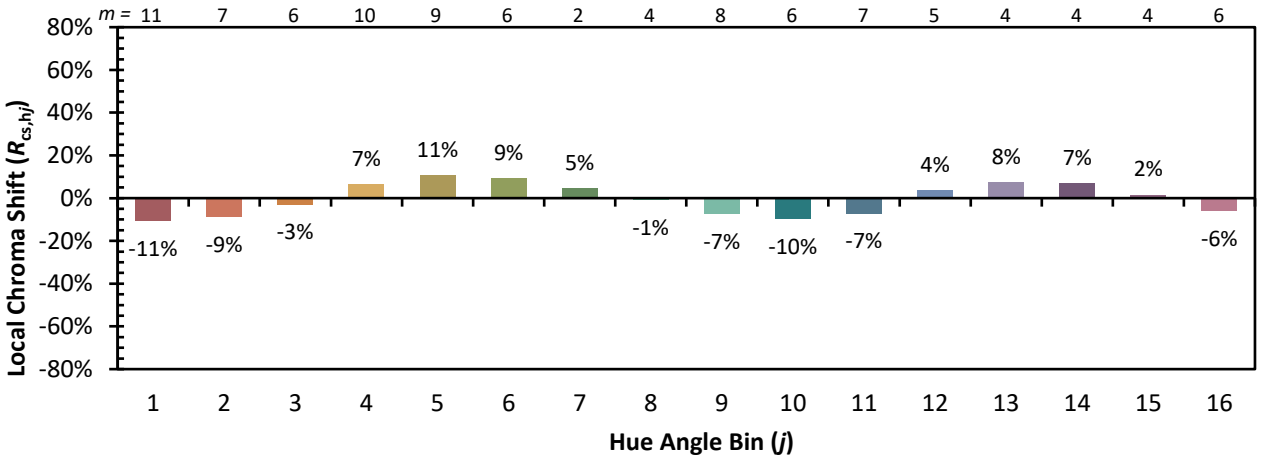
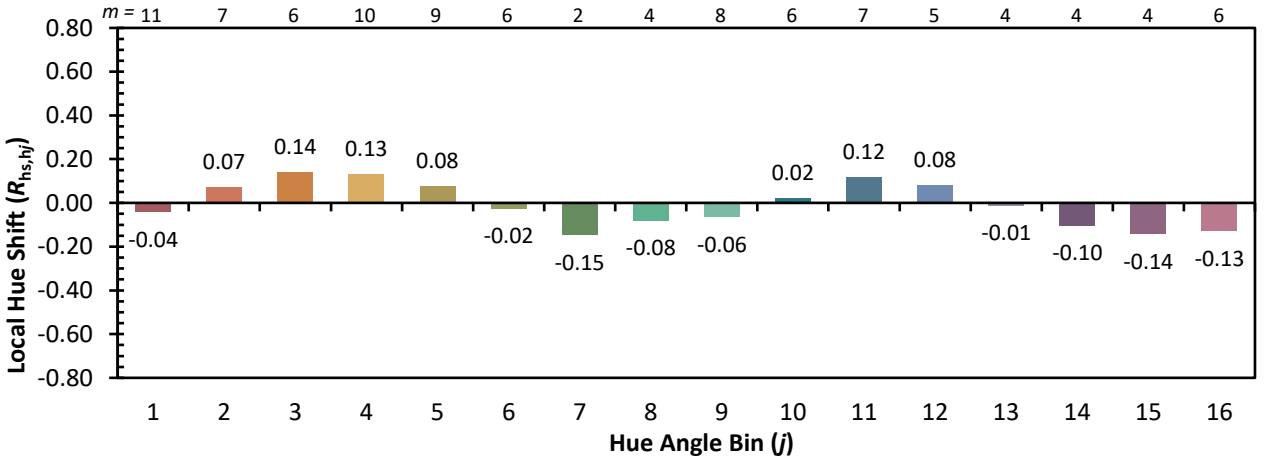
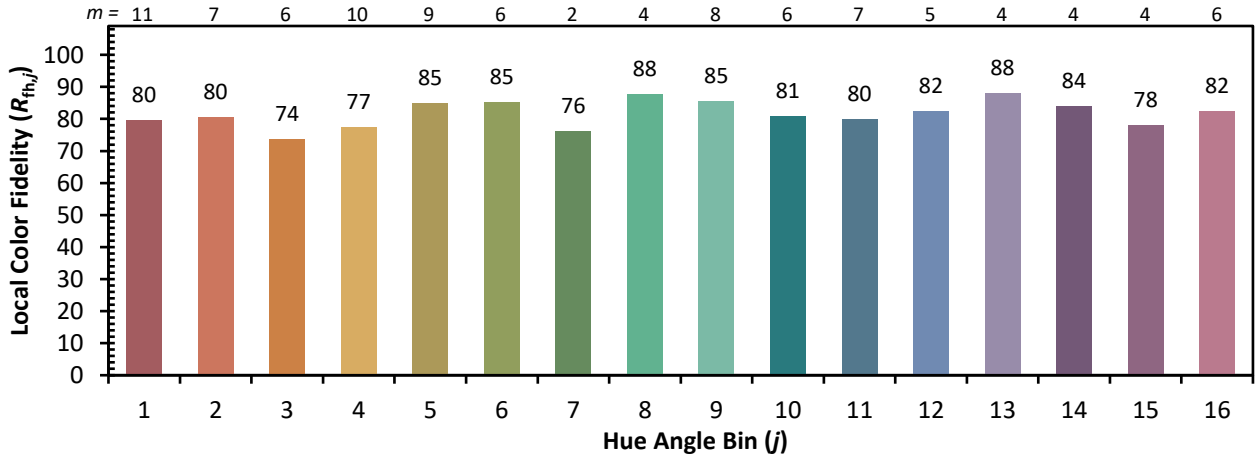
## Color Rendition by Hue-Angle Bin



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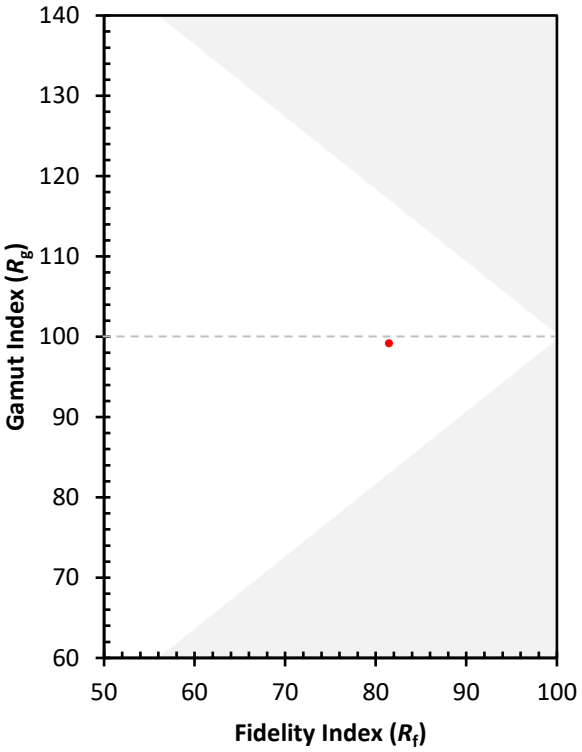
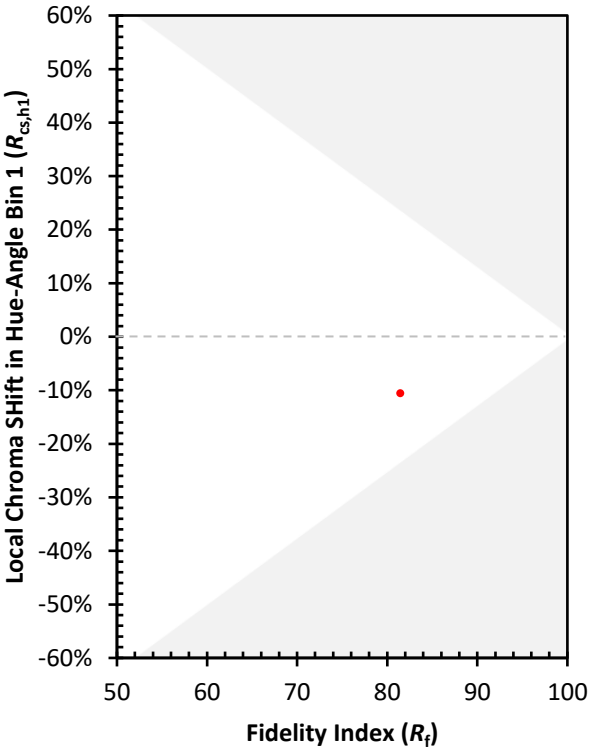
## Measure Comparisons




(END OF REPORT)