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: P318890

Luminaire Tested: **GLEON-SA6C-830-U-T4FT**

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: | P318890 |
| | TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-16) |
| Test Lab: | INNOVATION CENTER |
| Issue Date: | 3/3/2020 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS (FORMERLY EATON) |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | GLEON-SA6C-830-U-T4FT |
| Description: | GALLEON AREA AND ROADWAY LUMINAIRE |
| | (6) 80 CRI, 3000K, 1050mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV FORWARD THROW OPTICS |
| Light Source: | - |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 33818 lumens |
| Efficiency: | N/A |
| Efficacy: | 101.6 lumens/watt |
| Luminous Opening: | Rectangular (W 1.5' x L: 1' x H: 0') |
| IES Classification: | Type IV - Short |
| BUG Rating: | B3 - U0 - G5 |

| | |
|---|---|
| Input Watts (W): | 333 |
| 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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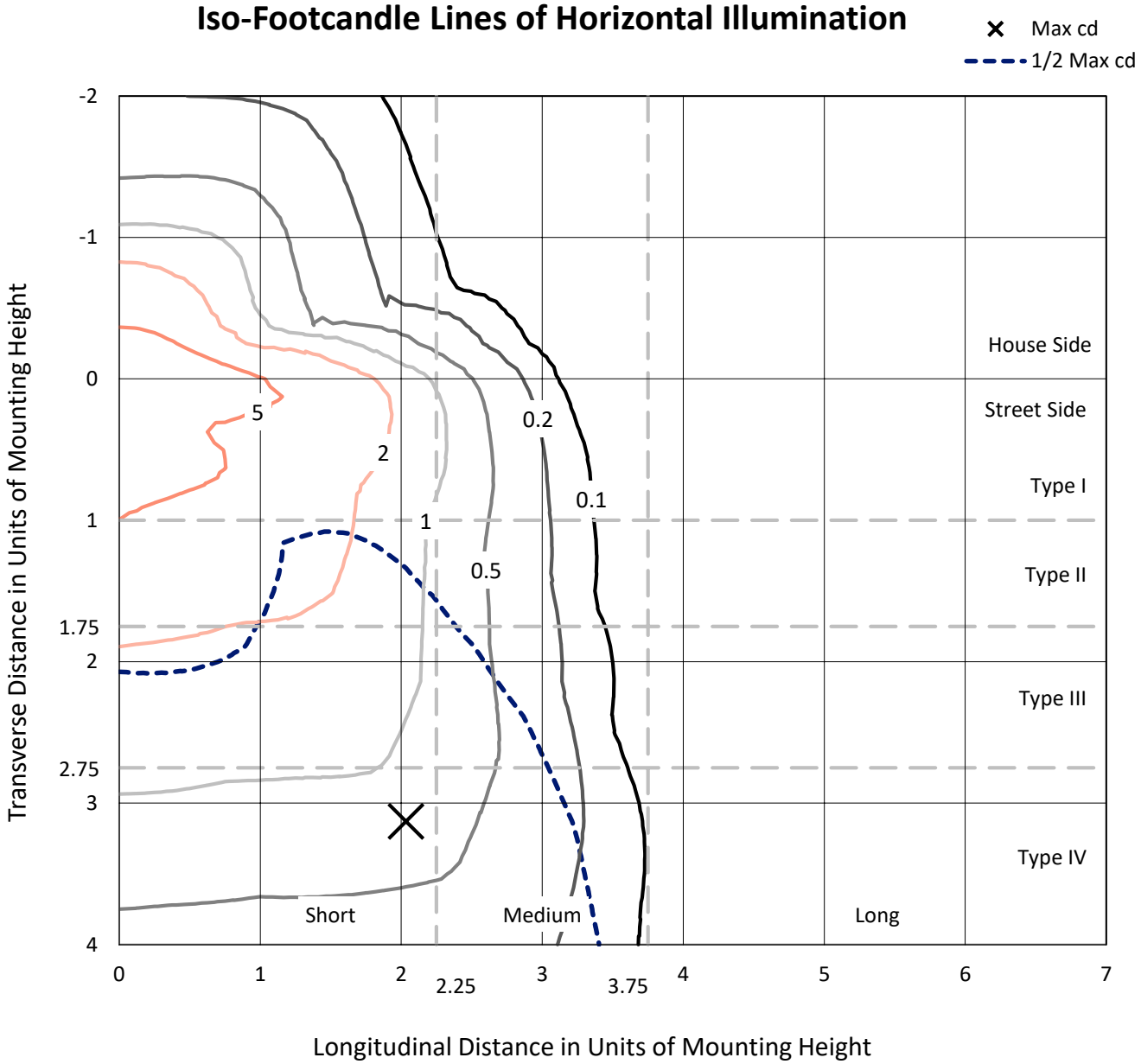
Scaled Data Report

REPORT NUMBER: P318890
CATALOG NUMBER: GLEON-SA6C-830-U-T4FT

## Iso-Footcandle Lines of Horizontal Illumination




Based on 25 foot mounting height. Maximum calculated value = 8.5 fc
Type IV - Short - N/A

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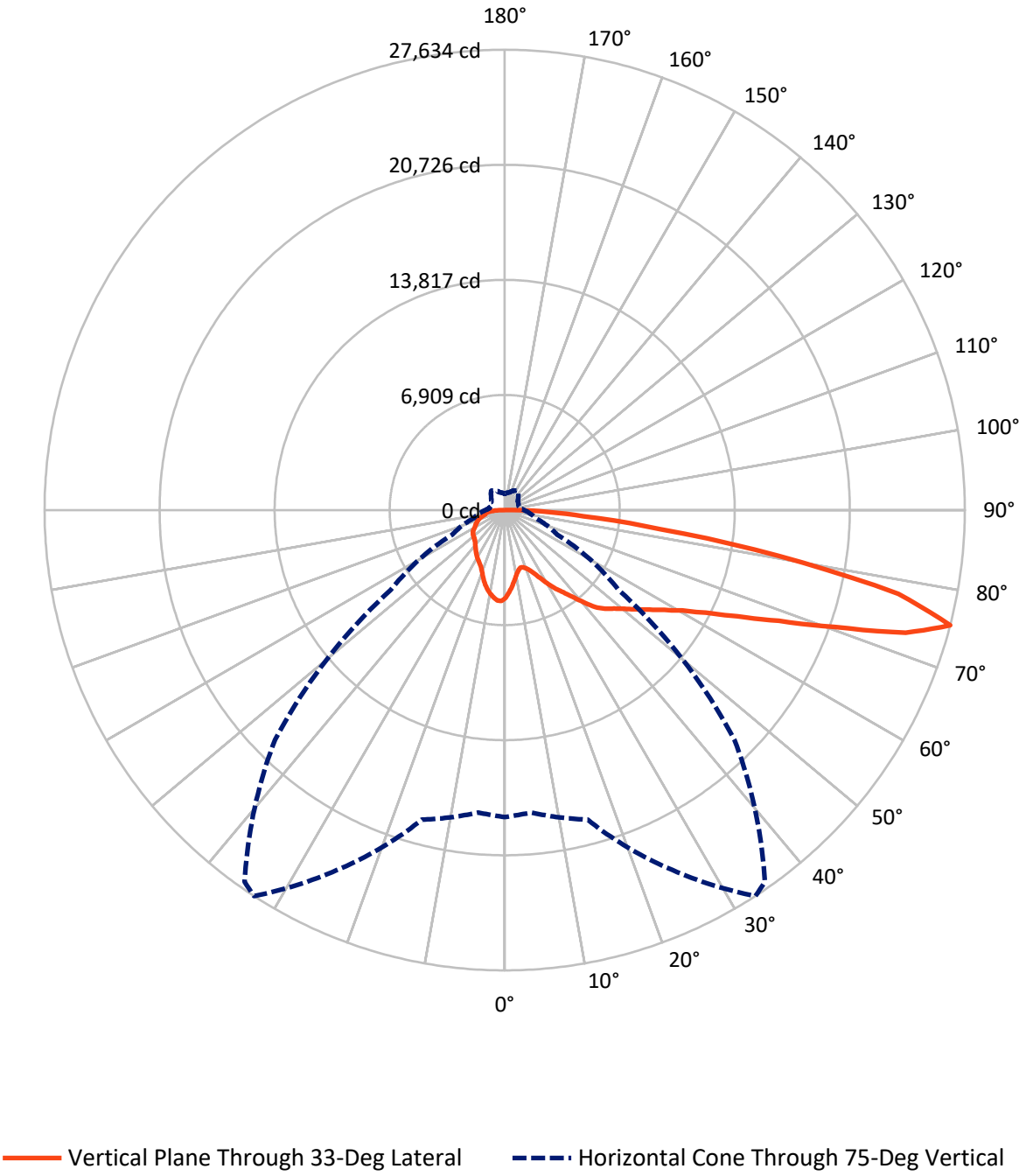
## Luminous Intensity Polar Plot



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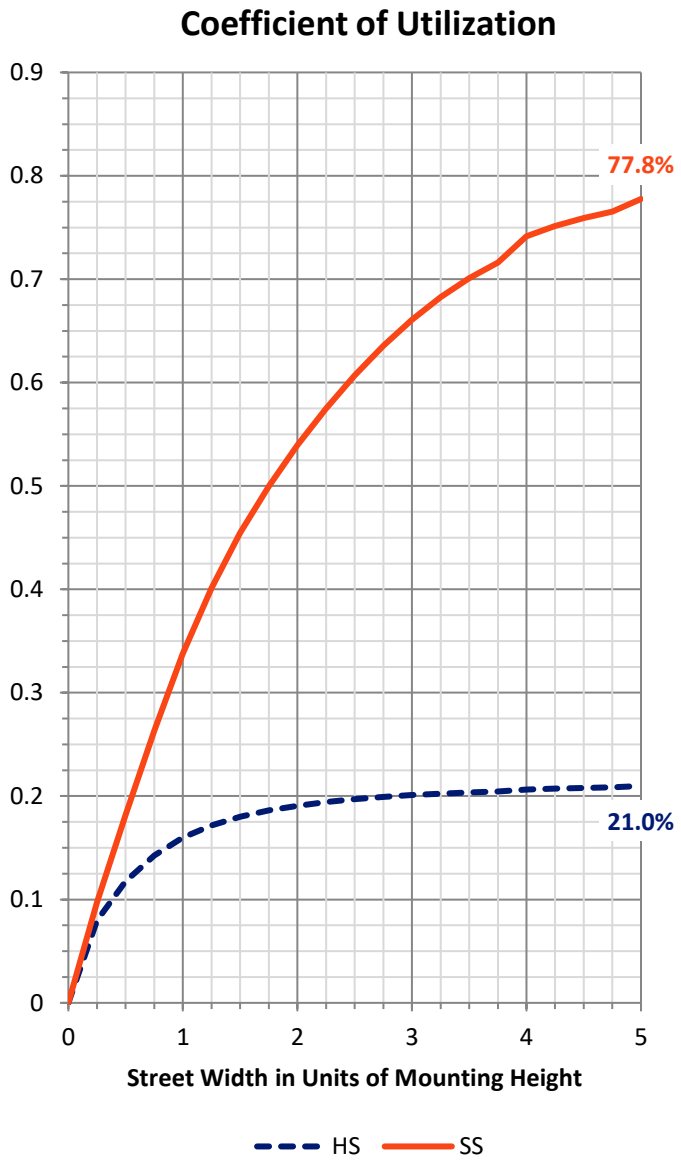
REPORT NUMBER: P318890
CATALOG NUMBER: GLEON-SA6C-830-U-T4FT

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 7261.6 | 0.0 | 7261.6 |
| | % Fixture | 21.5 | 0.0 | 21.5 |
| **Street Side** | Lumens | 26556.4 | 0.0 | 26556.4 |
| | % Fixture | 78.5 | 0.0 | 78.5 |
| **Total** | Lumens | 33818.0 | 0.0 | 33818.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 478.0 | 1.4 |
| 10°-20° | 1294.7 | 3.8 |
| 20°-30° | 2114.5 | 6.3 |
| 30°-40° | 3149.0 | 9.3 |
| 40°-50° | 4516.5 | 13.4 |
| 50°-60° | 6200.5 | 18.3 |
| 60°-70° | 7762.8 | 23.0 |
| 70°-80° | 7022.6 | 20.8 |
| 80°-90° | 1279.2 | 3.8 |
| 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° | 33818.0 | 100.0 |
| 0°-180° | 33818.0 | 100.0 |



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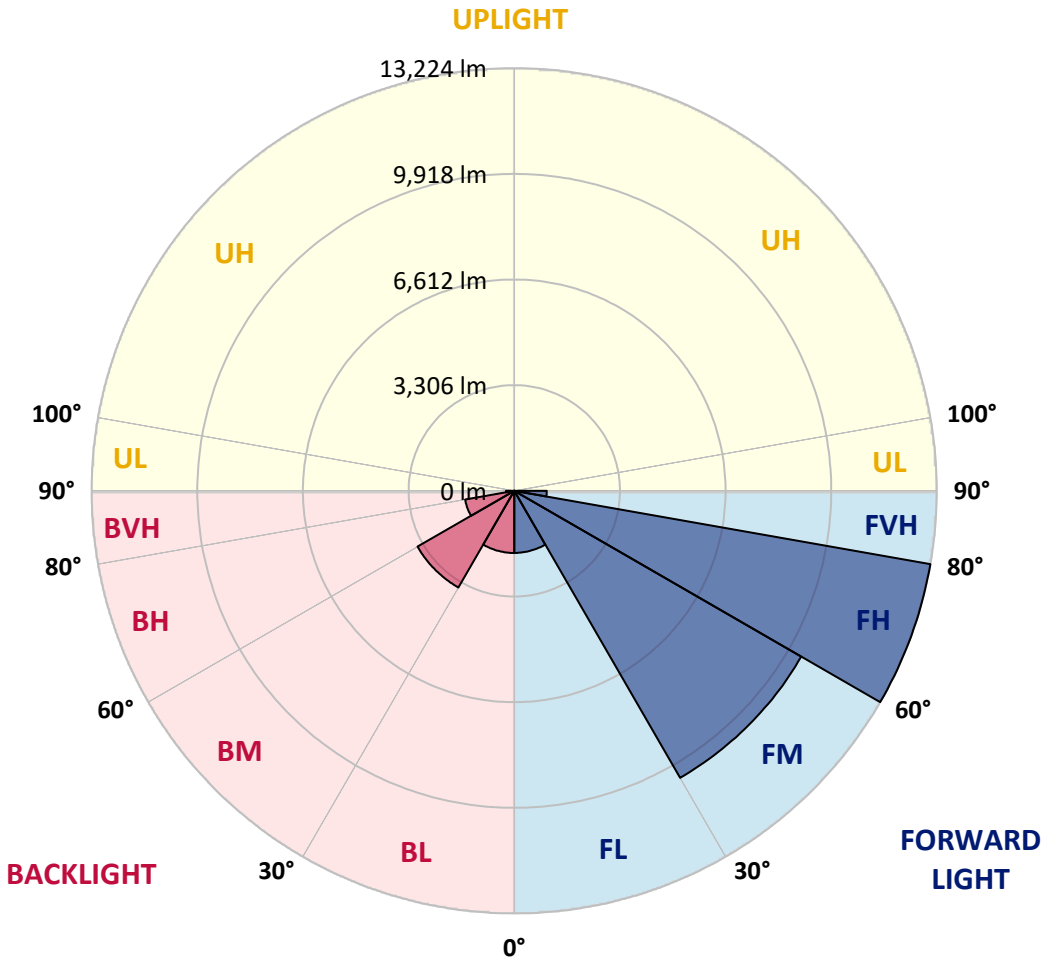
REPORT NUMBER: P318890
CATALOG NUMBER: GLEON-SA6C-830-U-T4FT

## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 1942.3 | 5.7 | | | |
| FM | (30°-60°) | 10371.3 | 30.7 | | | |
| FH | (60°-80°) | 13224.0 | 39.1 | | | G5 |
| FVH | (80°-90°) | 1018.8 | 3.0 | | | G5 |
| BL | (0°-30°) | 1945.0 | 5.8 | B3/2500 | | |
| BM | (30°-60°) | 3494.8 | 10.3 | B3/5000 | | |
| BH | (60°-80°) | 1561.4 | 4.6 | B3/2500 | | G3/2500 |
| BVH | (80°-90°) | 260.4 | 0.8 | | | G3/500 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

**BUG Rating: B3-U0-G5**
Type IV Short



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REPORT NUMBER: P318890
CATALOG NUMBER: GLEON-SA6C-830-U-T4FT

**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 33° | 35° | 45° | 55° | 65° | 75° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 5285.9 | 5285.9 | 5285.9 | 5285.9 | 5285.9 | 5285.9 | 5285.9 | 5285.9 | 5285.9 | 5285.9 | 5285.9 |
| 2.5° | 4908.6 | 4889.9 | 4925.0 | 4929.7 | 4960.0 | 4971.7 | 5013.8 | 5079.2 | 5132.9 | 5194.8 | 5250.9 |
| 5° | 4463.6 | 4450.7 | 4499.8 | 4534.8 | 4601.4 | 4629.4 | 4728.7 | 4867.7 | 4991.6 | 5131.7 | 5259.1 |
| 7.5° | 4040.7 | 4033.7 | 4088.6 | 4168.0 | 4245.1 | 4283.7 | 4455.4 | 4657.5 | 4864.2 | 5090.9 | 5285.9 |
| 10° | 3684.4 | 3682.1 | 3734.6 | 3812.9 | 3926.2 | 3969.4 | 4191.4 | 4457.7 | 4747.4 | 5059.3 | 5331.5 |
| 12.5° | 3484.6 | 3492.8 | 3517.3 | 3582.8 | 3687.9 | 3731.1 | 3977.6 | 4290.7 | 4649.3 | 5048.8 | 5398.1 |
| 15° | 3533.7 | 3546.5 | 3504.5 | 3502.2 | 3576.9 | 3610.8 | 3842.1 | 4171.5 | 4579.2 | 5066.3 | 5495.0 |
| 17.5° | 3742.8 | 3745.1 | 3634.2 | 3564.1 | 3609.6 | 3627.1 | 3800.0 | 4103.8 | 4538.3 | 5106.0 | 5616.5 |
| 20° | 4037.2 | 4031.3 | 3835.1 | 3718.3 | 3742.8 | 3747.5 | 3859.6 | 4104.9 | 4534.8 | 5175.0 | 5774.2 |
| 22.5° | 4427.3 | 4384.1 | 4120.1 | 3961.2 | 3955.4 | 3948.4 | 4012.6 | 4191.4 | 4586.2 | 5287.1 | 5962.3 |
| 25° | 4936.7 | 4895.8 | 4532.5 | 4315.2 | 4268.5 | 4250.9 | 4260.3 | 4375.9 | 4687.8 | 5407.4 | 6172.6 |
| 27.5° | 5503.2 | 5432.0 | 5081.5 | 4774.3 | 4677.3 | 4652.8 | 4596.7 | 4636.4 | 4798.8 | 5523.1 | 6422.6 |
| 30° | 5977.5 | 5938.9 | 5632.9 | 5268.4 | 5153.9 | 5118.9 | 4971.7 | 4928.5 | 4958.9 | 5680.8 | 6738.0 |
| 32.5° | 6242.7 | 6217.0 | 6031.2 | 5736.9 | 5630.6 | 5581.5 | 5373.6 | 5287.1 | 5215.9 | 5929.6 | 7165.5 |
| 35° | 6563.9 | 6547.6 | 6435.4 | 6221.6 | 6063.9 | 6012.5 | 5851.3 | 5761.4 | 5578.0 | 6271.9 | 7718.1 |
| 37.5° | 6972.8 | 6955.2 | 6957.6 | 6784.7 | 6596.6 | 6548.7 | 6442.4 | 6347.8 | 6047.6 | 6721.6 | 8318.5 |
| 40° | 7435.4 | 7401.5 | 7388.6 | 7380.5 | 7261.3 | 7234.4 | 7178.4 | 7049.9 | 6636.3 | 7259.0 | 8910.8 |
| 42.5° | 8131.6 | 8011.3 | 7754.3 | 7851.2 | 7969.2 | 7955.2 | 8000.8 | 7816.2 | 7290.5 | 7894.5 | 9489.0 |
| 45° | 8803.3 | 8605.9 | 8162.0 | 8183.0 | 8441.2 | 8519.4 | 8860.5 | 8729.7 | 7999.6 | 8590.7 | 10087.1 |
| 47.5° | 9109.3 | 8959.8 | 8582.5 | 8583.7 | 8839.5 | 9001.9 | 9749.5 | 9656.0 | 8744.9 | 9381.5 | 10817.2 |
| 50° | 9451.6 | 9302.1 | 8963.3 | 9090.7 | 9313.8 | 9486.7 | 10608.1 | 10560.2 | 9454.0 | 10247.1 | 11692.2 |
| 52.5° | 9825.4 | 9571.9 | 9357.0 | 9584.8 | 9897.9 | 10098.8 | 11467.9 | 11337.0 | 10104.6 | 11118.6 | 12697.9 |
| 55° | 9830.1 | 9761.2 | 9924.7 | 10091.8 | 10560.2 | 10806.7 | 12368.5 | 12022.7 | 10635.0 | 11974.9 | 13516.8 |
| 57.5° | 10389.7 | 10277.5 | 10624.5 | 10701.6 | 11313.7 | 11591.7 | 13264.5 | 12619.7 | 11174.7 | 12631.4 | 13958.4 |
| 60° | 11130.3 | 11034.5 | 11318.3 | 11521.6 | 12245.9 | 12617.3 | 14221.2 | 13233.0 | 11598.7 | 13126.7 | 13937.4 |
| 62.5° | 12409.4 | 12300.8 | 12297.3 | 12582.3 | 13557.7 | 13989.9 | 15294.8 | 13834.6 | 11766.9 | 13224.8 | 13342.8 |
| 65° | 14282.0 | 14109.1 | 13783.2 | 13918.7 | 15369.5 | 15800.6 | 16494.5 | 14270.3 | 11545.0 | 12699.1 | 11811.3 |
| 67.5° | 16104.3 | 16098.5 | 15697.8 | 15975.8 | 17761.9 | 18107.7 | 17861.2 | 14313.5 | 10852.2 | 10868.6 | 9094.2 |
| 70° | 17920.8 | 17944.2 | 17876.4 | 18843.7 | 20994.2 | 21354.0 | 19316.8 | 13732.9 | 9295.1 | 7848.9 | 5448.3 |
| 72.5° | 19360.0 | 19354.1 | 19695.2 | 22189.3 | 25189.1 | 25108.5 | 20543.3 | 11973.7 | 6673.7 | 4236.9 | 2603.8 |
| 75° | 18427.8 | 18224.5 | 19240.8 | 23845.7 | 27634.1 | 27240.4 | 19500.2 | 8352.4 | 3463.6 | 1928.6 | 1401.8 |
| 77.5° | 12019.2 | 12212.0 | 13703.7 | 19698.8 | 24171.7 | 23692.7 | 14306.5 | 3897.0 | 1631.9 | 1265.1 | 1016.3 |
| 80° | 4352.6 | 4555.8 | 6416.7 | 11158.3 | 16653.3 | 16575.1 | 7045.2 | 1601.6 | 1103.9 | 955.6 | 740.6 |
| 82.5° | 1497.6 | 1572.3 | 2531.4 | 4955.4 | 9402.6 | 9753.0 | 2650.6 | 910.0 | 802.5 | 677.5 | 507.0 |
| 85° | 587.6 | 672.9 | 1157.7 | 2384.2 | 4742.7 | 4777.8 | 1073.5 | 544.4 | 558.4 | 443.9 | 278.0 |
| 87.5° | 223.1 | 271.0 | 553.7 | 1107.4 | 2165.8 | 1989.4 | 384.3 | 259.3 | 317.7 | 264.0 | 132.0 |
| 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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Scaled Data Report

REPORT NUMBER: P318890
CATALOG NUMBER: GLEON-SA6C-830-U-T4FT

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 5285.9 | 5285.9 | 5285.9 | 5285.9 | 5285.9 | 5285.9 | 5285.9 | 5285.9 | 5285.9 | 5285.9 | 5285.9 |
| 2.5° | 5294.1 | 5318.7 | 5370.1 | 5405.1 | 5442.5 | 5453.0 | 5457.7 | 5467.0 | 5476.4 | 5472.8 | 5474.0 |
| 5° | 5326.8 | 5374.7 | 5457.7 | 5492.7 | 5509.1 | 5490.4 | 5454.2 | 5425.0 | 5403.9 | 5392.2 | 5388.7 |
| 7.5° | 5380.6 | 5448.3 | 5537.1 | 5531.3 | 5493.9 | 5410.9 | 5317.5 | 5247.4 | 5189.0 | 5168.0 | 5156.3 |
| 10° | 5451.8 | 5531.3 | 5593.2 | 5526.6 | 5417.9 | 5274.3 | 5134.1 | 5025.4 | 4937.8 | 4904.0 | 4898.1 |
| 12.5° | 5542.9 | 5623.5 | 5635.2 | 5493.9 | 5314.0 | 5117.7 | 4927.3 | 4783.6 | 4652.8 | 4610.7 | 4601.4 |
| 15° | 5660.9 | 5736.9 | 5664.4 | 5436.6 | 5185.5 | 4921.5 | 4675.0 | 4479.9 | 4342.1 | 4290.7 | 4272.0 |
| 17.5° | 5784.7 | 5857.2 | 5670.3 | 5342.0 | 5017.3 | 4689.0 | 4379.4 | 4179.7 | 4022.0 | 3962.4 | 3955.4 |
| 20° | 5933.1 | 5965.8 | 5645.7 | 5206.5 | 4786.0 | 4387.6 | 4061.7 | 3873.6 | 3789.5 | 3747.5 | 3742.8 |
| 22.5° | 6116.5 | 6081.5 | 5589.7 | 5023.1 | 4492.8 | 4039.5 | 3774.3 | 3686.7 | 3665.7 | 3656.4 | 3659.9 |
| 25° | 6310.4 | 6203.0 | 5506.7 | 4783.6 | 4122.5 | 3691.4 | 3564.1 | 3588.6 | 3616.6 | 3613.1 | 3613.1 |
| 27.5° | 6524.2 | 6326.8 | 5379.4 | 4465.9 | 3712.4 | 3406.4 | 3421.6 | 3511.5 | 3553.6 | 3552.4 | 3551.2 |
| 30° | 6798.7 | 6467.0 | 5217.0 | 4083.9 | 3329.3 | 3205.4 | 3297.7 | 3407.5 | 3464.8 | 3462.4 | 3463.6 |
| 32.5° | 7136.3 | 6621.2 | 4996.2 | 3657.5 | 3052.4 | 3057.1 | 3163.4 | 3272.0 | 3338.6 | 3332.8 | 3333.9 |
| 35° | 7531.2 | 6794.0 | 4697.2 | 3237.0 | 2869.0 | 2939.1 | 3023.2 | 3099.1 | 3162.2 | 3154.0 | 3145.9 |
| 37.5° | 7961.0 | 6963.4 | 4300.0 | 2860.8 | 2719.5 | 2829.3 | 2899.4 | 2912.2 | 2941.4 | 2920.4 | 2905.2 |
| 40° | 8369.9 | 7093.1 | 3788.4 | 2552.4 | 2568.8 | 2735.8 | 2781.4 | 2730.0 | 2677.4 | 2670.4 | 2649.4 |
| 42.5° | 8726.2 | 7136.3 | 3270.9 | 2306.0 | 2409.9 | 2637.7 | 2665.8 | 2558.3 | 2463.7 | 2419.3 | 2400.6 |
| 45° | 9102.3 | 7151.5 | 2788.4 | 2099.2 | 2256.9 | 2550.1 | 2580.5 | 2436.8 | 2303.6 | 2207.8 | 2176.3 |
| 47.5° | 9594.1 | 7261.3 | 2413.4 | 1946.2 | 2140.1 | 2491.7 | 2534.9 | 2339.8 | 2166.9 | 2030.3 | 2001.1 |
| 50° | 10237.8 | 7478.6 | 2108.5 | 1829.3 | 2064.1 | 2453.1 | 2502.2 | 2245.2 | 2054.8 | 1890.1 | 1860.9 |
| 52.5° | 10952.7 | 7678.3 | 1862.1 | 1734.7 | 1990.6 | 2385.4 | 2460.2 | 2177.5 | 1949.7 | 1760.4 | 1728.9 |
| 55° | 11452.7 | 7525.3 | 1663.5 | 1636.6 | 1894.8 | 2288.4 | 2401.7 | 2120.2 | 1799.0 | 1634.3 | 1606.2 |
| 57.5° | 11548.5 | 7002.0 | 1512.8 | 1535.0 | 1779.1 | 2166.9 | 2311.8 | 1992.9 | 1717.2 | 1579.4 | 1550.2 |
| 60° | 11286.8 | 6273.0 | 1400.6 | 1441.5 | 1655.3 | 2013.9 | 2143.6 | 1902.9 | 1638.9 | 1520.9 | 1496.4 |
| 62.5° | 10629.1 | 5526.6 | 1317.7 | 1357.4 | 1539.6 | 1858.5 | 2038.4 | 1808.3 | 1559.5 | 1454.4 | 1429.8 |
| 65° | 9300.9 | 4639.9 | 1238.3 | 1282.6 | 1432.2 | 1724.2 | 1943.8 | 1720.7 | 1481.2 | 1400.6 | 1377.3 |
| 67.5° | 7020.7 | 3475.3 | 1163.5 | 1203.2 | 1336.4 | 1607.4 | 1841.0 | 1634.3 | 1405.3 | 1353.9 | 1325.9 |
| 70° | 4134.1 | 2176.3 | 1078.2 | 1120.3 | 1235.9 | 1485.9 | 1731.2 | 1539.6 | 1310.7 | 1287.3 | 1251.1 |
| 72.5° | 1924.0 | 1309.5 | 981.3 | 1022.1 | 1109.8 | 1323.5 | 1589.9 | 1415.8 | 1198.5 | 1147.1 | 1098.1 |
| 75° | *1148.3* | *957.9* | *866.8* | *903.0* | *964.9* | *1150.6* | *1412.3* | *1289.7* | *1092.2* | *1024.5* | *973.1* |
| 77.5° | 858.6 | 732.4 | 740.6 | 779.2 | 829.4 | 1007.0 | 1251.1 | 1190.4 | 1010.5 | 957.9 | 922.8 |
| 80° | 618.0 | 556.0 | 603.9 | 646.0 | 698.6 | 915.8 | 1198.5 | 1100.4 | 913.5 | 843.4 | 810.7 |
| 82.5° | 412.4 | 399.5 | 454.4 | 497.6 | 549.0 | 801.4 | 1126.1 | 963.7 | 780.3 | 691.6 | 619.1 |
| 85° | 227.8 | 240.6 | 306.1 | 324.7 | 369.1 | 564.2 | 922.8 | 774.5 | 587.6 | 473.1 | 452.1 |
| 87.5° | 94.6 | 111.0 | 164.7 | 158.9 | 196.3 | 336.4 | 607.4 | 467.3 | 373.8 | 279.2 | 217.3 |
| 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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Peachtree City, GA 30269

# 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

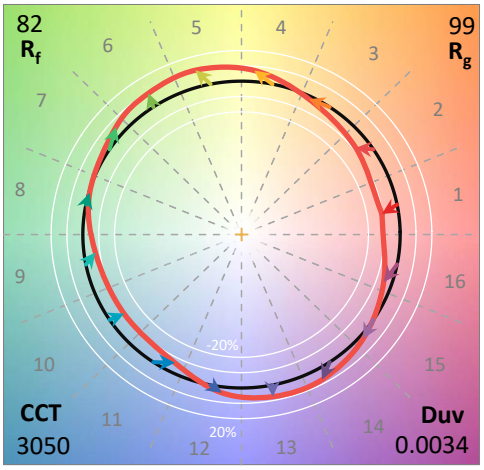
## Test Information

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

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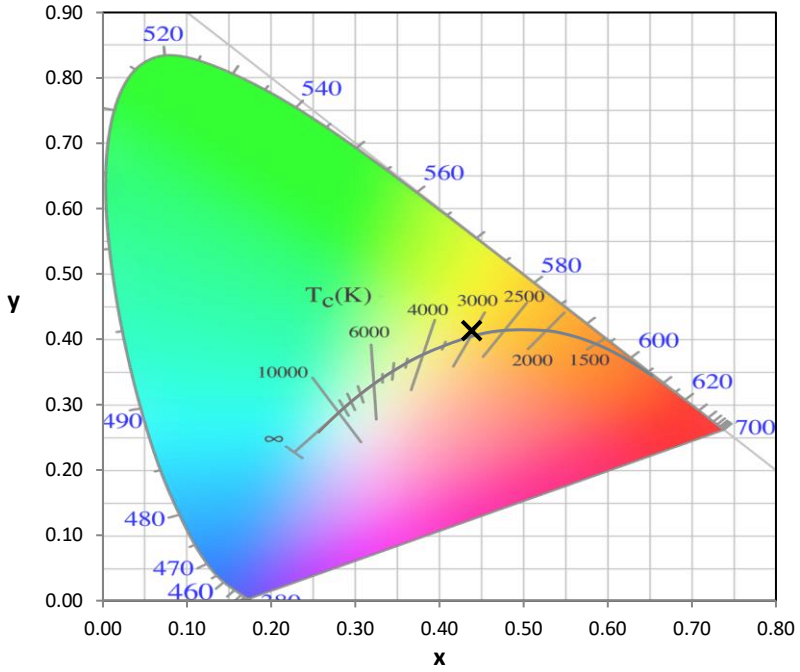
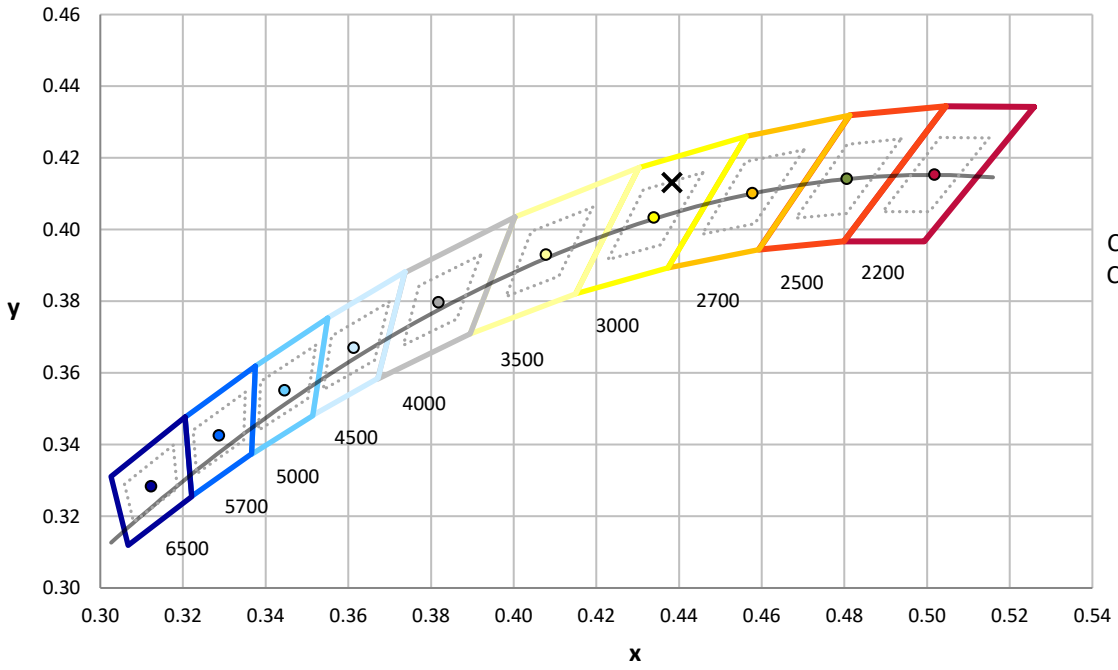
## CIE 1931 Chromaticity Diagram




## 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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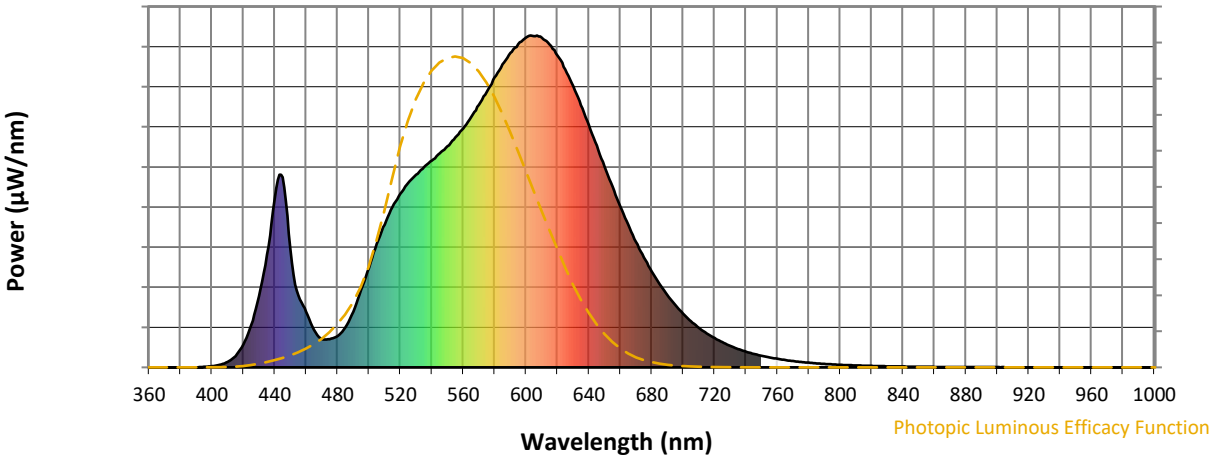
## Photopic Flux vs. Wavelength




## 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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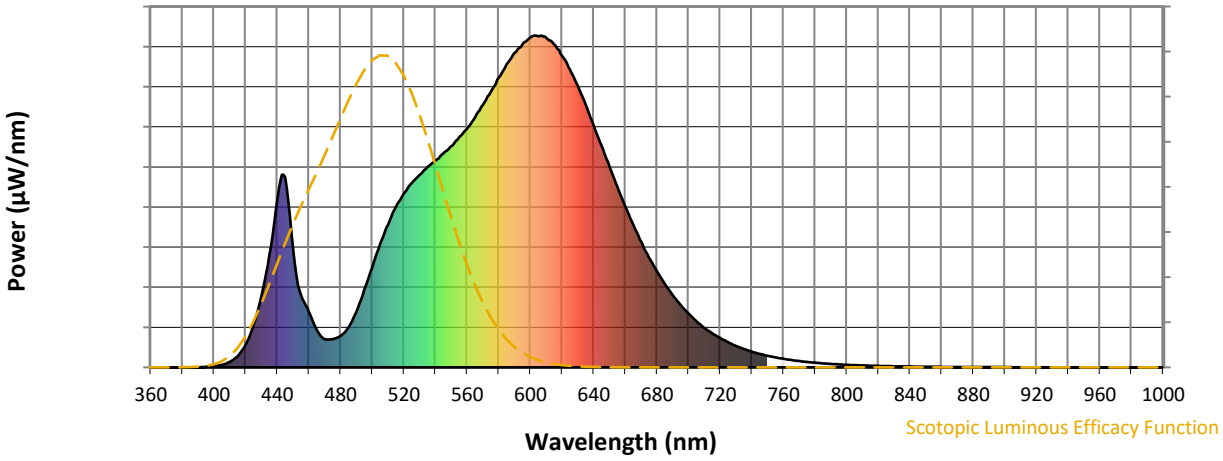
## Scotopic Flux vs. Wavelength




**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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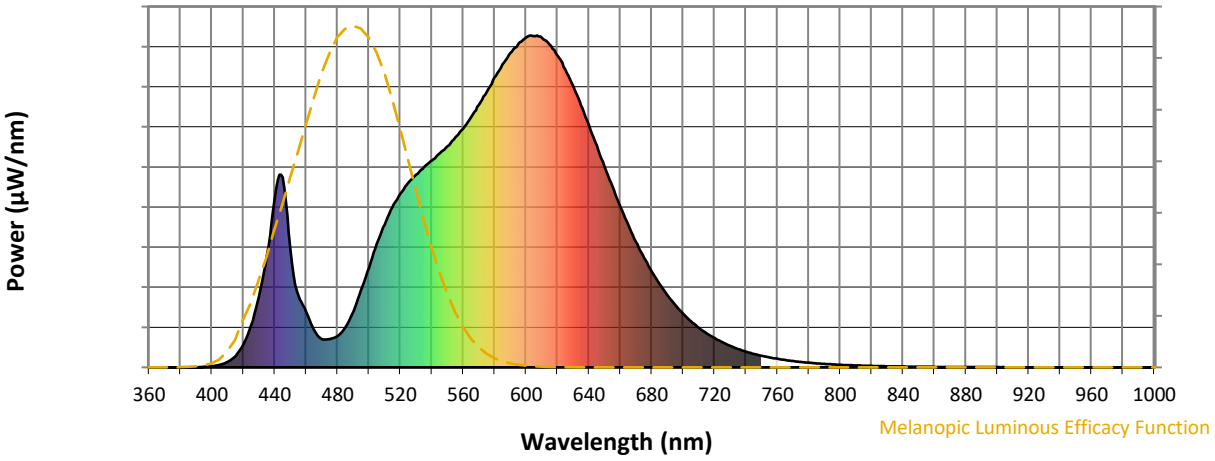
## Melanopic Flux vs. Wavelength




**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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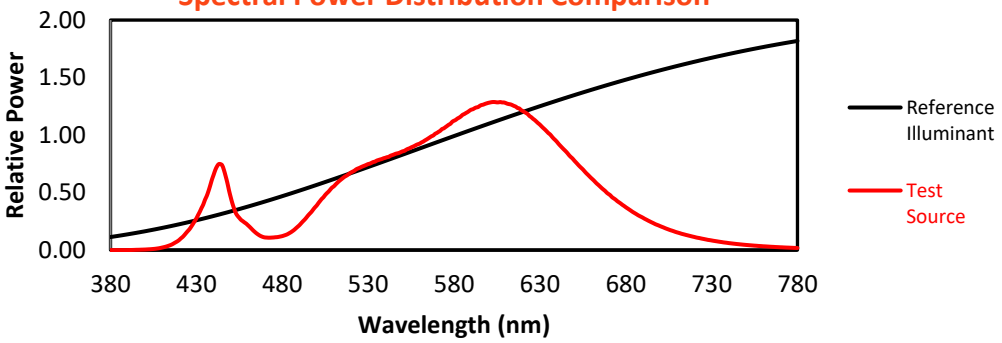
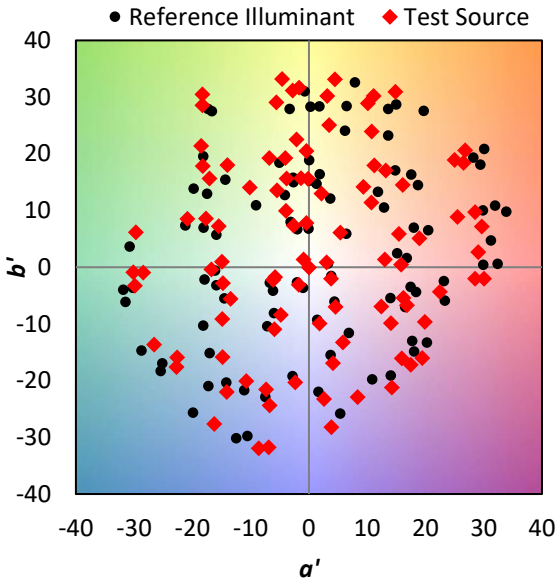
## Summary

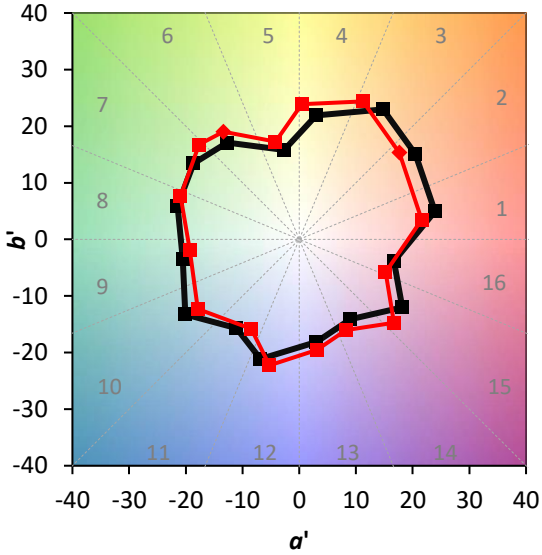
$R_f$ = 81.5
$R_g$ = 99.2
CIE $R_a$ = 81.0
$R_9$ = 7.1

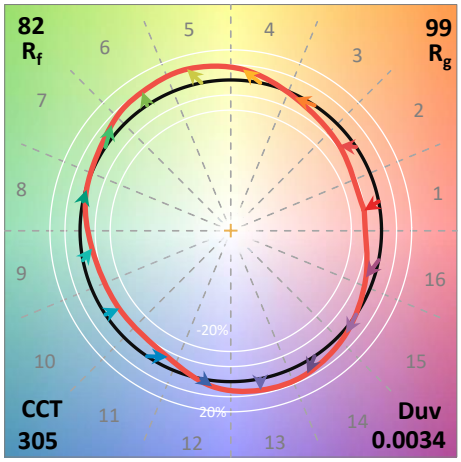
## Spectral Power Distribution Comparison

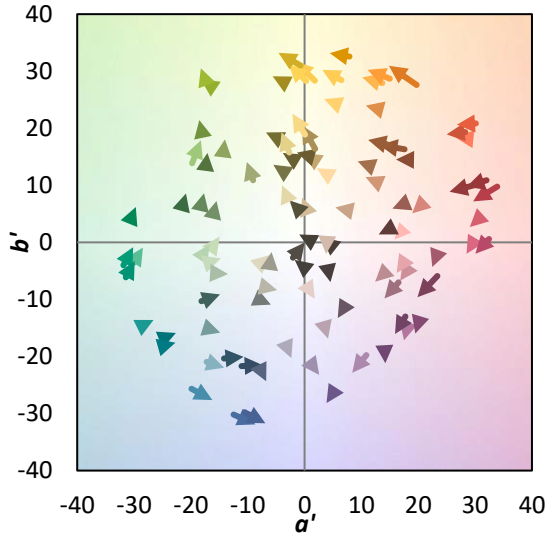



## Color Vector Graphics



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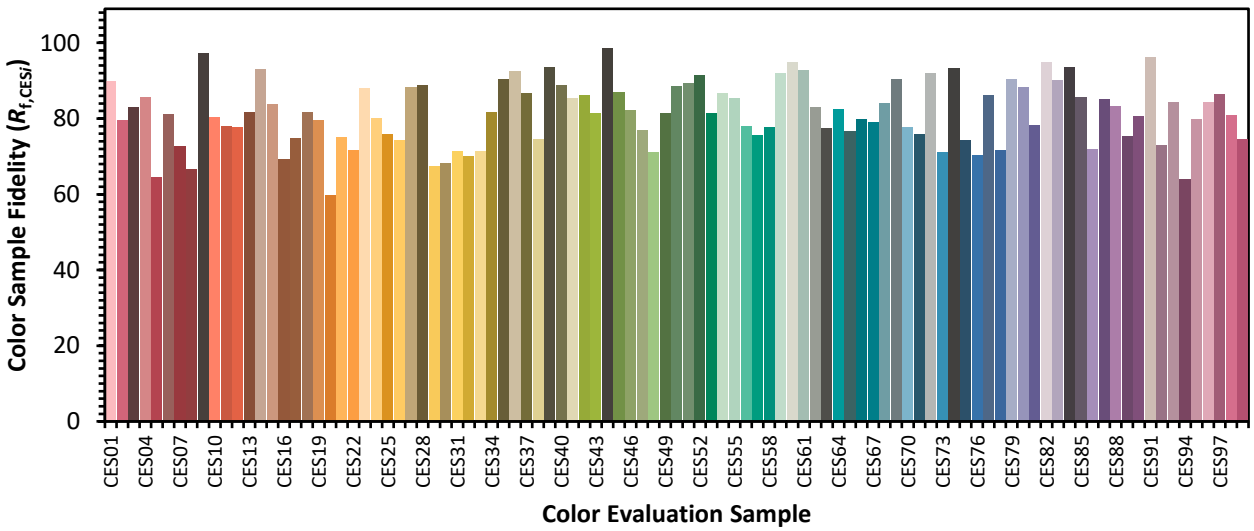
## Individual Sample Fidelity Index ($R_{f,i}$)

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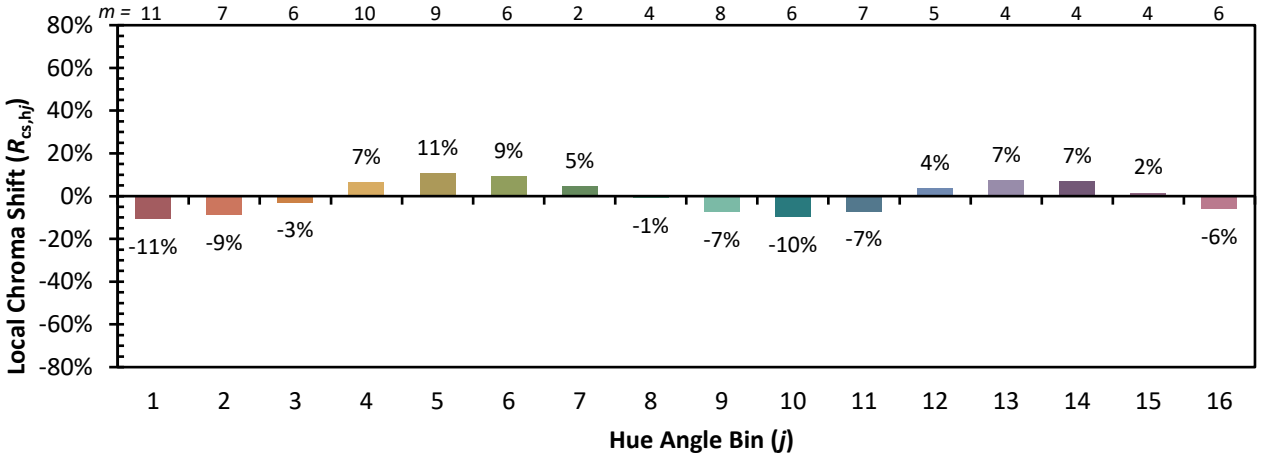
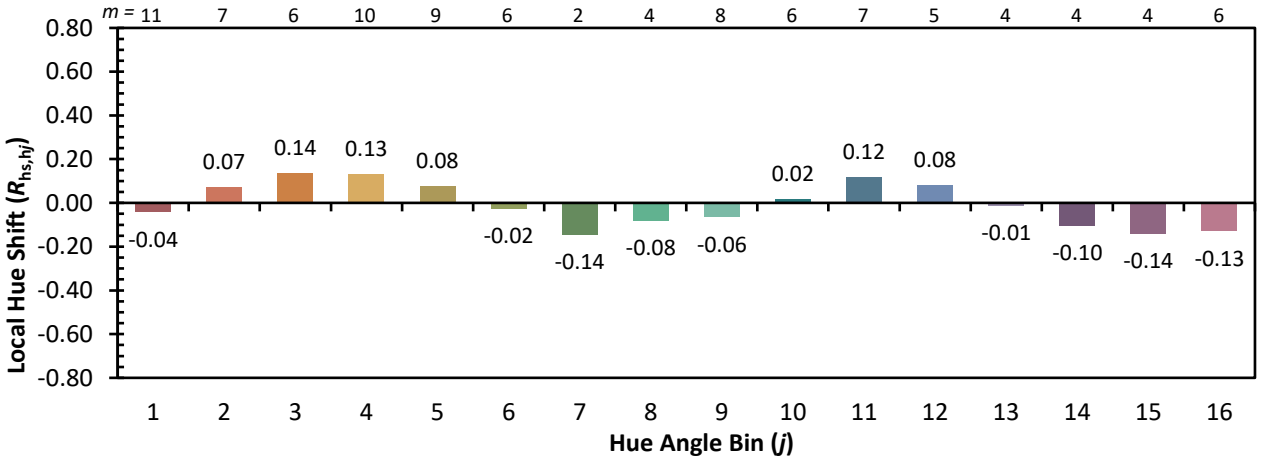
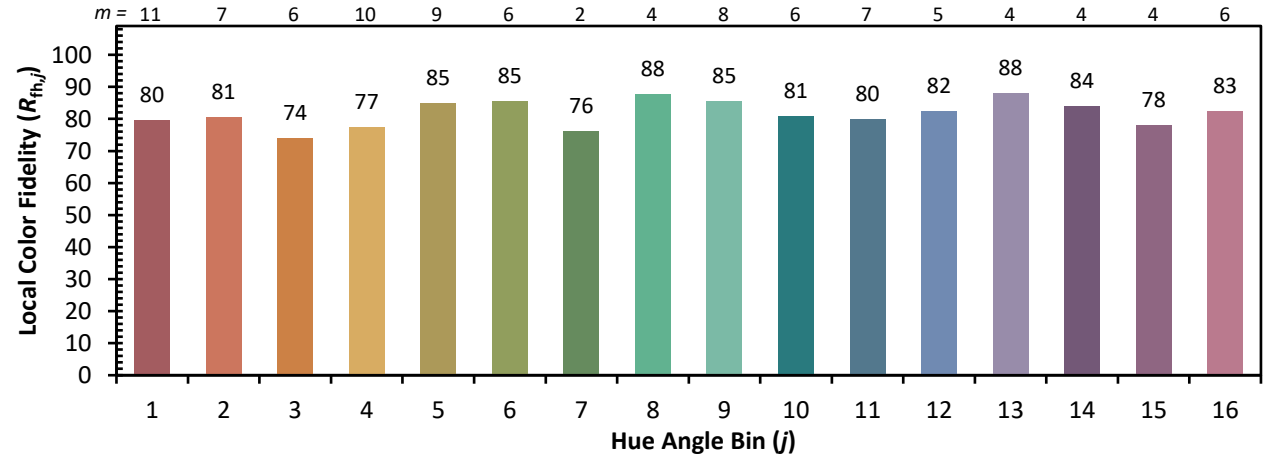
## Color Rendition by Hue-Angle Bin



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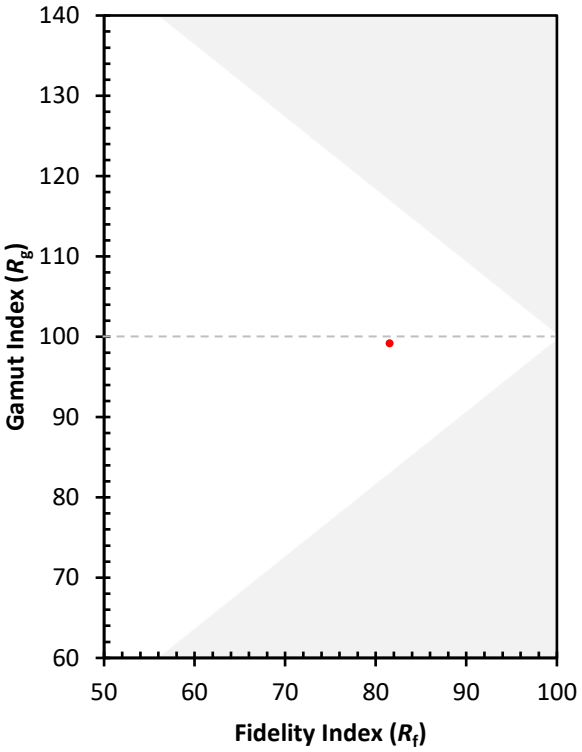
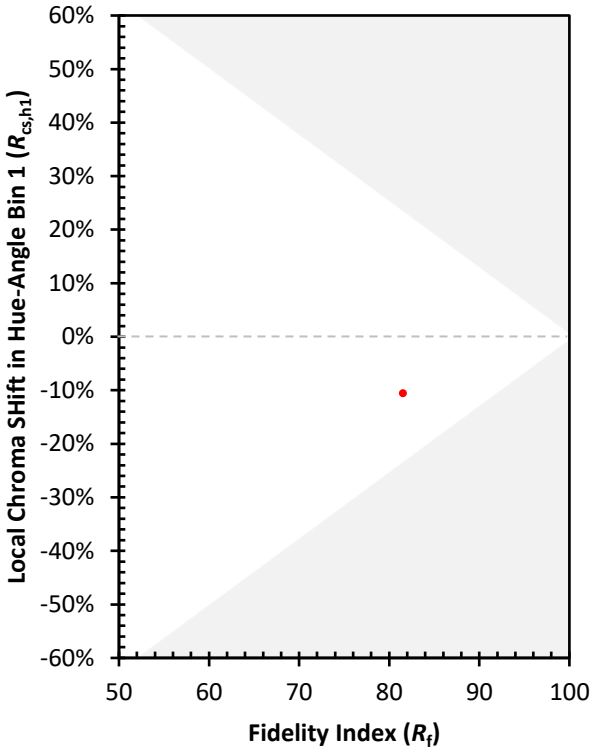
## Measure Comparisons




(END OF REPORT)