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

Scaled data based on original data using

LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: McGRAW-EDISON

Report Number: P323670

Luminaire Tested: **GLEON-SA6A-830-U-SL3-HSS**

Issue Date: 3/3/2020

Report Generated By E0585644

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

Scaled Data Report

**Test Information**

| | |
|---|---|
| Test Method: | LM-79-08 |
| Report Number: | P323670 |
| | TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-23) |
| Test Lab: | INNOVATION CENTER |
| Issue Date: | 3/3/2020 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS (FORMERLY EATON) |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | GLEON-SA6A-830-U-SL3-HSS |
| Description: | GALLEON AREA AND ROADWAY LUMINAIRE |
| | (6) 80 CRI, 3000K, 615mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III |
| | SPILL LIGHT ELIMINATOR OPTICS WITH HOUSE SIDE SHIELD |
| Light Source: | - |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 18922 lumens |
| Efficiency: | N/A |
| Efficacy: | 98.0 lumens/watt |
| Luminous Opening: | Rectangular (W 1.5' x L: 1' x H: 0') |
| IES Classification: | Type III - Medium |
| BUG Rating: | B2 - U0 - G3 |

| | |
|---|---|
| Input Watts (W): | 193 |
| Input Voltage (V): | NR |
| Input Current (Ain): | NR |
| Voltage Rise (V): | NR |
| Power Factor: | NR |
| Total Harmonic Distortion (THDi): | NR |
| Frequency (hertz): | 60 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 24 FT |

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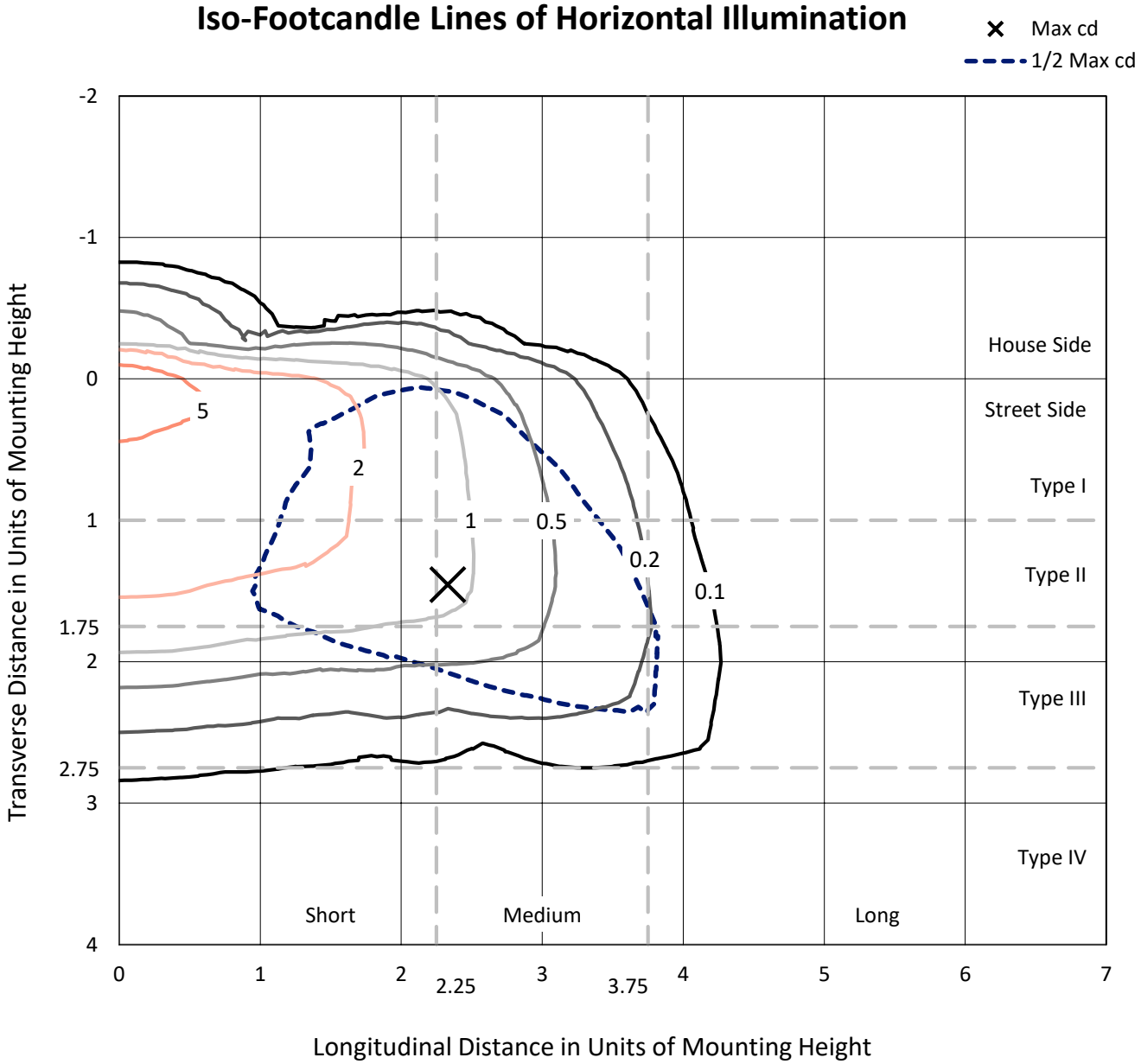
Scaled Data Report

REPORT NUMBER: P323670
CATALOG NUMBER: GLEON-SA6A-830-U-SL3-HSS

## Iso-Footcandle Lines of Horizontal Illumination




Based on 25 foot mounting height. Maximum calculated value = 9.1 fc
Type III - Medium - N/A

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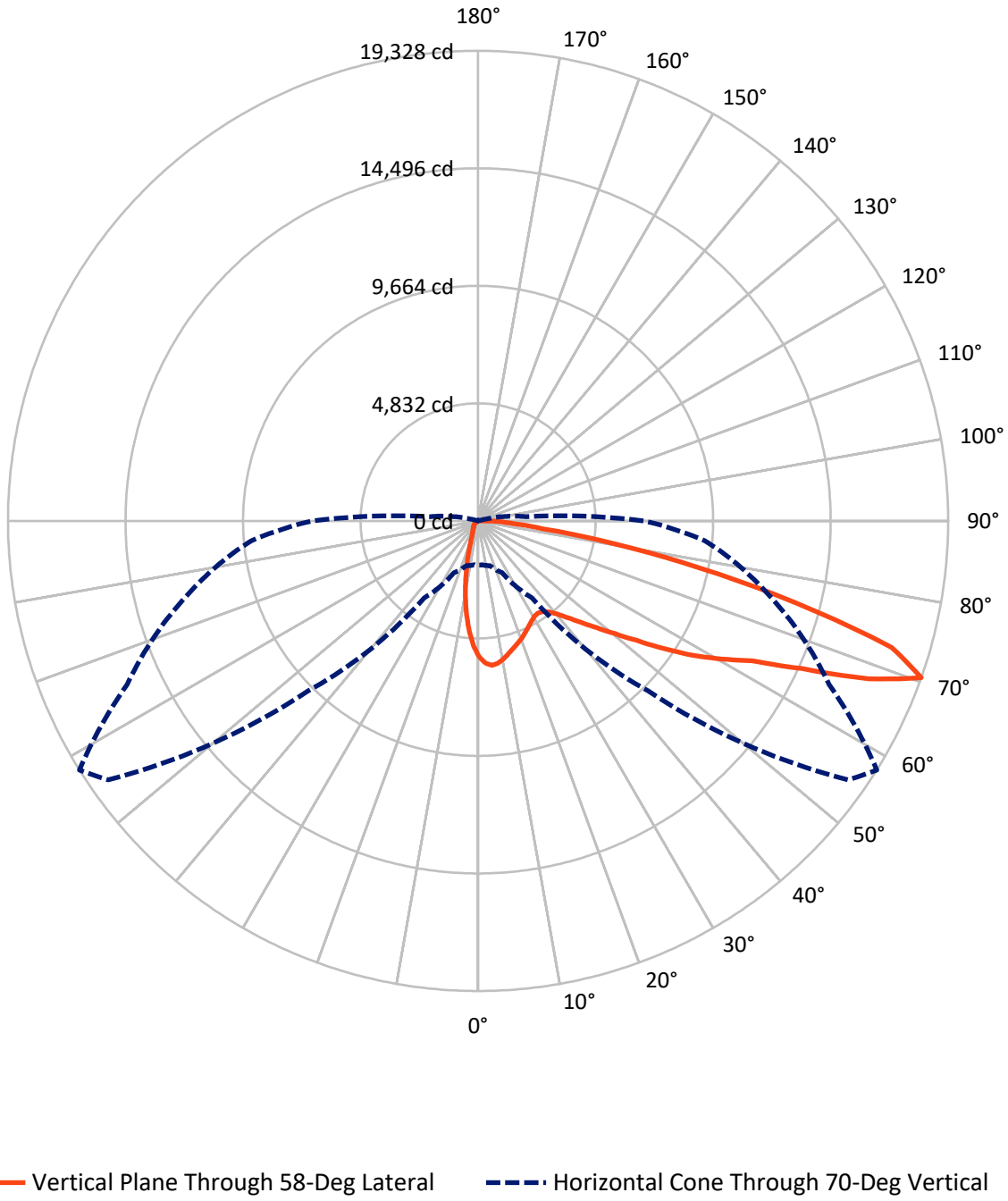
## Luminous Intensity Polar Plot



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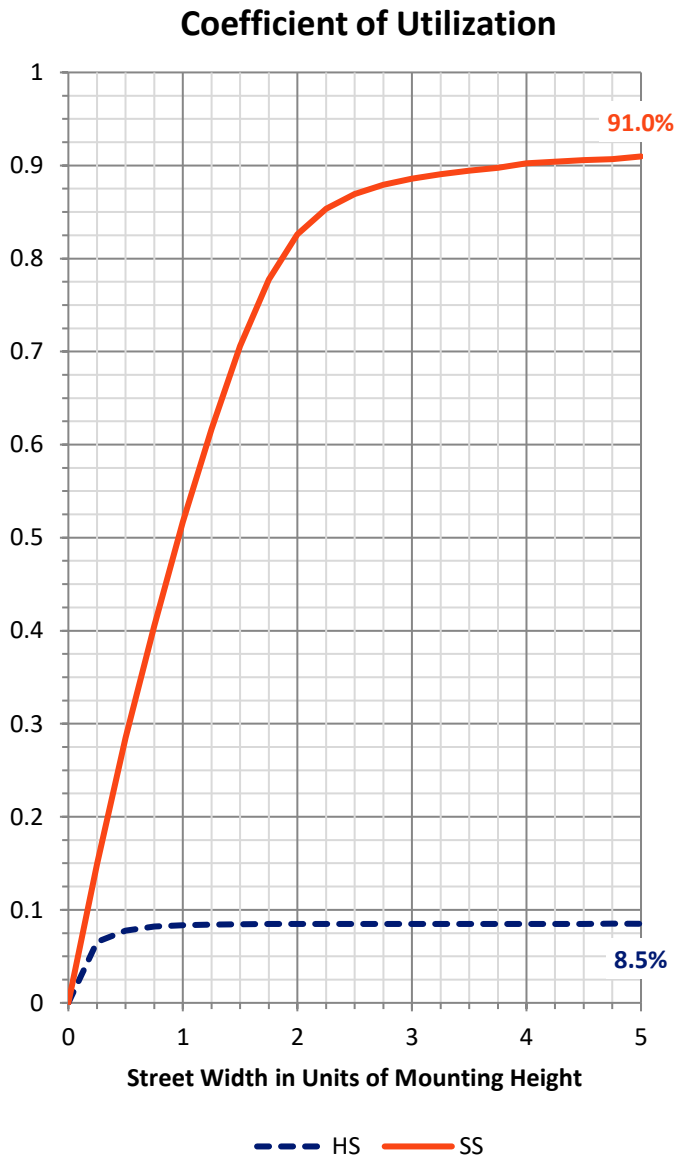
REPORT NUMBER: P323670
CATALOG NUMBER: GLEON-SA6A-830-U-SL3-HSS

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 1619.3 | 0.0 | 1619.3 |
| | % Fixture | 8.6 | 0.0 | 8.6 |
| **Street Side** | Lumens | 17302.7 | 0.0 | 17302.7 |
| | % Fixture | 91.4 | 0.0 | 91.4 |
| **Total** | Lumens | 18922.0 | 0.0 | 18922.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 457.1 | 2.4 |
| 10°-20° | 959.3 | 5.1 |
| 20°-30° | 1261.1 | 6.7 |
| 30°-40° | 1670.2 | 8.8 |
| 40°-50° | 2496.5 | 13.2 |
| 50°-60° | 3999.3 | 21.1 |
| 60°-70° | 5041.1 | 26.6 |
| 70°-80° | 2719.1 | 14.4 |
| 80°-90° | 318.3 | 1.7 |
| 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° | 18922.0 | 100.0 |
| 0°-180° | 18922.0 | 100.0 |



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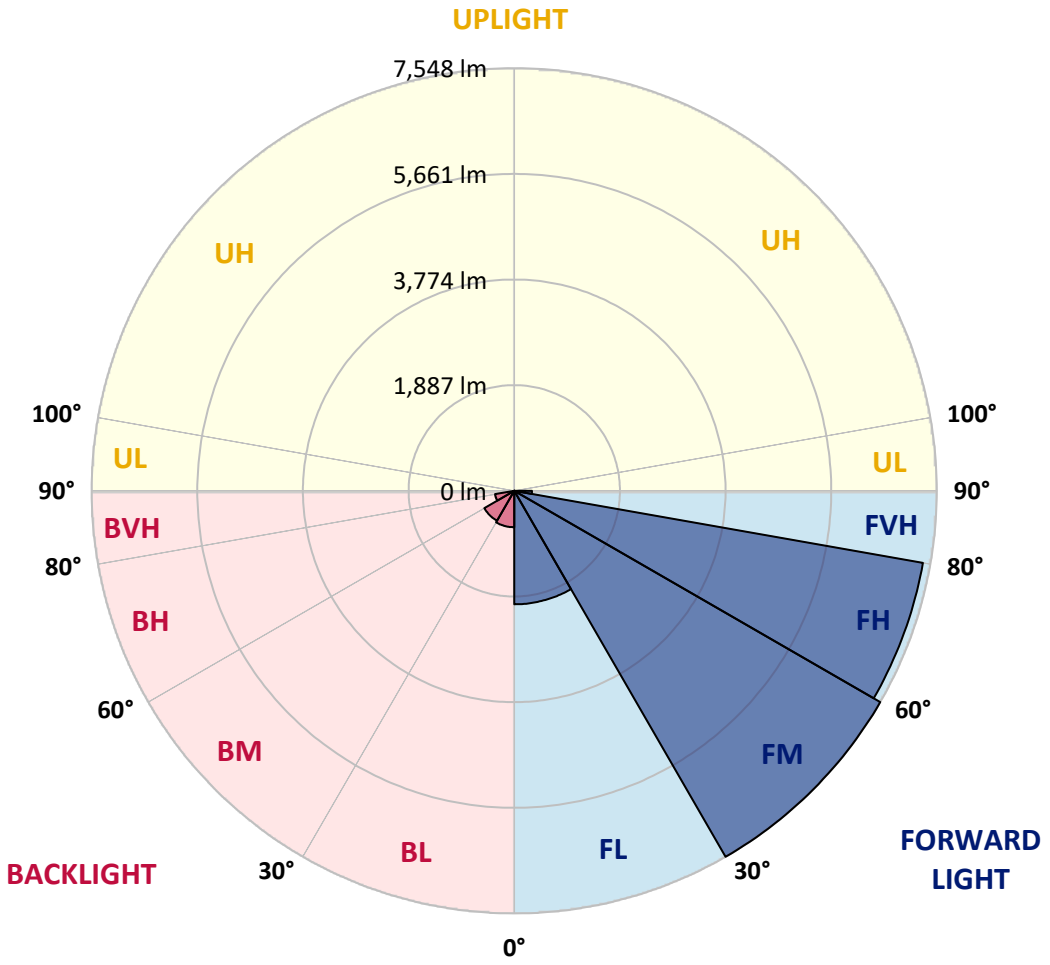
REPORT NUMBER: P323670
CATALOG NUMBER: GLEON-SA6A-830-U-SL3-HSS

## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 2026.9 | 10.7 | | | |
| FM | (30°-60°) | 7548.3 | 39.9 | | | |
| FH | (60°-80°) | 7412.0 | 39.2 | | | G3/7500 |
| FVH | (80°-90°) | 315.5 | 1.7 | | | G3/500 |
| BL | (0°-30°) | 650.6 | 3.4 | B2/1000 | | |
| BM | (30°-60°) | 617.7 | 3.3 | B1/1000 | | |
| BH | (60°-80°) | 348.2 | 1.8 | B1/500 | | G1/500 |
| BVH | (80°-90°) | 2.7 | 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 Medium



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Scaled Data Report

REPORT NUMBER: P323670
CATALOG NUMBER: GLEON-SA6A-830-U-SL3-HSS

**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 58° | 65° | 75° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 5589.5 | 5589.5 | 5589.5 | 5589.5 | 5589.5 | 5589.5 | 5589.5 | 5589.5 | 5589.5 | 5589.5 | 5589.5 |
| 2.5° | 6052.9 | 6037.9 | 6032.4 | 6023.0 | 5986.8 | 5951.4 | 5881.4 | 5861.7 | 5817.6 | 5713.0 | 5602.1 |
| 5° | 6057.6 | 6056.8 | 6073.4 | 6069.4 | 6056.8 | 6040.3 | 5990.0 | 5964.0 | 5889.2 | 5739.7 | 5536.8 |
| 7.5° | 5765.7 | 5780.7 | 5817.6 | 5847.5 | 5882.2 | 5927.0 | 5933.3 | 5908.1 | 5846.8 | 5685.5 | 5416.4 |
| 10° | 5373.9 | 5397.5 | 5449.4 | 5508.4 | 5598.9 | 5688.6 | 5768.9 | 5765.7 | 5744.5 | 5585.5 | 5271.6 |
| 12.5° | 4981.3 | 5008.8 | 5068.6 | 5155.9 | 5284.2 | 5430.5 | 5573.7 | 5593.4 | 5628.8 | 5495.8 | 5137.8 |
| 15° | 4637.4 | 4661.0 | 4720.0 | 4827.1 | 4986.0 | 5182.7 | 5392.8 | 5429.0 | 5520.2 | 5425.8 | 5026.1 |
| 17.5° | 4345.5 | 4360.5 | 4403.8 | 4522.6 | 4706.7 | 4945.1 | 5218.1 | 5288.9 | 5425.0 | 5370.7 | 4929.3 |
| 20° | 4141.7 | 4144.1 | 4172.4 | 4255.8 | 4439.9 | 4706.7 | 5037.1 | 5138.6 | 5324.3 | 5323.5 | 4829.4 |
| 22.5° | 4041.0 | 4033.2 | 4038.7 | 4086.7 | 4222.0 | 4479.3 | 4856.2 | 4976.5 | 5233.8 | 5283.4 | 4727.9 |
| 25° | 4022.2 | 4015.9 | 4000.1 | 4006.4 | 4088.2 | 4280.2 | 4673.6 | 4812.9 | 5154.4 | 5259.0 | 4639.8 |
| 27.5° | 4081.2 | 4087.5 | 4060.7 | 4032.4 | 4038.7 | 4151.2 | 4511.5 | 4672.8 | 5089.8 | 5259.0 | 4577.6 |
| 30° | 4200.0 | 4203.1 | 4183.4 | 4146.5 | 4096.9 | 4115.0 | 4399.0 | 4560.3 | 5057.6 | 5295.2 | 4538.3 |
| 32.5° | 4331.4 | 4348.7 | 4346.3 | 4316.4 | 4245.6 | 4172.4 | 4372.3 | 4519.4 | 5055.2 | 5375.5 | 4534.4 |
| 35° | 4494.2 | 4513.9 | 4547.0 | 4540.7 | 4466.7 | 4346.3 | 4463.5 | 4579.2 | 5101.6 | 5507.6 | 4576.9 |
| 37.5° | 4667.3 | 4697.2 | 4768.0 | 4801.9 | 4753.9 | 4617.8 | 4668.1 | 4750.7 | 5226.0 | 5721.7 | 4684.6 |
| 40° | 4834.9 | 4868.8 | 4997.8 | 5130.8 | 5094.6 | 4954.5 | 4978.1 | 5044.2 | 5447.1 | 6029.3 | 4889.2 |
| 42.5° | 4999.4 | 5049.7 | 5239.3 | 5458.1 | 5501.3 | 5389.6 | 5402.2 | 5454.9 | 5775.2 | 6452.6 | 5223.6 |
| 45° | 5196.1 | 5252.7 | 5533.6 | 5803.5 | 5919.1 | 5870.4 | 5923.9 | 5958.5 | 6204.0 | 7012.0 | 5674.4 |
| 47.5° | 5484.8 | 5550.1 | 5894.7 | 6202.4 | 6405.4 | 6436.9 | 6544.7 | 6567.5 | 6746.1 | 7663.5 | 6262.2 |
| 50° | 6048.2 | 6066.3 | 6377.8 | 6657.2 | 6949.9 | 7138.7 | 7261.4 | 7278.7 | 7402.3 | 8375.5 | 6996.3 |
| 52.5° | 6757.1 | 6768.9 | 6945.1 | 7132.4 | 7465.2 | 7850.7 | 8137.9 | 8162.3 | 8188.3 | 9069.5 | 7720.9 |
| 55° | 7461.3 | 7459.7 | 7576.2 | 7686.3 | 8067.1 | 8627.3 | 9250.5 | 9265.4 | 9079.0 | 9728.1 | 8274.8 |
| 57.5° | 7901.1 | 7943.6 | 8120.6 | 8262.2 | 8794.1 | 9512.5 | 10377.2 | 10432.3 | 10014.5 | 10215.9 | 8822.5 |
| 60° | 7761.1 | 7781.5 | 8174.1 | 8698.1 | 9699.7 | 10770.6 | 11517.3 | 11531.4 | 10717.9 | 10702.9 | 9514.8 |
| 62.5° | 6612.3 | 6623.3 | 7240.2 | 8320.5 | 10158.5 | 12402.4 | 12892.6 | 12662.1 | 11526.7 | 11378.8 | 10343.4 |
| 65° | 4532.0 | 4603.6 | 5119.0 | 6454.2 | 9315.8 | 13426.1 | 15021.7 | 14640.1 | 12759.6 | 12352.9 | 11092.4 |
| 67.5° | 2668.8 | 2653.9 | 2908.8 | 3892.3 | 6842.1 | 12746.3 | 17714.9 | 17335.7 | 14441.0 | 13005.1 | 10872.9 |
| 70° | 1823.0 | 1812.8 | 1910.4 | 2356.5 | 3862.4 | 9887.8 | 18562.3 | 19327.9 | 15925.7 | 12566.1 | 9357.5 |
| 72.5° | 1301.4 | 1306.9 | 1450.9 | 1830.9 | 2424.9 | 5761.0 | 15962.7 | 17774.7 | 15460.7 | 10954.7 | 7112.7 |
| 75° | 883.6 | 898.5 | 1104.7 | 1502.0 | 2125.9 | 2930.9 | 11327.6 | 13511.8 | 12589.7 | 7961.7 | 4088.2 |
| 77.5° | 475.2 | 491.8 | 734.9 | 1210.1 | 1922.2 | 2036.3 | 7286.6 | 9299.3 | 7908.2 | 3579.2 | 1184.9 |
| 80° | 198.3 | 207.7 | 343.8 | 879.6 | 1660.9 | 1788.4 | 4287.3 | 5639.0 | 3369.9 | 705.8 | 264.4 |
| 82.5° | 85.8 | 90.5 | 143.2 | 524.8 | 1241.6 | 1509.9 | 2269.9 | 2712.9 | 1021.3 | 155.0 | 133.0 |
| 85° | 16.5 | 17.3 | 59.0 | 277.7 | 792.3 | 852.1 | 1471.3 | 1442.2 | 458.7 | 66.9 | 96.8 |
| 87.5° | 0.0 | 0.0 | 14.2 | 87.3 | 232.9 | 464.2 | 897.7 | 886.7 | 155.8 | 32.3 | 36.2 |
| 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: P323670
CATALOG NUMBER: GLEON-SA6A-830-U-SL3-HSS

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 5589.5 | 5589.5 | 5589.5 | 5589.5 | 5589.5 | 5589.5 | 5589.5 | 5589.5 | 5589.5 | 5589.5 | 5589.5 |
| 2.5° | 5545.4 | 5491.1 | 5377.0 | 5236.2 | 5128.4 | 5009.6 | 4915.2 | 4795.6 | 4743.7 | 4746.0 | 4717.7 |
| 5° | 5421.1 | 5309.4 | 5056.8 | 4738.1 | 4492.7 | 4239.3 | 4021.4 | 3804.2 | 3676.0 | 3634.3 | 3594.9 |
| 7.5° | 5243.3 | 5066.2 | 4663.4 | 4172.4 | 3757.0 | 3351.0 | 2997.7 | 2686.9 | 2490.2 | 2394.3 | 2358.8 |
| 10° | 5042.6 | 4794.0 | 4211.0 | 3564.2 | 2971.0 | 2421.8 | 1963.9 | 1565.7 | 1406.8 | 1299.0 | 1271.5 |
| 12.5° | 4866.4 | 4529.6 | 3768.8 | 2940.3 | 2236.1 | 1573.6 | 1136.9 | 889.1 | 781.3 | 738.8 | 731.7 |
| 15° | 4700.4 | 4282.6 | 3343.1 | 2375.4 | 1548.4 | 968.6 | 723.1 | 638.9 | 613.7 | 606.6 | 606.6 |
| 17.5° | 4543.8 | 4047.3 | 2926.9 | 1819.1 | 1024.4 | 679.0 | 598.8 | 579.9 | 572.0 | 571.2 | 572.0 |
| 20° | 4380.1 | 3812.1 | 2517.8 | 1332.8 | 715.2 | 575.2 | 553.1 | 542.9 | 540.5 | 540.5 | 540.5 |
| 22.5° | 4223.6 | 3576.8 | 2119.7 | 952.0 | 573.6 | 524.8 | 513.8 | 506.7 | 504.3 | 503.6 | 502.0 |
| 25° | 4073.3 | 3353.4 | 1731.0 | 672.7 | 503.6 | 480.7 | 471.3 | 461.9 | 454.8 | 450.8 | 448.5 |
| 27.5° | 3949.8 | 3154.3 | 1369.0 | 539.7 | 454.8 | 435.1 | 423.3 | 409.1 | 391.8 | 384.0 | 380.8 |
| 30° | 3851.4 | 2972.6 | 1055.1 | 455.6 | 409.1 | 389.5 | 371.4 | 347.0 | 321.8 | 308.4 | 307.6 |
| 32.5° | 3774.3 | 2793.9 | 801.0 | 402.8 | 368.2 | 343.8 | 317.9 | 287.2 | 258.1 | 243.1 | 242.3 |
| 35° | 3736.5 | 2636.6 | 612.1 | 364.3 | 332.0 | 301.3 | 269.1 | 235.3 | 206.9 | 192.8 | 191.2 |
| 37.5° | 3761.7 | 2503.6 | 477.6 | 332.0 | 301.3 | 265.9 | 228.2 | 192.8 | 167.6 | 155.0 | 154.2 |
| 40° | 3853.8 | 2418.6 | 387.9 | 304.5 | 275.4 | 232.1 | 191.2 | 158.1 | 136.9 | 126.7 | 125.9 |
| 42.5° | 4049.7 | 2387.2 | 331.2 | 281.7 | 250.2 | 200.6 | 158.9 | 130.6 | 110.9 | 103.9 | 102.3 |
| 45° | 4377.0 | 2433.6 | 292.7 | 259.6 | 224.2 | 170.7 | 131.4 | 107.0 | 89.7 | 84.2 | 83.4 |
| 47.5° | 4812.9 | 2555.5 | 265.2 | 238.4 | 200.6 | 144.0 | 109.4 | 86.5 | 73.2 | 67.7 | 66.9 |
| 50° | 5374.7 | 2749.1 | 242.3 | 217.2 | 178.6 | 122.0 | 90.5 | 68.5 | 56.7 | 52.7 | 52.7 |
| 52.5° | 5986.0 | 2979.6 | 221.9 | 197.5 | 156.6 | 101.5 | 73.2 | 52.7 | 44.8 | 40.1 | 40.1 |
| 55° | 6491.1 | 3181.1 | 199.8 | 182.5 | 129.8 | 84.2 | 55.9 | 40.1 | 33.0 | 30.7 | 30.7 |
| 57.5° | 6995.5 | 3395.9 | 174.7 | 156.6 | 103.9 | 68.5 | 42.5 | 29.9 | 24.4 | 22.8 | 22.8 |
| 60° | 7649.3 | 3658.6 | 150.3 | 127.5 | 81.8 | 51.9 | 31.5 | 21.2 | 18.1 | 17.3 | 17.3 |
| 62.5° | 8368.5 | 3812.9 | 128.2 | 102.3 | 63.7 | 38.6 | 22.8 | 14.2 | 13.4 | 13.4 | 12.6 |
| 65° | 8808.3 | 3594.9 | 107.8 | 81.8 | 49.6 | 29.1 | 14.9 | 10.2 | 11.8 | 11.0 | 9.4 |
| 67.5° | 8247.3 | 2814.4 | 88.1 | 63.7 | 38.6 | 22.0 | 9.4 | 7.1 | 12.6 | 10.2 | 7.9 |
| 70° | *6828.7* | *1970.2* | *68.5* | *44.8* | *30.7* | *18.9* | *6.3* | *4.7* | *13.4* | *10.2* | *6.3* |
| 72.5° | 5110.3 | 1318.7 | 54.3 | 29.9 | 22.8 | 16.5 | 5.5 | 2.4 | 11.8 | 8.7 | 5.5 |
| 75° | 2792.4 | 531.1 | 43.3 | 18.9 | 14.2 | 11.8 | 3.9 | 1.6 | 7.9 | 6.3 | 3.9 |
| 77.5° | 734.9 | 140.1 | 31.5 | 12.6 | 7.9 | 4.7 | 2.4 | 0.8 | 3.9 | 3.1 | 1.6 |
| 80° | 187.3 | 54.3 | 20.5 | 8.7 | 5.5 | 2.4 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 |
| 82.5° | 99.9 | 22.8 | 12.6 | 6.3 | 3.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 75.5 | 14.9 | 7.1 | 3.9 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 29.1 | 4.7 | 2.4 | 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: SP1-2408-195-9

Test Date: 08/07/2024

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

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

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

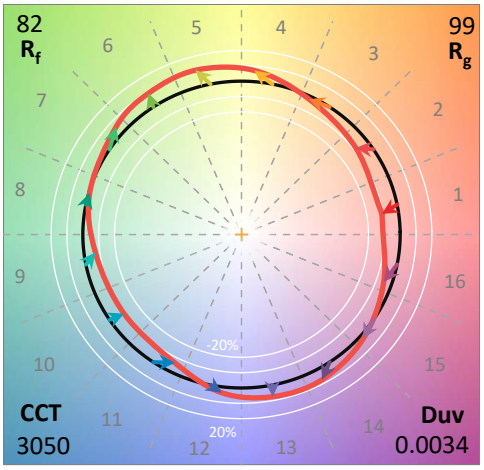
## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP1-2408-195-9 |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Photometer: | SP1 - 76IN SPHERE |
| Measurement Geometry: | 4π |
| Issue Date: | 08/07/2024 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | MCGRAW EDISON |
| Catalog Number: | **GALN-SB1A-830-U-5WQ** |
| Description: | GALLEON AREA AND ROADWAY LUMINAIRE. (1) 80 CRI, 3000K, 350MA HIGH DENSITY LIGHTSQUARE WITH 26 LEDS AND TYPE V WIDE OPTICS |

## Spectral Parameters

| | | | | | |
|---|---|---|---|---|---|
| CCT (K): | 3050 | CRI (Ra): | 81.0 | | |
| CIE u': | 0.2476 | R1: | 79.6 | R9: | 7.1 |
| CIE v': | 0.5251 | R2: | 85.6 | R10: | 67.0 |
| Duv: | 0.0034 | R3: | 92.0 | R11: | 82.7 |
| CIE x: | 0.4383 | R4: | 82.6 | R12: | 63.2 |
| CIE y: | 0.4131 | R5: | 78.9 | R13: | 80.3 |
| CIE z: | 0.1487 | R6: | 81.7 | R14: | 95.0 |
| Peak Wavelength (nm): | 603 | R7: | 85.2 | R15: | 71.7 |
| Dominant Wavelength (nm): | 581 | R8: | 62.0 | | |
| Purity: | 55.55201 | | | | |

| | |
|---|---|
| Rf: | 81.5 |
| Rg: | 99.2 |




## Test Conditions

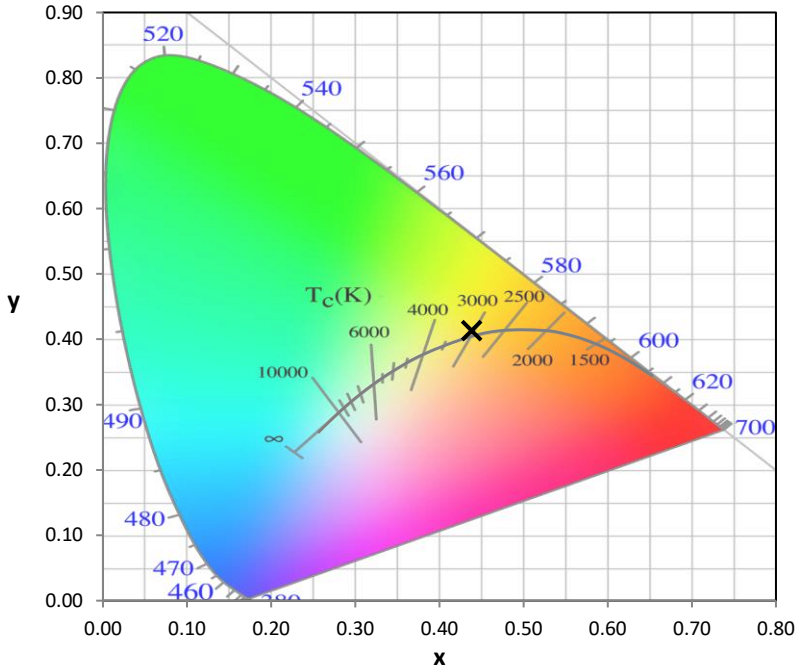
| | |
|---|---|
| Stabilization Time: | 20M |
| Operation Time: | 1H 20M |
| Sphere Temperature (°C): | 24.2 |

REPORT NUMBER: SP1-2408-195-9

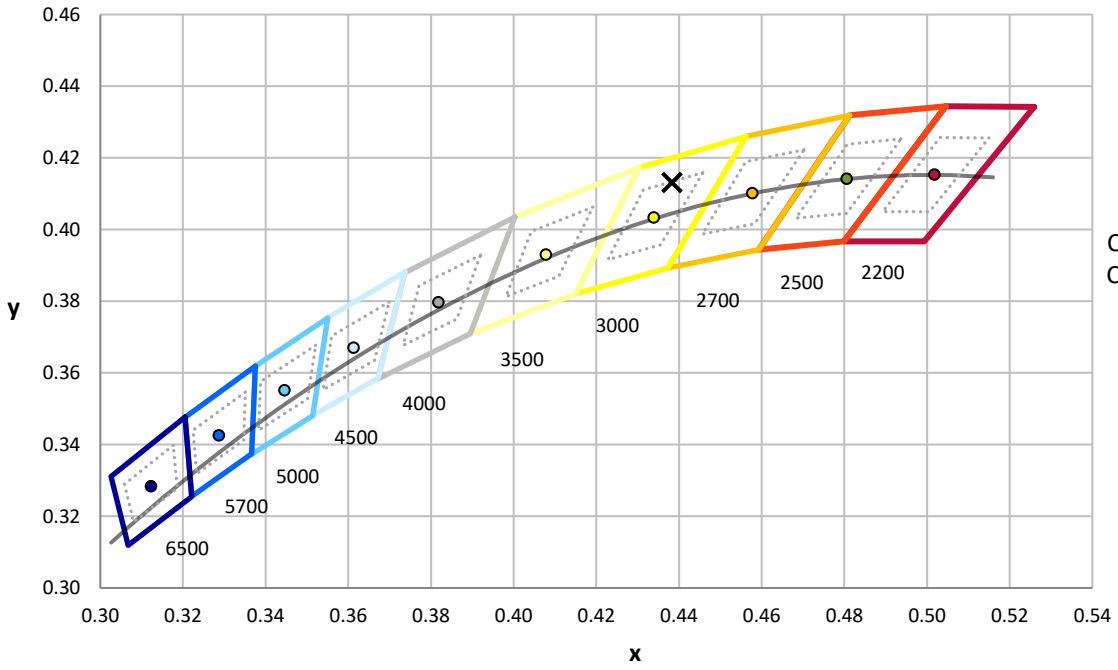
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 2/8/2024 | 2/8/2025 |
| AC Power Source | IN0063 | 10/24/2023 | 10/24/2024 |
| DC Power Source | IN0208 | 10/24/2023 | 10/24/2024 |
| Sphere Thermometer | IN0085 | 10/24/2023 | 10/24/2024 |
| Room Thermometer | IN0046 | 10/24/2023 | 10/24/2024 |

REPORT NUMBER: SP1-2408-195-9

## CIE 1931 Chromaticity Diagram




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




CCT = 3050K
CIE x = 0.4383
CIE y = 0.4131
Duv = 0.0034

Point lies inside the ANSI 3000K 4-step quadrangle

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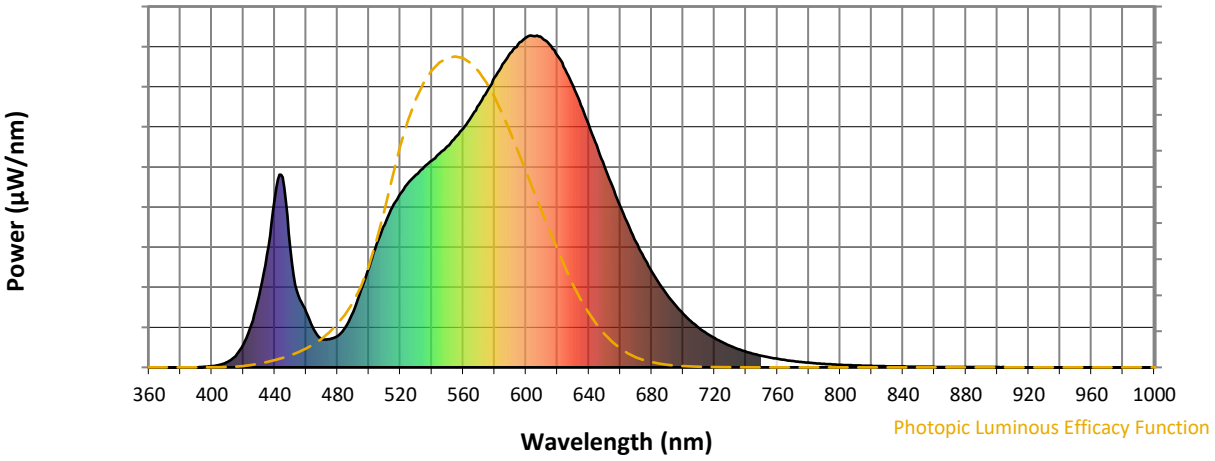
## Photopic Flux vs. Wavelength




## 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 | 168 | NR | 620 | 940 | NR | 750 | 35 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 233 | NR | 625 | 897 | NR | 755 | 30 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 300 | NR | 630 | 847 | NR | 760 | 26 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 372 | NR | 635 | 790 | NR | 765 | 22 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 430 | NR | 640 | 730 | NR | 770 | 19 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 483 | NR | 645 | 668 | NR | 775 | 16 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 524 | NR | 650 | 605 | NR | 780 | 14 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 555 | NR | 655 | 545 | NR | 785 | 12 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 581 | NR | 660 | 485 | NR | 790 | 10 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 604 | NR | 665 | 430 | NR | 795 | 9 | NR | 925 | 0 | NR |
| 410 | 17 | NR | 540 | 623 | NR | 670 | 378 | NR | 800 | 8 | NR | 930 | 0 | NR |
| 415 | 34 | NR | 545 | 645 | NR | 675 | 331 | NR | 805 | 7 | NR | 935 | 0 | NR |
| 420 | 68 | NR | 550 | 667 | NR | 680 | 290 | NR | 810 | 6 | NR | 940 | 0 | NR |
| 425 | 128 | NR | 555 | 693 | NR | 685 | 251 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 214 | NR | 560 | 719 | NR | 690 | 218 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 339 | NR | 565 | 754 | NR | 695 | 188 | NR | 825 | 4 | NR | 955 | 0 | NR |
| 440 | 507 | NR | 570 | 791 | NR | 700 | 162 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 573 | NR | 575 | 830 | NR | 705 | 139 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 356 | NR | 580 | 873 | NR | 710 | 119 | NR | 840 | 3 | NR | 970 | 0 | NR |
| 455 | 217 | NR | 585 | 913 | NR | 715 | 102 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 168 | NR | 590 | 948 | NR | 720 | 88 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 113 | NR | 595 | 974 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 85 | NR | 600 | 994 | NR | 730 | 65 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 85 | NR | 605 | 998 | NR | 735 | 55 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 94 | NR | 610 | 994 | NR | 740 | 47 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 120 | NR | 615 | 973 | NR | 745 | 41 | NR | 875 | 1 | NR | | | |

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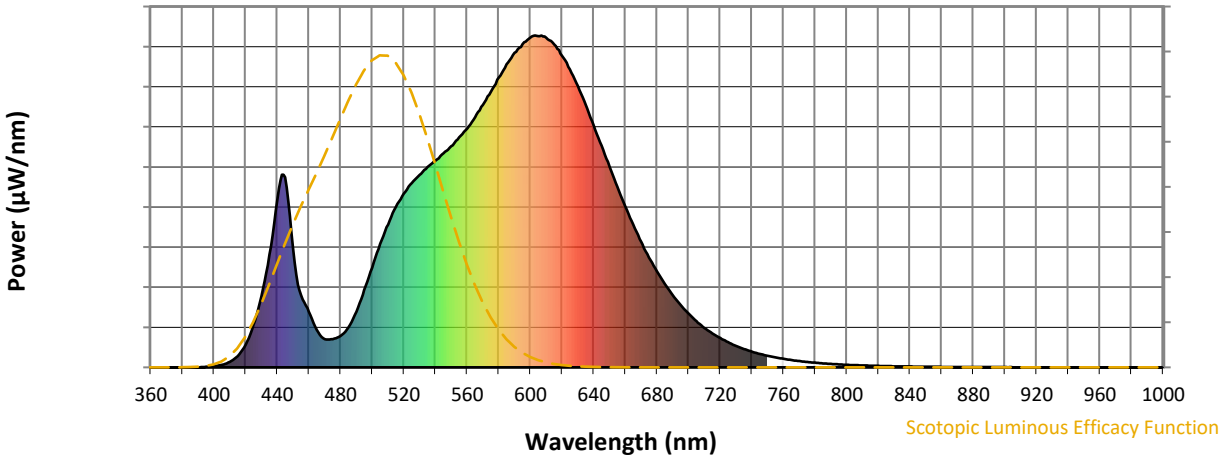
## Scotopic Flux vs. Wavelength




**Scotopic Lumens: NR** **S/P: 1.27**

| 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 | 168 | NR | 620 | 940 | NR | 750 | 35 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 233 | NR | 625 | 897 | NR | 755 | 30 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 300 | NR | 630 | 847 | NR | 760 | 26 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 372 | NR | 635 | 790 | NR | 765 | 22 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 430 | NR | 640 | 730 | NR | 770 | 19 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 483 | NR | 645 | 668 | NR | 775 | 16 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 524 | NR | 650 | 605 | NR | 780 | 14 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 555 | NR | 655 | 545 | NR | 785 | 12 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 581 | NR | 660 | 485 | NR | 790 | 10 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 604 | NR | 665 | 430 | NR | 795 | 9 | NR | 925 | 0 | NR |
| 410 | 17 | NR | 540 | 623 | NR | 670 | 378 | NR | 800 | 8 | NR | 930 | 0 | NR |
| 415 | 34 | NR | 545 | 645 | NR | 675 | 331 | NR | 805 | 7 | NR | 935 | 0 | NR |
| 420 | 68 | NR | 550 | 667 | NR | 680 | 290 | NR | 810 | 6 | NR | 940 | 0 | NR |
| 425 | 128 | NR | 555 | 693 | NR | 685 | 251 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 214 | NR | 560 | 719 | NR | 690 | 218 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 339 | NR | 565 | 754 | NR | 695 | 188 | NR | 825 | 4 | NR | 955 | 0 | NR |
| 440 | 507 | NR | 570 | 791 | NR | 700 | 162 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 573 | NR | 575 | 830 | NR | 705 | 139 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 356 | NR | 580 | 873 | NR | 710 | 119 | NR | 840 | 3 | NR | 970 | 0 | NR |
| 455 | 217 | NR | 585 | 913 | NR | 715 | 102 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 168 | NR | 590 | 948 | NR | 720 | 88 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 113 | NR | 595 | 974 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 85 | NR | 600 | 994 | NR | 730 | 65 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 85 | NR | 605 | 998 | NR | 735 | 55 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 94 | NR | 610 | 994 | NR | 740 | 47 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 120 | NR | 615 | 973 | NR | 745 | 41 | NR | 875 | 1 | NR | | | |

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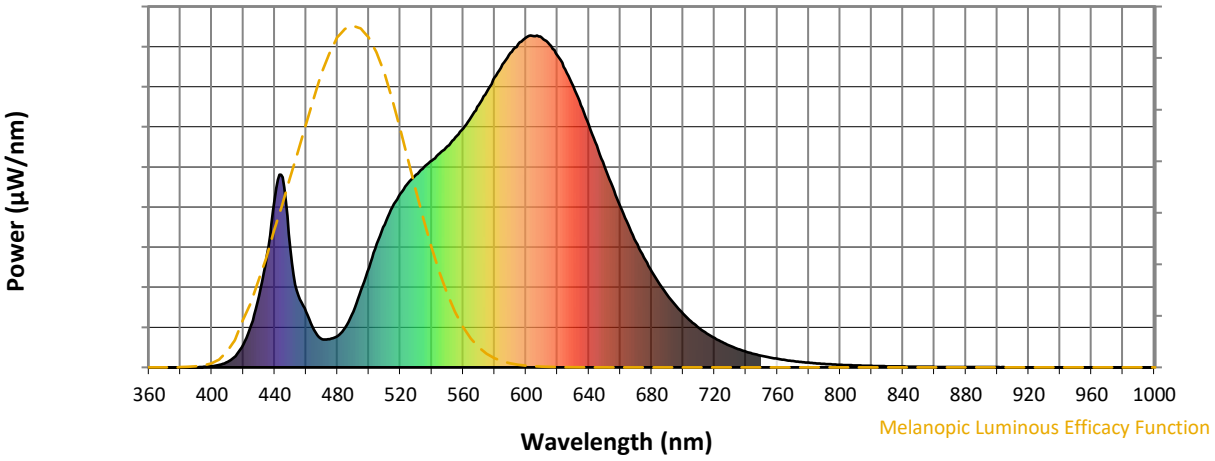
## Melanopic Flux vs. Wavelength




**Melanopic Lumens: NR** **M/P: 2.32**

| 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 | 168 | NR | 620 | 940 | NR | 750 | 35 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 233 | NR | 625 | 897 | NR | 755 | 30 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 300 | NR | 630 | 847 | NR | 760 | 26 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 372 | NR | 635 | 790 | NR | 765 | 22 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 430 | NR | 640 | 730 | NR | 770 | 19 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 483 | NR | 645 | 668 | NR | 775 | 16 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 524 | NR | 650 | 605 | NR | 780 | 14 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 555 | NR | 655 | 545 | NR | 785 | 12 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 581 | NR | 660 | 485 | NR | 790 | 10 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 604 | NR | 665 | 430 | NR | 795 | 9 | NR | 925 | 0 | NR |
| 410 | 17 | NR | 540 | 623 | NR | 670 | 378 | NR | 800 | 8 | NR | 930 | 0 | NR |
| 415 | 34 | NR | 545 | 645 | NR | 675 | 331 | NR | 805 | 7 | NR | 935 | 0 | NR |
| 420 | 68 | NR | 550 | 667 | NR | 680 | 290 | NR | 810 | 6 | NR | 940 | 0 | NR |
| 425 | 128 | NR | 555 | 693 | NR | 685 | 251 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 214 | NR | 560 | 719 | NR | 690 | 218 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 339 | NR | 565 | 754 | NR | 695 | 188 | NR | 825 | 4 | NR | 955 | 0 | NR |
| 440 | 507 | NR | 570 | 791 | NR | 700 | 162 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 573 | NR | 575 | 830 | NR | 705 | 139 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 356 | NR | 580 | 873 | NR | 710 | 119 | NR | 840 | 3 | NR | 970 | 0 | NR |
| 455 | 217 | NR | 585 | 913 | NR | 715 | 102 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 168 | NR | 590 | 948 | NR | 720 | 88 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 113 | NR | 595 | 974 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 85 | NR | 600 | 994 | NR | 730 | 65 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 85 | NR | 605 | 998 | NR | 735 | 55 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 94 | NR | 610 | 994 | NR | 740 | 47 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 120 | NR | 615 | 973 | NR | 745 | 41 | NR | 875 | 1 | NR | | | |

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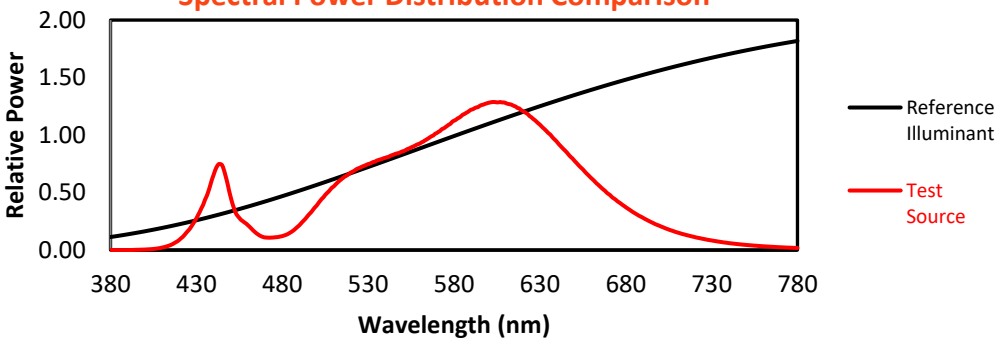
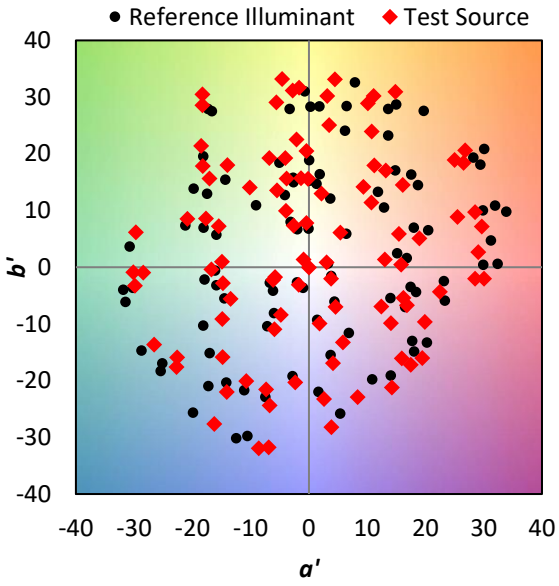
## Summary

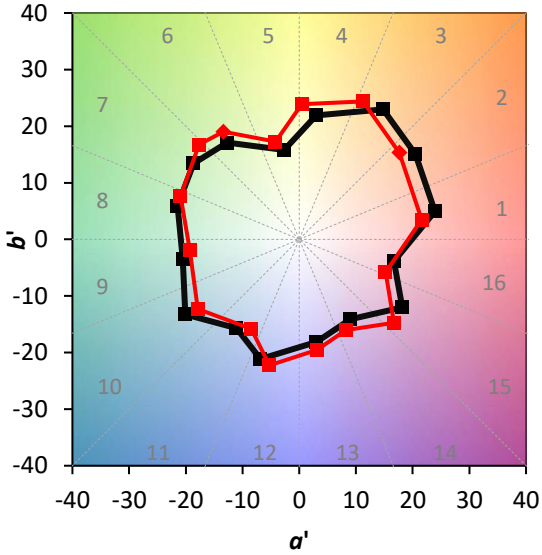
$R_f$ = 81.5
$R_g$ = 99.2
CIE $R_a$ = 81.0
$R_9$ = 7.1

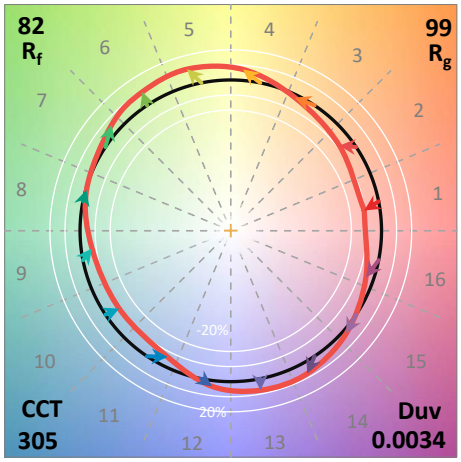
## Spectral Power Distribution Comparison

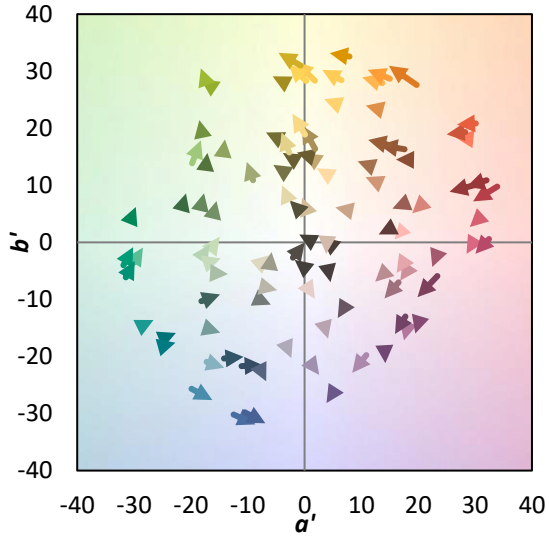



## Color Vector Graphics



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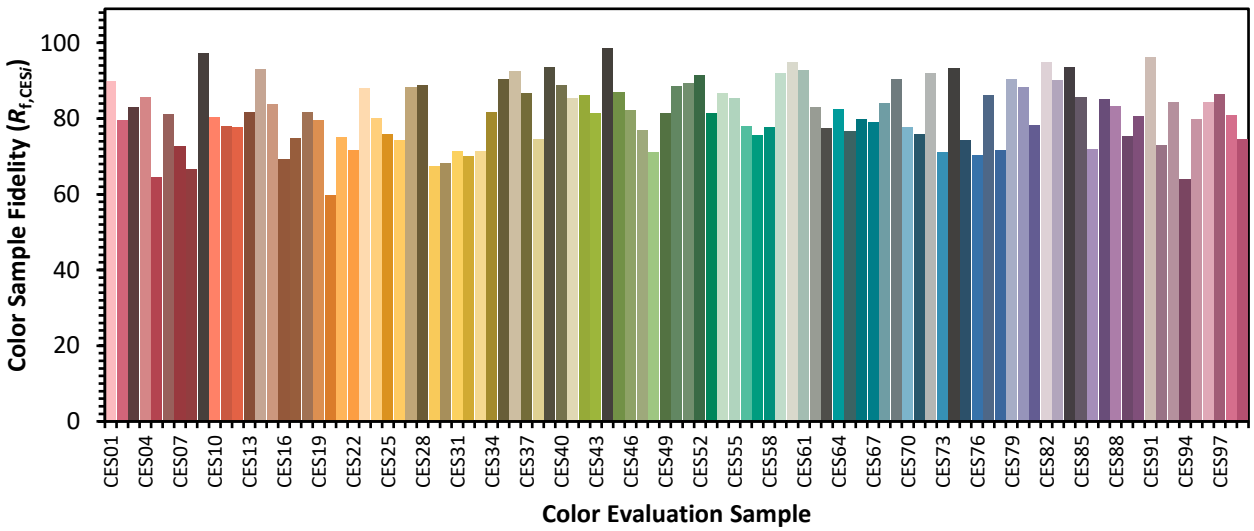
## Individual Sample Fidelity Index ($R_{f,i}$)

| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 74 | CES51 = 89 | CES76 = 70 |
| CES02 = 63 | CES27 = 88 | CES52 = 92 | 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 = 94 |
| 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 = 91 | CES94 = 64 |
| CES20 = 66 | CES45 = 87 | CES70 = 78 | 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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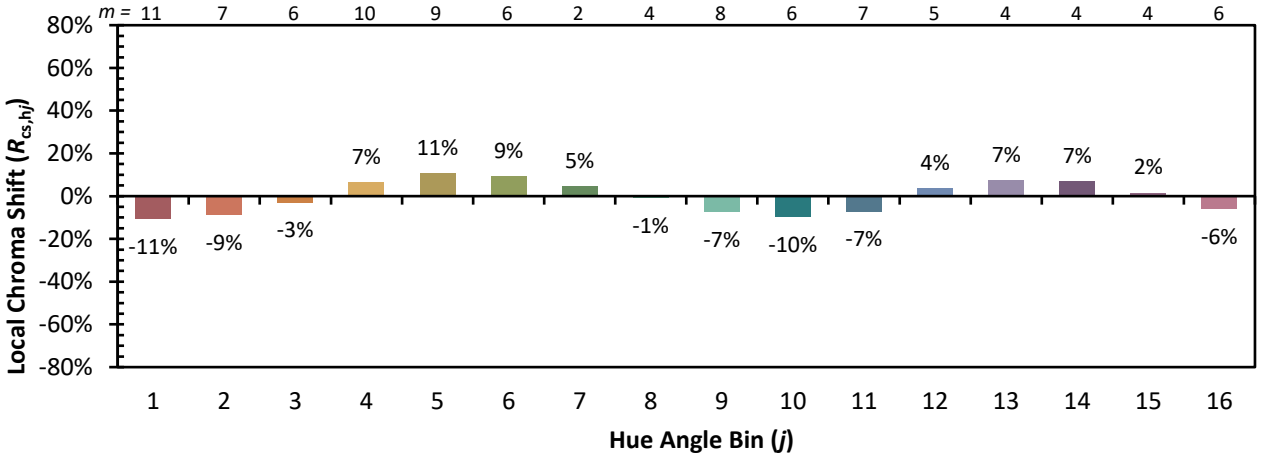
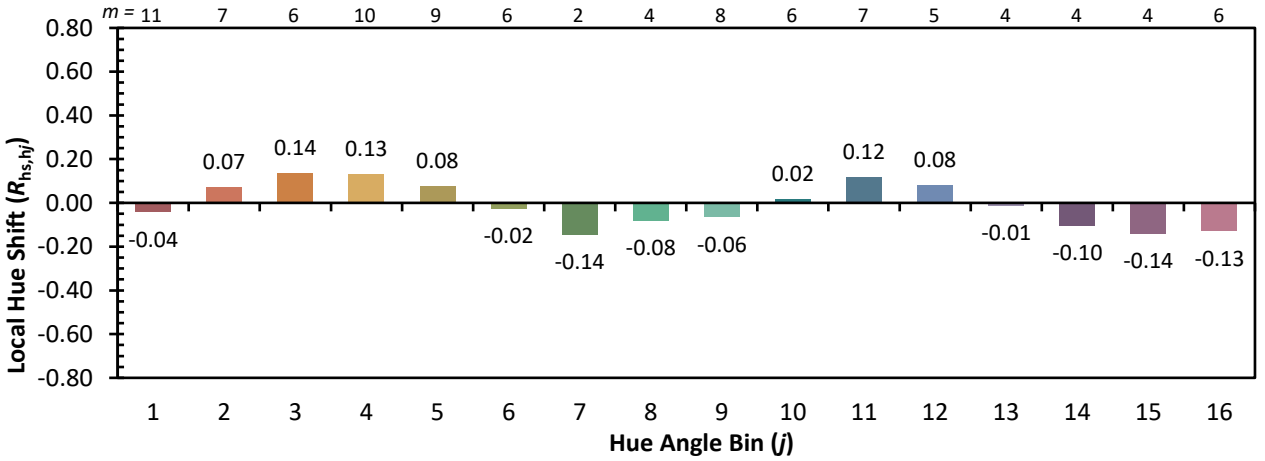
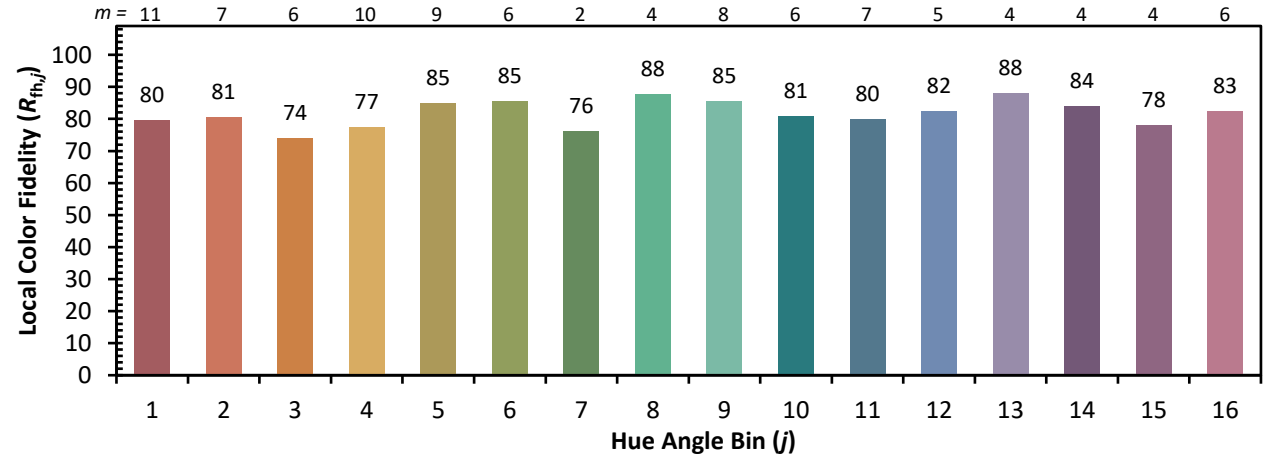
## Color Rendition by Hue-Angle Bin



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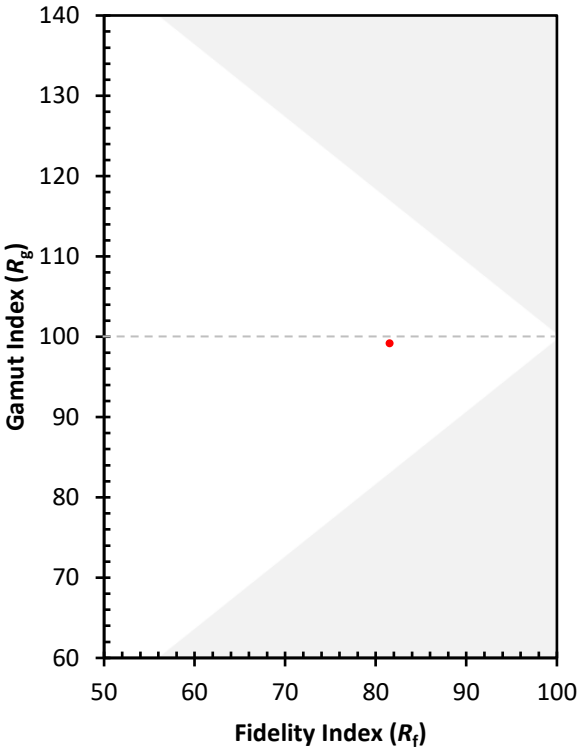
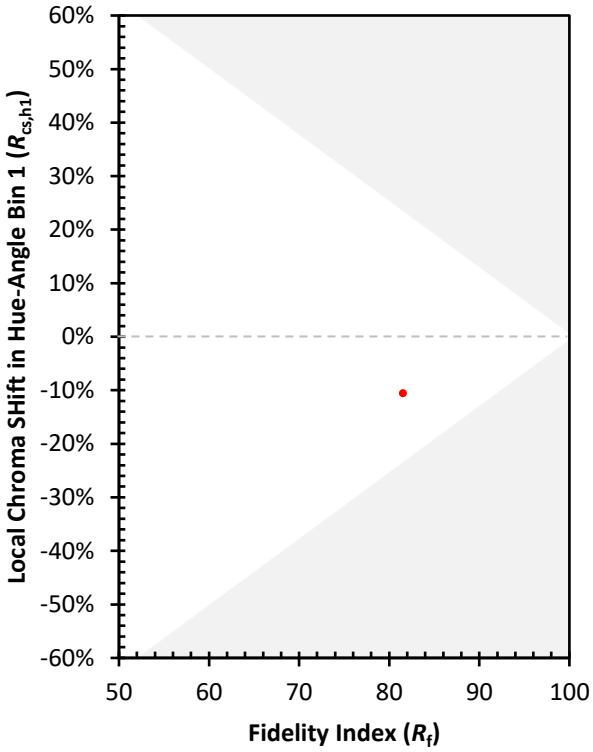
## Measure Comparisons




(END OF REPORT)